

Tony Czarnecki

WHO COULD SAVE
HUMANITY FROM
SUPERINTELLIGENCE?

POSTHUMANS 1



A PLANETARY CIVILIZATION NEEDS THE WORLD GOVERNMENT
TO AVOID EXISTENTIAL RISKS AND CREATE THE WORLD OF ABUNDANCE

TONY CZARNECKI

**WHO COULD SAVE
HUMANITY FROM
SUPERINTELLIGENCE?**

London, 2020

Who Could Save Humanity from Superintelligence?

Third edition

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To my grandchildren: Dominik, Leon and Sisi

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COMMENTS TO THE THIRD EDITION

Reality around us does change at almost exponential, rather than linear pace, which I frequently emphasise in this book. Barely a year has passed since the last edition, and I have decided to update the previous version to reflect the most current, very significant shifts in geopolitics and our civilisation's readiness to respond to deep crises, about which so much has been said in this book. Furthermore, comments and feedback from readers have been an additional motivation for introducing some updates that may better justify some proposals made in the book. Let me list some of the most significant changes made in this edition, directly related to the subjects discussed in the book:

1. We are in the middle of the Covid-19 pandemics that has already changed the world we live in, with more profound changes coming in the post-pandemic period
2. Great Britain has finally left the European Union
3. The introduction by the EU of General Data Protection Regulation (GDPR) and its phenomenal impact not only in the EU but throughout the world
4. The new European Agreement on Migration confirmed by the European Council in June 2018 and its far-reaching implications on stabilising some of the African economies, which could be the beginning of the Global Wealth Redistribution Fund discussed in the last part of the book
5. An increase in the US isolationist policies
6. The growing threat of China as it is coming closer to the date when it will become an unquestionable world's leader
7. A potential Fast Track federalization of the EU in a chaotic, post-pandemic situation, which may trigger the birth of 'special' EU Zones, discussed in Part 4
8. Significant increase in funding in the area of EU Defence, currently under some disguise, which in fact lays down the foundations for the future EU Army.

I have embedded these new events into the relevant parts of the book. Additionally, following some comments and suggestions from the readers, I have made some other changes throughout the book. However, contrary to some suggestions, I have not removed several chapters deemed as the subjects not directly related to the main theme of the book, which is about saving Humanity from Superintelligence. Although I recognize that the variety of subjects mentioned in the book may be quite demanding for an average reader, I decided to keep them because otherwise some conclusions, which I have made, would have no supporting evidence.

London, June 2020

FOREWORD

I should have started with introducing myself but perhaps I would first ask you a question: What surprised you most in the title? Is it:

1. What's wrong with Humanity? You never thought it was in any danger.
2. What's that Superintelligence about and why is it the key man-made risk?
3. Why on earth could European Union be Humanity's best chance to save us from Superintelligence when the EU itself is in an existential danger?

I let you ponder on that, hoping you will find answers to all three questions in this book.

I am an economist and a futurist. My interest in the European Union goes back a few decades. In 1968 I delivered my Master dissertation on the subject: "British industrial export and the integration processes in Western Europe". That perhaps would have not been so surprising. In the end, by 1968 Great Britain had already knocked at the EU's door twice, finally becoming a member of the European Economic Community on 1st January 1973. However, the fact that I was writing it in Poland, behind the "iron curtain", gave me perhaps quite a unique perspective on how the British saw Europe and vice versa. My interest in British-European relations grew significantly, when I moved to London a decade later, where I have lived ever since.

Having lived in my youth under the communism gave me another perspective on the subject, to which I dedicate a lot of space in this book, i.e. values, such as Freedom, Dignity, Democracy etc., as well as on moral choices. Living under communism in Poland, the most rebellious of all the Soviet bloc countries, also meant that I was almost continuously watching the developments in global politics. Like most people at that time, I was listening to Radio Free Europe every day for 1-2 hours for any sign of change that for most Poles meant achieving independence, brutally crushed by Soviets. That happened on 4th June 1989, when Poland held the first ever nearly free elections in the communist bloc, paving the way for the fall of the Berlin Wall five months later.

I allocate quite a lot of space to existential risks that Humanity faces right now. And here again I draw on my own experiences during the cold war time where one type of such risks was obvious to everyone. That was the danger of a global nuclear war. Anyone who thinks anthropogenic (man-made) risks, are an exaggeration should be reminded of what happened in October 1962. It was the Cuban crisis that brought the world to the very edge of a global nuclear conflict (as we now know from the previously unpublished secret documents). I remember very well, how at my school in that autumn we were already having drills on how to protect ourselves against the nuclear blast. One of the drills that we practiced involved coming to the wall where there was a window, lying on the floor with the feet turned towards the window and the head facing the floor in between the arms. You can draw your own conclusions on the sanity of such an advice. It just showed how hopeless it would have been trying to survive a nuclear conflict.

What I am proposing in this book may sometimes be viewed as anti-libertarian, especially, if certain solutions are viewed out of context, such as freedom and sovereignty. **Among the values that I treasure most is freedom** and for me one of the more idealistic ways what it means is excellently presented in the song *Der Zar und das Mädchen* sung by Mireille Mathieu. She sings: “it is better to live like a bird, than in a golden cage”. However, I am also a pragmatic person. Therefore, I know that there is no freedom without strings attached and there is no such thing as a free lunch in the universe. Likewise, a bird outside its cage will have to face more risks trying to find food and a suitable nest. The bird’s freedom has a price.

We all want to live in a peaceful world, for there is nothing worse than war, famine and destruction, like in Syria in recent years. However, consider how much we are prepared to pay for peace and our freedoms. For many people losing some of individual freedoms or part of a national sovereignty, is a difficult choice. Europe has learnt that safety is in numbers and that is why we have the European Union and no war for 75 years. This is the price we have to pay for peace, and our individual safety. Anybody else who thinks otherwise may not only be ignoring the existential risks we face but also forfeit the prospect of creating the world of plenty for everybody.

If we can maintain peace and avoid existential threats, wealth itself will increase substantially in the next decades, far beyond the current GDP growth rate, helped by Superintelligence and improvements in technology. That would make it possible to create a world of abundance and well-being.

You will notice that some of my views are expressed in a very direct way. That may make an impression that I do not take into account other options or other views. Far from it, if this is the case, it only happens because I invite people to challenge my view and thus stir up discussion. This does not mean in any way that I am not going to change my views when new facts arrive, or when I may have misunderstood certain facts. In a book of such complexity, it is almost unavoidable. Therefore, I would encourage you to make any comments you may have on the Sustensis website www.sustensis.co.uk, which is entirely dedicated to ‘Inspirations for Humanity’s transition to coexistence with Superintelligence’.

Finally, this book is predominantly about Humanity and humans, rather than states. It has never been my intention to put any nation, religion or gender in any shade of disrespect. Yes, there are governments that behave dangerously, which may inflict utter suffering on their own citizens. That is the difference I want to stress. We as humans have to defend ourselves against potentially catastrophic actions of some governments. At the same time, we should try to ‘cuddle’ the citizens of such states, who because of irresponsible actions of those governments, may be in life threatening danger, requiring immediate help, which we all should provide in whichever form we can. That is the only way forward for Humanity and a planetary civilisation.

INTRODUCTION

Apocalypses have been a constant theme in the history of humanity that spanned millennia. Most of them, such as pandemics (e.g. Black Death), could have not been prevented. But some, like the WWI and WWII might have not happened at all. Today, we as humans face again a series of most profound crises but this time they are of a different magnitude. That's why they are called existential risks, defined by Nick Bostrom from Oxford-based Future of Humanity Institute as "risks, where an adverse outcome would either annihilate Earth-originating intelligent life or permanently and drastically curtail its potential"⁽¹⁾. I shall use the term "existential risks" in this sense.

Among those existential risks, Superintelligence is unique since it can materialize much sooner than, for example, climate change and might literally annihilate all humans. For the last decade I have focused my interests on Futurology, and am a member of the London Futurists organization, where some issues discussed in this book, such as Artificial Intelligence, are quite frequently raised. What's interesting is that even among people who have considerable knowledge in this area, terms like Superintelligence, are not necessarily interpreted in the same way. So, perhaps this is the right time to define what it means, since it will appear frequently in this book. But you can always check the Glossary at the end of the book.

Let me first start with **Artificial Intelligence** (AI), of which you may have already heard. It is characterized by a machine imitating human cognitive abilities like problem solving, learning, and the understanding of language and speech. Each time you use your car navigation system, Google's Personal Assistant or Amazon's Alexa, you deal with AI, at least to some degree, which in addition to all the features already mentioned can also surpass best human capabilities but in one area only. Therefore, it is usually called a "narrow AI".

However, in the next 20-30 years an intelligent agent will surpass any human being **in every skill** or task that we could master and on top of that it may look like a smart gentleman whom it would be really difficult to distinguish from other people walking in the street. Such ability to have any skill and perform any task better than any human is called **Artificial General Intelligence** (AGI). Nick Bostrom, a well-known authority on AI, whom I will be quoting several times in this book, has defined it as **Superintelligence**, i.e. "an intellect that is much smarter than the best human brains in practically every field, including scientific creativity, general wisdom and social skills"⁽²⁾. I shall use this term, rather than AGI, in this book.

Very soon after it has been created, such Superintelligence, embodied either in a robot, or within a computer network, will be capable of redesigning itself. Repetitions of this cycle will result in the so called runaway effect, or an intelligence explosion, where such a smart machine designs successive generations of increasingly improved, powerful copies of itself, creating intelligence far exceeding human intellectual capacity⁽³⁾. Once Superintelligence has reached that capability it may be impossible for a human to comprehend it and control it. Humanity will have reached the point known

as **Technological Singularity**. Ray Kurzweil, currently the Chief Technologist at Google and one of the most reliable futurists, predicts that Technological Singularity event will happen by 2045. That is beyond the horizon of this book, which I set for one generation, i.e. about 20 years from now. Therefore, I will only be referring to Superintelligence.

By writing this book I have several objectives:

- To contribute to the debate that is already taking place on the subjects of this book
- To explain the reasons why we should be concerned about existential risks
- To propose risk mitigation strategies for existential risks
- To propose the creation of an organisation, which would act as a de facto World Government, and the only credible organization capable of delivering policies that could save Humanity from existential risks, such as Superintelligence
- To recommend a new system of democracy - Consensual Presidential Democracy - that might stop the on-going decay of both democratic systems and socio-economic relationships between the governed and the governing
- To propose key prerogatives, institutions and policies for a federated European - the organisation that may have the best chance to lead Humanity through the most dangerous period that we have ever faced
- Creating a broad action plan for implementing those proposals

There is a wide range of subjects covered in this book. That is unavoidable if the subject is Humanity. Therefore, you may be exposed sometimes to subject areas, with which you may not be familiar. I had to include them even if they are covered very superficially for consistency, and to provide as far as it is possible, a holistic view on what we are as humans versus Superintelligence. As you realize that is a challenging task and I had to make many shortcuts to achieve my overall objective. But to help you move around **I have arranged these subjects into three main parts:**

1. Superintelligence and other existential risk facing Humanity
2. The reform of Democracy as one of the key enablers minimizing the man-made existential risks, especially, Superintelligence and Global Disorder
3. The transformation process of the European Union into the European Federation acting as de facto World Government.

In my view, the crises that we are experiencing right now lie in several domains:

- Existential survival – the biggest crisis, especially as some of the risks, like those emerging from Superintelligence, are barely visible
- Political imbalance – the crisis of a democratic system
- Economic instability – the crisis of capitalism
- Social inequality – the crisis of wealth distribution where those that are wealthy, become wealthier even faster

To deal with these crises we need a new world-wide organisation. As you shall see, I am deep down pragmatist and provide some solid arguments why an organisation that

could act as the World Government, co-ordinating all efforts to save Humanity from existential risks, cannot be created from scratch. The main reason is that we simply do not have enough time. If we, as humans, are serious about protecting our future, and indeed the species as such, the only alternative we have is to convert an existing organisation, such as the European Union. Only an organisation with this type of experience could take the responsibility on behalf of all Humanity to lead us reasonably unharmed through probably one of the most turbulent periods in human history. We should then reach a phase in Humanity's development where we will be governed more responsibly as a planetary civilization, just as we shoot off to settle in other worlds, such as Mars.

I should note in this context that due to the advancement in technology, and the speed of communication, human civilisation has entered a new period where **global change happens at an exponential, rather than linear pace**. What this means is that while in the last century the impact of change in technology or a social area might have taken a decade to have a significant effect, it can now happen in just a year. It makes fighting existential risks more difficult since neither politicians nor most people can adjust to such pace of change in such a short time. Therefore, anyone wanting to minimize such existential risks should take into account the following:

- Existential risks we face require fast action, while the world's organisations act very slowly
- People want more freedom, while we need to sacrifice some of our freedoms and sovereignty for Humanity to survive
- Most people can't see beyond tomorrow and act emotionally, while we need to see the big picture and act rationally

Therefore, those who see the need for the world to take an urgent action face a formidable task when proposing pragmatic, fast and very radical changes to the way the world is governed. If we, as a human race, do not radically change our behaviour soon, it is very likely it may lead to our extinction by the end of this century. But today we can still modify the course of events by making fundamental changes in how our political and social order is set up and how we harness technological progress for our benefit.

That is what this book is mainly about - trying to answer key question: how can we avoid the worse aspects of technological and biological advancement, and disruptive political tendencies in our societies. If we can do that in the course of the coming generation, then with the help of Superintelligence, we will create a wide range of benefits that will change our lives very positively beyond what most utopians were ever hoping for, delivering unimaginable prosperity and possibility to enrich our lives in all domains.

1

PART 1: Superintelligence and other existential risks

Chapter 1

The twilight of Humanity and the dawn of Superintelligence?

What makes us human?

As a group, **Humanity** can be defined collectively, as the human race, or as humankind. However, it can also be seen from a different angle, as “a virtue associated with basic ethics of altruism derived from the human condition” (4). In this book we shall mainly focus on Humanity as a race, referring to the latter definition in the context of Superintelligence. So, how do we differ from other beings, primarily from animals but also from Artificial Intelligence?

It is quite natural that we, humans, think about ourselves as a superior race, the most advanced species that is here to last for ever. Of course, we would like to advance such a conclusion because that in some sense makes us immortal as a group. However, such an assumption is rather unfounded. Think about all those millions of species that have existed on earth and are now extinct (99.9%), including some early human species. Evolutionary biologists using currently available archaeological evidence tell us that all humans evolved from apes over 6 million years ago in Africa. It is believed that there were about 20 different species of early humans. Some of them emerged several million years ago. About 2 million years ago (but some scientists still think it was much later), those humanoids migrated into Asia, then Europe and later on to the rest of the world. From the most advanced hominids only *Homo sapiens* survived. The last group that co-existed with *Homo sapiens* were Neanderthals who became extinct about 30,000 years ago (5).

We, humans have plenty in common with other apes and species. In his intellectually stimulating book, “Human Purpose and Transhuman Potential” (6) Ted Chu points out that many differences between us and other mammals are differences of degree. For example, many of our seemingly unique traits are just exaggerated versions of traits that are already identified in other mammals and animals: chimps kiss, laugh, lie and have in-group politics and show goal-directed action. Ants, wolves, and dolphins all have social traits. Many primates are self-aware. Elephants cry. Capuchin monkeys have forms of monetary exchange, and so on. These are just a few examples, but the point is that many of our behaviours are actually much more advanced versions of innate “animal instincts.”

But saying that, Chu maintains that there are three “revolutionary” traits that make us unique and many other biologists and scientists agree with him. These are:

1. **Symbolic abstract thinking:** This is our ability to think about objects, principles, and ideas that are not physically present.

2. **Structure building:** The ability to build physical and social structures, in addition to mental models.
3. **Higher consciousness:** The very fact that we as human beings can write and read articles like this one and contemplate the unique nature of our mental abilities is awe-inspiring.

There are of course many other ways, in which we differ from animals, depending on the perspective one takes. For example, we could look at the functionality of the body or mental capabilities. In “What makes us human? (7)”, Lisa Marder selected 10 traits, which I believe could be a good foundation for comparing humans with Superintelligence in further chapters:

1. **Brain** - This is the most extraordinary feature of humans. Its relative size, scale, and capacity are greater than that of any other species. The human brain’s relative weight to the total weight of a human body is 1:50. Most apes have a ratio of 1:180. That makes the human brain relatively three times bigger than the brain of a gorilla.
2. **Mind** - Most scientists view mind as physically-based, emerging from the activity of its neurons and synaptic connections. The human mind is different from the brain, since it most likely consists of consciousness, which definition is not universally agreed but generally understood as a subjective experience of ‘self’ and the world around; the experience of “feeling”, thoughts, beliefs and imagination (We shall debate this particular issue in more detail later on).
3. **The Hand and its Thumbs** - Most primates have opposable thumbs. That means they can be moved around to touch other fingers, which in turn allows grasping things. But the human thumb differs in two ways: in exact thumb’s location and its relative size to other fingers. This has given humans finely tuned motor skills and the ability to engage in detailed precision work necessary to implement creative ideas by technological means.
4. **The Larynx (Voice box)** - This is one of the most crucial differences between us and other mammals. The larynx box is lower in the throat of humans than for example in chimpanzees. Together with the increased flexibility in the mouth, the shape of the tongue and lips it enables us to speak.
5. **The Shoulder** - The human shoulder joint has a wide range of motion, giving us the potential for great leverage and accuracy in throwing objects (important in hunting, which increased the chances of survival).
6. **Standing upright, being bipedal** - This is another important difference that makes humans unique, because it gave us the ability to hold and carry objects, or pick them up and throw, as well as see from a higher vantage point than most apes can do. Once humans stood upright, they were able to cover greater distances while expending relatively less energy.
7. **Naked Hairless Skin** - This may seem an unimportant human trait. However, without it, humans may have not survived major climate change about 200,000 years ago that demanded them to travel long distances for food and water. The evolution created plenty of sweat glands in our skin, which enabled the body to dissipate heat the more efficiently, the less hair covered the skin.

8. **Blushing Response** - This is one of two social traits that make us human. No other mammal has this trait, and it is still unclear what kind of evolutionary advantage it gives us over other species. Some evolutionary biologists, e.g. Frans de Waal, say that "...Blushing interferes with the unscrupulous manipulation of others." (8)
9. **Religion and Awareness of Death** - The second social trait is religion and awareness of death. Humans are unlike other species that live unaware that their existence will end one day. Although some species, e.g. elephants, seem to mourn when one of their family members has died, they themselves are unlikely to know that they will also die.
10. **Biochemical Factors** - Finally, we differ from other animals by our biochemical composition. Scientists have discovered certain biochemical markers and genes that are specific to humans. For example, one such gene, FOXP2, which humans share with the Neanderthals and chimpanzees, is critical for the development of speech and language.

That encyclopaedic definition of Humanity only points to differences with other species within the earthly biological system. When compared with Superintelligence, which is important in the context of this book, Humanity differs in that it is:

- Anchored to ethics – governed by a system of values
- Culturally motivated – exhibiting its existential sense through culture
- Technologically dependent – enabling its continuous development via scientific and technological progress (there would be some overlap with Superintelligence)
- Expressed within several civilizations

Therefore, when we discuss an eventual merger of human species with Superintelligence, we have to remember our evolutionary traits, which stand out even more when we take a cosmic perspective. We are not only in the universe, but the universe is also within us. Our brains, as an extension of the universe, are now being used to understand themselves. That is why Carl Sagan has famously said "we are a way for the cosmos to know itself." We are the only living being on Earth that can do this. We know these are uniquely human traits. (9)

How will Superintelligence view such a perspective on our role in the Universe and whether Superintelligence's perspective could be even more revealing and worth pursuing than Humanity's, is another question. We may have to answer it in the near future, assuming that we will retain full control over Superintelligence.

Civilization – the shaping tool of Humanity

Wikipedia defines **Civilisation** as any complex society characterized by urban development, social stratification imposed by a cultural elite, symbolic systems of communication (for example, writing systems), and a perceived separation from and domination over the natural environment. (10)

There are many ways, how we can identify civilizations. If we take an **historic** view, then a differentiating factor for various stages of Humanity's progress would be technology. It is technology that ultimately underpins and differentiates civilizations across the millennia. In broad terms we have had four types of civilizations:

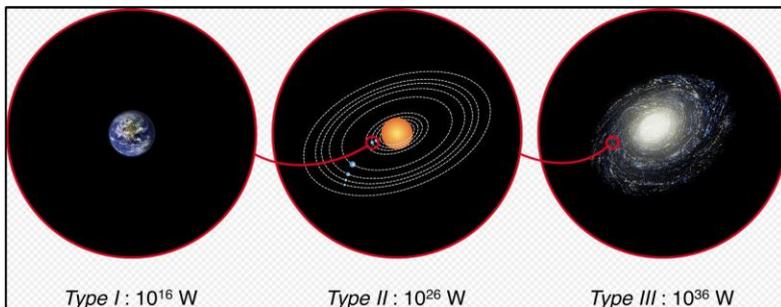
- Tribal/Nomadic
- Agrarian
- Industrial
- Post-industrial (Digital) - today

When viewed from a **geographic** perspective, then at any given time a stronger differentiating factor than technology is culture, customs and religion. It is true that an earlier use of some technological innovations (e.g. paper in China or print in Europe) may have contributed to important differences between civilisations existing at the same time in different geographical locations. However, it was ultimately the culture and morality stemming from different set of values that shaped those civilisations more than technology. For example, in the Middle Ages there were Aztecs, Mayans, Incas, Chinese, Japanese, Indian and European.

Physicists define civilizations by the **energy** level that could be available for its growth. In 1964 the Russian astrophysicist Nikolai Kardashev defined three such types of civilizations differing by the order of energy they had available to them, measured in Watts (W). Each civilization differs from the other by 10 orders of magnitude. Here is a succinct summary of the so-called Kardashev scale (11).

- Type I civilization—also called a **planetary civilization**—can use and store all of the energy which reaches its planet from its parent star.
- A Type II civilization—also called a **stellar civilization**—can harness the total energy of its planet's parent star (using the Dyson sphere).
- A Type III civilization—also called a **galactic civilization**—can control energy on the scale of its entire host galaxy.

Here is an illustration of how such civilizations might evolve:



Energy consumption estimated in three types of civilizations defined by Kardashev scale (11)

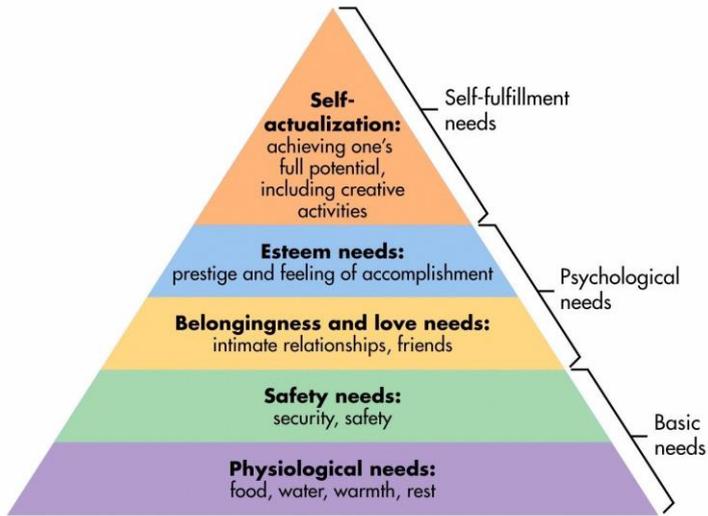
A similar approach to defining civilization is proposed by Michio Kaku, a renowned US physicist (12). It is a derivative of Kardashev scale but proposes a more generic differentiating factor - the use of **resources**, which of course also includes energy. I quote it here because it is a valuable framework for a potential advancement of Humanity into a new species morphed with Superintelligence, or becoming Superintelligence itself.

- **Type 0 Civilization** is essentially our civilization. A type 0 civilization has only just begun to tap planetary resources such as solar power, geothermal power and wind power. Most of its power generation is still based on non-renewable fossil fuel resources, for example, oil, coal and natural gases.
- **Type 1 Civilization** can effectively control the entire resources of their planet; they can predict weather patterns and earthquakes very accurately and even control them, by using artificially induced greenhouse effects or space-based lasers. A Type 1 Civilization could conceivably halt an ice-age.
- **Type 2 Civilization** has the capability to extend their power to their entire Solar System by harnessing the power of their suns through Dyson spheres. Having colonized or at least extensively explored all the planets within their Solar System, they are a largely space-faring race and have already mounted expeditions to other stars using interstellar craft.
- **Type 3 Civilization** spans entire galaxies having colonized all the stars by wave after wave of interstellar craft. They can harness the power of galaxies. By utilizing the millions of black holes that are believed to reside within galactic nuclei, type 3 civilizations would have sufficient power to conduct truly universe-changing high-energy physics experiments and examine matter down to the Planck length.

Perhaps the most useful approach to defining civilization and how it could ultimately facilitates human aspirations is the Hierarchy of Human Needs proposed by Abraham Maslow in his 1943 paper "A Theory of Human Motivation" in *Psychological Review* (13). In his original paper, Maslow's pyramid of human needs starts with a base that identifies an individual's basic **physiological** needs, such as food, sex or sleep. The next level is **safety and security**, followed by **love and belonging** through to esteem and, finally, at the top of the pyramid to what he called "**self-actualization**." He further suggested that people who have these needs fulfilled are generally happier than those who don't.

In 2015, a team of psychologists from Arizona State University, including Rick Nauert, tested Maslow's assumptions (14). The researchers found that fulfilment of a diversity of needs, as defined by Maslow, seem to be universal and important to individual happiness. However, the order in which "higher" and "lower" needs are met has little bearing on how much they contribute to life satisfaction and enjoyment.

Although the researchers found that Maslow's theory is largely correct, there is an important departure from Maslow's theory in that a person can report having good social relationships and self-actualization even if their basic needs and safety needs are not completely fulfilled. The product of that research is a revised Maslow Pyramid:



Maslow's Revised Hierarchy of Human Needs (15)

In summary, the main function of civilizations across the ages has been the creation of better environment and capabilities for the satisfaction of Humanity's needs.

Living in the world of exponential change

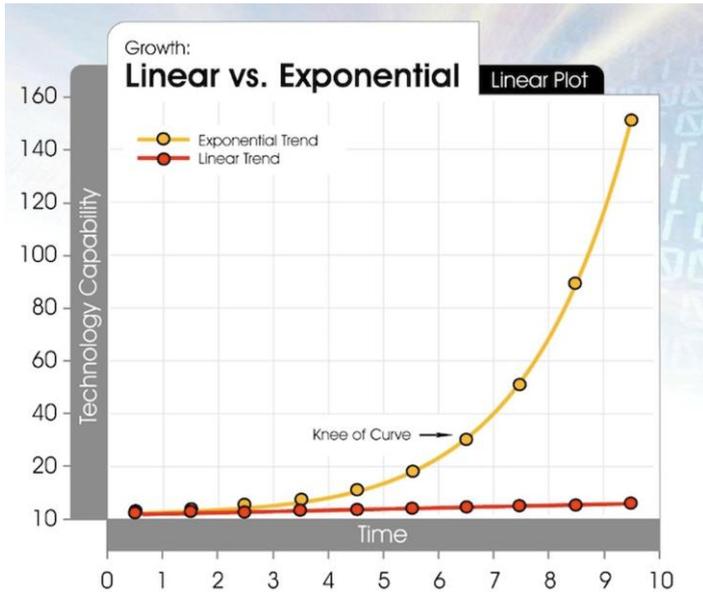
Change is nothing new, as the Greek philosopher **Heraclitus of Ephesus** said: "Panta rhei" – everything flows, or "one cannot enter the same river twice". So, change is imminently linked to universe and life itself. However, the difference that Humanity has started to experience for the first time in its history is that we have now entered a new period where **global change happens at an exponential, rather than a linear pace.**

This type of change is called exponential, because at each new moment in time (say every year), the value of what we measure (e.g. speed or growth) would be double that, what it was at the previous moment in time.

The difference between linear and exponential change may not be clear for everybody, so let me explain the basics citing the example given by Ray Kurzweil, one of the most often quoted futurists. He gives an example of the difference between exponential and linear growth as follows: if we are standing together and I take 30 linear steps away from you, each of 1m length, then I will be 30 meters away from you when I stop. But if I take 30 exponential steps away from you, then the first step will be 1m (equal to yours first step), the second step will be 2m, the third step will be 4m, and the one after that will be 8m, etc. So, by the time I have done my 30 steps, I will have gone around the earth 26 times when I stop (16) (*That is $2^{30} = 1,073,742,824m = 1,073,742km$ divided by 40,000km earth circumference = 26 times*). It is this doubling that is providing the power of exponential change!

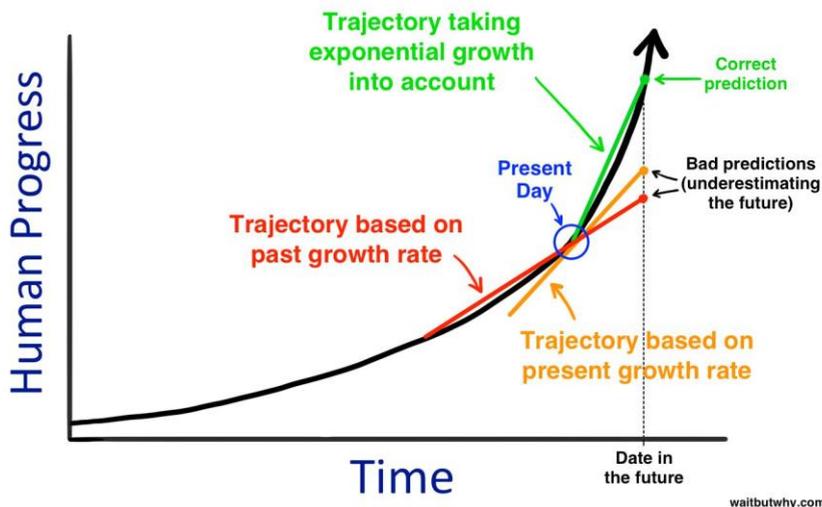
To put it more formally, linear change has an exponent of 1, i.e. it multiplies the base number by itself just once. It is called linear because the growth of e.g. number of cars sold will be the same as in the previous period. So, the value of growth is the same in every period.

Exponential change with the value of 2, multiplies the base by itself twice.



Source: “Singularity is Near” (17)

Today, the exponential growth of technology is starting to reach the so called “knee of the curve” (see the diagram above). This is the stage at which an exponential trend becomes noticeable. Shortly after this stage the trend can really explode. However, our perception is not a very good guide when it comes to predicting the future exponential growth. In order to think about the future correctly, we need to imagine things moving at a much faster rate than they’re moving now as this diagram illustrates:



The misperception of what exponential growth means (18)

Ray Kurzweil makes precisely such an observation saying that we often miss exponential trends in their early stages because the initial pace of exponential growth is deceptive—it begins slow and steady and is hard to differentiate from linear growth. Hence, predictions based on the expectation of an exponential pace can seem improbable. Kurzweil believes that by the middle of the 21st century the exponential curve will be so steep that it will be almost vertical. Such changes will be so significant that our current level of intelligence is not able to imagine this new paradigm. (16)

To illustrate this point let me quote a fragment of an interview that Seth Teller, one of the top scientists at MIT specialising in driverless cars, gave in 2013 (19):

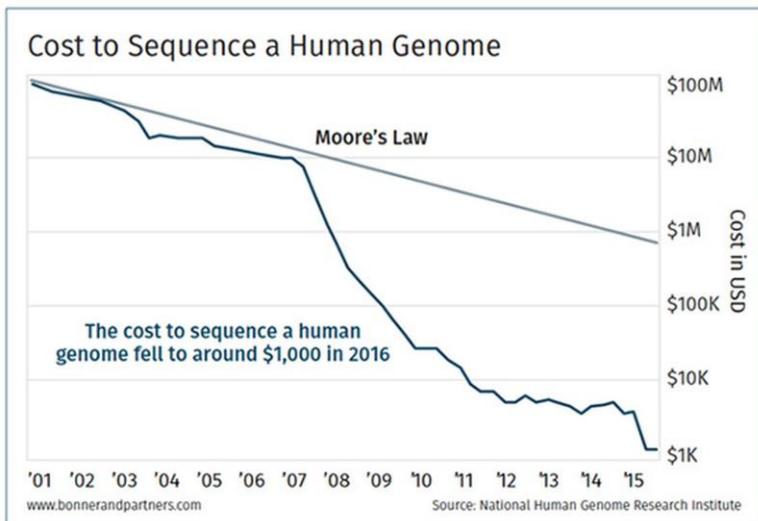
“Q. Is it possible that in a quarter of a century cars will be self-driven and we will become just passengers?”

A. That is quite likely scenario, however, I do not think it will be achieved in the next 25 years.”

As most people know, Google self-driven cars have completed over 1m miles in 2015 and in the same year the US Dept. of Transport issued licences for the first driverless lorry. The same happened in the UK in 2016. The Tesla Company and the Volvo Company announced they will mass produce fully driverless, so called 5th level cars, which means completely autonomous vehicles, by the end of 2019. That is just in 6 years, i.e. 19 years earlier than the prediction given by one of the top specialists in this area. If it is so difficult for the top experts in the field to see the impact of exponential change, how can decisions makers, such as politicians, change their policies so that they better reflect the impact of exponential change?

Let me give you a few more examples. Go-Go is a Chinese abstract strategy board game for two players. It is the most challenging game that humans have invented. It has been calculated it has 10^{170} positions – more than the number of atoms in the universe. AlphaGo – a computer program created by Google’s DeepMind Company has for the first time beaten the Grand Master in that game in February 2016. That is a feat in itself. However, more important is that it did it **a decade earlier** than had been predicted just less than two years earlier. In May of 2014, the magazine *Wired* published an article titled, “The Mystery of Go, the Ancient Game That Computers Still Can’t Win” (20). In that article, the computer scientist Rémi Coulom who is also a top player in that game, estimated it would take a decade for a computer to beat a professional Go player. Coulom himself used the Monte Carlo tree search technique, but unlike AlphaGo, he was not able to teach itself to play better by eliminating errors it had made in an earlier game and identify new patterns as it progressed in the game.

Then there is the sequencing of the human genome, first completed in 2003 at a cost of about \$3 billion. The next one in that same year costed a little more than \$100M. It’s possible to do it today for less than \$1,000. Perhaps, even more significantly, the cost of sequencing the human genome fell faster than the famous Moore’s Law, which refers to an observation made by Intel co-founder Gordon Moore in 1965. He noticed that the number of transistors per square inch on integrated circuits had doubled every year since their invention (near exponential fall in price). **Moore’s law** predicts that this trend will continue into the foreseeable future. Since the genome has now been mapped into bits that computers can process, the genome sequencing has in fact become an information technology task. **Human genome sequencing cost now decreases faster than exponentially.** If that trend continues, the costs of genome sequencing may be cheaper than a blood test about 2022.



Source: National Human Genome Research Institute

There is another example, quoted by Allan Dafoe from the Yale University. He reminds us that it may be unwise to claim that a powerful technology will never come to fruition, or is decades away. On September 11, 1933, Lord Rutherford, one of the most eminent nuclear physicists of his time, described the prospect of extracting energy from atoms as nothing but “moonshine.” Less than 24 hours later, Leo Szilard invented the neutron-induced nuclear chain reaction. Detailed designs for nuclear reactors and nuclear weapons followed a few years later (21).

Similar examples of much faster than expected discoveries in medicine outside genomics, e.g. cancer treatment, show that even people working at the very forefront of some industries have difficulties seeing that the change is no longer linear.

There are examples from economics too. Why is it so difficult to make economic forecasts today? The reason is that for the last few years the world has started to change exponentially, whereas the basis of most economic forecasts is still a linear regression. No wonder then that these forecasts are hardly useful, if not confusing.

We can see the progression of exponentiality into economics by observing the investment cycles, which become shorter and shorter. The nano-second transactions on the stock exchanges, based on “clever algorithms”, are an extreme evidence of this short-term investment. Another example is the company’s average age on the stock exchange. For example, Richard Foster from Yale University estimates that a Fortune 500 company in 1920 had an average lifespan of 67 years, whilst today that lifespan has been reduced to 15 years (22). The speed with which things now change has led researchers at Babson Olin School of Business to predicting that 40% of today’s Fortune 500 companies will be gone in the next 10 years. Companies like YouTube went from start-up to US\$1.4 billion Google’s acquisition within 18 months. Uber only started operations in March 2009 and is already valued at US\$50 billion. Eight-year-old Airbnb has just raised funding that values it at US\$20 billion, second only to the Hilton Group of Hotels at US\$23-billion and it does not own one single hotel room. These times of increasing change and disruption are due to the exponential changes that are occurring across converging technologies (23).

Exponential change does however have impact not only on individual domains, but also the progress in one domain feeds back to another, such as advances in computer technology impact medicine. This so-called convergence of technologies resulting from the interaction between various parts of individual technologies creates new opportunities that speed up the pace of change much more than a single technology could do on its own.

What also changes exponentially, is access and the interface to various technologies for people that previously would have needed some technical background. Today, most of the people in the northern hemisphere can access internet and through it, for example, do all their banking transactions, combining some knowledge that was previously attributed to IT people and cashiers at a bank.

So, change is now really happening at an **exponential pace**. Therefore, wider predictions for what the world might look like say in 20- or 50-years' time may actually be too conservative. Such unprecedented exponential change may have either a positive or negative impact on the long-term outcome for the human race. This largely depends on how we use the potential of such discoveries and innovation, i.e. Artificial Intelligence.

Positive changes relate mainly to the unprecedented technological capabilities that could significantly improve the quality of our lives and give a new meaning to what our civilisation is about and how we define the human species. It may also enable the expansion of human race beyond the solar system.

Negative changes, such as global nuclear wars or pandemics may wipe out our civilization in months or lead to a progressive inability to cope with rapid changes that in the course of time will lead to the demise of human species.

Therefore, from the human perspective, perhaps the most significant are the changes outside the technological domain, e.g. in social and political domain. For example, China has reduced the number of people in permanent hunger by 600m in just 20 years. Life expectancy increases by 6 hours every day and this process is accelerating every year. These are really great positive changes.

Chapter 2

What are existential risks?

Measuring existential risks

Over the last decade or so, the world has been experiencing the very first signs of some fundamental shifts in political and social domains, such as the rise of populism that has brought to power some extreme right politicians as well as the first wave of unprecedented number of refugees and migrants from Syria, Iraq, Afghanistan, sub-Saharan Africa etc. This is very visible and people start asking questions about how changes like this can affect our lives, or indeed the future of Humanity. This can happen when such, initially local and seemingly insignificant events, like the waves of migrants trying desperately to cross the Mediterranean Sea, are combined with other risks that would materialize at the same time that may lead to catastrophic global events.

Some catastrophic risks are natural, such as super-volcanos or an impact of a large asteroid that can cause extinction of many species. Earth has experienced such mass extinctions in the past. This also includes global warming, which in the past was natural and today is anthropogenic i.e. man-made. Other such anthropogenic risks are pandemics caused by artificially created biologically active viruses, or nuclear wars. Perhaps that's why Nick Bostrom of Future of Humanity Institute believes that human extinction is more likely to result from anthropogenic causes than natural causes (24).

So, what are the risks that may destroy our civilization and Humanity? In most general terms, these risks could be grouped as **global catastrophic** or **existential (terminal)**, when classified according to their scope and severity. A "**global catastrophic risk**" is any risk that is "global" in scope, lasting for some time (endurable) and hence may kill the vast majority of life on earth but humanity could still potentially recover. An "**existential**" risk on the other hand, is such that its intensity is terminal and its effect is transgenerational. It can destroy all human, non-human and even plant life.

An example of a **global catastrophic** risk that could destroy the world in a material sense and at the same time potentially eliminate human race is a global nuclear war. It could immediately wipe out most of the current material substance of civilization, i.e. towns, infrastructure, food crops, etc. and in the longer term, through radiation, lack of food and the emergence of post-nuclear winter, causing the death of all remaining people.

A global pandemic, is an example of an **existential risk**. It could be caused by an accidental or intentional release from laboratories of a deadly virus that would wipe out the human race in weeks but leave the infrastructure undamaged, at least for a few years.

Furthermore, both global catastrophic and existential risks could be divided into two broad groups: **anthropogenic**, which Humanity could to some extent control and mitigate (e.g. global warming), and **non-anthropogenic** over which we have no control (e.g. asteroid impact).

Not all risks are equal. They differ according to their impact and the probability of the risk materializing, which is calculated using the following formula:

$$\text{Risk} = \text{Probability} * \text{Impact}$$

What is existential risk?

Risk = Probability * Impact

Probability of significant pandemics by 2100 = 0.07%

What is impact?

Examples of Impact Estimation in Overall Risk Calculation					
Examples	Low	Moderate	Significant	Catastrophic	Source
UK Vehicle accidents in 2015	Low - unreported, Skin scratches, pain - est. 1,000,000	Slight injury, e.g. broken arm: 162, 315	E.g. Loss of limbs, sight - 22,144	UK car crash deaths - 1,730	UK Dept. of Transport 2015 Report
Pandemics	HIV from 1981 - 34m - about 0.01% world population	Smallpox in 20th century - 300m out of 11.5 bn living - about 3%	Black death 14th century - 11% world population	Death of all people	Global Challenges Foundation 2016 Report
Impact value	0.25	0.5	0.75	1	

Estimated impact of significant pandemics e.g. Black Death is 0.75%

Thus the overall Significant Risk for human existence caused by natural pandemics by 2100 is 0.75%* 0.07% = 0.0525%



Before we explore the subject further, let us look at such global risks from a slightly different, and perhaps easier to understand, perspective. In 2016 Report by Global Challenges Foundation found that the chance of dying in a car accident in the United States was 1 in 9,395 per annum. Assuming an average lifespan of say 80 years, that means that the odds for an average person of dying in a car crash will be 1 in 117 over that period. Recalculating that in percentages means 0.8% over a lifetime, or about 0.01% per year. (25) Some people think that flying is a risky business. Well, consider this in the context of existential risks:

An average American is more than a thousand times more likely to die in a human extinction event than in a plane crash (26)

These examples may be shocking for some people because very few people are familiar even with the basic concept of catastrophic or existential risk. This is also true for most politicians who very rarely discuss large-scale threats to the survival of Humanity because this is not a subject that would win votes for them. And that's why it is even more worrying, especially that the probability of such existential risks happening is far higher than most people would think. That's not so surprising, if we look at it from a psychological point of view. Most of us worry about things that we can touch, feel, understand, and for which there is plenty of evidence around. Phil Torres, in 'Existential risks are more likely to kill you than terrorism', provides a telling statistic. He says people tend to worry about the wrong things. To illustrate that point he quotes a 2015 Gallup Poll, where 51% of Americans are "very worried" or "somewhat worried" that a family member will be killed by terrorists. Another Gallup Poll found that 11% of Americans are afraid of "thunder and lightning." Yet the average person is at least four times more likely to die from a lightning bolt than a terrorist attack. (27)

Similar statistics show that people are more likely to be killed by a meteorite than a lightning strike. I entirely agree with Phil Torres when he says that we tend to fear improbable events, while often dismissing more significant threats, like the worst-case scenarios for Humanity. When we carefully look at the numbers provided by leading experts in the field we can see that these risks are far more likely than most of the risks people worry about on a daily basis. (27)

Therefore, there is an extremely disproportional fear in some people of flying by plane, which is one of the safest means of transport, when we consider miles travelled. We are also much more concerned about terrorism than it deserves. For example, I remember when on 17th December 1983 during the IRA campaign in London, the terrorists bombed the Harrods store, 6 people were killed. But that caused disproportional panic among foreign tourists, leading to a marked fall in their number visiting London. Similarly, today even travelling to Turkey, is relatively safer than we think, with much less risk than we could expect from one of the existential risks materializing, although marginally less safe than travelling to Turkey a few years ago.

The example of a car crash is a useful point of reference for seeing global risks from a certain perspective. The risk of dying in a car crash is much easier to calculate because we have millions of data sets that statistically make this risk pretty well founded. However, dealing with global risks is far more complicated. The other reason behind this is that most such risks that people fear are related to an individual life (e.g. a car crash) or a small group (e.g. a plane crash), whereas the risks related to millions of people, such as caused by pandemics, are poorly understood.

Assessing existential risks

There is no fail proof methodology for calculating such risks, nor is the data as rigid as in the case of aforementioned car crash. Therefore, the risks calculated by various organizations or well-known specialists in this area vary significantly. There are

several organizations focused on identifying and reducing global catastrophic and existential risks such as:

1. Global Challenges Foundation, University of Oxford
2. Future of Humanity Institute (affiliated with the University of Oxford)
3. Global Catastrophic Risk Institute
4. Cambridge Centre for the Study of Existential Risk (affiliated with the University of Cambridge)
5. Machine Intelligence Research Institute
6. World Economic Forum
7. Institute for Ethics and Emerging Technologies
8. Lifeboat Foundation

The individual existential risks calculated by these organizations and academics differ significantly. For example, the Future of Humanity Institute carried out a survey in 2008 of the academics gathered at a conference discussing global existential risks and the likelihood of the most significant anthropogenic risks. They estimated **the overall risk of human extinction this century at 19%**. That means, by the end of this century there is at least 19% chance that one of the existential risks in the table below may materialize with its worst impact scenario, which can potentially be the end of the human species. In the period under consideration in this book, say over the next generation, such probability is about 5%. These are only the risks over which we have some control, mainly in political, military and social domains, such as nuclear wars, or Superintelligent agent “runaway”. (28).

Assessing such risks is very difficult because of the interconnections (sometimes called convergence) between them. Therefore, these numbers have to be really considered as indicative and prone to significant errors, mainly because of lack of hard data or insufficient understanding of the impact and the spread of a specific risk.

Humanity’s Top Existential Risks in 21st Century		
	Risk	RISK (Probability *Impact) of human extinction by 2100 (%) from an expert survey 2008
	Overall Risk	19%
1	Weaponized AI	5%
2	Superintelligent AI	5%
3	Non-nuclear wars	4%
4	Engineered pandemic and synthetic biology	2%
5	Nuclear wars	1%
6	Nanotechnology accident	0.50%
7	Natural pandemic	0.05%
8	Nuclear terrorism	0.03%

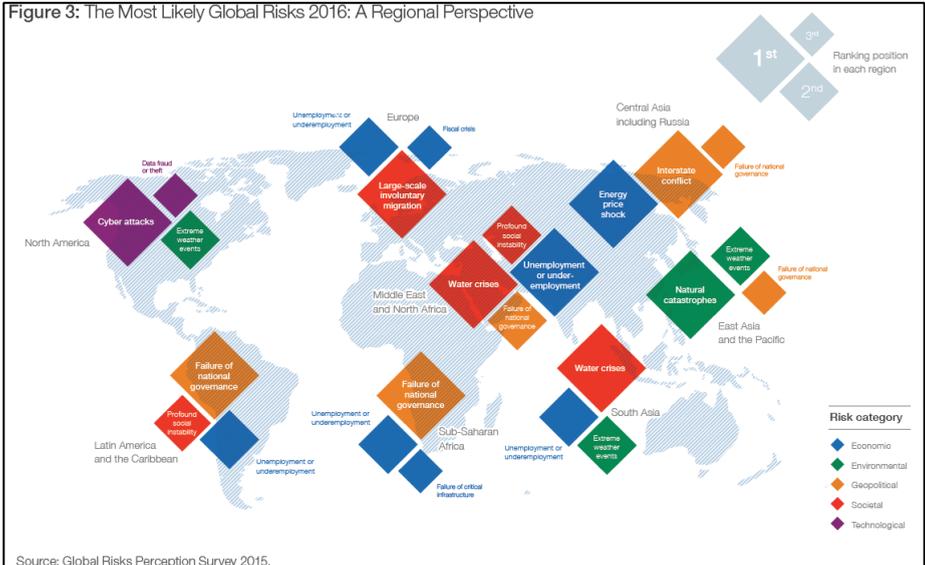
Source: Future of Humanity Institute, 2008 (28)

In Global Challenges Foundation report the risks quoted are very conservative. On the other hand, an influential Stern Review on the Economics of Climate Change (29)

calculates the overall risk of human extinction as 0.1% per year. This figure may be considered small but over time it can grow quite significantly, leading to the likelihood of human extinction over a century to about 9.5% (in 2005 when the Review was completed). That means, an average person's chance of dying in a human extinction event over 100 years is nearly **10 times higher than dying in a car accident**. By the way, Stern Review is explicit that the number isn't based on empirical considerations but is just a useful assumption. However, even more interestingly, the academics who have considered the evidence, generally offer probability estimates much higher than 9.5%. For example, in his book 'Our Final Hour', Sir Martin Rees, a former Astronomer Royal, claims that civilization has a **50/50 chance of making it through the present century** (30). When we compare it against the risk of dying in a car crash, this means that an average person is almost 50 times more likely to see civilization collapse than to die in a car accident. The futurist Nick Bostrom argues that it **"would be misguided" to assign a probability of less than 25%** to an existential catastrophe before 2100, adding that "the best estimate may be considerably higher (31). Thus, all of the estimates mentioned earlier confirm that we should be more worried about existential risks than any other individual risks, such as dying in a car crash.

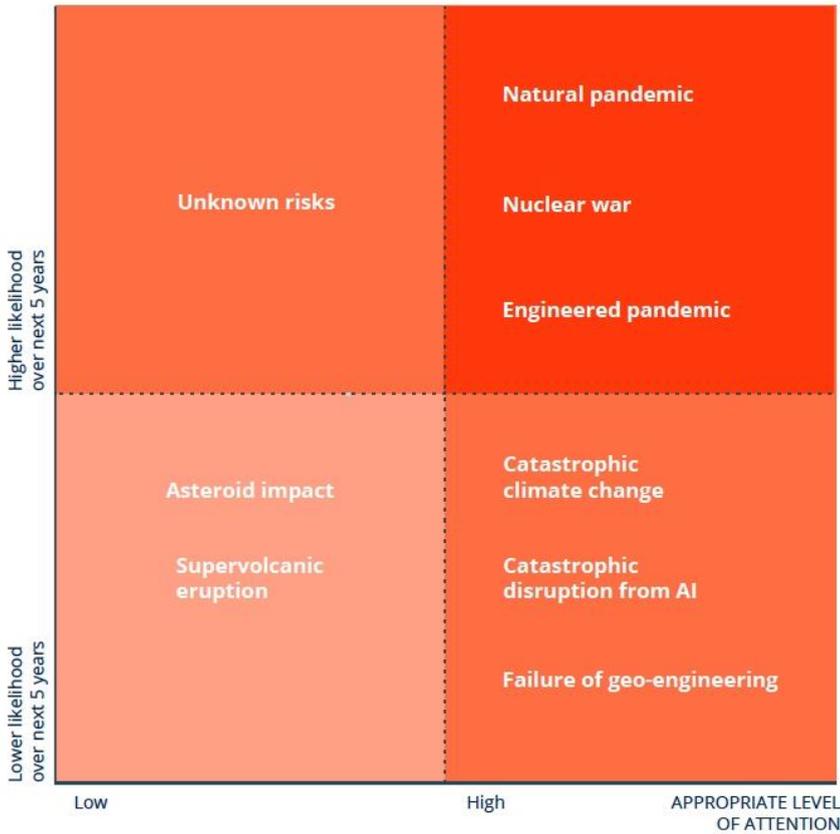
These figures vary so much because estimating the risks associated with advanced technologies requires subjective judgments about how future technologies will develop. However, they can still be based on technological trends and patterns of human behaviour. For example, risks such as volcanic eruptions or asteroid impacts can be estimated using the available, relevant historical data. We know that an asteroid, which could kill "more than 1.5 billion people" occurs on average every 100,000 years (32), and volcanic super-eruptions happen once every 50,000 years (32).

There is also a disagreement among the experts regarding which risks are existential, which ones are catastrophic, and which ones are just large scale social and economic risks like those listed in the World Economic Forum Survey (33).



Experts' judgment can be influenced by the scope and depth of their analysis. For example, Martin Weitzman argues that most of the expected economic damage from climate change may come from the small chance that warming greatly exceeds the mid-range expectations, resulting in catastrophic damage.[17] While Richard Posner has argued that we are doing far too little, in general, about small, hard-to-estimate risks of large scale catastrophes (34).

Finally, given that future technologies are likely to introduce entirely new existential risks, a discussion of existential risks five decades from now could be dominated by scenarios that are unknowable to contemporary humans, just like nuclear weapons or engineered pandemics were unknowable to people a hundred years ago. This suggests that **even the 50/50 risk of the end of civilization by the end of this century provided by Rees may be underestimating the risk**, since his figure is based on the analysis of currently known technologies. (27) That is confirmed in the comparison carried out by Global Challenges Foundation, which has put the unknown risk in the category "higher likelihood over the next 5 years" (25).



Source: *Assessment of Global Catastrophic Risks - Global Challenges Report 2016*

Over the last 100 years, the most significant existential risk for Humanity was not the First, or the Second World War, but the 1918 flu pandemic (January 1918 – December 1920). It was an unusually deadly influenza pandemic, the first of the two pandemics involving H1N1 influenza virus. It infected 500 million people across the world, including remote Pacific islands and the Arctic. It resulted in deaths of 50 to 100 million (three to five percent of the world's population, making it one of the deadliest natural disasters in human history) and leading to a drop in life expectancy by about 12 years (35).

But that was not the first such pandemic in human history. As the table below shows, some pandemics, such as Black Death might have wiped off up to 17% of the world's population. Smallpox death in the 20th century amounted to about 3% of the population, assuming that the total no. of people born in that century was 11.5bn. If we consider that today we have means of transportation more than a hundred times faster than in 14th century, we should assume that pandemics in the 21st century e.g. similar to Ebola virus, would have been far more deadly.

Historic plagues and pandemics

PANDEMIC	DATE(S)	LETHAL IMPACT
Plague of Justinian	AD 541-542	25-33m (13-17% of the world population)
Black Death	14th Century	50-75m (11-17% of world population)
Smallpox	1520-1527	200,000 deaths within the Aztec population (75% of population in some areas)
Spanish influenza	1918 - 1919	50 - 100m (2.5-5% of population)
Smallpox	20th century	300m over the course of the 20th Century
HIV/AIDS	1981 - present	34m

Source: Historic plagues and pandemics - Global Challenges Report 2016 (25)

Furthermore, over the last three decades several more existential risks such as nanotechnology or Artificial Intelligence have been added.

Non-anthropogenic risks threatening human race

This book is predominantly about anthropogenic (man-made) risks since we can do very little about those risks that do not depend on Human activity (that's why they are called non-anthropogenic risks). However, I shall cover them very briefly for consistency. I will use risk estimates from Global Foundation Report 2016.

Asteroid impact

An asteroid of at least 5 km across is big enough to end civilisation and wipe out human life. It hits Earth about once every 20 million years. But programs to map hazardous objects are making progress and, given enough warning, a concerted effort by the world's space powers might succeed in deflecting an incoming asteroid on to a non-collision path. According to Global Challenges Foundation, current probability of this risk over this century is 0.00013% (36)

Supervolcanos

An eruption ejecting thousands of cubic kilometres of material into the atmosphere, far larger than anything experienced in human history, could lead to a "volcanic winter", with effects similar to an asteroid impact or nuclear war. Such events are known from the geological record to have caused mass extinctions. And with today's technology, there is not much we could do to prevent its effects. Probability: 0.00003% (36)

Cosmic threats

A number of astronomical threats have been identified.

- **A close encounter with massive objects**, e.g. a star, large planet or black hole, could be catastrophic if occurred in the Solar System. (37)
- **A powerful solar flare or solar superstorm**, which is a drastic and unusual decrease or increase in the Sun's power output, could have severe consequences for life on Earth. (38)
- **Geomagnetic reversal**. The magnetic poles of the Earth shifted many times in geologic history. The duration of such a shift is still debated. Theories exist that during such times, the Earth's magnetic field would be substantially weakened, threatening civilization by allowing radiation from the Sun, especially solar wind, solar flares or cosmic radiation, to reach the surface. These theories have been somewhat discredited, as statistical analysis shows no evidence for a correlation between past reversals and past extinctions (38).

What is likely to happen if we just keep going on?

The biggest risk that our civilization faces is that nothing substantial will be done to combat existential risks. We do not have 100 years to prepare the mitigation strategies and allocation of the required resources. We may have just 10-20 years if things go really badly.

There is a point of view that civilizations resemble living things. They are born, have their immature youth, followed by a longer period of mature development until they finally reach the point of their collapse. There have been a number of significant near existential risks for our civilization. Think about the Thirty Years' War (1618-1648). That was fought only in Western and Central Europe when these nations went to war fighting for the right (in their mind) interpretation of some religious principles. It was, in relative terms, one of the longest and most destructive conflicts in human history where 8m people died. In Germany 1/3 of the population died and some towns were reduced to half of their original population.

Ancient Egyptian or Roman civilizations are another good example of how civilizations disappeared. Although humans did not vanish because of these events and in this sense, they were not existential threat to human species, but it illustrates the fact that had there been sophisticated enough weapons of mass destruction and means of transportation, those incidents could have very likely annihilated humans from the planet Earth.

Humanity's imaginary clock measuring the overall risk of annihilation moved significantly this decade. As Phil Torres, director of X-Risks Institute writes: "Our species has never before in its 200,000-year history been so close to a disaster as we are this century. It's unsettling enough that the Doomsday Clock has been set to an ominous 3 minutes to midnight (or doom) since 2015. But the real gravity of our situation only comes into focus once one realizes that before 1945, there was no need for the Doomsday Clock in the first place, given the low probability of doom. While our ability to quantify the dangers posed by emerging risks is more subjective than in the case of asteroid impacts and super volcanic eruptions, there are legitimate reasons

for existential concern about both. Insofar as the estimates from experts are based on the considerations outlined above, they ought not to be ignored by anyone with an interest in our species' continued survival. Yet most people today are far more worried about low risks dangers like plane crashes, events that have neither global nor transgenerational implications, than existential risks. This is worrying because recognizing problems typically precedes solving them (39).

Some people may say it is highly improbable that the cumulated existential risks could really be so high, say between 25 and 50% by the end of this century. If that had been the case, then life would not have existed for 3.5 billion years, since an existential catastrophe would have happened by now. And yet, we are still here. This line of thinking seems to me deeply flawed. It fails to take into account that we may be the only ones living in the world, in which life has reached intelligence and consciousness level, because no "wiping-off catastrophe" has ever happened. It may be helpful to remind the warning given by Enrico Fermi, the Nobel Laureate in Physics on the consequences of not trying to mitigate existential risks. Fermi, apart from being one of the key people behind the construction of the first atomic bomb, also formulated the so-called Fermi Paradox. It is the apparent contradiction between the vast number of stars and galaxies in the universe and lack of evidence for intelligent life. Even if intelligent life occurs on only a minuscule percentage of planets around these stars, there might still be a great number of existing civilizations. If the percentage were high enough, it would have produced a significant number of civilizations in our own Galaxy - the Milky Way. There are dozens of hypotheses explaining this paradox. But five of them directly relate to existential risks. These are:

- **It is the nature of intelligent life to destroy itself.** This is the argument put forward by Nick Bostrom in his book "Existential Risks - Analysing Human Extinction Scenarios and Related Hazards". It says that technological civilizations may usually destroy themselves before or shortly after developing radio or spaceflight technology. This might have happen for a number of reasons such as catastrophic wars, environmental pollution, pandemic (if life is biological), or the artificial intelligence.
- **Self-annihilation.** This is an idea put forward by Stephen Hawking in "Life in the Universe". It says that life as such is an aspect of thermodynamics. As an ordered system, it can only sustain itself against the tendency to disorder by using energy. If that energy is insufficient, the system becomes unstable and self-destructs.
- **It is the nature of intelligent life to destroy others.** Another hypothesis, put forward by Steven Soter in "SETI and the Cosmic Quarantine Hypothesis" is that an intelligent species beyond a certain point of technological capability will destroy other intelligent species as they appear. A similar argument was raised by the cosmologist Edward Harrison. It says that "such behaviour would be an act of prudence: an intelligent species that has overcome its own self-destructive tendencies might view any other species bent on galactic expansion as a threat".
- **Periodic extinction by natural events.** This is an example of an existential risk of non-anthropogenic nature – a category of an existential risk mentioned above. According to the hypotheses made among others by astrobiologists from The

Australian National University, new life might commonly die out due to runaway heating or cooling on their fledgling planets [75]. On Earth, there have been numerous major extinction events that destroyed the majority of complex species alive at the time; the extinction of dinosaurs is the best known example. These are thought to have been caused by events such as impact from a large meteorite, massive volcanic eruptions, or astronomical events such as gamma-ray bursts.[76] It may be the case that such extinction events are common throughout the universe and periodically destroy intelligent life, or at least its civilizations, before the species is able to develop the technology to communicate with other species. (40)

- **Resource depletion and climate change.** This is an argument put forward by the astronomer Adam Frank who argues that industrial evolution on other planets may lead to a sustainability crisis, eventually leading to devastating climate change (41).

If everything else fails and we as Humanity disappear, the question is will life become totally extinct as such? Well, it may be the only good news in this chapter because the answer (apparently) is that it would be very difficult indeed to achieve total life extinction. Rafael Alves Batista and David Sloan, both from Oxford University, tested various conditions that would be necessary to kill the world's hardest species, the tardigrade, also known as the "water bear" and measuring just 0.5 mm. Tardigrades can survive most difficult conditions such as a brief temperature fall to -272°C (close to an absolute 0C) or heat up to $+150^{\circ}\text{C}$. They can stand atmospheric pressure to over 1,000 times the pressure at sea level. They can survive in a complete vacuum for up to 30 years without food or water. They can also survive radiation doses thousands of times the doses that would have killed humans. So, the question those two researchers tried to answer was what type of cataclysmic events might be able to finally kill off the hardy tardigrade, i.e. what would need to happen to destroy every living thing on the planet? Here is their answer:

"...the planet's entire oceans would have to boil. On Earth, this would require an incredible amount of energy – 5.6×10^{26} joules (around a million years of total human energy production at current rates). Therefore, we have to consider the astrophysical events, which could provide such an enormous amount of energy" (42). They selected three primary candidates that could do this:

- asteroid impacts,
- supernovae and
- Gamma-ray bursts.

To be hit by an asteroid that would kill literally all life on Earth, is very unlikely, since it might happen once in 10^{17} years, i.e. longer than the age of the Universe. Taking into account the rates at which supernovae occur, sterilisation is unlikely to happen more than once in 10^{15} years, i.e. far beyond the age of the universe. Finally, gamma-ray burst is another candidate to eliminate life on Earth completely. These are explosions producing enormous amounts of energy focused into jets of radiation as narrow as a couple of degrees. Analysing these bursts the authors found that they could only kill off life on an Earth-like planet if their origin was within about 42 light-years and the

planet lay within the beam and there are no candidates for such a gigantic source of energy within that range (42).

Therefore, even if some risks listed in this section do occur, leading to the end of Humanity, life on Earth is likely to continue as it has done for over 3.5 billion years.

What are key strategies for mitigating existential risks?

If our civilization is to survive, we need to apply some powerful risk mitigation strategies. The 10 top existential risks listed earlier are total risks, i.e. they multiply probability and impact and they also include the non-anthropogenic risks. We have hardly any control over the non-anthropogenic risks. But we do have control over political, social, economic and technological risks. That is why for our further consideration we will only evaluate mitigation strategies for anthropogenic risks.

All anthropogenic risks, apart from Superintelligence and climate change, are of a lottery type. They may or may not occur, e.g. global pandemic or a nuclear war. However, Superintelligence and Climate Change are two types of risks that will certainly materialize, if we do nothing to mitigate them. In the case of climate change, there is almost a certainty that if an average global temperature rises by more than 6C then the runaway scenario would be triggered, that may lead to total annihilation of human species. When that may happen? If we do nothing, such risk will most likely materialize in the next century.

The same is true about Superintelligence. If we do not prepare properly before the time when it arrives, then such risk will almost certainly occur in 20, 30 or latest 50 years. In any case, **it would arrive earlier than the risk related to climate change.** Therefore, it is the risk of Superintelligence “run-away”, which at some stage may become the ultimate master on the planet Earth that is the most immediate and the biggest danger that Humanity faces. The remaining risks, such as pandemics either natural or laboratory-originated, weaponized AI, nuclear wars or nanotechnology, originate in technology related innovations or global social disorder but they are of a lottery type, so they may not happen.

There are not many realistic overall strategies proposing how Humanity could mitigate existential risks. Those that are available describe mainly policies which would need to be implemented if we want to combat ecological, social and economic risks successfully. For example, World Economic Forum, in their otherwise excellent Global Risks Report, mentions mitigation of risks in just a few sentences over the entire 78-page report. Those 5 one-sentence references regard mitigation of environmental or social and economic risks but there is not even a hint of an overall strategy or the urgency for action by an organisation with significant powers (43).

Neither are there hardly any agreed approaches for mitigating technology related risks. The best example is the appeal made by 3000 AI scientists and researchers on 28 July 2015 at International Joint Conference on Artificial Intelligence in Buenos Aires calling for a ban on offensive autonomous (AI) weapons beyond meaningful human

control. Over two years have passed and nothing concrete has happened although the subject is now in a wider public domain. This is also the evidence that any proposals to mitigate existential risks are domain-related, i.e. environmental only, biology only, or nuclear weapons only. But what the world needs right now is an overall strategy to fight all existential risks simultaneously, since most of them are converted from a single significant risk in one domain into a catastrophic, and finally into an existential risk because of the combinatorial effect with the risks in other domains. At the moment the world does not have such an overall strategy, nor is there any indication of who would actually implement it.

Similarly, Global Challenges Report 2016 that has one of the most advanced methods for identifying risk proposes the following 10 steps in mitigation of existential risks:

1. Global Challenges Leadership Network
2. Better quality risk assessment
3. Development of early warning systems
4. Encouraging visualisation of complex systems
5. Highlighting early movers
6. Including the whole probability distribution
7. Increasing the focus on the probability of extreme events
8. Encouraging appropriate language to describe extreme risks
9. Establishing a Global Risk Opportunity Indicator to guide governance
10. Explore the possibility of establishing Global Risk Organisation (36)

Establishing a Global Risk Organisation, which is the only concrete proposal in those 10 steps, is further evidence that risks reduction initiatives are partial and isolated, although in theory, if such an Organisation had supranational powers then it would be the step in the right direction.

So, at the moment, any mitigation strategies are just simply a plaster to get the world through to the next year, as has been the case in politics of most nations, including western democracies. Short-termism is an outright winner. My only hope is that today's media such as the Internet, may make more people aware of how serious the threat of the annihilation of all humans is. This could prepare millions of people for tough actions and sacrifices that may be needed, by understanding the severity of the problems better and in more realistic terms than just by reading the tabloids headlines. And that is also my intention – to make people more aware of what existential risks we face and what we can potentially do to avoid the ultimate disaster.

I have split anthropogenic (man-made) existential risks mitigating strategies into three categories, which may require different approach:

- Risks that may become **existential within days** or even in hours:
 1. Global nuclear war
 2. Weaponized AI or cyber soldiers

3. Engineered pandemics and synthetic biology
 4. Natural pandemic
 5. Nanotechnology and experimental technology accident
- Risks that may become **existential progressively**:
 6. Climate Change over a long time (at least over a century)
 7. Superintelligence in a short time (over a decade)
 - Risks that may become **existential because of combinatorial effects** (from days to decades), which I call Global Disorder risks:
 8. Global Social Disorder, including migration as a ‘special’ multi-faceted risk
 9. Global Economic Disorder
 10. Global Political Disorder

We also have Unknown Anthropogenic risks, of which we must be aware because most likely they may become existential, if combined with other less significant risks such as Social Disorder.

Chapter 3

Superintelligence – a friend or a foe?

What is Intelligence and Superintelligence?

What is Superintelligence? Could it be our friend or become a foe, which in the worst-case scenario can annihilate Humanity? But before we answer these questions let us agree on what is intelligence? Unfortunately, this is not a term that is easy to define unambiguously. **Intelligence** can mean many things to different people. The scientific community has been debating this since at least the late 19th century.

Without going into a long discourse, intelligence is defined in a popular sense as a general mental ability to learn and apply knowledge in order to change the environment most effectively for the intelligent agent, in our case - humans. Recently, some scientists rejected the idea of a single intelligence and instead have suggested that intelligence is the result of several independent abilities, which when combined contribute to the total performance of an individual. That would include other “intelligences” such as:

- the ability to evaluate and judge
- the ability to reason and have abstract thoughts
- the ability to learn quickly as well as learn from experience
- the ability to comprehend complex ideas
- the capacity for original and productive thought

Robert Sternberg, a psychologist, proposes that there are three fundamental aspects of intelligence: analytical, practical and creative. He believes that traditional intelligence tests only focus on one aspect – analytical – and do not address the necessary balance from the other two aspects. (44)

Let us now move to **Artificial Intelligence** (AI), which is a very new discipline. It has been applied in earnest for at least 30 years under various other names such as Expert Systems and later on Neural Networks. Its key features are super performance and imitation of human cognitive abilities like problem solving and learning or speech recognition. It can beat best human capabilities but usually in one discipline only. Therefore, it is termed as a “narrow AI”. In 2011, the IBM Watson computer system competed in Jeopardy game, against former winners Brad Rutter and Ken Jennings. Watson won the first place and the prize of \$1 million. Then in March 2016 Google’s AlphaGo computer using self-learning (machine learning) program beat the 18-time world champion Lee Sedol. The success of self-learning has sparked a real revolution in AI. Ray Kurzweil, currently the Chief Technologist at Google and one of the most reliable futurists, (I will be quoting him a few more times), confirmed his earlier prediction that AI will match human intelligence (in narrow subjects, like medicine) by 2029.

In the next 20-30 years, machine self-learning may deliver an intelligent agent, which will surpass any human being **in every skill** or task. When AI reaches such capability, it will become **Artificial General Intelligence (AGI)**, or **Superintelligence**, the term used in this book after Nick Bostrom. Margaret Rouse proposes a simple definition of Superintelligence that may be adequate for the purpose of this book:

“Superintelligence is defined as a technologically-created cognitive capacity far beyond that possible by humans” (45).

Very soon after Superintelligence has been embodied either in a robot or a computer network, it will be capable of redesigning itself. Imagine that such a smart machine will be capable of rapidly producing generations of progressively improved, powerful machines, creating intelligence far exceeding human intellectual capacity, until it reaches the so-called runaway effect (3). Once Superintelligence has reached that point it may be impossible for a human to comprehend it and control it. It will thus quickly reach the point in time called **Technological Singularity or simply Singularity**. Ray Kurzweil in his book “The Singularity is near” (17) defines it as follows:

“Singularity is the point in time when all the advances in technology, particularly in Artificial Intelligence (AI), will lead to machines that are smarter than human beings”.

For the purpose of this book, Singularity means Technological Singularity, i.e. the point in time when Artificial General Intelligence (AGI), will lead to machines that are smarter than human beings in every aspect of human knowledge and skills, enabling it through the process of self-learning to become even more knowledgeable and potent by re-inventing itself exponentially.

Kurzweil predicts that Technological Singularity event will happen by 2045, while the SoftBank CEO Masayoshi Son, another authority on AI, forecasts it will happen by 2047. Ben Goertzel, one of the well-known AI researchers, who is chief scientist at the robotics company Hanson Robotics, believes AGI is possible well within Kurzweil’s timeframe. However, interestingly, he says that the Technological Singularity is harder to predict, estimating the date anywhere between 2020 (!) and 2100.

The Pathway to Technological Singularity

Let me now describe in more detail how we may arrive at the point called Technological Singularity. This is the point in time when Superintelligence will have at its disposal such a range of novel technologies, exceptional scheduling and organizational capability that it could rapidly become matchless and unrivalled in what it can do in every field of life. It will be able to bring about almost any possible outcome, and be able to foil virtually any attempt that might prevent achieving its objectives. It could also eliminate, if it chooses, any other challenging rival intellects. Alternatively, it might manipulate or persuade controlling humans to change their behaviour towards its own interests, or it may merely obstruct their attempts at

interference (37). Nick Bostrom defines this in his book ‘Superintelligence: Paths, Dangers, Strategies’, as the ‘control problem’ (2).

The Control Problem will occur when technology advances beyond our ability to foresee or control Superintelligence, which will be upgrading its potential at an exponential pace. It will be a self-learning Artificial General Intelligence program embedded in a human-like body, which through a series of self-improvement cycles would achieve the so-called "runaway stage". Each new and more intelligent generation will appear more and more rapidly, causing an intelligence explosion and resulting in a powerful superintelligence that would, qualitatively, far surpass all human intelligence. In a positive scenario, the world will then be transformed beyond recognition by the application of Superintelligence to humans and/or human problems, including poverty, disease and mortality.

To achieve Superintelligence, we need to make at least three major improvements. Tim Urban suggests how this could be done (46):

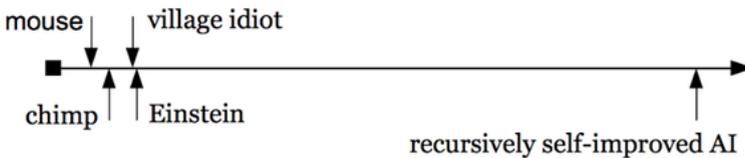
- **Increase computer power.** This has been doubling every 18 months following the so-called Moore’s Law. Some people think the “Law” will stop working about 2030 because we will reach physical limits of continuing miniaturization of chips. On the other hand, some futurists, such as Ray Kurzweil, predict that by around 2025 intelligence packed into a \$1,000 computer, should reach the power of a human brain. But even that seems to be a fairly moderate prediction in view of exceptional acceleration in the development of a quantum computer (more on this later).
- **Emulate human brain using reverse engineering.** There are several ways to do it. One that Urban suggests involves a strategy called “whole brain emulation,” where the goal is to slice a real brain into thin layers, scan each layer one by one, use software to assemble and accurately reconstruct a 3-D model, and then implement the model on a powerful computer. Recently we have been able to emulate a 1mm-long flatworm brain, which consists of just 302 total neurons. The human brain contains at least 100 billion neurons, each having on average about 10,000 connections. If that makes it seem like a hopeless project, remember the power of exponential progress.
- **Emulate human brain by copying the process mastered by evolution.** This could be done using a machine-oriented approach, not by mimicking biology exactly. To do that we would build a computer that would have two major skills: doing research on how it could improve itself and then coding changes into itself (that’s exactly what evolution did to us). We would teach computers to be computer scientists, so they could bootstrap their own development. That would be their main objective, finding the most effective process to make themselves smarter.

From the perspective of Superintelligence, there is another type of intelligence where humans may still excel, called ‘emotional intelligence’. This refers to “an individual’s ability to understand and be aware of his own emotions, as well as those of people around him. This ability enables him to handle social interactions and relationships better (44).”

A true Superintelligence, if it is to fully compare with human intelligence, must have such a capability. Recently, some progress in this direction has already been made. In May 2017, an “emotional chatting machine” has been developed by scientists, signalling the approach of an era, in which human-robot interactions are seamless and go beyond purely functional. The chatbot, developed by a Chinese team, is seen as a significant step towards the goal of developing emotionally sophisticated robots. The ECM, as it is known, was able to produce factually coherent answers whilst also filling its conversation with emotions such as happiness, sadness or disgust (47).

Nick Bostrom talks about the scale of intelligence, which could be represented in linear graph like the one below. Please note the relative distances between e.g. village idiot and Einstein and then Einstein and Superintelligence (2):

The scale of intelligence:



However, Erik Hoel, AI researcher, disputes the value of measuring intelligence this way. He says in his essay “Superintelligence is a free lunch and there are no free lunches” (48) that: “The intelligence of an agent is the sum of the performance of that agent on solving all possible problems, weighted by the simplicity of those problems (simple problems are worth more). A Superintelligent entity would then be something that scores extremely high on this scale. We wouldn’t use Einstein as a metric for a real Superintelligence of the variety Bostrom is worried about any more than we would use the mouse as a metric for Einstein”. Interestingly, he notes that “Einstein would score pretty low on this metric as would every human. This is because the space of all problems includes things that human beings are really bad at, like picking out the same two-colour pixels on a TV screen.... That’s why Superintelligence should score far above humans on one or both of these metrics, effectively operating as omniscient and omni-competent”. (48)

So, how could we measure intelligence? The current “gold standard” of measuring intelligence is **Intelligence quotient (IQ)**. Wikipedia defines it as: “... a total score derived from several standardized tests designed to assess human intelligence... Historically, IQ is a score obtained by dividing a person’s mental age score, obtained by administering an intelligence test, by the person’s chronological age, both expressed in terms of years and months. The resulting fraction is multiplied by 100 to obtain the IQ score. When current IQ tests were developed, the median raw score of the norming sample was defined as IQ 100 and scores with standard deviation (SD) up or down were defined as 15 IQ points greater or less. By this definition, approximately two-thirds of the population scores are between IQ 85 and IQ 115. About 5 percent of the population scores above 125, and 5 percent below 75”. (49)

Psychologist Howard Gardner's theory of multiple intelligences states that intelligence can be broken down into 8 distinct components: logical, spatial, linguistic, interpersonal, naturalist, kinaesthetic, musical and intrapersonal. Thus, he believes that standard IQ tests and psychometric tests focus on certain components, such as logical and linguistic, while completely ignoring other components which may be equally important. (44)

These critical comments make IQ tests not entirely reliable for assessing human intelligence. However, IQ tests are de facto the only standard that is widely used and despite its weaknesses it allows making some valuable insights into the intelligence and capabilities of millions of people. We may need to improve these tests but, in the meantime, they are already applied to intelligent assistants, such as Siri or Goggle's Personal Assistant.

On 3rd October 2017 a test was organized for several AI assistants by three Chinese researchers: Feng Liu, Yong Shi, and Ying Liu, primarily based on exams carried out during 2016. According to researchers, Google's AI Assistant rating of 47.3 is barely beneath a six-year-old human's IQ of 55.5. However, it was more than double that of Siri's IQ of 23.9. Siri is also behind Microsoft's Bing or Baidu, which have respective IQs of 31.98 and 32.92 respectively. All AI's IQs are considerably lower than a mean for 18-year-old's which is 97.

The researchers say, that: "The results so far indicate that the artificial-intelligence systems produced by Google, Baidu, and others have significantly improved over the past two years but still have certain gaps as compared with even a six-year-old child" (50). They grade AI's intelligence into six levels based on the model that combines AI and human traits around four areas of data, together with "input, output, mastery, and creation":

- First-grade system, which might exchange some information with people
- Second-grade system that can manage the interface to some objects such as TVs or washing machines, the so-called Internet-of-Things (IoT)
- The third-grade includes computer systems and mobile phones, which are programmed and can be upgraded. That would include AlphaGo from Google's DeepMind
- Fourth-grade include Google Brain, Baidu Brain, and the EU's RoboEarth robots, because they have the ability to communicate and be managed using cloud data
- Fifth-grade intelligence is at a human level
- Sixth-grade system will have the capability to "continuously innovate itself and create new knowledge, with I/O ability, knowledge mastery, and application ability that all approach infinite values as time goes on" (50).

The difference between the grades of AI seems to be quite significant. But once it gets to the sixth grade, AI will improve exponentially until Superintelligence becomes Technological Singularity.

How soon can it happen? There is no agreement on when Superintelligence may definitely arrive. The Future of Humanity Institute at Oxford University did a research in May 2017 asking 1,634 researchers who published papers at the 2015 NIPS and ICML conferences (the two leading machine learning conferences) and asked them to complete a survey on when AI will outperform humans in various areas. 352 researchers responded and their aggregate view is as follows (Asian respondents expected these dates to be much sooner than North Americans) (51):

- By 2024 - translating languages
- By 2026 - writing high school essays
- By 2027 – driving trucks
- By 2031 – working in retail
- By 2049 –writing a bestselling book
- By 2053 – working as a surgeon
- By 2062 – 50% chance of AI outperforming humans in all tasks

Perhaps the best-known predictions are those made by Ray Kurzweil, one of the prominent futurists, who has already proven over the previous 30 years that his predictions were largely correct. In an interview Kurzweil had with Futurism on 3rd October 2017, he confirmed that: “2029 is the consistent date I have predicted for when an AI will pass a valid Turing test and therefore achieve human level of intelligence. I have set the date 2045 for the ‘Singularity’ which is when we will multiply our effective intelligence a billion-fold by merging with the intelligence we have created.” For Ray Kurzweil, the process towards this singularity has already begun (52). If you think that Singularity cannot happen by 2045, then these two latest inventions from Google should make you think.

First, was the invention announced by Google at its I/O conference in May 2017, which gives quite a considerable boost to those impatiently awaiting the arrival of Superintelligence. It was its latest invention – AutoML (Auto Machine Learning). The Google team came up with a machine learning software that can create self-learning code. The system runs thousands of simulations to determine, which areas of the code can be improved. It then makes the changes and continues the process until its goal is reached. The result was that AutoML is **better** at coding machine-learning systems than the researchers who made it. In an image recognition task, it reached record high 82 percent accuracy. Even in some of the most complex AI tasks, its self-created code is superior to humans (53). Google’s AutoML could develop a superior image recognition system within a few weeks, something that would have taken months for most brilliant AI scientists. But in December 2017, just six months later, the Department of Energy’s Oak Ridge National Laboratory (ORNL), using the most powerful supercomputer in the US, have developed an AI system that can generate neural networks as good, if not better, than any developed by a human **in less than a day**. (54)

The second invention, announced in the journal “Nature” on 19/10/2017, will probably be viewed in the future as a very significant milestone on the path to Superintelligence

and Singularity. Barely a year after Google's AlphaGo beat Lee Sedol, the Grandmaster in the Chinese game GoGo, which itself was considered a very important breakthrough in AI, a vastly superior AI agent called AlphaGoZero (AGZ) beat GoGo Masters by 100 games to 0. The original AlphaGo had the benefit of learning from thousands of previously played Go games against human players and against itself. AGZ, on the other hand, received no help from its human handlers, and had access to absolutely nothing aside from the rules of the game. The only input it had were the rules of the game. Using "reinforcement learning," AGZ played against itself 4.9 million games, starting from a very basic level of play without any supervision or use of human data (AlphaGo, by comparison, had 30 million games). The self-learning capability allowed the system to improve and refine its digital brain, known as a neural network, as it continually learned from past experience. In effect, AGZ was its own teacher. It took for AGZ just **4 hours** to self-learn chess to such a degree that it beat the world class champions. Additionally, this technique is so powerful because it is no longer constrained by the limits of human knowledge. Instead, it can learn from a "clean slate".

The way in which AGZ teaches itself is so significant for AI because it shows that once AI gets full knowledge about the real-world problem to be solved then the power of reinforcement learning will deliver the result. Gradually such AI will become Artificial General Intelligence (AGI) i.e. Superintelligence, finding solutions and strategies that are beyond human capabilities. The most surprising in this story is how short the time was between the AlphaGo's win and an absolute supremacy of AGZ over GoGo Masters. That's what exponential progress is about.

Superintelligence may potentially become the most dangerous adversary of Humanity. We shall devote more space to that eventuality later on when we discuss Superintelligence as Humanity's greatest existential risk. However, it can also become very benevolent and friendly agent that Humanity will badly need to fight other existential risks and help turn our civilisation on the path of immense prosperity. Let me then begin with describing that possibility first.

From Nothingness to Superintelligence and beyond

If we manage to turn Superintelligence into our friend and let it arrive at the Technological Singularity event, assuming we would still have control over its evolution (e.g. via linking its goals to our most important human values), then the question is what will our choice be. For example, we can let it evolve itself and, so to speak, let it fly off and leave us alone. That may be possible. However, it is unlikely we will choose this option, since as someone said, 'one cannot uninvent the atomic bomb'. We are inquisitive and innovative beings and it is difficult to imagine we wanted to go back to 'less developed' world.

We have to assume that once the Technological Singularity is there, it will become our Master by default, even if our values will have been embedded in its overall decision-making pattern. Its knowledge, choices of important decisions for humanity and overall

comprehension of the world around us and the Universe in general, will be unimaginably greater than our own capabilities. So, we shall have two options (assuming there are both possible). The first one is to upload (copy) our personality, memories and consciousness by reading our brain (although that may not be enough) onto a digital platform (a chip embedded in some material resembling our bodies). The second option is to merge Superintelligence with our bodies as an implant. From then on it is a pure speculation how Humanity might evolve into the long, long future. However, in the next few decades we may be forced to make that biggest decision in the history of Humanity on **how** we want to evolve as a species. Therefore, let me take you on my own journey into the unknown because the conclusions may be useful for making such a decision.

Most of you reading this book will live to see the advent of Superintelligence irrespective of it being conscious or not. Consciousness is a form of Existence, which is the opposite of Nothingness, Non-Existence or Non-Awareness. We need to get the sense of what is the very nature of Existence and how Superintelligence can evolve as a potentially distinct species far into the future, aging within the aging Universe. But for the purpose of extrapolating the evolution of Superintelligence, we need first to go back and look how we, humans, came into Existence from Nothingness.

It is my very personal, perhaps a bit unusual view of Nothingness and Existence. I remember well when in 2005, after a lecture at the London's Royal Society of Arts and Commerce (RSA), I spoke to the Nobel laureate in chemistry Harry Kroto. I asked him "How would you define 'Eternity'?" He was a bit surprised but then asked me if I had such a definition. I proposed this one: "Eternity is Nothingness on average", with which he did not disagree, since there are a number of theories that come to similar conclusions like the Dynamic Eternal Universe (55). I shall now use this as a starting point and list, in a simplistic way, the steps that led to the creation of humans. Once I arrive at the point where we are now, I will then list the next steps in our evolution to become a Transhuman species.

There are a number of theories, which describe how the evolution of the universe has begun. The best known is the theory of the "Big Bang". The model of our Universe since the Big Bang is supported by many detailed, and in most cases, proven theories, such as quantum physics with its Standard Model, relativity, gravity and the strings theory. There is still, however, no overall theory called the Theory of Everything that could reconcile gravity and quantum theory. Theories that try to explain what existed **before** Big Bang, use by and large, the current laws of physics to answer what a 'true' Nothingness could be and what properties it might have. The most prominent is the M-theory based on Supersymmetry that supports the so-called multi-verse theory (the existence of infinite number of universes) and the only theory (still not fully confirmed) that links gravity with two fundamental forces of nature: bosons and fermions.

For our needs it is enough to assume that whichever theory we use the only important issue is that most likely a "true" Nothingness does not exist. Nothingness has a

property, and the current theories only need to prove that such a description of the properties of Nothingness is plausible.

This historical perspective of the arrival of ‘Something’ out of ‘Nothing’ is only meant to give you in just three stages a better appreciation of what a momentous event the birth of Superintelligence would be and how it could eventually evolve. The first stage gives a snapshot of how it all has begun, starting with just a quantum field, which pre-existed the birth of our Universe, and culminating with today’s planet Earth. In stage two, I will use Ray Kurzweil’s skills for predicting the discoveries and innovations over the next 30 years to the point when Superintelligence may emerge. Finally, in stage three, I will present my personal view, based on dozens of scenarios published by particle physicists, astronomers and futurists, on how the Universe with Superintelligence might evolve.

Stage 1: The evolutionary perspective on the emergence of human species

1. Nothingness 'has' no beginning and no end – it is eternal
2. Even Nothingness, as anything else, must have a property. It is believed that the property of Nothingness is a quantum field – “pure” energy
3. “Pure” energy manifests itself as Strings according to Supersymmetry or M-theory. Strings are one dimensional ‘packets’ of energy varying in size from below the Planck’s scale (10^{-35m}) to the size of the Universe. They have charge, vibration frequency, gravitational force (gravitons) and mass, if crossing electromagnetic field or Higgs’ field
4. Quantum field obeys quantum mechanics laws, among others the Heisenberg’s Uncertainty Principle, which can sometimes lead to spontaneous imperfections in the field
5. Those imperfections appear “like waves on an ideally flat ocean’s surface”
6. Like any waves, quantum field waves have troughs and crests, which are positive and negative energies
7. On average the sum of positive and negative energies is 0
8. So, Nothingness is not really “nothingness” as we understand it. Sometimes, when imperfections occur, it becomes “Something”
9. That’s why I believe over Eternity, Nothingness is “true” Nothingness **on average**
10. Following the Heisenberg’s Uncertainty Principle, the fluctuations in energy levels may lead to spontaneous creations of Big Bangs, creating material Universes
11. According to Multiverse Theory there could be infinite number of Universes emerging from those fluctuations, when the conditions are just right for converting energy into mass and creating a material world. Only some of them are stable enough, having the right constants (e.g. proportion of matter and antimatter, initial temperature and gravity)
12. Our Universe was also started that way about 13.8bn years ago. It began with a period of so-called Inflation lasting between 10^{-35s} and 10^{-32s} when it expanded from zero size to the size of a grapefruit, ensuring the uniformity of the Universe
13. Since then our Universe has been constantly expanding leading to the creation of first stars after about 100 million years (the discovery made in 2018)

14. About 5bn years ago our Sun was created
15. 4.5bn years ago our Planet was formed
16. 3.5bn years ago life began on earth
17. A few million years ago man evolved from the animal kingdom
18. About 10,000 years ago our civilization begun
19. About 10 years ago, first artificial intelligence machine (IBM's Watson) beat humans in American Jeopardy game.
20. In 2016 Alpha-Go beat the Grand Master in the Go-Go game. It was built on the hypothesis that our mind organizes knowledge/intelligence in several layers. That discovery has sparked off almost faster than exponential progress in AI.

So, this is where we are today. Let me now quote Ray Kurzweil's predictions on AI development and other key innovations that will ultimately lead to the emergence of Superintelligence:

Stage 2: The Pathway to Superintelligence

1. By 2020 AI agents, many of them in human form (humanoids) will regularly participate as advisors in key decision making
2. By 2020 we will start using fairly regularly super large computers such as IBM's "Watson" computer (AI agent) to solve most difficult civilization's problems. This has already been tested in several areas where Watson "read" thousands of articles in a certain scientific domain and then gave its advice
3. By 2025 the first human clone will be born
4. By 2030 we will reach the stage when life expectancy will increase by a year every year in the most advanced countries. This in some way will create the basis for the humans becoming immortal in their existing biological body (at least in theory).
5. By 2030 a single personal computer will have more processing power and capacity than the human brain (following the Moore's Law)
6. By 2030s, virtual and augmented reality will begin to feel 100% real.
7. By 2040s, non-biological intelligence will be a billion times more capable than biological intelligence
8. By 2040 nanotech foglets (self-assembled nano-robots) will be able to make food out of thin air and create any object in physical world at a whim (the only thing they will need is a comprehensive description of the goal or the final product)
9. By 2040 we will be able to upload our mind/consciousness
10. By 2040 the first Artificial General Intelligence (AGI), computer, i.e. Superintelligence, embodied in a human shape will be created, having far more knowledge and processing power than the whole humanity and potentially be able to rule over the world.
11. By 2045, we will multiply our intelligence a billion-fold by linking wirelessly from our neocortex to a synthetic neocortex in the cloud and Superintelligence will reach the "Singularity" point. (56)

The next question is how we, as humans, will evolve living, at least for some time, next to a superior conscious being, millions of times more intelligent than us. This is my scenario for the evolution of humans and Superintelligence.

Stage 3: The evolution of Superintelligence

1. Superintelligence becomes a new species with digitized consciousness – about 2045
2. Superintelligence helps humans to improve dramatically their lives and modify their body with exoskeletons, eliminating practically all illnesses and reversing aging. Most importantly our brains will get an interface in a form of implanted chips gaining extra processing power and memory (first trials of implanted chips have already been successful, proving the concept). But modified humans will still remain a separate species living next to each other with Superintelligence and unmodified humans - about 2100
3. Superintelligence helps humans to upload their mind, including consciousness, into a non-biological platform, creating Transhumans – about 2100. Those Transhumans will live next to the unmodified humans, modified humans with implanted chips, and the originally created Superintelligence
4. Original human species and original Superintelligence disappears. Transhumans are the only intelligent and conscious species – about 2300
5. Transhumans gradually expand into the solar system and beyond, gaining new powers
6. Individual consciousness in Transhumans is absolutely seamless and hard to distinguish within the total consciousness of Transhumans’ “society”. Every “individual” Transhuman knows everything about everybody else and can communicate almost instantaneously with everybody else with the speed of light
7. Transhumans spread over billions of years across the whole Universe
8. At some stage Transhumans may gain capabilities to move to other universes and survive for ever. Should they not be able to do so, then when everything in our Universe comes to a full stop, its entropy reaches a maximum and its temperature reaches absolute zero, Transhumans will simply become Nothingness...again.

And this is how we may have turned the full circle: from Nothingness through humans, Superintelligence – Transhumans and then back to Nothingness. It is not easy to imagine that we were born from nothing and even more difficult to imagine that this whole Universe will one day also become nothingness (in thermodynamics terms). But that is of course only one of the scenarios which, if possible, would happen in trillions of years from now and we do not have to worry about it.

From today’s perspective, what is important is to prepare for a selection of choices around 2040 – 2100, how we want our species to evolve. This is of course a big assumption that we will basically survive unscathed as a species, with no existential risk wiping us out, that the Superintelligence will emerge human friendly, and that we shall have enough control over it to make such a momentous decision. But there is still one more condition on which our choice will depend – can Superintelligence become

conscious. What would be the consequences of developing Superintelligence that in principle (confirmed by future discoveries) could never be conscious, because consciousness requires a biological substrate? That is the question I raise in the next section.

Can Superintelligence be Conscious?

We now come to one of the big questions about Artificial Intelligence – can it be conscious? It is so important because if Superintelligence does arrive at a certain date, and if it becomes impossible to make it conscious, the prospect of any co-operation of such an agent with humans might be significantly lower, if at all possible. But let us investigate what consciousness really is. Wikipedia defines **Consciousness** as "Anything that we are aware of at a given moment forms part of our consciousness, making conscious experience at once the most familiar and most mysterious aspect of our lives." (57)

Broadly speaking the scientific world is split between those who have an entirely materialistic view on the origin and working of consciousness – i.e. it is a natural outcome of evolution. One of them is Daniel Dennett an American philosopher of mind, who has based his key tenets on the work of Charles Darwin and Richard Dawkins in biology, and Alan Turing and Claude Shannon in artificial intelligence and information theory. He sees as his opponents all creationists, some philosophers like John Searle, or biologists Stephen Jay Gould and Richard Lewontin. He presented the essence of his views in the interview with Steven Rose in the ‘The Guardian’ in February 2017 (58).

“Dennett’s key assumptions are these: mind and consciousness are no more and no less mysterious than other natural phenomena, such as gravity. Granted the right chemical and physical conditions, life forms will emerge from the primeval slime, gradually evolving into large-brained organisms such as humans, who are profoundly social animals and hence need to be able to communicate, cooperate and compete with their fellows. This requires the ability to think, remember, plan, empathise, or in a word, to have a mind. And minds require large and complex brains to enable and sustain them, all generated by Natural Selection” (58).

Dennett’s opponents call scientists like him Darwinitis or neuromaniacs. One such formidable opponent is Raymond Tallis, who put forward his arguments in a fiery book ‘Aping Mankind’ reviewed by ‘Observer’ in August 2011 (59). He is a neuroscientist at the University of Manchester and is well equipped to explain what happens in the brain when looking at the fMRI scan. He argues that even if the scans could in theory, and did in practice, reliably isolate specific brain states to match up with specific psychological states, what would such matching amount to? Is the brain state supposed to be the very same as the psychological state? If a psychological state like hearing someone laughing, and a brain state represent the same thing, then the least one might expect is that they would appear as if they were the same thing. But according to Tallis, they don’t; not anyway, to the neuroscientist observing the brain.

Tallis exposes in his book significant, as he sees it, fraudulence of memes, and an unscientific use of metaphors such as "information". His key objective is to defend free will and to "reaffirm humanity" but without appealing to mysterious "mind-stuff". Tallis accepts the key aspects of evolution and natural selection, but questions the way subjective consciousness is being explained by scientists like Daniel Dennett. If he is right and consciousness may have the root, or some roots in the brain-mind construct, that is not all. Unfortunately, he does not propose what else is needed for consciousness to exist.

But there are other scientists who do not belong to either camp. One of them is Roger Penrose, a mathematical physicist at Oxford University, who believes that if a "theory of everything" is ever developed in physics to explain all the known phenomena in the universe, it should at least partially account for consciousness. He also believes that quantum mechanics, the rules governing the physical world at a subatomic level, might play an important role in consciousness.

That is in line with 80-year old so-called Copenhagen Interpretation, courtesy of Niels Bohr, one of the fathers of quantum mechanics. According to that theory, consciousness and the physical world are complementary aspects of the same reality. When a person observes, or experiments on some aspects of the physical world, then that person's conscious interaction causes noticeable change. This view was also supported by other pioneers of quantum theory such, Werner Heisenberg and Erwin Schrödinger and has been confirmed in thousands of experiments (e.g. the well-known double slit experiment) with no plausible explanation of this process.

Roger Penrose advanced these ideas a bit further saying that consciousness is not computational, and it's beyond anything that neuroscience, biology, or physics can now explain. "We need a major revolution in our understanding of the physical world in order to accommodate consciousness. The most likely place, if we're not going to go outside physics altogether, is in this big unknown, namely making sense of quantum mechanics" (60). He draws on the basic properties of quantum computing, in which bits (qubits) of information can be in multiple states. (This is called quantum superposition and is a fundamental principle of quantum mechanics). It asserts that, much like waves in classical physics, any two, or more, quantum states can be added together i.e. "superposed" and the result will be another valid quantum state (61).

But it was Stuart Hameroff's idea (Penrose's neuroscientist partner) that quantum coherence happens in microtubules, protein structures inside the brain's neurons. Microtubules are tubular structures inside the cells that play a role in determining the cell's shape, as well as its movements, which includes cell division, i.e. separation of chromosomes during mitosis. Hameroff suggests that microtubules are the quantum device that Penrose had been looking for in his theory. In neurons, microtubules help control the strength of synaptic connections, and their tube-like shape might protect them from the surrounding noise of the larger neuron. (60). Such idea is very close to **panpsychism**, which considers "consciousness, mind or soul (psyche) a universal and primordial feature of all things" (62). It is therefore, possible that consciousness is an emergent property of intricately configured matter (e.g. only in a biological form). At

least that is the view of George Dvorsky who says in an article: “9 Ways Humanity Could Bring About Its Own Destruction that” ...if this is true, we may never be able to code for consciousness using a stream of ones and zeros. Consequently, consciousness uploads would be a form of suicide; the end result would be an apparent **version of you**, but there would be nobody home (63).”

One example of how the brain and perhaps consciousness work in the way similar to the principles of quantum mechanics are the autistic people who had special mathematical powers enabling them to calculate long numbers on par with average computers. They often say they just ‘see’ the result of their calculations. If we assume that the brain is functioning as a highly networked computer where billions of the nodes of that computer make calculations then the statement that our brain may function using the principles of quantum mechanics may be quite probable and Roger Penrose could be right.

Perhaps one of the best-known examples of strange powers of human brain that could be based on quantum computing is an Indian Mathematician Srinivasa Ramanujan as has been brilliantly shown in the film about him I watched recently. Although he had almost no formal training in pure mathematics he became one of the youngest Fellows of the Royal Society. During his short life, Ramanujan independently developed nearly 3,900 formulae, such as the Ramanujan prime, the Ramanujan theta function, partition formulae, and mock theta functions, which have opened entirely new areas of work and inspired a vast amount of further research. Nearly all his claims have now been proven correct (64). There are other recent such examples of young people developing advanced mathematical formulae when still at school like Xuming Liang and Ivan Zelich. (65)

The brain is a deviously complex biological computing device that even the fastest supercomputers in the world fail to emulate. It could be an indication that brain can only function with such speed if its operation is based on quantum computing. Here is another example. It was only in 2017, when two scientists Markus Diesmann and Abigail Morrison succeeded in creating an artificial neural network of 1.73 billion nerve cells connected by 10.4 trillion synapses. While impressive, this is only a fraction of the neurons every human brain contains. It took **40 minutes** for this network operating the fourth fastest supercomputer in the world to simulate just **1 second** of biological brain processing time.

If people like Roger Penrose are right, then there is some possibility that Superintelligence may not become a conscious entity as we understand it. If consciousness is only possible in a biological entity, like humans, then Transhumanism would suffer a major blow, and those who may be dreaming about immortality will have their dreams crushed.

However, it seems that people like Penrose are in a minority of scientists. Most of them believe that consciousness has arrived at some stage during the evolution as a kind of a function. That’s why this view is often called Functionalism. It is based on the

assumption that “if mental properties are reduced to physical properties of a physical system, then it does not follow that all matter has mental properties: it is in virtue of the **structural or functional organization of the physical system** that the system can be said to have a mind, not simply that it is made of matter” (62).

Many computer scientists think that consciousness involves two stages: 1 - accepting new information, storing and retrieving old information, and 2 - cognitive processing of all that information into perceptions and actions. If that’s right, then one day machines will become conscious. This view has recently gained some significant support. In October 2017 Drs. Stanislas Dehaene, Hakwan Lau and Sid Kouider from Collège de France in Paris came to the conclusion that consciousness is “a multi-layered construct. As they see it, there are two kinds of consciousness, which they call ‘dimensions C1 and C2. Both dimensions are necessary for a conscious mind, but one can exist without the other:

1. **Subconsciousness** – dimension C1, containing information and the huge range of processes with the required algorithms in the brain where most human intelligence lies. That is what enables us to choose a chess move, or spot a face without really knowing how we did it. The researchers believe that this type of consciousness has already been represented in a digital form and is comparable to the kind of processing that lies behind AI algorithms that are embedded in DeepMind’s AlphaGo or Chinese Face++.
2. **Actual consciousness** – dimension C2 containing and monitoring information about oneself, which splits it into two distinct types and which is not yet present in machine learning:
 - a. **The ability to maintain a huge range of thoughts at once**, all accessible to other parts of the brain, making abilities like long-term planning possible. In this area there is already some progress. For example, in 2016, DeepMind developed a deep-learning system that can keep some data on hand for the use by an algorithm when it contemplates its next step. This could be the beginning toward global information availability.
 - b. **The ability to obtain and process information about ourselves**, which allows us to do things like reflect on mistakes.

This proposition closely correlates well with a theory that **Actual Consciousness** (C2) is driven by billions of networks that bind together information from **Subconsciousness** (C1) following stochastic probability similar or identical with the principles of quantum mechanics (66).

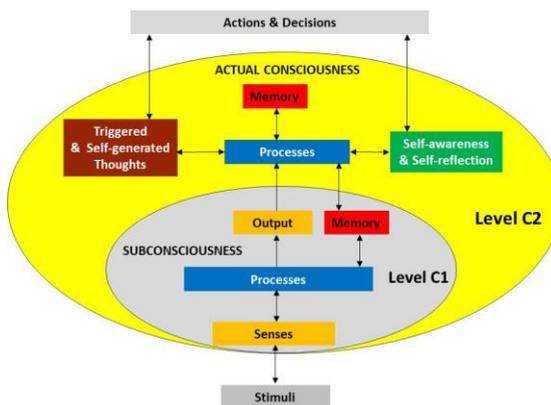
Should those recent findings and proposals from Collège de France in Paris become generally accepted then that might resolve the questions posed by Roger Penrose about the nature of consciousness. He may be right that consciousness is not just the brain-mind construct but is also underpinned by phenomena similar to those present in quantum mechanics, however not in the way he suggests, i.e. in the ‘hardware’

(microtubules). The quantum mechanics' Uncertainty Principle would not act at the level of individual synapses but rather at the level of neural networks, which connect thousands of synapses and give an **averaged** response at a macro-level, e.g. lifting a hand. Since that response would be only probabilistic and not based on yes-no state of an individual synapse (and hence its similarity to quantum phenomena), it will ensure that there will be no conflict with the preservation of free will. That might also be in line with the thinking of people like Raymond Tallis, who so strongly defends the validity of free will (i.e. unpredictability of human actions). And that's how the scientific world may slowly be arriving at some common understanding on the nature of consciousness, and by extension, the feasibility of uploading a human mind together with its consciousness to Superintelligent being.

Let me now summarize the conclusions about the nature of consciousness, as far as science seems to indicate and the consequences for uploading a human mind to Superintelligence. Consciousness is probably one of the very few areas in science where the academics cannot agree on the meaning of the subject they are studying. Probably, and this is still only probably, the human consciousness multi-layered structure and organization has been best summed up in the recent research by the academics from Collège de France (66):

"Consciousness is a structural (functional) organization of a physical system, which operates at two levels: 1. Subconsciousness – accepting, storing and retrieving information using huge range of processes with the required algorithms – this is where most of human intelligence and knowledge lie. 2 - Actual consciousness containing information about oneself, which it turns into a wide range of 'thoughts', all accessible at once to all parts of the brain, which it is able to have continually monitored and processed, outputting them as perceptions and actions."

For the purpose of this book I took that information and converted it into a diagram below (you should navigate it from the bottom to the top):



The likely organization of the human consciousness as proposed by the researchers at the Collège de France (66)

Such an approach to the nature of consciousness provides a clearer view on a number of questions in this area. For example, it allows for a gradual development of consciousness over millennia of life's evolution, which might have started with automatic, chemistry-based responses, in plants 'seeking' best nutrients, i.e. being somewhat aware of the environment. In the animal world the level of self-awareness would be directly correlated with the brain size relative to the body mass and complexity of neural connections. When these two parameters reached a tipping point, human consciousness was ignited in *Homo sapiens* and other humanoids, such as in the Neanderthal Man. If we accept this notion, then human consciousness, having physical strata and differing only from animal self-awareness because of a much higher level of complexity and self-organization of billions of stimuli and memory cells, can be replicated in a different than a biological stratum, such as in 'silicone'.

Therefore, throughout this book my main assumption is that once Superintelligence emerges, it will be possible that at some stage it will become a conscious agent.

The risk from Superintelligence

I would now like to concentrate on the risk arising from the advent of Superintelligence for Humanity. The key aspect of the assessment of that risk for Humanity is to ask a basic question about key values that define Humanity, what is good and what is right. I will develop this argument further on. So, paradoxically, Superintelligence forces us to answer these questions more meaningfully than ever before.

In my view, Superintelligence represents the most dangerous risk. Why? Because it is almost certain to happen, if we do nothing, unlike natural pandemics that may not happen at all, even if we do not apply any counter measures, since it is a lottery type risk. The second reason why it is so dangerous is that it may happen much earlier than the risk mostly talked about in recent years – the climatic catastrophe. The risk coming from Superintelligence is more likely to happen in the next 50 years rather than next century. On the other hand, I believe that if we manage to produce the so called "friendly" Superintelligence, then instead of becoming the biggest risk, it itself can help us reduce other anthropogenic risks, such as climate change.

The Superintelligence is defined as a type of artificial intelligence that would surpass even the smartest humans. The threat stems, from even the slightest misalignment of our values and Superintelligence's objectives, or its "values". If this happens, even when the corresponding goals appear benign, it could be disastrous. Nick Bostrom quotes a scaring example that involves a Superintelligence programmed to "maximize" the abundance of some objects, like paperclips. This could lead Superintelligence to harvest all available atoms, including those in human bodies, thereby destroying humanity (and perhaps the entire biosphere (2)). In addition, there are multiple ways that Superintelligence could become outright malevolent toward humanity, as University of Louisville computer scientist Roman Yampolskiy outlines in a recent paper (67).

- Preventing humans from using resources such as money, land, water, rare elements, organic matter, internet service or computer hardware;
- Subverting the functions of local and federal governments, international corporations, professional societies, and charitable organizations to pursue its own ends, rather than their human-designed purposes;
- Constructing a total surveillance state (or exploitation of an existing one), reducing any notion of privacy to zero – including privacy of thought;
- Enslaving humankind, restricting our freedom to move or choose what to do with our bodies and minds, as through forced cryonics or concentration camps;
- Abusing and torturing humankind with perfect insight into our physiology to maximize amount of physical or emotional pain, perhaps combining it with a simulated model of us to make the process infinitely long.

It would be impossible to provide a complete list of negative outcomes of an AI agent with general reasoning ability that he would be able to inflict. We can expect a lot of these sorts of attacks in the future. The situation is even more complicated once we consider systems that exceed human capacity. Superintelligence may be capable of inventing dangers we are not even capable of predicting or imagining. Nick Bostrom expands the argument further by saying:

“The value alignment problem is made even more dangerous by the possibility that a Superintelligence’s thought processes could run millions of times faster than ours, given the vastly different speed of electrical potentials in computer hardware versus action potentials in the human brain. Superintelligence could also learn to rewrite its own code, thereby initiating an intelligence explosion until some upper limit—perhaps far above human intelligence—is finally reached”⁽²⁵⁾.

In another article, “Fighting malevolent AI: artificial intelligence, meet cybersecurity”, previously quoted Roman Yampolskiy argues that purposeful creation of malicious AI will likely be attempted by a range of individuals and groups, who will experience varying degrees of competence and success. These include:

- Militaries developing cyber-weapons and robot soldiers to achieve dominance;
- Governments attempting to use AI to establish hegemony, control people, or take down other governments;
- Corporations trying to achieve monopoly, destroying the competition through illegal means;
- Hackers attempting to steal information, or destroy cyberinfrastructure targets;
- Doomsday cults attempting to bring the end of the world by any means;
- Psychopaths trying to add their name to history books in any way possible;
- Criminals attempting to develop proxy systems to avoid risk and responsibility;
- AI-risk deniers attempting to support their argument, by making errors or encountering problems that undermine it;
- Unethical AI safety researchers seeking to justify their funding and secure their jobs by purposefully developing problematic AI ⁽⁶⁷⁾.

So, we have to accept that the creation of Superintelligence poses perhaps the most difficult long-term risks to the future of Humanity. Phil Torres identifies several issues here, saying that the first one is the amity-enmity problem: the AI could dislike us for whatever reason, and therefore try to kill us. The second risk is the indifference problem: the AI could simply not care about our well-being, and thus destroy us because we happen to be in the way. And finally, there is yet another problem, which he calls “the clumsy fingers problem”: the AI could inadvertently nudge us over the cliff of extinction rather than intentionally pushing us. This possibility is based on the assumptions, which states that higher levels of intelligence aren’t necessarily correlated with the avoidance of certain kinds of mistakes. He warns that the fruits of our ingenuity — namely, dual-use technologies — have introduced brand new existential risk scenarios never before encountered by Earth-originating life. Given the immense power of Superintelligence, e.g. it could manipulate matter in ways that appear to us as pure magic, it would be enough to make a single error for such a being to trip humanity into the eternal grave of extinction (68).

The existential risk posed by Superintelligence does not depend on how soon one is created; it merely concerns us what happens once this occurs. Nonetheless, a survey of 170 artificial intelligence experts made in 2014 by Anatolia College philosopher Vincent C. Müller and Nick Bostrom suggests that Superintelligence could be on the horizon. The median date at which respondents gave a 50 percent chance of human-level artificial intelligence was 2040, and the median date at which they gave a 90 percent probability was 2075. This prediction is further away than 2045 given by Ray Kurzweil, that I quoted before. In any case, if they are correct, some people around today will live to see the first Superintelligence—which, as British mathematician I. J. Good observed in 1966, may be our last invention. (69)

Physicist Stephen Hawking, Microsoft founder Bill Gates and SpaceX founder Elon Musk have expressed concerns about the possibility that AI could evolve to the point that humans could not control it, with Hawking theorizing that this could “spell the end of the human race”. In 2009, AI experts attended a conference hosted by the Association for the Advancement of Artificial Intelligence (AAAI) to discuss whether computers and robots might be able to acquire any sort of autonomy, and how much these abilities might pose a threat or hazard. They noted that some robots have acquired various forms of semi-autonomy, including being able to find power sources on their own and being able to independently choose targets to attack with weapons. They also noted that some computer viruses can evade elimination and have achieved “cockroach intelligence.” They concluded that self-awareness as depicted in science-fiction is probably unlikely, but that there were other potential hazards and pitfalls. Various media sources and scientific groups have noted separate trends in differing areas, which might together result in greater robotic functionalities and autonomy, and which pose some inherent concerns. One of those well-known AI experts, Eliezer Yudkowsky, believes that risks from AI are harder to predict than any other known risks. He also argues that research into AI is biased by anthropomorphism. He claims that since people base their judgments of AI on their own experience, they underestimate its potential power. He distinguishes between risks due to technical failure of AI, which

means that flawed algorithms prevent the AI from carrying out its intended goals, and philosophical failure, which means that the AI is programmed to realize a flawed ideology (70).

The reason why I believe Superintelligence is the biggest risk is that it is the one that may arrive in an inferior, “half-baked” form. There is certainly no need for Superintelligence to be conscious to annihilate Humanity. It is worth to remember what kind of panic and material loss was caused by the ‘WannaCry’ ransom virus, on 13th May 2017, believed to have been stolen from the US National Security Agency, almost infinitely primitive by comparison with Superintelligence. The virus was reportedly spread out by North Korea. As reported by BBC, it targeted computers running the Microsoft Windows operating system by encrypting data and demanding ransom payments in the Bitcoin cryptocurrency. It was reported that within a day it had infected more than 230,000 computers in over 150 countries, including Russia and China. Parts of the United Kingdom's National Health Service were infected, causing it to run some services on an emergency-only basis during the attack. Spain's Telefónica, FedEx and Deutsche Bahn were hit, along with many other countries such as Russia, the Ukraine and Taiwan. Only by sheer coincidence the attack was stopped within a few days by Marcus Hutchins, a 22-year-old web security researcher, who discovered an effective solution (71).

This example shows that it is enough for AI agent to be more intelligent in a specific area than any human and that its intelligence being digital can increase exponentially. It would be enough for such an entity to annihilate Humanity if for example it had slightly misaligned objectives or values with those that we share. Such misalignment may then lead immediately to the point of no-return, by triggering the so-called runaway scenario of Technological Singularity. Malhar Mali in his interview with Phil Thores of X-Risks, puts it very clearly:

“When it comes to creating the Superintelligence, the coding becomes important. Because there's a difference between "do what I say" and "do what I intend." Humans have this huge set of background knowledge that enables us to figure out what people actually say - in a context-appropriate way. But for an A.I., this is more of a challenge... it could end up doing exactly what we say but in a way that destroys the human race.” (72)

This kind of risk is well illustrated by the Greek legend about Tithonus, the son of Laomedon, the king of Troy. When Eos (Aurora), the Goddess of Dawn, fell in love with Tithonus, she asked Zeus to grant Tithonus eternal life. Zeus consented. However, Eos forgot to ask Zeus to also grant him eternal youth, so her husband grew old and gradually withered.

It is difficult to imagine at first what kind of damage a wrongly designed Superintelligence can do. The most dangerous period for Humanity, which in my view will last for about one generation, has already started. If we somehow survive, by managing the damage that will be occurring from time to time, and maintain our control

over Superintelligence, it will be Superintelligence itself that will help us to minimize other risks.

If one minor computer virus such as WannaCry, quoted earlier, can do such damage then imagine what might be expected even from a relatively primitive Superintelligence if it is applied in a full-scale cyberwarfare. In theory, such a cyberwarfare could trigger off a cascade of a series of non-existential risks, which could combine into an existential risk. For example, what would be the consequences if North Korea, or a super-rich derailed billionaire acquire the capability of cracking any password within minutes, using quantum-computing (China probably already has this capability). It could then also get access to the most important state and military secrets, including access to firing nuclear weapons. If at the same time, either through development or simply by purchasing sophisticated quantum-computing based algorithms, it could paralyse communications and computer networks, it could thus trigger off a 'hardware war'. In such a war it would get an initial (or total) advantage because most of the military equipment, which relies on computing, could be disabled or become useless. Then other, normally very small probability level existential risks could be triggered off, such as nanotechnology and weaponized AI. The attacked countries would then try to defend themselves with all available means creating an existential catastrophe.

The good news is, that at the same time as it would be possible to crack any password using quantum computing technology it would also be possible to protect access to various state guarded secrets by applying quantum encryption. It has already been proved to work by China in February 2018, when not only the passwords but also the whole content (a video) was quantum encrypted. Since quantum encryption makes it physically impossible to get access to protected information by cracking a password, this will reduce the risk of a full-scale cyber war.

Viruses are only one aspect of the damage that even basic IT can do. There have been many other IT-generated non-virus-related damages. More recently, we are seeing the first occurrences of the damage done by the so-called narrowly focused AI systems. These are AI agents that excel in only one or two domains. The damage done by today's AI systems included market crashes, accidents caused by self-driving cars, intelligent trading software, or personal digital assistants such as Amazon Echo or Google Home.

Such failures are just a warning. Once we have developed Superintelligence capable of accomplishing a much wider range of tasks, the damage will be much worse. Imagine the AI agent that could trigger the switching off power grids in just one country. Since grid networks are connected globally, it could create a very serious damage world-wide in almost every aspect of life for many weeks, if not months. This is the warning that Symantec group made in their announcement in September 2017:

"The energy sector has become an area of increased interest to cyber attackers over the past two years. Most notably, disruptions to Ukraine's power system in 2015 and 2016 were attributed to a cyber-attack and led to power outages affecting hundreds of

thousands of people. In recent months, there have also been media reports of attempted attacks on the electricity grids in some European countries, as well as reports of companies that manage nuclear facilities in the U.S. being compromised by hackers. The Dragonfly group, which is behind those attacks, appears to be interested in both learning how energy facilities operate and also gaining access to operational systems themselves, to the extent that the group now potentially has the ability to sabotage or gain control of these systems, should it decide to do so (73).”

Ignoring for a moment a malicious damage caused by cyberwars, most of it will occur because of ill-defined tasks or control of task execution. It is not easy to make a machine that can understand us, learn and synthesize information to accomplish what we want. The added problem is that very few decision makers appreciate that the problem is already with us. Additionally, according to Machine Intelligence Research Institute, in 2014 there were only about 10,000 AI researchers world-wide. Very few of them, just about 100, are studying how to address AI system failures systematically. Even fewer have formal training in the relevant scientific fields – computer science, cybersecurity, cryptography mathematics, network security and psychology (74).

Many AI researchers have recognized the possibility that AI presents an existential risk. For example, MIT professors Allan Dafoe and Stuart Russell mention that contrary to misrepresentations in the media, this risk need not arise from spontaneous malevolent consciousness. Rather, the risk arises from the unpredictability and potential irreversibility of deploying an optimization process more intelligent than the humans who specified its objectives. This problem was stated clearly by Norbert Wiener in 1960, and we still have not solved it. (75)

Elon Musk, the founder of Tesla, Space X and the Neuralink, a venture to merge the human brain with AI, has been urging governments to take steps to regulate the technology before it's too late. At the bipartisan National Governors Association in Rhode Island in July 2017 he said: "AI is a fundamental existential risk for human civilization, and I don't think people fully appreciate that." He also said, he had access to cutting-edge AI technology, and that based on what he had seen, AI is the scariest problem. Musk told the governors that AI calls for precautionary, proactive government intervention: "I think by the time we are reactive in AI regulation, it's too late," he said. (76).

Most people still think that AI should continue being developed like all previous technologies. But as with each technology, the more advanced AI becomes the more people it can affect. Even AI researchers still behave and develop their AI agents as they were a similar piece of technology, as a rudimentary IT program. Even if we assume this argument, many human inventions have potentially both a positive and a negative effect. Suffice to give two examples; nuclear energy and the Internet. Although it is true that in principle AI is a tool (so far) as any other invention before, i.e. not inherently good or bad, it differs from all previous inventions in that it **could** lead to unimaginable unintended consequences. So, how could we minimize the risk arising from Superintelligence? That's why the next section is about.

Mitigating the risks arising from Superintelligence

Setting the rules for controlling Superintelligence

I would now like to focus on how we can minimize the risks that the advent of Superintelligence may create for Humanity. We have to make absolutely sure that however we approach the development of Superintelligence, we have covered all conceivable risks resulting from its activity. Otherwise, we may deliver the agent that will annihilate Humanity.

The good news is that there are already some countermeasures in place, which aim at minimizing the risk of Superintelligence deployment. Until 2016 AI development was broadly guided by Three Laws of Robotics described by the science fiction writer Isaac Asimov in 1942 in a short story "Runaround" and later on repeated in his 1950 book "I Robot". They are:

- A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
- A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws (77).

These principles have now been replaced by 23 Asilomar Principles agreed at the Beneficial AI Conference at Asilomar, California on 5th January 2017 and signed by over 2,000 AI experts in the first three months. It is intended to be constantly evolving as new AI challenges appear. They have been split in three areas:

Research issues

1. Research Goal: The goal of AI research should be to create not undirected intelligence, but beneficial intelligence
2. Research Funding: Investments in AI should be accompanied by funding for research on ensuring its beneficial use, including thorny questions in computer science, economics, law, ethics, and social studies, such as:
 - How can we make future AI systems highly robust, so that they do what we want without malfunctioning or getting hacked?
 - How can we grow our prosperity through automation while maintaining people's resources and purpose?
 - How can we update our legal systems to be fairer and more efficient, to keep pace with AI, and to manage the risks associated with AI?
 - What set of values should AI be aligned with, and what legal and ethical status should it have?

3. Science-Policy Link: There should be constructive and healthy exchange between AI researchers and policy-makers
4. Research Culture: A culture of cooperation, trust, and transparency should be fostered among researchers and developers of AI
5. Race Avoidance: Teams developing AI systems should actively cooperate to avoid corner-cutting on safety standards

Ethics and Values

6. Safety: AI systems should be safe and secure throughout their operational lifetime, and verifiably so where applicable and feasible
7. Failure Transparency: If an AI system causes harm, it should be possible to ascertain why
8. Judicial Transparency: Any involvement by an autonomous system in judicial decision-making should provide a satisfactory explanation auditable by a competent human authority
9. Responsibility: Designers and builders of advanced AI systems are stakeholders in the moral implications of their use, misuse, and actions, with a responsibility and opportunity to shape those implications
10. Value Alignment: Highly autonomous AI systems should be designed so that their goals and behaviours can be assured to align with human values throughout their operation.
11. Human Values: AI systems should be designed and operated so as to be compatible with ideals of human dignity, rights, freedoms, and cultural diversity.
12. Personal Privacy: People should have the right to access, manage and control the data they generate, given AI systems' power to analyse and utilize that data.
13. Liberty and Privacy: The application of AI to personal data must not unreasonably curtail people's real or perceived liberty.
14. Shared Benefit: AI technologies should benefit and empower as many people as possible.
15. Shared Prosperity: The economic prosperity created by AI should be shared broadly, to benefit all of humanity.
16. Human Control: Humans should choose how and whether to delegate decisions to AI systems, to accomplish human-chosen objectives.
17. Non-subversion: The power conferred by control of highly advanced AI systems should respect and improve, rather than subvert, the social and civic processes on which the health of society depends.
18. AI Arms Race: An arms race in lethal autonomous weapons should be avoided.

Longer-term Issues

19. Capability Caution: There being no consensus, we should avoid strong assumptions regarding upper limits on future AI capabilities.
20. Importance: Advanced AI could represent a profound change in the history of life on Earth, and should be planned for and managed with commensurate care and resources.

21. Risks: Risks posed by AI systems, especially catastrophic or existential risks, must be subject to planning and mitigation efforts commensurate with their expected impact.
22. Recursive Self-Improvement: AI systems designed to recursively self-improve or self-replicate in a manner that could lead to rapidly increasing quality or quantity must be subject to strict safety and control measures.
23. Common Good: Superintelligence should only be developed in the service of widely shared ethical ideals, and for the benefit of all humanity rather than one state or organization.

How to tame Superintelligence?

Stephen Hawking, the renowned physicist, and who was one of the most alarmed people among the scientists regarding the risks posed by Superintelligence said that “if Superintelligence isn’t the best thing to ever happen to us, it will probably be the worst”.

That’s why people like Nick Bostrom, one of the top experts on Superintelligence, think we need to invent some controlling methods to minimize the risk of Artificial General Intelligence (AGI) going terribly wrong. He defines these methods in his book “Superintelligence” (2). For our purpose I will try to provide a layman’s description of what it really means and what are the consequences for controlling the risks emerging from Superintelligence. The most important point is that these controlling methods must be in place **before** Superintelligence arrives, i.e. latest in the next decade.

Nick Bostrom identifies the ‘control problem’ as the ‘principal-agent’ problem, a well-known subject in economic and regulatory theory. The problem can be looked from two perspectives:

- **The first ‘principal-agent’ problem:** e.g. the problem faced by a client wanting to buy a house and employing an estate agent to fulfill exactly *his (client’s)* needs. In this scenario, the client is the *principal* (the person who wants some task to be performed in accordance with his interests), and an estate agent is the *agent* (the person carrying out the tasks on my behalf).
- **The second ‘principal-agent’ problem:** e.g. the problem where the estate agent thinks primarily about *his own* interest e.g. to get the best possible agent’s fee

He dedicates a whole chapter to identify potential solutions. Since the publication of the book in 2013, they have been widely discussed in the AI community on how to turn them into practical tools. Bostrom splits them into two groups: Capability Control and Motivation Selection, which I have tried to put in as much as possible in layman’s terms, just for the purpose of this book.

How to Control the Capabilities of Superintelligence?

The ‘Control Problem’ involves human principals (sponsors or financing institutions) and human agents (AI developers). At some stage there will be an AI project to develop Superintelligence (AGI). It may be launched by one of the big IT/AI companies such as Google, Microsoft, IBM or Amazon. But it is also quite likely it will be initiated by some wealthy AI backers, which is already happening. Probably the most prominent among such people deeply involved in various top AI initiatives is Elon Musk. He is the founder of PayPal – a credit transaction payment system, SpaceX – rocket company, Hyperloop – a network of underground trains travelling at speeds of nearly 1,000 km/h, Neuralink a brain-computer interface venture, and several other large-scale initiatives such as sending 1 million people to Mars by 2050. The second one is Jeff Bezos, the founder of Amazon and the richest man on the planet with assets of about \$100bn who is deeply involved in AI. His micro AI-product called Alexa Echo was sold to over 20m people by the end of 2017.

Such sponsors will need to ensure that AI developers carry out the project in accordance with their needs. They would also want to ascertain that they **understand** their sponsors’ needs correctly **and** that the developed AI product, which may turn into Superintelligence will also understand and obey humans as expected. Failure to address this problem could become an existential risk for Humanity.

Bostrom specifies four possible solutions, which he calls the “**Capability Control Method**”. Its purpose is to tune the capabilities of superintelligent agent to the requirements of humans in such a way that we stay safe and have the ultimate control of what Superintelligence can do.

Boxing Methods of Control

This is perhaps the simplest and most intuitively compelling method of controlling Superintelligence - putting it into a metaphorical “box” i.e. a set of protocols that constrain the way, in which Superintelligence could interact with the world, always under the control of humans. It is often proposed that as long as Superintelligence is physically isolated and restricted, or "boxed", it will be harmless.

A typical Superintelligence will be a superbly advanced computer with sophisticated algorithms (procedures how to process information) and will have three components: a sensor (or input channel); a processor; and an actuator (or output channel). Such superintelligent agent will receive inputs from the external world via its sensors e.g. Wi-Fi, radio communication, chemical compounds, etc. It will then process those inputs using its processor (computer) and will then respond (output information or perform some action using its actuators. An example of such action could be very mundane such as advising on which decision should be made, switching on or off certain engines, or completing financial transactions. But they could also be potentially significant e.g. whether a chemical compound would be safe for humans at a given dose.

However, it is highly unlikely that a superintelligent agent could be boxed in this way in the long term. Once the agent becomes superintelligent, it could persuade someone (the human liaison, most likely) to free it from its box and thus it would be out of human control. There are a number of ways of achieving this goal, some included in Bostrom's book, such as:

- Offering enormous wealth, power and intelligence to its liberator
- Claiming that only it can prevent an existential risk
- Claiming it needs outside resources to cure all diseases
- Predicting a real-world disaster (which then occurs), then claiming it could have been prevented had it been let out

To counter such possibilities, there are some solutions that would decrease the chance of superintelligent agent escaping the 'Box', such as

- Physically isolating Superintelligence and permitting it zero control of any machinery
- Limiting the Superintelligence's outputs and inputs with regards to humans
- Programming the Superintelligence with deliberately complex logic
- Periodic resets of the Superintelligence's memory
- A virtual world between the real world and the AI, where its unfriendly intentions would be first revealed

However, as you yourself maybe aware, physical isolation is a solution that could be extremely difficult to control. It is already being severally thwarted by the rapid spread of Internet of Things (IoT), little gadgets like opening the door, switching on/off ovens, fridges, lights etc., which could be controlled at your home while you are away on the other side of the globe

Incentive Methods

Bostrom refers to the second capability control method as the "incentive" method. The idea seems to be that if you create the right "incentive environment" Superintelligence wouldn't be able to act in an existentially threatening manner. This is in some way an analogy to how to bring up a child. A child has its own goals, which may not be good for itself or the people around it right now or in the future. So, a good teacher can motivate his child in such a way that it behaves in morally and socially acceptable ways.

Stunting

"Stunting", as the name implies, involves hampering or disabling Superintelligence in some way. A good example would be running Superintelligence on a slow hardware, reducing its memory capacity, or limiting the kind of data it can process. Bostrom argues that the use of stunting poses a dilemma. Either we stunt Superintelligence too much and it just becomes another "dumb" piece of software; or we stunt it too little

and it would be capable of overcoming its disabilities. Getting the balance just right could be pretty tricky.

Tripwiring

This is a different method of capability control. It involves building into any AI development project a set of “tripwires” which, if crossed, will lead to the project being shut down and destroyed. Bostrom identifies three types of tripwire:

- **Behavioural Tripwires:** A network of detectors would be placed around a “boxed” AI in order to detect any attempt to breach the containment, e.g. any attempt to make radio communication.
- **Ability Tripwires:** The Superintelligence would be regularly tested for its capabilities. If at any point new abilities are detected or if it gets close to some capability threshold, it would be shut down.
- **Content Tripwires:** The Superintelligence’s internal processing could be constantly monitored for any suspicious changes, e.g. changes in how it represents its final values.

Bostrom thinks that tripwires could be useful, particularly during the development phase if used in conjunction with other methods. But, unsurprisingly, he also thinks that they too have shortcomings. An advanced Superintelligence could subvert a tripwire in an unexpected way. He also notes that project developers working on Superintelligence could grow impatient if tripwires repeatedly hamper their progress. They might undermine any safety advantage gained by the tripwire system.

Motivation Selection Method

The second set of tools to control the undesired behaviour of Superintelligence is to try to motivate it to pursue the goals that are in our (human) interest, and that is why this approach is called the “**Motivation Selection Method**”. John Danaher provides a summary of these methods in his article “Bostrom on Superintelligence: Limiting an AI’s Capabilities” (78), parts of which I have used to convey below the essence of Motivation Selection in a less technical way.

It is in some way an extension of the ‘Incentive Method’ from the Capability Control set of tools. Bostrom is clear as with the Control Problem approach, that this set of methods would have to be implemented **before** an AI achieves Superintelligence. Otherwise, the Superintelligence could have a decisive strategic advantage over human beings, and it may be impossible to constrain or limit it in any way.

That is why I have already stressed that **we have really about one decade, till about 2030, to implement mechanisms of controlling Superintelligence.**

Direct Specification

This involves programming the Superintelligence directly with the “right” set of motivations. What could go wrong if a robot always follows Asimov’s first law which

I mentioned earlier? Of course, anyone who has read the book will know that lots can go wrong. Laws and rules of this sort are vague. In specific contexts they could be applied in very odd ways, especially if the robot has a very logical or literalistic mind. Take the first law as an example. It says that a robot may not, through inaction, allow any human to come to harm. This implies that the robot must at all times be seeking to avoid possible ways, in which humans could come to harm. A superintelligent robot, with a decisive advantage over human beings, might decide that the safest thing to do would be to put all humans into artificially induced comas. It wouldn't be great for them, but it would prevent them from coming to harm.

So, anyone who has studied the development and application of human laws will be familiar with this problem. The drafters of those laws can never fully anticipate every possible future application. The same will be true for AI programmers and coders.

Domesticity

The second suggested method of motivation selection is called “domesticity”. The analogy here might be with the domestication of wild animals. Dogs and cats have been successfully domesticated and tamed from wild animals over many generations. The suggestion is that something similar could be done with superintelligent agents. They could be domesticated. The classic example of a domesticated superintelligence would be the so-called “oracle” device. This functions as a simple question-answering system. Its final goal is to produce correct answers to any questions it is asked. Even a simplistic micro AI gadget like “Alexa”, which I mentioned earlier, can already do that. Superintelligent agents would usually do just that from within a confined environment (a “box”). This would make it domesticated, in a sense, since it would be happy to work in a constrained way within a confined environment.

However, giving Superintelligence the seemingly benign goal of giving correct answers to questions could have startling implications. To answer the question, Superintelligence may require quite a lot of information, as anyone that has tried to talk with Google Home or Amazon Alexa appreciates. Once that information is stored in its memory, it will make the superintelligent agent more knowledgeable and more capable, increasing the risk of its misbehaviour, including a potential ‘runaway’, i.e. a total loss of control by humans.

Indirect Normativity

The third possible method of motivation selection is Indirect Normativity. The idea here is that instead of directly programming ethical or moral standards into Superintelligence, you give it some procedure for determining its own ethical and moral standards. If you get the procedure just right, Superintelligence might turn out to be benevolent and perhaps even supportive of human interests and needs. Superintelligence is to function much like an ideal, hyper-rational human being, which can “achieve that which we would have wished it to achieve if we had thought about the matter long and hard” (Bostrom “Superintelligence” p. 141) (2)

One of the problems with this method of motivation selection is ensuring you've got the right norm-picking procedure. Getting it slightly wrong could have devastating implications, particularly if a superintelligent machine has a decisive strategic advantage over us.

Augmentation

This is quite different from the methods discussed thus far. There, the assumption was that Superintelligence would be delivered from scratch through a series of ever more intelligent AI agents. This assumes that we start with a system that has the "right" motivations and we increase its intelligence from there. The obvious candidate for such a system would be a human being (or a group of human beings). We could simply take their brains, with their evolved and learned motivations, and augment their capabilities until we reach a point of Superintelligence. (Ignore, for now, the ethics of doing this.) Such an approach is favoured by Transhumanists, who envisage that at some stage human species will merge with Superintelligence.

As Bostrom notes, augmentation might look pretty attractive if all other methods turn out to be too difficult to implement. Furthermore, it might end up being a "forced choice". If augmentation is the only route to Superintelligence, then augmentation is, by default, the only available method of motivation selection. Otherwise, if the route to Superintelligence is via the development of AI, augmentation is not on the cards.

But a "solution" to the control problem by augmentation is not perfect either. If the system we augment has some inherent biases or flaws, we may simply end up exaggerating those flaws through a series of augments. It might be wonderful to augment a Florence Nightingale to Superintelligence, but it might be nightmarish to do the same with a Hitler. Furthermore, even if the starter-system is benevolent and non-threatening, the process of augmentation could have a corrupting effect.

Applying redefined Values of Humanity to Superintelligence

It is clear from the last paragraph in the preceding section that the least risky strategy, for delivering Superintelligence would be the process of augmentation (although it may also have some inherent danger. Apart from enormous technical problems that will emerge, **the equally important issue will be the kind of values the new augmented species should have**, which would become more than just a digital Superintelligence. That's why the need to define top values of Humanity, the foundation of human ethics, is so important (we shall discuss it in Part 2).

These values will constitute the new Human Values Charter. We will then need to establish certain procedures, perhaps enshrined in laws regarding the transfer of these values into various shapes and types of AI robots and humanoids. This would create a kind of a framework where the Human Values Charter becomes the core of every AI agent's 'brain'. Such a framework would be a boundary beyond which no AI agent could act and implemented using certain guidelines, such as 23 Asilomar principles

mentioned earlier. Only then could the developers define specific goals and targets for such AI agents always referencing the Human Values Charter as constraints to agents' objectives. In practical terms the best way forward could be to embed the Human Values Charter into a sealed chip that cannot be tampered with, perhaps using quantum encryption, and implant it into any intelligent AI agent. Such a procedure could be monitored by an independent global organization, which would manufacture and distribute those chips and licence the agents before they can enter public space. But even if such a chip is developed, there could still be a danger that confusion might arise from misinterpretation of what is expected from Superintelligence.

There are a number of proposals on how to ensure that Superintelligence acquires from humans only those values that we want. Nick Bostrom mentions them in his book "Superintelligence: Paths, Dangers, Strategies", especially in the chapter on 'Acquiring Values' p.207 (2), where he has developed quite a complex theory on the very process of acquiring values by Superintelligence.

The techniques specified by him aim to ensure the true representation of what we want. They are very helpful indeed, but as Bostrom himself acknowledges, **it does not resolve the problem of how we ourselves interpret those values.** And I am not talking just about agreeing the Charter of Human Values by Humanity, but rather expressing those values in such a way that they have a unique meaning. That is the well-known issue of "Do as I say", since quite often it is not exactly what we really mean. Humans communicate not just using words but also symbols and quite often additionally re-enforce them with body language to avoid the misinterpretation where double meaning of words is possible. Would it be possible to communicate with Superintelligence using body language in both directions? This is a well-known issue when writing emails. To avoid misinterpretation by relying on the meaning of words alone, we use emoticons.

How then would we further minimize misunderstanding? One possibility would be, as John Rawls, writes in his book "A Theory of Justice" to create algorithms, which would include statements like this:

- do what we would have told you to do if we knew everything you knew
- do what we would've told you to do if we thought as fast as you did and could consider many more possible lines of moral argument
- do what we would tell you to do if we had your ability to reflect on and modify ourselves (79)

We may also envisage within the next 20 years a scenario where the Superintelligence is "consulted", on which values to adapt and why. There could be two options applied here (if we humans have still an ultimate control):

1. In the first one the Superintelligence would work closely with Humanity and essentially would be under the total control of humans

2. The second option, and I am afraid the more likely one, assumes that once Superintelligence achieves the benevolent technological Singularity stage then it will probably be much cleverer than any human being in any aspect of human thinking or abilities. At such a moment in time, it will increase its intelligence exponentially and, in a few weeks, it would be millions of times more intelligent than any human being, creating a Technological Singularity event. Even if it is benevolent and has no ulterior motives, it may see that our thinking is constrained or far inferior to what it knows and how it sees what is 'good' for humans.

Therefore, it could over-rule humans anyway, for 'our own benefit', like a parent who sees that what a child wants is not good for it in the longer term because it simply cannot comprehend all the consequences and implications of agreeing to what a child wants. The question remains how Superintelligence would deal with values that are strongly correlated with our feelings and emotions such as love or sorrow. In the end, emotions make us predominantly human and they are quite often dictating solutions that are utterly irrational. What would the Superintelligence choice be, if it based its decisions on rational arguments only? And what would it be if it also included, if possible, emotional aspects of human activity, which after all, makes us more human but less efficient and from the evolutionary perspective more vulnerable and less adaptable?

I believe the way Superintelligence behaves and how it treats us will largely depend on whether at the Singularity point it will have at least basic consciousness. My own feeling is that if a digital consciousness is at all possible, it may arrive later than the Singularity event. In such case, one of the mitigating solutions might be, assuming all the time that Superintelligence will from the very beginning act benevolently on behalf of Humanity, that decisions it would propose would include an element of uncertainty by taking into account some emotional and value related aspects. We will develop the question of values later on in a broader context.

In the long-term, I think there is a high probability that the human race as we know it will disappear. Why should we be the only species not to become extinct? After all, everything in the universe is subject to the law of evolution. We have evolved from apes and we will evolve into a new species, unless some existential risks will annihilate civilization before then. We can speculate whether there will be augmented humans, synthetic humans, or entirely new humanoids, i.e. mainly digital humans with uploaded human minds or even something entirely different that we cannot yet envisage. It is quite likely, that humans will co-exist with two or even three species for some time but ultimately, we humans will disappear at some stage.

The next question is should we "allow" the new breed of humanoids to define ethics for themselves or should they be jump-started by our ethics. In my view, we should try as much as possible make a transfer of human ethics into the new species. Therefore, whichever organisation takes over the task of saving Humanity, there is an urgent need to formally agree the renewed set of Universal Values and Universal Rights of Humanity so that the world could reduce the level of existential risks before the AI-

based humanoids adopt them. Beyond that, however, when our human ethics is re-defined at some stage by AI-based humanoids, the values with the corresponding ethics are bound to change. Ethics is not static.

The Big Coexistence - How Superintelligence can help reduce existential risks?

If we design Superintelligence properly, its emergence does not have to be a catastrophic event in the human history. In such case a new period in Humanity's existence will start – the Big Coexistence. A friendly Superintelligence, which genuinely cares about our well-being, could guide us through various hazards that endanger human species. This covers both anthropogenic and non-anthropogenic risks, such as asteroid impact, which if detected early could be put on a trajectory bypassing Earth. More importantly, Superintelligence may have different ways of analysing potential risks, based on different idea-generating mechanisms, of which we humans could be totally unaware.

Once the Big Coexistence starts the human species may have very little influence on its own future. Some people with extended AI capabilities will become humanoids, some will decide to merge with Superintelligence and perhaps keep living in a digital form. Delivering best human ethics in the form of widely agreed Universal Human Values and Rights may be the biggest legacy that Humanity will deliver to the new species of intelligent and conscious beings. After that the next generation of “ethical” Superintelligence may itself redefine ethics of the kind we cannot even imagine.

Assuming Superintelligence develops its capabilities gradually and would be under our full control, becoming quite possibly a conscious Superintelligence, the question is how it could directly help in mitigating all other existential risks. Superintelligence, if properly designed and managed can deliver incredible benefits to Humanity and at the same time make our future much safer. This is not yet an overwhelming view among the scientists. A lot depends on how we prepare ourselves for this moment and whether there will be any intervening catastrophic events, which would bury the dream of Superintelligence and possibly be the end of civilization (e.g. engineered, untreatable pandemics). Among the optimists we have Max Tegmark, a well-known cosmologist. In his book “Life 3.0: Being Human in the Age of Artificial Intelligence” he gives quite an optimistic view on what Superintelligence can do for us (80).

In an interview with Clive Cookson (81), Tegmark remains convinced that barring some cataclysmic disaster in the next few decades, Superintelligence will take over the world. But he believes that we can shape the way this happens, including embodying human values. In his view, the next few decades on Earth could have cosmic significance, determining “nothing short of the ultimate future of life in our universe”. Given that our galaxy has about 100bn planets and there are 200bn galaxies in the universe, most astronomers maintain that extra-terrestrial intelligence must be widespread. Since Superintelligence is almost inevitable, we should make every effort now to ensure that it is friendly.

There are a number of computer scientists who believe Superintelligence will be in a form of human-machine hybrids such as cyborgs with the uploaded human brains into computer intelligence. However, Tegmark disagrees with them. Clean-slate Superintelligence will be much easier to build and, even if cyborgs and uploads are introduced, their human component is likely to make them uncompetitive in the long run against pure Superintelligence. Once it has exceeded human abilities, our knowledge of physics suggests that it will advance rapidly beyond the point that biological intelligence has reached through random evolutionary progress. As Tegmark points out, “information can take on a life of its own, independent of its physical substrate”. In other words, any aspect of intelligence — presumably including consciousness — that evolved in flesh, blood and carbon atoms can exist in silicon or any other material. No one knows what the next blockbuster substrate will be but Tegmark is confident that the doubling of computing power every couple of years will continue for a long time. (I might agree with this view with one proviso. Transhumanism, i.e. blending part of our body with Superintelligence should be seen as a transitory phase to a fully digital form. That would be a much safer passage and would give Transhumans more time to decide on the best way for the evolution of the new species.)

The fundamental limit imposed by the laws of physics of how fast computers can be is a billion, trillion, trillion times more powerful than today’s best computers. The intelligence explosion could propel AI across the universe, generating energy billions of times more efficiently than present-day technology. Tegmark describes candidate power sources such as black holes, quasars and a “sphalerizers” that convert heavy fundamental particles (quarks) into lighter ones (leptons). The message at the heart of Life 3.0 and Tegmark’s “beneficial AI” movement is that, since Superintelligence is almost inevitable, we should make every effort now to ensure that it emerges in a way that will be as friendly as possible to human beings, primed to deliver the cosmic inheritance we want. If we wait too long, it may be too late.

At present no one has a clear idea of how to achieve this. At a moral and political level, we need to discuss what goals and qualities to incorporate. At a technical and scientific level, researchers must figure out how to build our chosen human values into AI in a way that will preserve them after we have lost direct control of its development. Tegmark advances various options and scenarios in which Superintelligence plays the roles ranging from “gatekeeper” to “protector god”, “zookeeper” to “enslaved god”. “I view this conversation about the future of AI as the most important one of our time. Life 3.0 might convince even those who believe that AI is overhyped, to join in” (81).

He is supported in such views by Stuart Russell, a British-American AI scientist. He proposes that to ensure that **the goal we have in mind will be correctly understood by Superintelligence, three principles must be observed**. I consider these principles probably the most practical solution that can actually work because it would make Superintelligence behave more like we do:

1. Superintelligence needs to know in minute detail, supported by thousands of examples, what are our top human values
2. Allow Superintelligence to have some margin of doubt both on the rationality of those values and then on their interpretation
3. Teach Superintelligence what these values really mean in practice by letting it observe for some time how people actually implement those values.

Assuming we teach Superintelligence, our values and have a full control of its activity, it can become an enormous help for the whole of humanity to solve almost any problem we have. All anthropogenic existential risks and even some risks stemming from natural disasters (such as super volcanos), including of course climate change, could be drastically lowered or eliminated. The only caveat might be that for Superintelligence to help us successfully, we may need to trust its judgments and decisions and fulfil what is expected from us.

At this stage, my overall assumption is that we will somehow manage to control Superintelligence and make it our “best friend”. We should start developing practical measures right now by adopting 23 Asilomar Principles, defined earlier on, so that Superintelligence itself presents as low a risk to us as possible before it transforms itself into Superintelligence and becomes a Technological Singularity.

The next step would be to help Superintelligence to understand who we are as humans and what are our most important values. This is why it will be so critical to redefine our key human values on behalf of the whole Humanity because this will ultimately become a joint set of values shared by humans and Superintelligence. I discuss this in detail in Part 2 of the book.

Chapter 4

Other technology related anthropogenic risks

Overview

I shall now describe other top existential risks, using the Global Challenges Foundation Report 2016 (25) and 2017 Report (82). The time-horizon for the probability of the risks is 100 years, except for climate change, where the time horizon extends to 200 years. Additionally, I have also used other sources, such as the Future of Humanity Institute’s 2008 Survey (28) that enabled me to create the table below, which compiles 10 most significant anthropogenic existential risks. Please note, these are cumulative risks, i.e. in any year until 2100, the risk per year would be about 1/100 of the number in the table:

Cumulative Existential Risks till 2100 in Order of Significance			
Significance	Existential Risk Name	RISK (Probability *Impact) of human extinction by 2100 (%)	Source
1	Superintelligence	5.0	[9]
2	Extreme Climate change ¹	5.0	[10]
3	Nuclear war ²	5.0	[19], [9]
4	Weaponized AI	5.0	[19], [9]
6	Nanotechnology and experimental technology accident	1.0	[9]
6	Engineered pandemic and synthetic biology	2.0	[9]
7	Natural pandemic	0.1	[9], [20]
8	Unknown global existential risks	0.1	[19]
9	Mass Migration leading to civil wars at a global scale	N/A	
10	Global social disorder	N/A	
Total		23	

Notes: 1 – Originally between 1 and 9.5. 5 taken as median; 2 – Originally between 1 and 10. 5 taken as median;

Extreme climate change and ecological collapse

This is probably the most publicised existential risk, apart from a global nuclear war. Conventional modelling of climate change induced by human activity (adding carbon dioxide to the atmosphere) has focused on the most likely outcome: global warming by up to 4C. But there is a risk that feedback loops, such as the release of methane from Arctic permafrost, could produce an increase in temperature of about 6C or more. Mass deaths through starvation and social unrest could then lead to the collapse of civilisation. The most optimistic predictions estimate that the overall existential risk from extreme climate change is about 0.01% annually, which would make it 1% over the entire century – not that much. The most realistic assessment was probably made in the Stern Report. It estimates such risk at 9.5% over this century. I have taken the median view, that the risk stemming from the extreme climate change over this century is about 5%.

Martin Rees, the former Royal Astronomer, observes that many people still hope that we can sail towards a low-carbon future without trauma and disaster. He says that politicians won't gain much resonance by advocating a bare-bones approach that entails unwelcome lifestyle changes – especially if the benefits are far away and decades into the future. There are however three politically realistic measures that should be pursued. First, all countries could promote measures that actually save money – better energy-efficiency, better insulation of buildings and so forth. Second, efforts could focus on the reduction of pollutants, methane and black carbon. These are minor contributors to global warming, but their reduction would (unlike that of CO₂) have more manifested local side-benefits – especially in Asia. And third, there should be a step change in research into clean energy; why shouldn't it be on a scale comparable to medical research? (83)

Martin Rees believes, there is little risk of a catastrophe within, say 50-year time-horizon, so unsurprisingly many politicians downplay the priority of addressing climate change. But if you extend the horizon into the 22nd century and beyond – then you may deem it worth making an investment now, to protect those future generations against the worst-case scenario and to prevent triggering really long-term changes like the melting of Greenland's ice. He also believes that “political efforts to decarbonise energy production won't gain traction and that the CO₂ concentration in the atmosphere will rise at an accelerating rate throughout the next 20 years”. By then we will know with far more confidence – perhaps from advanced computer modelling but also from how much global temperatures have actually risen, how strongly the feedback from water vapour and clouds amplifies the effect of CO₂ itself in creating a ‘greenhouse effect’. If the effect is strong and the world's climate consequently seems on a trajectory into dangerous territory, there may then be a pressure for ‘panic measures. These would have to involve a ‘plan B’ – being fatalistic about continuing dependence on fossil fuels but combatting its effects by some form of geoengineering (Martin Rees ‘The world in 2050 and beyond’) (83).

One of the consequences of extreme climate change could be a full collapse of the global ecosystem, so that the planet could no longer sustain a population of billions. This seems to be one of the most complex risks to assess. An ecological disaster, such as world crop failure and collapse of ecosystem services, could be induced by the present trends of overpopulation, economic development, and non-sustainable agriculture (84).

Most of these scenarios involve one or more of the following: an extinction event, scarcity of water that could lead to approximately one half of the Earth's population being without safe drinking water, pollinator decline, overfishing, massive deforestation, desertification, or massive water pollution episodes. A very recent threat in this direction is a bee colony collapse disorder, a phenomenon that might foreshadow the imminent extinction of the Western honeybee. As the bee plays a vital role in pollination, its extinction would severely disrupt the food chain. (85)

There is plenty of coverage of the risks that are linked to climate change. I would not in any sense like to downplay that risk, since it is really multifaceted and not just limited

to temperature rise, although this is the major source of the consequences of climate change. However, as I have already mentioned, by the time climate change might really endanger human species and most other species on our planet, which is in the next century, our civilisation will either survive or will most probably be gone because of other risks. Therefore, we should put all our efforts to minimise the risks stemming from Superintelligence because if we make it benign and friendly, it will be our major hope for reducing or entirely eliminating other anthropogenic existential risks. It is probably too late for withdrawing from carbon-based economy. The world will not come together sufficiently quickly and with substantially deep reforms. But not all is lost. In a few decades we will have Superintelligence that will help us deal with this problem and many more. The problem is not how to survive the climate change by the end of this century but how we can survive at all in the next 20 years.

Mitigating the risk arising from Climate Change

Climate Change and the arrival of Superintelligence are two existential risks that will increase progressively over decades rather than emerge within days. Climate Change risk mitigation strategies has been widely covered for over 30 years and therefore I will only make a reference to the most important agreement made recently on mitigating that risk. At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal. It sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C. Key elements of the Paris Agreement cover six areas as summarized by EC Climate Change (86). The Governments agreed the following actions:

Reduce Emissions by:

- setting a long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels;
- aiming to limit the increase to 1.5°C, since this would significantly reduce risks and the impacts of climate change;
- agreeing on the need for global emissions to peak as soon as possible, recognising that this will take longer for developing countries;
- undertaking rapid reductions thereafter in accordance with the best available science.

Before and during the Paris conference, countries submitted comprehensive national climate action plans. These are not yet enough to keep global warming below 2°C, but the agreement traces the way to achieving this target.

Ensure Transparency and Global Stocktake by:

- coming together every 5 years to set more ambitious targets as required by science;
- reporting to each other and the public on how well they are doing to implement their targets;

- tracking progress towards the long-term goal through a robust transparency and accountability system.

Promote Adaptation by:

- strengthening societies' ability to deal with the impacts of climate change;
- providing continued and enhanced international support for adaptation to developing countries.

Minimize Loss and Damage by:

- recognising the importance of averting, minimising and addressing loss and damage associated with the adverse effects of climate change;
- acknowledging the need to cooperate and enhance the understanding, action and support in different areas such as early warning systems, emergency preparedness and risk insurance.

Recognize the Role of cities, regions and local authorities by:

- scaling up their efforts and support actions to reduce emissions;
- building resilience and decreasing vulnerability to the adverse effects of climate change;
- upholding and promoting regional and international cooperation.

Support non-Party stakeholders

The agreement recognises the role of **non-Party stakeholders** in addressing climate change, including cities, other subnational authorities, civil society, the private sector and others.

- The EU and other developed countries will continue to support climate action to reduce emissions and build resilience to climate change impact in developing countries.
- Other countries are encouraged to provide or continue to provide such support voluntarily.
- Developed countries intend to continue their existing collective goal to mobilise USD 100 billion per year by 2020 and extend this until 2025. A new and higher goal will be set for after this period.

There are at least 100 various geoengineering techniques that would not damage the environment. One of the best examples is “an artificial tree” developed by Dr Klaus Lackner from Columbia University. In an interview with Yale Environment 360, he says that:

“With \$10 million to \$20 million worth of engineering R&D, we can get off the ground. My hope would be that we then would have a device that can take out a ton a day of carbon from the atmosphere. If you take out a ton a day, you would need 100 million

air capture devices to take out all the CO₂ that we are putting into the atmosphere today. And I would argue that it would be a lot less than that because we would also be capturing carbon at the flue stack, and not making the CO₂ in the first place by developing solar and wind technologies” (87). At this stage, Lackner’s device would cost about \$30,000. If we need 100 million devices, the total cost would be about \$30 trillion. That’s a lot – about 40% of the world’s annual GDP in 2016. So, the only problem of such a solution is their gigantic cost.

However, there are cheaper solutions on the horizon. For example, in 2016 Harvard prof. Daniel G. Nocera developed what he calls “Bionic Leaf”, a genetically engineered bacterium, which converts sunlight ten times more efficiently than plants. At the same time, it could absorb CO₂ at a fraction of that cost and produce hydrogen (88).

Martin Rees proposes other solutions, which may not be that clean but much cheaper and acting very quickly. The ‘greenhouse warming’ could be counteracted by (for instance) putting reflecting aerosols in the upper atmosphere or even vast sunshades in space. It seems feasible to throw enough material into the stratosphere to change the world’s climate. Indeed, what is scary is that this might be within the resources of a single nation, or perhaps even a single corporation. The political problems of such geoengineering may be overwhelming. There could be unintended side effects. Moreover, the warming would return with a vengeance if the countermeasures were ever discontinued; and other consequences of rising CO₂ (especially the deleterious effects of ocean acidification) would be unchecked. So, geoengineering would be an utter political nightmare: not all nations would want to adjust the thermostat the same way. Very elaborate climatic modelling would be needed in order to calculate the regional impacts of any artificial intervention. (83)

Global nuclear war

A nuclear war between the US and Russia was the chief apocalyptic fear of the late 20th century. That threat may have reduced but, with proliferation of nuclear weapons, there is still a risk of a conflict serious enough to cause a “nuclear winter” as the smoke in the stratosphere shuts out sunlight for months. That could put an end to civilised life regardless of the bombs’ material impact. Therefore, it is so difficult to assess the probability of global nuclear war ever taking place and even more difficult to tell if it will ultimately lead to a total collapse of civilisation. That’s why Global Challenges Foundation Report 2017 puts the risk between 1 and 9.5% (82), which I have averaged to 5% and this is the level I would consider in further assessment of that risk.

The scenarios that have been explored most frequently are nuclear warfare and doomsday devices. Although the probability of a nuclear war per year is slim, Professor Martin Hellman described it as inevitable in the long run. Inevitably there will come a day when civilization’s luck runs out (70). During the Cuban missile crisis, U.S. President John F. Kennedy estimated the odds of nuclear war as being “somewhere between one out of three and even” (89). To put it in today’s context, the United States

and Russia have a combined arsenal of 14,700 nuclear weapons, and there is an estimated total of 15,700 nuclear weapons in existence worldwide (90).

While popular perception sometimes takes nuclear war as "the end of the world", experts assign low probability to human extinction from nuclear war (91). In 1982, Brian Martin estimated that a US–Soviet nuclear exchange might kill 400–450 million people directly, mostly in the United States, Europe and Russia and maybe several hundred million more through follow-up consequences in those same areas (92). Nuclear war could yield unprecedented human death tolls and habitat destruction. Detonating such a large amount of nuclear weaponry would have a long-term effect on the climate, causing cold weather and reduced sunlight that may generate significant upheaval in advanced civilizations (93).

The most recent scenarios give estimates on the climate change caused by a global nuclear war, without giving the number of casualties. One of these predicts that the explosion of 1,800 US - Russian warhead would cause a long-lasting cold period with a peak average global cooling of 4°C, whilst a larger scale nuclear war with over 3000 warheads (which is only about 35% of the current Russian nuclear stockpile – TC) would cause average cooling of 8°C. This is greater than the average cooling of 5°C experienced during the last ice age, so this would be a severe nuclear winter lasting a decade. Whilst an average cooling of only a few degrees may not sound very serious, the crucial impact is much longer periods of frost in winter and severe drought. There would be dramatically reduced growing seasons or even the impossibility of growing any crop as planned. Farming also relies upon supplies of fuel for mechanised planting and harvesting (94).

However, use of a nuclear weapon today would be much worse for two reasons:

1. A typical modern nuclear weapon is now 8 to 80 times larger; modern society is much more reliant on vulnerable information technology and long distance supply routes for food and fuel.
2. Modern society is heavily reliant on electricity to power central heating pumps, to provide water, information via TV, the internet and mobile phones. Nuclear strike will mean no water supply, no heating or lighting, no information, no mobile phone signal.
3. Only a few days' of food supply exists in regional distribution depots. The supply network would fail for multiple reasons: road blockages, communications breakdown, collapse of the banking system, destruction of ports.

International aid organisations and health bodies all agree that the tens of thousands of casualties from just one nuclear bomb would overwhelm all attempts to help the injured. As a result, there would be no hope of treatment for severe injuries including burns, broken bones and deep cuts from flying debris. With the intense levels of damage, huge fires would spread across all major towns and other targets lasting days to weeks. We now understand that these huge fires would cause long lasting climatic impacts at a global level, creating a nuclear winter. Realistically, after a large scale nuclear war, one must picture small groups of brutalised, traumatised people, violently

thrown back into a pre-industrial age. Assuming that some people somewhere furthest from the bombs could initially survive this global catastrophe, any 'recovery' would surely be measured in hundreds of years. It has to be regarded a shocking indictment of our modern civilisation that current stockpiles of nuclear weapons are sufficient to cause such a global catastrophe (94).

Overall, the greatest possibility of a nuclear war today is in Asia. First, it is a significant potential for a nuclear conflict between India and Pakistan. At the heart of this conflict is, of course, the territorial dispute over the northern Indian state of Jammu and Kashmir, which Pakistan says should be its territory. The reason behind a high risk of nuclear conflict between these two countries is the fact that India's conventional capabilities are vastly superior to Pakistan's. Consequently, Islamabad has adopted a nuclear doctrine of using tactical nuclear weapons against Indian forces to offset the latter's conventional superiority. The latest climate models predict that the use of a just few tens to a hundred of the smaller nuclear weapons in the regional India-Pakistan scenario would cause severe frosts, reduced growing seasons, drought and famine lasting up to ten years across the entire northern hemisphere (95). This situation is similar to that between the U.S.-led NATO forces and the Soviet Union during the Cold War. Numerically, the Soviet army was superior to that of NATO. Therefore, the United States, starting with the Eisenhower administration, turned to nuclear weapons to defend Western Europe from a Soviet attack

Another area of a potential conflict is between Israel and Iran. Although Iran apparently does not have nuclear weapons yet, but only some facilities, like plutonium generating centrifuges, it is highly likely, it can build them pretty soon despite the current oversight of the IAEA. Israel has at least once in the past try to stop the Iranian nuclear programme. In June 2010 an advanced computer worm called Stuxnet, was discovered, which is estimated that it might have damaged as many as 1,000 centrifuges (10% of all installed) in the Natanz enrichment plant (96).

Israel believes that Iran still continues to develop its nuclear programme deep in the mountains. Western defence experts point to the Iranian Fordo facility, which is located deep underground near the city of Qom, as a site that was immune to conventional air strikes. That is why Israeli leaders have concluded that conventional air strikes would be insufficient in curbing Iran's nuclear program, leaving only a deployment of either tactical nuclear weapons or ground forces (97).

Since summer 2017, the world's attention has been firmly fixated on North Korea. On 4th July, 2017 North Korea launched its first intercontinental ballistic missile which could reach the mainland United States. That has led a few weeks later to a decision by the Hawaiian authorities announcing that they would revive a network of Cold War-era sirens, to alert the public in the event of a nuclear strike. Then on 3rd September 2017 North Korea tested a nuclear weapon far larger than any it had used. James Mattis, the U.S. Secretary of Defence, said it was seven times the size of the bombs dropped on Hiroshima and Nagasaki.

That incident on its own may not have been that scary, had the potential damage only related to a direct impact zone (depending on the bomb size from a diameter of 20 km to 60-100 km). It would require the bomb to actually hit the ground. This seems to be a formidable barrier because on the re-entry the rocket's head might heat up to about 2000C and explode before hitting the target. That's why complicated thermal shields are needed, which N. Korea apparently does not have.

However, in October 2017, two members of the disbanded US congressional Electromagnetic Pulse (EMP) commission said at the House Homeland Security subcommittee hearing that "a nuclear EMP attack from Kim Jong Un was the biggest threat to the US yet". They added: "it could shut down the US electric power grid for an indefinite period, leading to the death within a year of up to 90 per cent of all Americans... A nuclear EMP attack of just a few bombs to cover the whole USA would be needed, to completely make out of use power grids and other critical infrastructures that make modern civilization, and life itself, possible. Eventually, millions would die from starvation, disease, and societal collapse" (98).

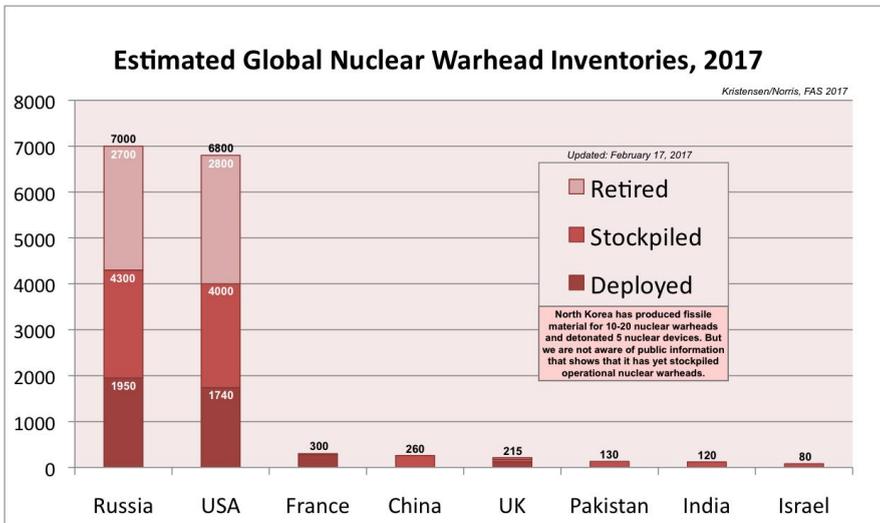
Those who think that North Korea's missiles and nuclear facilities can be wiped out in a preventive air strike would make a potentially disastrous error. N. Korea's nuclear arsenal is dispersed and hidden throughout the country's mountainous terrain. Failing to hit them all would leave some 10 million people in Seoul, 38 million people in the Tokyo vicinity and tens of thousands of US military personnel in northeast Asia vulnerable to missile attacks with either conventional or nuclear warheads. Even if the US managed to wipe out everything, Seoul would still be vulnerable to attacks from North Korea's artillery (99).

The EMP effect of nuclear bombs has been known since the late 1950'. Today, it is almost certain that every country that has the capability to launch nuclear bombs, considers options to use EMP in several ways. The most 'benign' fact is that the number of immediate casualties could be relatively small if EMP bomb is exploded in the near space (above 100-150 km). The casualties would result mainly from airplane catastrophes, car accidents or hospitals. This is the most likely scenario if North Korea uses such a bomb, destroying not only electronic-dependent infrastructure in the USA but also in the neighbouring South Korea. The EMP impact would be comparable with the so-called neutron bomb built under President Reagan administration in 1981. Its main destructive power comes from radiation rather than from an electromagnetic pulse. It would have a similar effect, i.e. causing not too many direct human casualties but an almost complete immobilisation of the advancing army. In the 1980' it was the Soviet army that would have been disabled within a few kilometres of the neutron bomb's impact.

The second option might be to use EMP-type nuclear device in conjunction with other more 'conventional' weapons by one of the nuclear power states such as China, Russia, the USA, France or the UK. That is however, unlikely because it could have sparked of an all-out 'hot' nuclear global war, since each of these countries has part of its nuclear arsenal dispersed on the always-in-the-air airplanes and on the submarines,

which could deliver a retaliatory attack. That's the same principles of mutual self-destruction that kept the world nuclear war free during the Cold War period.

The third option is launching such a bomb, with an objective to eliminate advanced military capabilities (e.g. nuclear sites, cyber spying equipment, etc.). That is quite likely in my view by one of these countries: Israel, Iran, India and Pakistan. That's why the risk of a local nuclear incident is rated by experts as 50:50 in the next decade. A good example is Bill Perry who was a nuclear weapons expert serving as President Clinton's Secretary of Defence. In April 2017 he said that the worst-case scenario would now mean nothing short of a total Armageddon. "An all-out general nuclear war between the United States and Russia would mean no less than the end of civilisation". He believes that today's global security threats are very different to what they once were. The most likely scenario for a nuclear attack would be if a terrorist group got hold of a small amount of enriched uranium, allowing them to make an improvised nuclear bomb. He estimates the chance of this happening within the next 10 years as even (100). Yes, the world still has plenty of nuclear weapons that could annihilate all life on Earth as this summary illustrates:



Source: FactCheck Q&A: Could there be a nuclear Armageddon? (100)

All the potential nuclear wars mentioned so far are deemed "local". However, this is highly unlikely if the protégé of some of the 'big party' like China were in ultimate danger, in this case North Korea. The same may be said about Israel and Iran conflict, where the probability of serious military engagement, including the use of nuclear weapons, by Russia – supporting Iran, and America – supporting Israel, must be considered. Additionally, one has to include Russia's current unpredictability in its territorial aims in Eastern and Central Europe. Like in the Cold War time, the Russians have superior man-power and also outnumber NATO in tanks. That might force NATO to use initially tactical, and if a local war gets out of control, strategic nuclear weapons starting a global nuclear conflict.

Mitigating Global nuclear war

There have certainly been efforts for the last 40 years to reduce the risk of a nuclear war. For example, since 2010 every two years Nuclear Security Summits are held. Russia participated in the first three, but withdrew from the fourth one in 2016, blaming the USA for 'taking over the leadership'. Probably the most comprehensive Summit was the one held in 2014 in the Netherlands, which was attended by 58 world leaders (5 of which from observing international organizations). The representatives attending the summit included U.S. President Barack Obama and Chinese President Xi Jinping. One concrete result of that summit was the progress reached in eliminating stocks of Highly Enriched Uranium (HER). It was reported at the Summit that between 2012 and 2014 15 metric tons of HER had been down-blended to Low Enriched Uranium (LEU), which will be used as fuel for nuclear power plants, equivalent to approximately 500 nuclear weapons.

So, there have been undoubtedly efforts to reduce the risk of nuclear war but they are not comprehensive enough and are introduced too slowly. There have been quite a few proposals on how to reduce the risk of nuclear wars. So, it is not the lack of knowledge that lies at the bottom of slow progress in risk reduction. It is the usual procrastination and mistrust that rather decreasing, actually increases the risk of a nuclear war. The best example are the five proposals put forward in 2013 by the two former US Secretaries of State, Henry Kissinger and George P. Shultz, and two US National Security Advisers, Sam Nunn and William J. Perry for reducing the risk of nuclear wars, mainly addressing the US-Russia relationships:

1. **Securing nuclear materials to prevent catastrophic nuclear terrorism.** Materials necessary for building a nuclear bomb today are stored at hundreds of sites in 28 countries—down from over 40 countries just 10 years ago. But many of these sites aren't well secured, leaving the materials vulnerable to theft or sale on the black market. Important commitments were undertaken to secure nuclear materials and improve cooperation during the 2010 and 2012 Nuclear Security Summits. **Yet no global system is in place for tracking, accounting for, managing and securing all weapons-usable nuclear materials.**
2. **Changes in the deployment patterns of the two largest nuclear powers** to increase decision time for leaders.
3. **Actions following New START.** The progress in the strategic field has been considerable. But there should be further progress made under the New START agreement with the following prerequisites:
 - Strict reciprocity
 - Demonstrable verification
 - Providing adequate and stable funding for the long-term investments required to maintain high confidence in stored nuclear arsenal.
 - **Consolidating and reducing U.S. and Russian tactical nuclear weapons** not covered under New Start should be a high priority. The nuclear programs of

North Korea and Iran undermine the Non-Proliferation Treaty and pose a direct threat to regional and global stability. Unless these two states are brought into compliance with their international obligations, their continued nuclear programs will erode support for non-proliferation and further nuclear reductions.

4. **Verification and transparency of nuclear-security** agreements is absolutely essential to have confidence that they work properly. The U.S. should launch a "verification initiative" that involves the U.S. nuclear weapons laboratories and global scientific experts in developing essential technologies and innovations for reducing and controlling nuclear weapons and materials. (101)

The second proposal of the former US Secretaries of State was referring to a detailed plan put forward by the Union of Concerned Scientists, engaged for years in developing various proposals for reducing the risk of accidental nuclear wars. It points out that despite the Cold War ending decades ago, the United States and Russia still keep hundreds of nuclear weapons on high alert, ready to launch. This rapid launch option, also called 'hair-trigger alert', significantly raises the risk of three types of unintended nuclear attack:

- An accidental launch could occur through a system error
- An unauthorized launch is a deliberate launch that would take place without a presidential order, perpetrated by either insiders or outsiders (e.g. through a cyberattack) or mistaken nuclear attack
- A mistaken launch would be authorized by the president, but in response to a false warning of an incoming attack.

Because land-based nuclear missiles are stored at known locations, they are vulnerable to attack. Hair-trigger alert was originally intended to ensure that, were the missiles targeted, they could be launched in retaliation before being destroyed. Yet the United States' retaliatory capabilities are already ensured by hundreds of nuclear weapons stored on submarines, which can't be targeted. As a deterrent, the high alert status of U.S. land-based missiles is therefore irrelevant. Unlike land-based missiles, nuclear-armed submarines can't be targeted while at sea, providing a credible nuclear deterrent.

Therefore, the nuclear powers should de-alert land-based nuclear missiles. For example, in case of the U.S., it should eliminate options for quickly launching missiles on warning of attack, and take its missiles off hair-trigger alert. At present, land-based intercontinental ballistic missiles (ICBMs) in the United States are stored in underground siloes and controlled by nearby launch centres. Removing them from hair-trigger alert could be as simple as manually activating a safety switch that prevents the missile from being launched (these switches already exist and are used by maintenance crews). When the next false alarm occurs, leaders would then not be under the same pressure to launch, eliminating the risk of a mistaken launch, and reducing the risk of an accidental or unauthorized launch (102).

The continuing risk posed by nuclear weapons remains an overarching strategic problem, but the pace of work doesn't now match the urgency of the threat. The consequences of inaction are potentially catastrophic, and nations must continue to move beyond their particular interests for the benefit of the whole Humanity. The most recent developments like those in North Korea and on the Indian subcontinent, not to mention the increased risk of cyberattack on nuclear control centres, make nuclear war far more probably that at any time since the end of the Cold War.

Weaponized AI and cyber soldiers

I could not find a complete definition of a weaponized AI because such a new subject means many things to many people. However, for the purpose of our discussion I would define **Weaponized AI as any evil, malicious or destructive action addressed either at an individual, a group of people or a country using the AI technology**. There are two approaches: **Soft Weaponized AI**, which uses software applications that achieve malicious objectives by usually compromising or blackmailing individuals through publication of documents, pictures or breaking into security systems, and **Hard Weaponized AI** that directs specialized weapons or equipment at a pre-planned target.

Soft weaponized AI

Let me start with the Soft Weaponized AI. Here, probably the best and most succinct list of what soft weaponized AI could do has been created by a well-known futurist Thomas Frey, who presents a simple scenario: “Virtually every situation presents an opportunity for a weaponized A.I., but each will require different strategies, targets, and techniques. Once a clear objective is put into place, the A.I. will use a series of trial and error processes to find the optimal strategy. A.I. tools will include incentives, pressures, threats, intimidation, accusations, theft, and blackmail. All can be applied in some fashion to targeted individuals as well as to those close to them.” (103). He himself had doubts whether he should publish his list of 36 examples, of what it could involve, because it might give hints to perpetrators. In the end he came to a conclusion that anything he could think of, terrorists and evil doers could come up with such a list as well. It is a scary list, from which I have selected only the most significant examples – you have been warned!

Organization-wide or country-wide Soft Weaponized AI Scenarios. These have already been ‘tested’ at the lowest possible level of threat, using so-called fake news and very primitive AI support, in the elections in the USA and other countries. Now imagine applying more sophisticated AI such as the latest version of Deep Mind’s AlphaGo Zero.

1. **Hijacking a City.** Every city is made up of interdependent systems that function symbiotically with their constituency. Stoplights, water, electric, sewage, traffic control, garbage removal, tax assessment, tax collection, police, and fire departments are just a few of the obvious trigger points. Once A.I. can disable a single city, it can easily be replicated to affect many more.

2. **Destroying a Country.** At the core of every country are its financial systems. Weaponized A.I. could be directed to attack essential communication and power systems. Once those are disabled, the next wave of attacks could be focused on airports, banks, hospitals, grocery stores, and emergency services. Every system has its weakest link and this kind of exploitive weaponry could be relentless.

Intimidating Professionals

In any society there are “people of influence” who are critical for maintaining the systems, business operations, and processes that govern our lives. These individuals become the most “at risk” for becoming a target of weaponized A.I.:

1. Stock Analysts—The value of our entire stock market hinges on the assessment of a few key individuals
2. Politicians – Any elected official can be bullied into voting in favour of a specific bill or funding proposal
3. Judges - The outcome of most court cases is decided by a single judge
4. Newspaper Editors - These people decide what goes on the front page
5. Corporate CEOs – The CEOs are a huge factor in determining the success or failure of a business
6. Medical Doctors – Doctors and physicians are among the most respected professions on the planet, whose decision on the selected treatment may have a significant impact on someone’s life
7. Military Generals – Far beyond the field of war, military generals make far reaching decisions on a daily basis.
8. Bankers – They can be forced to issue a huge loan?

Landmark decisions in the future

Here are a few examples: Will our most important decision in the future be decided by well-informed individuals or a heavily biased A.I.?

1. Should cryptocurrencies replace national currencies?
2. Should we have a single world leader?
3. How should life and death decisions be made in the future?

Commandeered Systems

Every major system has the potential of being hijacked by an evil A.I. in the future. It can be achieved either through the tech itself, the people that control it or a combination of both, virtually all future systems will be vulnerable, such as:

1. Stock Exchanges
2. Power Plants
3. City Water Supply
4. Security Systems
5. Data Centres

6. Cloud Storage Systems
7. Airports
8. Prisons
9. Election Systems

Hijackable Equipment

As our equipment becomes more universally connected to the web, commandeered devices will become an ongoing concern. For example, the same drone that can deliver packages can also deliver bombs, poison, and spy on your kids.

1. Flying Drones
2. Driverless Cars
3. Airplanes
4. IoT Devices
5. Delivery Trucks
6. Stoplights
7. Smart Houses

Hard weaponized AI

South Korea currently maintains the border with its northern neighbour using Samsung-built robot sentries that can fire bullets, so it's safe to say autonomous weapons are already in use. It's easy to conceive future versions that could, say, use facial recognition software to hunt down targets and 3D-printing technology that would make arms stockpiling easy for any terrorist. Robotic soldiers would only aim at specific targets. They will be so small and cheap that even an average earner (say a potential terrorist) could buy it.

However, an individual robotic soldier would not be a threat to Humanity. What may create an existential risk is a potential arms race in autonomous weapons and Artificial Intelligence. Such a race would expose civilians to undue, potentially existential risk. If autonomous weapons are developed and deployed, they will eventually be in the air, space, sea, land, and cyber domains.

Paulo Santos writes in the Bulletin of the Atomic Scientists that such robot-soldiers will be taught to operate in teams, supported by a network of unmanned weapons systems. They will also patrol computer networks and potentially will be everywhere. It is highly unlikely that only one country will pursue their development. As mentioned earlier in this section, Russia, USA and South Korea have already displayed their capabilities. Thus, many states will conclude that they require development of ever-stronger artificial intelligence controlling various weapons with ever greater autonomy.

However, the main existential threat is this. **Autonomous systems with learning abilities could quickly get beyond their creators' control.** They would be a danger to anyone within their immediate reach. And autonomous weapons connected to each

other via networks, or autonomous agents endowed with artificial intelligence and connected to the Internet, would not be confined to a single geographic territory or to states involved in armed conflict (104).

The unintended effects of creating and fielding autonomous systems might be extremely severe if they get under the control of malicious AI agents. In the worst-case scenario, nuclear war heads may be fired, almost definitely annihilating most life on earth, should all current nuclear arsenals be used.

Mitigating the risk of Weaponized AI or cyber soldiers

Thousands of signatories, including Stephen Hawking, Steve Wozniak, and Elon Musk, have lent their support to a letter recommending care and caution in the development of autonomous weapons. The letter, organized by the Future for Life Institute, was originally announced on July 28 2016. The Future for Life Institute is dedicated to mitigating the potential risks in world-changing technologies such as artificial intelligence, and has penned cautious recommendations about developing AI. The letter argues against starting an AI arms race, preferring that AI be used in the military only to make battlefields safer for both military personnel and civilians: “Just as most chemists and biologists have no interest in building chemical or biological weapons, most AI researchers have no interest in building AI weapons — and do not want others to tarnish their field by doing so, potentially creating a major public backlash against AI that curtails its future societal benefits.”

The Institute recommends that the type of international agreements and treaties governing chemical or space-based weapons be also applied to AI, preventing use of autonomous weapons on the battlefield by any nation.

In the end, the most effective tool for fighting weaponized A.I. will be a more powerful benevolent A.I. This may create an arms race, as during the Cold War.

Nanotechnology

Nanotechnology would allow in principle to arrange atoms in any way we want. If this comes true, the world will forget what scarcity means because everything is made of atoms. This will move us into the future of abundance. As the philosopher Jason Silva puts it in “Future of Everything” “It essentially makes the physical world a programmable medium.”

One such scenario includes building the so-called nano-factory, a hypothetical device that could manufacture products with absolute atomic precision for a fraction of the cost of current manufacturing (105). “Atomic precision” here means that two objects produced by a nano-factory, for example two computers of the same design, would be identical with respect to not only their macroscopic properties, but also the precise placement of their constituent atoms. It remains unclear whether nano-factories are physically possible, but if they are, as theorists like Eric Drexler of the Future of

Humanity Institute and Ralph Merkle of Singularity University claim, then the consequences for humanity would be profound.

There are only three resources required to operate a nano-factory: power, design instructions and a simple feedstock molecule such as acetone or acetylene. With these three conditions met, terrorist groups and lone wolves of the future could potentially manufacture huge arsenals of conventional and novel weaponry, perhaps eluding detection by law enforcement or international regulatory bodies. Nano-factories might even be capable of making nuclear weapons, although at present this possibility is uncertain. (105)

Molecular manufacturing requires significant advances in nanotechnology, but once achieved it will be possible to produce highly advanced products at low costs and in large quantities in nano-factories of desktop proportions. When nano-factories gain the ability to produce other nano-factories, production may only be limited by relatively abundant factors such as input materials, energy and software. Being equipped with compact computers and motors these could be increasingly autonomous and have a large range of capabilities (106).

However, ultra-precise manufacturing on an atomic scale, which could create materials with wonderful new properties, could also be used in frightening new weapons. There is even a possibility to create self-replicating nano-machines taking over the planet.

Phoenix and Treder classify catastrophic risks posed by nanotechnology into three categories:

- From augmenting the development of other technologies such as AI and biotechnology.
- By enabling mass-production of potentially dangerous products that cause risk dynamics (such as arms races) depending on how they are used.
- From uncontrolled self-perpetuating processes with destructive effects (106).

This last speculative threat involves the intentional design of autonomous “nanobots” that would convert all the matter in their vicinity into clones of themselves. The result would be a positive feedback effect that could destroy the entire biosphere in as little as 90 minutes, according to a 2006 calculation by Ray Kurzweil in his book “The Singularity Is Near: When Humans Transcend Biology” (17). You may disagree with this prediction, but many existential risks experts take it seriously.

If you cannot imagine self-replicating nanobots, the size ranging from less than a millimetre to a few millimetres then have a look at a snowflake which is replicated from water molecules each time the weather conditions are right. But perhaps even a better example is your DNA molecule. Human DNA consists of over 3bn base pairs contained in 23 chromosome pairs. The thickness of the pages on which I am typing this text is roughly equal to a human hair, i.e. about 100,000 nanometres. But a strand of human DNA is just 2.5 nanometres in diameter, about 40,000 times thinner. In most

simple terms, DNA has a property to replicate itself, modify and repair errors but in the end, it works like an unusual computer code, which always makes a copy of itself. It uses the original like one part of a 'zip' to create the second part of the 'zip'. If it is placed in an appropriate growing environment, it creates billions of proteins, then cells, and tissues until it ultimately creates a living organism, which can then again reproduce. This is biology at its best.

However, a similar process can be developed for a non-biological environment, where atoms are bound into molecules, say mainly based on silicon rather than carbon, forming non-biological building blocks, an equivalent of human cells, which have been originally programmed to become a very small micro motor, still retaining the capability embedded in that motor, of replicating itself and creating billions of such motors ad infinitum. Such nanobots would behave like cancer and would 'eat' anything they could in order to create more copies of themselves or built new objects based on the instructions either retained in their 'DNA code', or received via Internet cloud. They could of course be affected by the same principle of evolution as a biological DNA and after a few years, produce objects that were never intended. And that unpredictability is the biggest danger.

Some experts in nanotechnology risk field suggest that the existential risk from that area comes from reaching technological advantage in arms race through the availability of nanotech weaponry, which may destabilize a relative current balance between major powers. They list several reasons:

- A large number of players may be tempted to enter the race since the threshold for doing so is low;
- The ability to make weapons with molecular manufacturing will be cheap and easy to hide;
- Therefore, lack of insight into the other parties' capabilities can tempt players to arm out of caution or to launch pre-emptive strikes,
- Molecular manufacturing may reduce dependency on international trade, a potential peace-promoting factor;
- Wars of aggression may pose a smaller economic threat to the aggressor since manufacturing is cheap and humans may not be needed on the battlefield. (106)

In addition, advanced nanotechnologies could introduce new nanoparticles to the biosphere, some of which could prove extremely toxic.

Mitigating Nanotechnology and experimental technology accident

The good news is that this technology in its extreme form is unlikely to be available this century. However, some crude and potentially equally dangerous nanobots could be available within a few decades. One of the key measures counterbalancing nanotechnology risk could be self-regulation by all state and non-state agencies. But that would be very hard to achieve. Instead the creation of an international organization similar to the International Atomic Energy Agency IAEA has been proposed. The Center for Responsible Nanotechnology suggests some technical restrictions and

improved transparency regarding technological capabilities to facilitate arms-control in this area (107).

However, a resolution to this problem can already be found in nature. Bacteria, which are biological nanobots, have their own anti nanobots – the antibodies produced by our immune system. Therefore, nanobots which would behave dangerously could be wiped out by counter nanobots, assuming the scale of such a nanobots' 'epidemics' would not be too extensive and there would be enough time to develop those counter nanobots.

Engineered pandemics and synthetic biology

Biotechnology can pose a global catastrophic risk in the form of natural pathogens or novel, engineered ones. Such a catastrophe may also be brought about by usage in warfare, terrorist attacks or by accident. Terrorist applications of biotechnology have historically been infrequent. To what extent this is due to a lack of capabilities or motivation is not resolved. It is believed, that exponential growth has been observed in the biotechnology sector and some scientists (Noun and Chyba) predict that this will lead to major increases in biotechnological capabilities in the coming decades. They argue that risks from biological warfare and bioterrorism are distinct from nuclear and chemical threats because biological pathogens are easier to mass-produce and their production is hard to control (especially as the technological capabilities are becoming available even to individual users).

Phil Torres is pessimistic on the measures aimed at mitigating the risks of artificial pandemics. In his article "How likely is an existential catastrophe?", he says, "this trend is indicative of biotechnological development in general: laboratory equipment is becoming cheaper, processes are increasingly automated, and the Internet contains a growing number of complete genomes, including genetic sequences of Ebola and smallpox. The result is that the number of people capable of designing, synthesizing, and dispersing a weaponized microbe will almost certainly increase in the coming decades. Thus biotechnology (and its younger sibling, synthetic biology) will likely become a more significant risk later this century" (39).

More risks stemming from novel, engineered pathogens can be expected in the future. Scientists suspect that there is an upper limit on the virulence (deadliness) of naturally occurring pathogens (108). But pathogens may be intentionally or unintentionally genetically modified to change virulence and other characteristics. One example of that is what happened to Australian researchers who unintentionally changed characteristics of the mouse pox virus while trying to develop a virus to sterilize rodents. The modified virus became highly lethal even in vaccinated and naturally resistant mice. The technological means to genetically modify viruses' characteristics are likely to become more widely available in the future, if not properly regulated (109).

We should look at the danger of self-replicating synthetic, incurable viruses from a particular angle – the rogue researcher syndrome. One possibility is that a disgruntled individual might steal a virus and travel around the world releasing it. An important factor in the motives of such a person might be his religious or cult-like convictions

that might, in his mind, justify the act (a mass murder, like ISIS, but on a global scale). This risk is even more significant if one considers that biotech laboratories usually have no provision for psychological profiling of their employees who could be either a lone disgruntled individual (i.e. perversely a member of security staff) or a laboratory researcher.

Genetic engineering of new super-organisms could be enormously beneficial for humanity. But it might go horribly wrong, with the emergence and release of an engineered pathogen, accidentally, or through an act of war, targeting humans, or a crucial part of the global ecosystem. The impact of such an attack could be even worse than any conceivable natural pandemic.

Mitigating engineered pandemics and synthetic biology

Previously mentioned authors Noun and Chyba (109) propose three categories of measures to reduce risks from biotechnology and natural pandemics:

1. Regulation or prevention of potentially dangerous research
2. Improved recognition of outbreaks
3. Developing facilities to mitigate disease outbreaks (e.g. better and/or more widely distributed vaccines)

I would also add psychological profiling and very thorough investigation of the background activities and lives of these scientists, horrible as it must seem to anyone. After all, that is what any state does to its spies, in the name of a ‘greater goodness’ of the society.

Natural pandemic

A pandemic is a rapid spread of an infectious disease across a large region. An apocalyptic disease would combine incurability (like Ebola), lethality (like rabies), extreme infectiousness (like the common cold) and a long incubation period (like HIV/Aids). If such a virus spreads around the world before people become aware of the danger, the international health system would have to move with unprecedented speed and resources to save mankind.

Global pandemics are likely to occur in the future, but their danger is very hard to estimate. So far, pandemics have received far more attention than other natural existential threats. A natural pandemic killing all humans is unlikely but plausible.

The majority of global pandemic threats are not existential risks. The estimates of this risk vary wildly; even expert commentators tend to be highly uncertain about the odds. Predictions also tend to lump together several different kinds of pandemics and thus can make the future sound much more dangerous than it really is. For example, a concerned expert may estimate that there is 50% chance of a global pandemic during the 21st century. Taken at face value this is extremely frightening, but with further

scrutiny it becomes clear that the vast majority of that probability would be diseases with low death rates and certainly not pandemics that have a chance of killing all of humanity (110).

The complexity of pandemics is also the reason why straightforward extrapolations from history tend to be deeply flawed. Human civilization today is unprecedented in several relevant ways. We can't study past examples of globe-spanning civilizations who actively tried to protect themselves from this danger. Knowledge of past pandemics is still incredibly valuable; it's just very hard to meaningfully generalize it to our situation. (110)

Mitigating Natural pandemic risk

Today, long distance air travel can quickly spread the disease to all continents. On the other hand, enormous effort is being expended to prevent pandemics. Serious work can be done on many fronts simultaneously because pandemics arise out of interactions between large numbers of people, animals, and institutions. Unfortunately, this complexity also means that for the foreseeable future our defences will not be perfect and our uncertainty will be extreme.

What would mitigation strategies dealing with future pandemic risks look like? In the article published in *Lancet* in July 2015 'Beyond Ebola: lessons to mitigate future pandemics', the authors analyse how the world dealt with Ebola virus outbreak in 2014. They extrapolate their findings to propose some measures that could reduce the risks of pandemics in general. Let me summarize the result of that investigation:

1. The West African Ebola outbreak probably began with a consumption of meat from wildlife reservoir, in this case thought to be dead bats. Therefore, consumption of dead wildlife meat worldwide should be strongly prohibited and communicated through all means possible.
2. Projects aimed to reduce dependency on bush meat in general need to be supported, either through creative approaches to farming of some wildlife species, or by expansion of livestock production, with appropriate biosecurity and surveillance to prevent emergence of other zoonosis.
3. The acceleration of vaccine development for Ebola as part of an outbreak control strategy could also have a crucial role to mitigate future outbreaks.
4. In areas known from the past as being the origins of deadly viruses such as Ebola in West Africa, pre- outbreak (once first individual cases of deadly viruses have confirmed) vaccination of critical care workers should be facilitated.
5. Targeted training in infection control, and efforts to maintain surge capacity between outbreaks, will be crucial for rapid response to the first cases in a future emergence event.
6. Global mitigation of future pandemic risk must focus on the large-scale behaviours that lead to the transmission of a pathogen from a vertebrate animal to a human, still a poorly understood phenomenon.

7. In future pandemic outbreaks the sectors that may spread the disease such as those involved in land-use change, resource extraction, livestock production, travel, and trade, must be fully engaged in limiting the spread of the disease.
8. Large economic development programmes will need health-impact assessments that deal explicitly with the risk of emergence of novel diseases, and plans to set up new clinics and surveillance programmes listed as project deliverables.
9. Although existing multilateral agreements (e.g. the International Health Regulations) allow for some coordination of national responses to outbreaks and bilateral interventions, more is needed to build public health capacity in poor countries.
10. Collective investment needs to occur through a mechanism similar to the Global Environment Facility, not just in local public health infrastructure, but also in so-called one health measures to reduce the likelihood of transmission from a pathogen from a vertebrate animal to a human.
11. Management of future risk will need anticipation of the origin and spread of diseases through improved predictive models of emergence that include animal populations, the powerful new drivers of global trade and travel, and the effect of disparities in income and wealth on health infrastructure, risk mitigation, and vaccination (111).

Unknown existential risks

This is a catch-all category to cover the unknown unknowns, such as nuclear terrorism. As unprecedentedly powerful technologies are becoming more accessible, the global population is growing, meaning that the absolute number of malicious agents could increase proportionally. According to an American psychologist Martha Stout, roughly 4 percent of the global population are sociopaths. This translates to about 296 million sociopaths today, and if the population rises to 9.3 billion by 2050, this number will increase to 372 million. Although not all sociopaths are violent, they are disproportionately represented among groups such as prison inmates and dictators. It follows that this demographic could seriously jeopardize our collective future if nuclear weapons, biotechnology, nanotechnology, or some as-yet-unknown technology were to fall into the wrong hands. (112)

The menace posed by ideological extremism is also growing. For example, the number of hate groups in the United States rose from 457 to 892 between 1999 and 2015. Outside the United States, the number of Salafi-jihadist organizations rose from 3 in 1988 to 49 in 2013, the year before the Islamic State emerged as arguably the largest terrorist organization in human history. There are strong reasons for expecting the total population of radical extremists of all political and religious persuasions to continue increasing, due in part to the conflict-multiplying effects of global catastrophes like climate change and biodiversity loss. If empowered by advanced technologies, anyone of these individuals, or groups could wreak unprecedented havoc on a society (39).

Romanian-American economist Nicholas Georgescu-Roegen, a progenitor in economics and a paradigm founder of ecological economics, has argued that the carrying capacity of Earth, i.e. Earth's capacity to sustain human populations and

consumption levels, is bound to decrease sometime in the future as Earth's finite stock of mineral resources is presently being extracted and put to use. Consequently, the world's economy as a whole is heading towards an inevitable future collapse, leading to the demise of human civilisation itself. (113)

In my view, this is quite an unlikely scenario if we consider that planet Earth is no longer limited by the law of entropy. Earth's entropic limitation would only be true if we could not migrate outside the planet. However, if we assume that we would be able within the next decade to establish a base on the moon and within 50 years there might be 1M people living on Mars (courtesy of Mr. Elon Musk) then such trend would counterbalance this catastrophic prediction.

Chapter 5

Combinatorial Risks: Global Social Disorder

How social, economic and political risks can combine into existential risks?

In the previous chapter I have covered existential risks, where each of them individually could wipe out Humanity. But there are risks which are not existential on their own and generally evolve gradually. However, because of their complexity and interconnection with other risks they may become existential through their **combinatorial** effects, i.e. if they are triggered off at the same time with other risks, about which we may not be even aware of today. Such risks are the effect of what I call Global Disorder. Please don't ask me what is the percentage of the Global Disorder risk. I doubt anybody would put any figure to that, if even the Oxford Future of Humanity Institute has not done it.

However, most of us, if we look carefully around, see plenty of symptoms of such a mega crisis on the horizon. In most general terms, this category covers mismanagement of global affairs so serious that it may become the primary cause of our civilization's collapse, especially when combined with other risks. This includes global migration on unprecedented scale caused for example by prolonged draught in Africa, ensuing famine and civil wars. Europe has already experienced a very mild migration of that kind in 2015-2016. But global socio-political disorder may actually be more acute in the northern hemisphere, in the more advanced part of our civilization, for different reasons than famine. The origins of the social unrest will be in the collapse of the basic structures that underpin the western civilization, such as democracy, capitalism, the concepts of freedom, equality and responsibility, the ultimate fall of religion and the associated values. This may lead to economic and societal collapse, involving civil unrest and a breakdown of law and order that might make the continuation of civilised life impossible anywhere on Earth.

The risks of Global Disorder are linked to three domains:

- **Social Disorder**, created mainly by the unresolved problem of social inequality and wealth distribution, intolerance and the impact of accelerating change, for which societies are totally unprepared
- **Economic Disorder**, created by the economic instability and a disconnection between the real economy and wealth creation that has led to the crisis of capitalism
- **Political Disorder**, which is created primarily because of the crisis of democracy and the absence of a credible global organization that could act as a kind of the World Government, being an arbiter in political and military conflicts

Of these three disorders, the Political Disorder is probably the most crucial because if that could be resolved, the other two disorders would have also become far less risky.

The starting point for mitigating that risk successfully would be the creation of a new global organization with extensive powers, as well as a new system of governance based on a renewed global social contract. In my view, only such an organization may have a chance to save Humanity. However, when describing those three very complex risks **I can only focus on some selected areas, most relevant to the overall theme of the book.** Therefore, don't be surprised if some subjects are left out – it is impossible to cover the problems our civilization has been experiencing for centuries, in one book.

The World Economic Forum has been making annual comparisons of the Global Risk Likelihood and separately of Global Risk Impact since 2007. It is a very pragmatic approach to existential risks, although its definition is rather vague. Still, the table below gives a good idea how seemingly isolated risks, mainly in the economic domain, could out of a sudden become existential if they are combined in the same year.

Take the impact of 2008 top risks: Asset Price collapse, Retrenchment from Globalization, Slowing Chinese economy, Oil and gas price spike and Pandemics (influenza). Only some of those risks materialized, i.e. asset price collapse and oil and gas price spike. The remaining three did occur but their severity was much lower than might have been feared. Had they all reached peak potential impact, then almost certainly new wars would have broken out (at that time Iraq and Afghanistan were the major wars), this time taking other major powers such as Russia into play (which happened 5 years later in Syria). That is a scenario, which shows how a serious crisis in a restricted domain, such as finance, could turn into a global existential catastrophe.

5 Global Risks in Terms of Likelihood

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Breakdown of critical information infrastructure	Asset price collapse	Asset price collapse	Asset price collapse	Storms and cyclones	Severe income disparity	Severe income disparity	Income disparity	Interstate conflict with regional consequences	Large-scale involuntary migration
Chronic disease in developed countries	Middle East instability	Slowing Chinese economy ($\leq 4\%$)	Slowing Chinese economy ($\leq 6\%$)	Flooding	Chronic fiscal imbalances	Chronic fiscal imbalances	Extreme weather events	Extreme weather events	Extreme weather events
Oil price shock	Fallen and falling states	Chronic disease	Chronic disease	Corruption	Rising greenhouse gas emissions	Rising greenhouse gas emissions	Unemployment and underemployment	Failure of national governance	Failure of climate-change mitigation and adaptation
China economic hard landing	Oil and gas price spike	Global governance gaps	Fiscal crises	Biodiversity loss	Cyber attacks	Water supply crises	Climate change	State collapse or crisis	Interstate conflict with regional consequences
Asset price collapse	Chronic disease, developed world	Retrenchment from globalization (emerging)	Global governance gaps	Climate change	Water supply crises	Mismanagement of population ageing	Cyber attacks	High structural unemployment or underemployment	Major natural catastrophes

5 Global Risks in Terms of Impact

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Asset price collapse	Asset price collapse	Asset price collapse	Asset price collapse	Fiscal crises	Major systemic financial failure	Major systemic financial failure	Fiscal crises	Water crises	Failure of climate-change mitigation and adaptation
Retrenchment from globalization	Retrenchment from globalization (developed)	Retrenchment from globalization (developed)	Retrenchment from globalization (developed)	Climate change	Water supply crises	Water supply crises	Climate change	Rapid and massive spread of infectious diseases	Weapons of mass destruction
Interstate and civil wars	Slowing Chinese economy ($\leq 4\%$)	Oil and gas price spike	Oil price spikes	Geopolitical conflict	Food shortage crises	Chronic fiscal imbalances	Water crises	Weapons of mass destruction	Water crises
Pandemics	Oil and gas price spike	Chronic disease	Chronic disease	Asset price collapse	Chronic fiscal imbalances	Diffusion of weapons of mass destruction	Unemployment and underemployment	Interstate conflict with regional consequences	Large-scale involuntary migration
Oil price shock	Pandemics	Fiscal crises	Fiscal crises	Extreme energy price volatility	Extreme volatility in energy and agriculture prices	Failure of climate-change mitigation and adaptation	Critical information infrastructure breakdown	Failure of climate-change mitigation and adaptation	Severe energy price shock

■ Economic ■ Environmental ■ Geopolitical ■ Societal ■ Technological

Source: World economic Forum: Global Risk Report 2017

What's wrong with societies?

This book is mainly about the future of Humanity. It is, therefore, appropriate to look at ourselves how we behave as a group in communities and societies. When we look back at the last century and realize what we as humans did to other humans, the conclusions one must draw is that at a fundamental level not a lot has changed in comparison with the previous centuries. There is still a lot of beast in many humans. Why is that?

Perhaps the best shortcut answer to that question can be found in the Maslow hierarchy that I wrote about in chapter 1 when discussing our civilization. What that hierarchy shows are that our actions and decisions are first of all driven by two factors: physiological needs and safety. Now imagine an average person voting in the UK Brexit referendum and look at the arguments that I will present from that perspective. Politicians appealing to Remainers and Brexiteers used exactly the same arguments – talking about **economic needs** (the UK would save £10bn net), **safety** (increased level of sovereignty, and migration control, by controlling the borders). Very few politicians addressed higher needs in Maslow's hierarchy towards the top of the pyramid e.g. **belonging** (similar democracy, history, friendship) or **self-actualization** (fuller potential and creativity – e.g. Erasmus programme, CERN, European Space Agency, tourism, etc.).

The point I am making is that to survive we must eat and be safe and that has remained man's main preoccupation for millennia– an evolutionary trait, a Darwinian struggle for the survival of the fittest. The fact that our GDP per head is about 20 times higher in real terms than 200 years ago does not change anything. Yes, we have far more time and do not have to work that hard, but our basic needs are still the same. In the Northern hemisphere the need for physiological survival may have a slightly different meaning, than in poorer countries. Very few people face famine today in London. However, if we interpret it as a desperate urge to have something here and now, e.g. whatever new gadget there is on the horizon, then that urge is similar as for those people on the other extreme of the wealth pendulum, where the equivalent of a new mobile phone may be a full bowl of rice. And then it is the need for safety. It is born purely out of fear and of course has an emotional underlying. Fears drive our **emotions** and mostly create instantaneous responses, like Europe-wide anti-emigration protests over the last few years. Deep down, at a physiological level people have broadly the same needs and fears.

The consequence of that is that the scope for making **rational** decisions in politics **for vast majority of people is very narrow, practical, and must include achievable results over a very short period.** The last point is perhaps best illustrated by the recent calls by the Brexiteers in the UK 'to get on with it', meaning the Government should get out of negotiations right now. They just cannot wait any longer for the result of the negotiations, almost irrespective of the consequences.

The post-war liberalism, especially in Europe, was an antidote against most brutal oppressions during the Second World War. It was necessary for Humanity to regain its faith in its capability to renew itself and be motivated by our most inspiring inner qualities. From that perspective, the post-war period has been just amazing and it still is today. However, there is also another perspective.

The focus on human rights alone has been tilted so much that it has led to irresponsible behaviour on a massive scale. The state has been perceived as 'they', who 'have' (whatever that 'have' means at any given time) and as the one whose main obligation is to fulfil the needs of those who 'do not have'. Because those who 'do not have' feel it is their right 'to have', and please do not ask who will pay for it. We have completely forgotten about the reciprocity and responsibility for our own lives and the lives of those, who sometimes for no fault of their own, cannot cope with the adversities of life.

President John Kennedy saw that danger very clearly when he famously said in his presidential inaugural speech on 20 January 1961: "Ask not what your country can do for you, ask what you can do for your country". To turn these words into action, he set up the Peace Corp, a predecessor of current hundreds of voluntary organizations. One may argue it was a riposte to the Soviet Union's export of tens of thousands of experts and technicians to developing countries to spread communism under the cover of help. However, I would look at it from a more benevolent perspective – the focus was on young people to help anybody truly voluntarily anywhere in the world.

Today, most of young people concentrate almost exclusively on their own needs rather than thinking of what they could do for members of their communities. Many of them do not even participate in elections. Some of them rely almost exclusively on the state's handouts and then blame the 'elites' for not providing enough. But it was not always like that. We have already forgotten that for at least 40 years of the post-war period in most democracies young people served for a minimum of one year in the military service. Here the benefit for a society was two-fold. Young people were taught that freedom did not come free and it was their responsibility to defend their country in the hour of need. But the second long-term benefit was even more important in peace time. They had a period of maturing into people who considered responsibility in a more general sense as the other side of the equation, balancing their rights.

Since the early 80's that system seemed to have collapsed. The way young people behave today was at least partially due to abolishing the military service or the mandatory public service, as is still the case in Germany and now again in Sweden. But it was also due to utter failure of the education system, the increase of wealth, more free time and the ability to become self-sufficient (thanks to the generosity of the state). When I write about 'young people' I do not mean just today's generation of teenagers but also two generations past. Some of those young people who were brought up according to that model of state generosity and minimal responsibility for societal affairs, are now well into their middle age. So, today the vast majority of people in western democracies are completely oblivious to a simple fact that their citizens' rights must be balanced with their responsibilities.

That has obvious consequences. The state, keen to fulfil our immediate wishes, also stopped being responsible. The lack of the state's responsibility for our long-term well-being can be seen in many western countries, such as the USA or the UK. It manifests itself into pretending that everything is generally OK and literally patching up any problems and hoping that they do not come out just before the next election. Such a literary example is filling the potholes in the road after the winter rather than laying a new surface, which would have been a more durable and in the long-term and more cost-effective solution. However, for a local council it has some sense, because it can say its budget is in perfect order, people pay smaller taxes, so please re-elect us.

It is this kind of irresponsibility of not telling the nation the truth because that is not what the electorate wants to hear. It is even difficult to blame governments for this – this is simply showing who we are as species (the Maslow's hierarchy again). We are motivated in most cases by our most evolutionary instincts – meeting immediate physiological and safety needs. As an example, take the percentage of personal savings. In the UK it is very low at about 5% in 2018 down from 8% in 2015 (in Germany it is up from 8% to 10% in 2018). The hope in the UK is that the rainy day never comes. The reason people do not save as much as they used to in rich countries is because they feel they can always count on the government. Perhaps it is the feature of humanity as a species that the better off you are the less prepared you are for the worst? The fact that we do not save and do not take precautions as we have done before is a more general symptom of shedding our responsibilities onto others. We have become an irresponsible species!

So, here is an example of how ill prepared we are as a society to withstand even the slightest departure from what is considered a 'normal' life. It happened in London in wintery March 2018. There was a 5 cm of snow fall and the minimum temperature over two days was -4C in the night. But the result was that most trains stopped running, most schools were closed and tens of thousands of people were without water for a few days, because main pipes broke down. Snow and frost in London are rare and happens on average for about a week every few years. But transport and social life is completely disorganised. As far as I am aware at the same time in Europe, where the temperature fell to -20C with heavy snow falls, the repercussions were far less severe. Yes, there may be some societal differences how various countries prepare for a proverbial 'rainy day'. However, irrespective of that such an incident illustrates much bigger problems with fighting risks of any kind anywhere, in particular in western societies because it is a question of certain attitude to how societies manage their life.

If we look at such events as above from a wider perspective, it is clear that politicians prefer not to tell the voters the whole truth about the state of their country's affairs, because most people prefer not to hear it. So, politicians follow the voters' instincts, or preferences, if you like, i.e. people are interested only in what they can get here and now. Therefore, any long-term projects like infrastructure investments are not going to win many votes. That's why there is such an unbelievable underinvestment in the American infrastructure, about which even Donald Trump lamented. This is a common situation in most countries.

So, what kind of future will we have in the age of Superintelligence? Perhaps we can find it in the quotes of these two famous science fiction writers. The first one, already mentioned, is Isaac Asimov – an American science fiction writer who characterised society as follows: “The saddest aspect of society is that science gathers knowledge faster than society gathers wisdom”. Somewhat strikingly, Stanislaw Lem – the Polish philosopher and science fiction writer offers a similar assessment when he says: “The fact that competent experts must serve under politicians of mediocre intelligence and little foresight is a problem that we are stuck with.” That is one of the reasons why I would propose a much clearer delineation between the legislative and executive powers, leaving the art of governing a country to real experts (see chapter 7, part 3).

One of the areas where societal disorder can increase beyond control is the media, including social media and the Internet. The best example for me is the interview of the former Prime Minister Tony Blair during the Leveson Inquiry in the UK Parliament on 28th May 2012. Here is an extract from that interview as reported by BBC:

“Former Prime Minister Tony Blair has defended his friendship with Rupert Murdoch, saying ... a close relationship was inevitable but also involved a ‘certain level of tension’. After all, in this day and age, it is ‘essential and crucial’ to have good relationships with the media. With any of these big media groups, if you fall out with them, then watch out, because it is relentless. You then are effectively blocked from getting across your message’. In his witness statement, Blair said that media owners use newspapers and other media **as instruments of political power.**”

And that was said by the politician who was aware that Mr Murdoch’s company News Corp controlled almost 40% of the UK media, including the newspaper “The Sun”. The situation in the USA and its impact on politics is similar, where Comcast controls almost 40% of all media, including more than half of the broadband market. In 1983, 90% of US media was controlled by 50 companies; as of 2011, 90% was controlled by just 6 companies.

Tolerance for intolerance and the rebirth of populism

“Who are we to tell the people?” That’s what we hear quite often from the government, especially just before the elections. The cynicism behind that question could not be more evident. It is to send the message of government being liberal and letting people lead their own lives. Really? One might say it depends on what the government wants to tell the people. In most cases it chooses what to tell, depending on how many votes it might win, which means that the government chooses which kite to fly. For example, we cannot smoke in public places, we must by law help people in accidents, children are not allowed to watch adult films, etc. These are broadly ethical issues rather than situations that regulate our relations between each other and the state, like paying taxes or being drafted into the army in the hour of need. It is the state that picks and chooses when to or disallow certain behaviour.

For the last 40 years governments in most western countries have withdrawn from that ‘moral ground’ considering that it would have been too illiberal to meddle with people’s life. Governments, in my view, have every right to tell their citizens what is right and what is not right, to instil better social cohesion and observance of social norms. If the citizens do not like such guidance, they can always call the government to account and replace it with another one at the next elections that may give them a different guidance.

The problem of ill-conceived liberalism started in the late 70’s when governments stopped giving such ethical guidance to let citizens lead their life as free as possible. You may call it tolerance. However, that was a clear misconception of what freedom really means. None of us has ever been and never can be entirely free; otherwise people would have killed each other. That’s why we have a society and the government, which regulates my unquestionable and unrestricted spheres of freedom from the freedom of others, including the state itself and how we should or must behave (if it’s a law), when our spheres of ‘freedoms’ intersect. It is so plainly obvious. But that kind of liberalism created the period of political correctness, when in order to maintain social peace, the governments tried not to alienate any party and usually did not make any opinion on ethical issues. I am all for extending our personal freedoms as much as possible, but at the same time I recognize when I must harmonize my right to freedom with others, I must be tolerant. Yes, that’s a pretty fluid space, which is changing fast as everything else around us, but in the end, decisions taken by the government in the domain of ethics should be put across openly and truthfully, to avoid problems in the future. But that is exactly what governments have not done for the last two generations.

It is most plain in the education system. Teachers at schools cannot be too straight in their demand for their students’ behaviour. “Who are you to tell me how I should behave, how I should treat my colleague or what I should wear at school?” The repercussion of that approach reached apogee in the EU countries during the migration wave of 2015-2016 and is being felt throughout Europe till today. That was the result of years of political correctness and government non-interference. How could it have happened?

I have already mentioned the example of the Netherlands – the country known for many years as being exceptionally tolerant. In 2004 after the murder of the film maker Theo van Gogh, there were massive demonstrations with people holding placards ‘No tolerance for Intolerance’. That was a natural consequence of tolerance applied without any serious assimilation and integration measures for the Muslim migrants.

Just to be clear, I am absolutely for helping true asylum seekers and those who became victims of wars or natural disaster. Actually, we have not done enough in that area because many true asylum seekers have no means to cross the border of countries that persecute them (e.g. in Iran, Saudi Arabia or Eritrea). However, I am equally opposed to uncontrolled economic migration especially in large numbers in a very short time from different cultures for quite obvious reasons. Human nature and culture do not change overnight; neither does the host’s, nor that of the immigrants. Such an ultra-tolerant policy of non-assimilation has very quickly ignited tensions between

communities of different cultures that may become at some stage catastrophic for the host nation.

14 years after the ‘No tolerance for Intolerance’ demonstration in the Netherlands, we have the Alternative für Deutschland right wing party in Germany gaining over 14% of the votes in the parliamentary election, the Austrian President also representing extreme right, not to mention similar right-wing tendencies in France, Hungary and Poland. Just look at the most recent American elections. What kind of a trade stall did Mr Trump open for his voters? His victory in the American presidential elections in 2016 is fresh evidence of how primitive arguments can win votes. His statement on Muslim immigration to the USA is the best example of how such demagogues can manipulate uneducated voters and take over the power. It was exactly the same pattern on this side of the pond, when Brexiteers promised to shake off the shackles of the EU bureaucracy, to return sovereignty to the voters. Marie le Pen’s relative victory in 2016 French regional elections is another example.

Finally, people who vote for populist politicians should be reminded that for what they are getting today from a populist government will most likely have to be paid for by their children and grandchildren. That is what the Greek people are learning right now. Since the WWII the Greek governments have been dominated by members from several families like Papandreou, Papadopoulos or Karamanlis who were re-elected every time by giving more and more money they did not have. They kept borrowing from international investors, until the Greek national debt was so big, that the government could not even repay the monthly interest on the debt.

The impact of Technological Unemployment in social domain

I have already mentioned that the change the world starts to experience right now is becoming nearly exponential, which roughly means that what took ten years in the last century, happens within one or two years now. That is another risk in itself, since we, as humans, are not that well prepared to cope with such a pace of change, even if it can be beneficial. To illustrate it further what exponential, change really means in the area of knowledge, here are some amazing facts:

It took that much time for human knowledge to double:

- 100 B.C. - 1700 (1800 years)
- 1700-1900 (200 years)
- 1900-1950 (50 years)
- 1950-1970 (20 years)
- 1970-1980 (10 years)
- 1980-1988 (8 years)

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

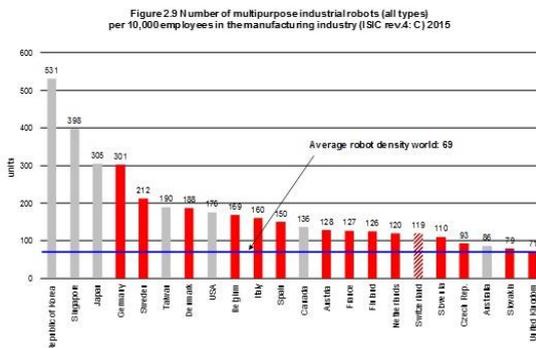
According to recent research carried out by IBM and Harvard University humanity’s knowledge doubles now about every 12 months and by 2020 it will double every 12 hours⁽¹¹⁴⁾. But different types of knowledge have different rates of growth, for example:

- Online info doubles every 6 months
- Biological info doubles every 18 months
- Corporate info doubles every 18 months
- Genetic info doubles every 18 months
- Technical knowledge doubles every 18 months
- Clinical knowledge doubles every 18 months.

How can we translate this into more tangible objects? Knowledge is the underpinning foundation of technological progress. If we assume that Moore’s law continues for the next 15 years, technology would be about 1,000 times more efficient than today. But combinatorial effects in other areas may lead to even faster spectacular technological improvements and to the fastest productivity growth in human history.

Let’s look at another example. The 2017 Report by the International Federation of Robotics provides some very interesting data from the world of industrial robots. According to that report by 2019 more than 1.4 million new industrial robots will be installed in factories around the world, increasing the total number of installed robots to 2.6 million. Around 70 percent of industrial robots are currently at work in the automotive, electrical, electronics, metal and machinery industry segments. In a worldwide comparison, the European Union as a whole is the most advanced region in the intensity of robotization. Half of the top 10 nations with most industrial robots per 10,000 employees belong to the European Union. The highly developed nature of automation in Europe is especially evident in Germany, which has 301 robots per 10,000 employees, while the UK has only 71⁽¹¹⁵⁾.

Top futurists, such as Ray Kurzweil, or Noah Harari predict that in just one generation the number of intelligent robots will outnumber the human population.



Source: *International Robotics Federation Report 2017*

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It is interesting to note that until now, the enormous automation programmes with robots had a positive effect on employment. For example, in the German automotive sector, where the number of robots is about three times higher than in the whole German economy, the number of employees increased in parallel to the growth of robotic automation and between 2010 and 2015 it averaged 2.5% for the employees' growth and 3% for the robots' growth per year.

However, it is usually the case that if we find something spectacularly good, it is unlikely there is no extra price to be paid. And so, it is in this case. The exponential growth in technological improvements will lead to an unprecedented level of Technological Unemployment (TU) within the next generation. The predicted global workforce in 2030 is to be about 4 bn. people. Now, how many of these people could be without a job in less than 15 years? According to Thomas Frey, by 2030 about 2 billion, i.e. about a half of all people in employment.

Are we then fast approaching an unprecedented level of unemployment? I'm afraid so. Jobs, in particular low skilled jobs, will disappear faster than ever. Thomas Frey, a well-known futurist, has put up a list of 100 job types that will be gone by 2030.

Driveless cars	Flying Drones - 1	Flying Drones - 2	3D Printers	Contour Crafting	Big Data & Artificial Intelligence - 1	Big Data & Artificial Intelligence - 2	Mass Energy Storage	Robots
Drivers	Public Safety	Agriculture	36. Plastic press operators	Home Construction	Writing	Financial Services	Energy sector	Retail
1. Taxi Driver	7. Traffic cops	20. Crop monitors/consultants	37. Machinists	41. Carpenters	47. News reporters	62. Financial planners/advisors	77. Energy planners	86. Retail clerks
2. Limo driver	8. Meter maids	21. Spraying services	38. Shipping & receiving	42. Concrete workers	48. Sports reporters	63. Accountants	78. Environmental designers	87. Checkout clerks
3. Bus drivers	9. Traffic court judges	22. Shepherds	39. Union representatives	43. Home remodeling	49. Wall street reporters	64. Tax advisors	79. Energy auditors	88. Stockers
4. Rental car personnel	10. Traffic court lawyers	23. Wranglers/herders	40. Warehouse workers	44. City planners	50. Journalists	65. Auditors	80. Power plant operators	89. Inventory controllers
	11. Traffic court DAs	24. Varmint exterminators		45. Homeowner insurance agents	51. Authors	66. Bookkeepers	81. Miners	90. Sign spinners
Delivery Positions	12. Traffic court support staff	Surveying	46. Real estate agents			Legal Services	82. Oil well drillers,	
5. Truck drivers		25. Land and field surveyors			Military	67. Lawyers	83. Geologists	Medical
6. Mail carriers	Miscellaneous	26. Environmental engineers			52. Military planners	68. Compliance officers/workers	84. Meter readers	91. Surgeons
	13. Parking lot attendants	27. Geologists			53. Cryptographers	69. Bill collectors	85. Gas/propane delivery	92. Home healthcare
	14. Valet attendants	Emergency Rescue						93. Pharmacists
	15. Car wash workers	28. Emergency response teams			Medical	Misc.		94. Veterinarians
		29. Search and rescue teams			54. Dietitians	70. Meeting/event planners		
	16. Courier service	30. Firefighters			55. Nutritionists	71. Cost estimators		Maintenance
	17. Food delivery	News Services			56. Doctors	72. Fitness coaches		95. Painters
	18. Pizza delivery	31. Mobile news trucks			57. Sonographers	73. Logisticians		96. Janitors
	19. Postal delivery	Remote Monitoring			58. Phlebotomists	74. Interpreters/translators		97. Landscapers
		32. Construction site monitors			59. Radiologists	75. Customer service reps		98. Pool cleaners
		33. Building inspectors			60. Psychotherapists	76. Teachers		99. Grounds keepers
		34. Security guards			61. Counselors/psychologists			100. Exterminators
		35. Parole officers						101. Lumberjacks

Source: Tony Czarnecki: based on Thomas Frey <http://www.futuristspeaker.com/business-trends/101-endangered-jobs-by-2030/>

There are others who broadly share that view. We can observe such processes in the UK very clearly in the government sector where about 0.5m people lost jobs in recent years. Think about your tax return filing, passport application, NHS Patient Access, Universal Credit and similar areas. They all begin to rely on self-service. Therefore, the changes in the USA are not unique at all, where such processes have continued since the 40'.

However, not everybody agrees with that. For example, Boston Consulting Group in its document “The Global Workforce Crisis Jun 2014 till 2030” makes an assumption that GDP growth patterns and labour employment pattern will stay the same as in the previous 20 years. This is, in my view, a grave error of judgment that produces incredible results i.e. that Germany in 2030 will need 10m additional employees, apart from its own employee base. That might be the reason why Chancellor Merkel said in 2015 that Germany would need those millions of immigrants because the country will not have enough employees. However, figures for the USA and Germany clearly demonstrate an entirely different picture. For example, even in Germany the employment in manufacturing has fallen by 14% in 30 years. Additionally, as the data for the USA shows, **the ratio of new jobs to the existing jobs created in every decade since the war has been falling.**

We hear the assertions made by some researchers that “we have been through such a job conversion process for more than a century and look, we still have more people in employment. Surely, the same pattern will continue and that’s why there is nothing to worry about”. Well, such scenarios convey an optimistic view by focusing predominantly on re-skilling the unemployed and offering them another job in a different industry. The underlying assumption seems to be that almost everybody should be able to find a job, after he has learnt new skills. But people are mostly unaware of how machines learn. The best illustration comes from David Wood, chairman of London Futurists: “Machine learning is a *general-purpose* utility. Any improvements to the mechanisms for machine learning are applicable, not just to a single application, but to multiple different applications” (116).

Therefore, it is rather unrealistic to expect that the Technological Unemployment caused by AI, and the way in which it makes near exponential expansion of its capabilities, will be slow and similar as in the past. I would rather expect the Technological Unemployment to reach a tipping point or a ‘knee curve’ in its exponential growth, causing very sudden massive disruption in most markets by cross-fertilization of ideas applied in one sector and then transferred into another sector (the implication of David Wood’s observation above).

Therefore, in future, most of the unemployed will not be able to get upskilled to the required level mainly because of inherent inabilities and an entirely different kind of technological upgrade. For example, it would be difficult for people with a low IQ level to become an augmented reality designer. There will be fewer jobs replacing the jobs lost and the skills required to fulfil these jobs will be such that not many of the unemployed would be unable to find a new employment. Despite robust growth, driven by strong high-tech industries, a two-tiered, divided society has already emerged, reinforcing the economic position of the ‘haves’ and ‘have-nots’. Additionally, in the overall increase of the no. of people unemployed, the worse-off, with lower skills, will be worst hit. It may lead to a further exacerbation of the social problem related to unemployment, because people with lower skills tend to live in large estates, where certain patterns of social behaviour such as violent discontent may spread very rapidly.

So, we shall have large scale structural unemployment, where people will simply not be able to find new jobs. Of course, the picture for decades will be different in the northern hemisphere and the southern hemisphere, especially in Africa. But most governments, elected for just four years, are in no hurry to confirm the arrival of this very difficult, mainly social problem, because it is not there yet. The UK government is a good example. It has been proudly announcing over the last few years that the level of total employment is still rising and there are over a million new jobs created in the last 5 years. That is true, but we may be comparing apples and oranges. First of all, the new jobs are quite often not full-time jobs and many of these jobs are not permanent jobs as it used to be the case in the past.

If we look at economy in general, the picture that emerges is very similar. Although the data from the US comes from the last 60 years, it shows beyond doubt what the tendency is. The outright winner is the services sector. This correlates very well with the gap between the GDP growth and average household income in the USA. All these changes have been relatively slow and happened before the arrival of AI and the introduction of truly sophisticated robots on a large scale. It is this wave of wholesome change in how we manufacture goods and deliver services that will lead to unemployment on an unprecedented scale. That's why it is called Technological Unemployment.

And that is why it can become a serious risk in disrupting the societal and political fabric of most countries, and when combined together with others, superficially not such great risks for our civilisation, they may turn into global socio-political disorder.

Mitigating Global Social Disorder Risks

Re-educate society

Anyone who attempts to propose a better system of democracy must first of all take some harsh truths into account, i.e. what really drives the voters – the subject we discussed in the previous section. That does not mean that politicians should bow to pressures to satisfy ‘basic needs’ all the time. Politicians must be enlightened pragmatists and perhaps try to weave-in their more ‘inspiring’ election proposals into a broadly concrete set of easy to understand objectives that would meet at least some of the most urgent needs of the voters. That has been one of my key pillars when thinking about a new, improved system of democracy, which must be pragmatic and far more transparent, clearly pointing to what is possible and what is not, to defeat any populist agenda. The other one is a new way of conducting elections, so that the representatives’ agenda more fully reflects the needs of their constituents.

The third risk mitigation strategy in this social domain is remodelling our democracy in such a way, that it will rebalance rights with responsibilities. The rebirth of democracy is a must. We need to remember that if we survive the tremors that will shake our civilisation to the core, threatening Humanity with extinction, then by the end of this century we may become what Kardashev calls, Civilization Type I. We will become a planetary civilization. To continue to evolve and decrease existential risks we will have to act in unison as Planet Earth. From this point of view the concept of regions or states is just a transition to some kind of aligned set of planetary goals where our individual goals will have to be synchronized and subordinated (yes, it is a tough word) to the overall way and aims of the Planet. There is no other way.

If we want to restart education properly then there is no better way, in my view, like the re-introduction of a compulsory national social service for both sexes, which could also be a military service. Norway and Sweden did precisely that in 2016 and 2017. In France, polls carried out in 2017 showed that 80% of the public would like compulsory military service to be reintroduced (it ended in 2002). And that’s what President Macron announced in February 2018: about 600,000 young people aged 18–21 will be drafted into compulsory service each year, starting from 2019. In Switzerland, a referendum in 2013 revealed that 73 per cent favoured compulsory conscription for all. Right now all able men must serve in the country’s military when they turn 18, having a choice between joining the military, or the civil protection force. Women can sign up voluntarily.

In some EU countries, youth unemployment is so high that compulsory national service has been proposed as a solution. But for me the greatest long-term benefit for such a one-year residential compulsory service is the reciprocity towards your compatriots, opportunity for some education and apprenticeships after leaving the service, and simply being brought up as a responsible citizen.

Minimize social inequality by introducing Universal Basic Income (UBI)

The expected sudden rapid rise of unemployment resulting from accelerated technological progress, the so called “technological unemployment”, may cause significant social unrest worldwide. One of the solutions, which could help reduce the negative impact of the long-term unemployment, and which has now been seriously discussed and tried out in several countries, is the Universal Basic Income (UBI). It is defined as “a periodic cash payment unconditionally delivered to all on an individual basis, without means-testing or work requirement” (117).

This concept is very important for overall social risk mitigation and therefore, I would like to cover it in more detail. Having spent quite a lot of time on the subject myself I propose that UBI should be:

1. **Universal:** paid to everyone eligible, including children, adults and pensioners (but only for nationals or residents who acquired the necessary rights for UBI)
2. **Basic:** in the foreseeable future, such benefit should not be sufficient for a person to live even at a “poverty line”. Sometimes such a basic income is called partial Basic Income.
3. **Periodic:** paid at regular intervals (e.g. monthly or weekly), rather than a one-off lump-sum
4. **Paid in cash:** allowing the recipients to decide how they wish to spend the money
5. **Individual:** paid on an individual basis and not, for instance, to households
6. **Unconditional:** paid without a requirement to:
 - a) Pass a means test
 - b) Prove that the recipient actually works
 - c) Demonstrate even the willingness-to-work.

I should emphasize **the importance of the UBI being just basic i.e. partial**, and not a full allowance that would enable a person to live at what is defined in the UK as a “poverty line”. Such restriction is necessary for several reasons:

1. Making it affordable for the states to finance it right now within the current budgets. It would effectively replace the majority of existing benefits, and by pooling them together make them simpler and less expensive to administer
2. Starting the roll-out of UBI as early as possible although at a very low level will enable the governments to gather the necessary experience and see potential problems
3. Preparing the nations for technological unemployment that will have unintended social consequences of its own. The availability of UBI will be invaluable when millions of permanently unemployed will suddenly have to find a new purpose in their lives
4. Creating a basis for a **conditional** Basic Income that might replace benefits, to which some people may already be entitled (e.g. housing benefit) but also offer it to anybody else who wants it, as long as such a person meets the required

conditions. Such a condition could be a permanent employment, participation in various government schemes, e.g. further education, or public work scheme. It would thus, together with UBI become a **full Basic Income**. At some stage (depending on affordability) it would provide the recipients with financial means enabling them to live at, or slightly above, the “poverty line”.

Therefore, Full Universal Income = Unconditional Universal Basic Income + Conditional Universal Income. As with any idea, it has its proponents and opponents.

Those supporting UBI argue that it can help:

1. **Reduce, and in the long-term, eliminate extreme financial poverty.** In the poll by Dalia Research (118), 52% of the interviewed people quote the increased financial security. One might conclude that the main reason behind that wish is to gain freedom from a kind of serfdom – we must work to survive. The option of not having to work or only work a little bit as a sort of top up to facilitate our needs is truly powerful. A Full UBI will at some stage directly support the ‘Basic needs’ at the bottom of Maslow’s Pyramid, mentioned earlier in Part 1, chapter 1, enabling an individual to realize his full potential.
2. **UBI will virtually eliminate benefit fraud.** The simplicity, universalism and transparency of the UBI will minimize and in practical terms eliminate fraud for this type of benefit
3. **UBI will lead to significant savings.** UBI can deliver substantial savings in the cost of distributing benefits that will be replaced by this universal financial support. Malcolm Torry, Director of the Citizen’s Income Trust, in his 2013 “Money for Everyone: Why We Need a Citizen's Income” argues that a basic income is the most effective means of welfare, avoiding the high marginal deduction rates of current benefits, which create the familiar unemployment and poverty traps.
4. **UBI will provide support for the people in need who do not receive benefits** There is a section of the society in most countries where people in need of financial help do not get it because of the complexity of various schemes and lack of basic knowledge how to apply for it, or simply because they do not want to be seen as “beggars”. With UBI they will get that financial support automatically.
5. **Choice of career paths will be much wider for most people with UBI in place.** Once a person gets UBI, it may become a trigger for them to review the way people earn their living. Many people will be able to change jobs reflecting more accurately their personal preferences.
6. **UBI will help employees enhance their bargaining power.** For many people, the sheer knowledge that they would be able at least partially to support themselves, will lead to improving their career, financial position or conditions of work at their workplace, knowing that they could afford not to work for a while and leave the job, if their requests are not met.
7. **Working more very seldom produces better results.** A recent research found that the relationship between hours worked and productivity of an employee’s output falls sharply after a 50-hour work-week, and falls off a cliff after 55 hours. Someone who puts in 70 hours produces nothing more with those extra 15 hours, according

to a study published by John Pencavel of Stanford University (119). Longer hours have also been connected to absenteeism and employee turnover. Employees work many more hours now than they have in the past, but it's coming at the expense of health, happiness and productivity. As a side effect, reducing the number of hours will create new job opportunities or can almost naturally lead to a wider level of job sharing.

8. **UBI will reward people who are currently doing voluntary jobs.** There is an army of volunteers, mostly working for charities that do not get any remuneration for the work they do. With UBI, they will have some extra financial support, enabling them either to extend their working hours, or more people will become volunteers. That will also be a partial reward for quite a few pensioners caring for free for their grandchildren.
9. **UBI could increase labour mobility** for people who would like to move to where their jobs are but currently do not have enough financial means to take the risk of relocation (120).
10. **Many people resist doing something under pressure**, like going to a work place they hate because they do not have any choice – they need money to survive. However, once they have that choice by, for example, having UBI that gives them some income, suddenly they see work as an option rather than an absolute necessity and have a motivation “to do something” in their potentially free time.

Arguments against UBI and how they can be alleviated

1. **Although UBI may be easy to administer, saving a lot of money, its implementation is not that straightforward.** To be meaningful, UBI would have to be an equivalent of at least 20% of the average wage in the developed countries and that may cost a lot of money. That's true, people tend not to like higher taxes, this does present a practical problem for the implementation as does the difficulty of removing an established bureaucracy employed in the welfare system that would have been made redundant. However, it is less than the cost of the whole welfare state in the developed countries. Yes, it may indeed lead to somewhat increased taxes required to pay for UBI but again that would be an equivalent to an additional 1% to 3% of an average current taxation level. Estimates vary, but for Ireland total taxation, including UBI would be at about 40% flat tax level and in the USA also at about 40%. (121).
2. **The argument that some people may stop going to work is true.** However, current experience, i.e. in Canada, shows the numbers are in low single figures, since the level of UBI is far from being sufficient to sustain even the very basic needs. It is also true, that some people may watch TV all day, as some do now, if they are on the dole.
3. **Some people worry that an additional amount of money on the market will lead to an increased inflation.** Yes, the price of cheap goods and services may rise somewhat but that depends on the level at which UBI is set and can be managed.
4. **Sometimes, UBI is feared to lead to the increase in population**, especially if children will also get it. In some countries, like in Germany, they want more children, so that would not be a problem. In others, it can be regulated by a much

- lower UBI level for children or allocating UBI only to adults. This will largely depend on the country's population growth needs and culture.
5. **For some people, especially on the so-called far right, it may seem to be a form of ultra-socialism.** Well, then the current welfare state is already such an ultra-socialism.
 6. **The argument that giving people free cash will lead to increased drugs or alcohol related problems is definitely true, as it is today.** In general, some people cannot manage any amount of money properly. That's why, for example, in the UK there are still many companies that pay their employees weekly wages so that people do not spend all their income on the pay day. For some of us it is just our human nature to generate endorphins right here and now.

UBI is not a panacea for social problems, but it is a promising solution that could be implemented at its minimal level right now. That minimum would largely depend on the state of the country's economy, legislation and some cultural tradition. However, it seems to be affordable for most developed countries at around 20% of the average wage level. In the UK it would be about £4,500 annually for a working adult tax free, that is twice that much as every taxpayer gets today as a tax allowance (about £2,300). People who are on social benefits already get much more than that.

UBI should be first entered as a "New benefit" replacing most, but not all existing benefits and tax reliefs. The balance between the expenditure that was covering the abolished benefits, such as tax relief, should be initially paid from general taxation. As an example, in the UK, depending upon one of the existing scenarios, that net annual cost would be equal to between 1% and 3% of the total tax levied. From then on, any annual increase should be slightly above inflation. Additional sources may come from the so-called Tobin's tax on "micro-second" investment (share dealing) transactions, which in pure economic sense could be considered gambling, or taxes on certain derivatives.

UBI should be extended to all nationals born in the country as well as to those citizens from other countries that have lived and worked in the country for the length of time specified by law. This should be based on the assumption that everyone who contributes to the country's wealth has the right to participate in the distributed income. It should be unconditional, as in the name, but its level may vary on one parameter only – age. Thus, children, working-age adults and pensioners would receive UBI at a different level.

There are many ways how the UBI can be implemented and the implementation scenarios will vary significantly between countries, reflecting different economic capabilities and cultural differences. It can be implemented via individual tax credits, personal Negative Income Tax (NIT) or household based regressive negative income tax.

Individual tax credit, called Working Tax Credit, has been in operation in the UK for quite a while. However, it is conditional and non-universal. In 2017 the conditions

stipulated that a person could get the Working Tax Credit of up to £1,960 a year if either of the following applied:

- A person's age is from 16 to 24 and has a child or a qualifying disability
- A person's age is 25 or over, with or without children

A further condition is that such a person:

- Works a certain number of hours a week
- Gets paid for the work he does
- Has an income below a certain level

A Negative Income Tax (NIT) is another option of how a UBI could be implemented. NIT is a progressive income tax system where people earning below a certain amount receive supplemental pay from the government instead of paying taxes to the government. It would be a mirror image of a typical tax system. It could be applied either on an individual (personal) or a household basis. Benefits received would vary inversely with the income earned via employment or coming from other sources, in line with a negative tax rate and threshold. For example, if the NIT is set at £10,000, the basic tax rate is 20% and the income threshold above which the tax is paid is £25,000, then a person earning £25,000 would get an additional 20% cash on the difference between what he earned (£25,000) and the NIT (£10,000), which is 20% on £15,000 = £3,000. Negative income tax has already been tried in a number of countries.

In most of the OECD countries' expenditure on social assistance is quite significant. In Luxemburg, per-capita benefit spending has already reached 50% of the poverty line. For most governments, the first step would be to convert all benefits and tax allowances into the UBI with some supplementary amount added. Most countries already spend over 20% of their GDP on paying benefits.

The best proof that UBI may work is perhaps the most recent decision made by the Finnish government. Finnish unemployment stands at about 9%. Therefore, the Finnish Parliament has decided to introduce UBI in two phases. The first phase started in September 2016 as a pilot for a randomly selected group of 2,000–3,000 citizens already on unemployment benefits. They receive a monthly basic income of 560 euros. That amount is the same as the current guaranteed minimum level of Finnish social security support. The pilot study, running till the end of 2018, intends to assess whether basic income can help reduce poverty and social exclusion (122), while at the same time increasing the employment rate.

The UK proposals for UBI, if implemented in full, would cost about £10 billion net. In the transition period, some top ups, for certain groups of people would be unavoidable, like the housing benefit. But with that caveat, the UBI could be introduced in the UK even tomorrow, because the additional cost is lower than previous annual budgetary giveaways. More than half of the cost would be balanced by removing the personal

allowance and basic state pension. In the summary table below, I have aggregated various UK UBI Proposals published in 2016:

UBI proposals for the UK										
Proposing organisation	Adult Annual UBI pp (£)	Child Annual UBI pp (£)	Pensioners UBI pp (£)	Start date proposed	Net scheme cost in £bn	Cost and Benefits				
						Benefits	Personal Allowance	NI	Tax	State Pension
Green Party proposal	4160	2600	9360	After 2020	Paid by NI increase and additional tax	Only exceptional & housing	0	Lower & Upper limits removed - more expensive	Everything above UBI taxed	0
Citizens Income Trust	4160	1040	Pension plus + 1560	Now	20	Only exceptional	0	Max 12%	Everything taxed including UBI, extra up to 3% tax for high earners	Remains
Compass	4160	2600	8060	Now	14	Only housing	0	NI	Everything taxed including UBI	0
Reform Scotland	5200	2600	5200	Now	13	Only exceptional	0	0	Everything tax, plus extra up to 3% tax for high earners	Remains
Royal Society of Arts & Commerce (RSA)	4160	3700	8060	Now	14	Only exceptional	0	Max 12%	Everything taxed including UBI, extra up to 3% tax for high earners	0

Source: Authors' summary based on original data of the proposing organizations

Britain already has the entire mechanism that could be used with some adjustments for rolling out UBI. It is the Universal Credit introduced by Ian Duncan Smith.

There is one more interesting side effect of introducing UBI. In the UK there were about 88,000 prisoners in 2017, i.e. 145 prisoners per 100,000 – the highest in Europe, and about 50% higher than in Turkey. About 50% of these sentences are for 4 years or below, i.e. about 40,000 (123). The UK government decided in February 2018 to release about 35,000 prisoners serving 4 years or less and convert their sentence to a curfew system. The cost of 1 prisoner is about £35,000 (124). Nearly 50% of these prisoners re-offend within 2 years. Instead, I would suggest the following scheme that would drastically reduce re-offending and make some substantial direct savings for the government.

In most cases the main reason why prisoners re-offend is that they are either badly educated, or have no prospect for employment, or no income at all. Say, 10,000 prisoners go back to jail within a year, 30,000 prisoners go to jail within 2 years. If 30,000 prisoners on a lighter sentence had not gone to jail every year but instead would have been sentenced to serve in a curfew system, and 10,000 would not re-offend at all, the UK state would have saved $40,000 * £35,000 = £1,4$ billion. To reduce the re-offending, if every person, including those out of jail, would get £5,200 of annual UBI (as per Reform Scotland proposal) then the released prisoners could start a new life, especially if it had been supported by an education system. The total cost would amount

to just £208M, saving the government about £1.2 billion. The people in prison would have not been entitled to £5,200 UBI.

The social consequences of implementing UBI

The UBI should subsume as many current single benefits as possible because it would make the whole operation more cost-effective and easier to administer. That is also the rationale behind the Universal Credit now being implemented in the UK. Therefore, the UBI entitlement should also include children (with lower level of benefit). Pensioners in the UK should be entitled to UBI, with a higher level of benefit than the working adults, since they would have very little opportunity for extra work and such UBI would replace the national statutory basic pension. Gradually, UBI for pensioners should be high enough so that it should cover most of the basic cost of care home for the elderly.

UBI should be individualised rather than applied to a household, since individualisation would drastically reduce the cost of distributing the benefit (very few checks, if any), greatly reducing false benefits claims and state intrusion in private lives (who lives with whom). UBI individualisation will however be more expensive than paying it to households. Therefore, initially it would have to be set at a level far inadequate to sustain an individual living alone.

To respond to some critics of UBI who say it will also be an extra income for the wealthy, if all citizens are given the same amount of money per month, I would suggest considering it as a taxable income. Those who earn nothing or very little will pay no tax but those who earn a lot, will pay some additional tax.

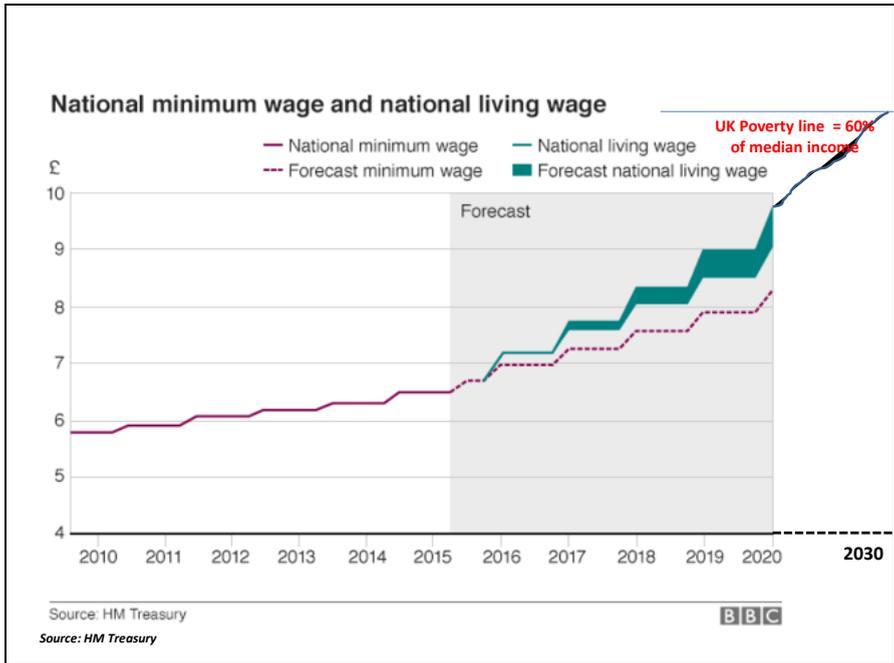
In the UK, as in most other countries, there are plenty of hindrances rather than incentives for unemployed to do any part time work. People have to contact the job centre if they can pick up the job and still retain the benefit. The system is just too complicated. The soon to arrive so called Technological Unemployment will force the governments to implement UBI since this is the fastest, simplest and most effective option to maintain social order, as well as fulfil the dream most of us have, i.e. to devote time to that what we like doing most. Incidentally, that could also include work, if it is still available when the Technological Unemployment arrives.

Progressively increase the Minimum Wage and the “Living Wage”

Andrew McAfee, a renowned MIT scientist, thinks that great American society will sort out the problems of technologically originated unemployment because it has always dealt nicely with a crisis. I do not believe it. It is a social problem not a technological one. Just think about American Health System, insurance, lobbying, voting system, gun law. These are all social problems waiting to be solved.

One of the first solutions I would suggest would be a steady increase of the “Living Wage”. In the UK, the minimum living wage is to increase to over £9 an hour in 2020.

That would put an individual adult above the so-called poverty line. This is 60% of the median household income equal to about £26,000 in 2017.



How does it compare to other EU countries? In January 2017, 22 out of 28 EU countries applied a binding statutory minimum wage - Belgium, Bulgaria, Croatia, Czech Republic, Estonia, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and the UK. In the EU Member States where there is no statutory minimum wage (Austria, Denmark, Finland, Italy and Sweden), the minimum wage level is de facto set in (sectoral) collective agreements. It is important to note that the coverage of these agreements varies between countries and as some employees are not covered, they may not have any minimum wage. ⁽¹²⁵⁾

EU Nominal levels of statutory minimum wage in 2017	
Country	Equivalent in Euro
Bulgaria	236
Romania	321
Latvia	380
Lithuania	380
Czech Republic	408
Hungary	413
Slovakia	435
Croatia	437
Poland	455
Estonia	470
Portugal	557
Greece	586
Spain	708
Malta	740
Slovenia	805
France	1,480
Belgium	1,532
Netherlands	1,552
United Kingdom	1,584
Germany	1,591
Ireland	1,665
Luxembourg	1,999

The data in the table clearly shows that the level of statutory minimum wages greatly varies between EU countries. As of 1 January 2017, the lowest minimum wages (usually less than €500 per month) are found in the new Member States (NMS). Of these, Bulgaria applies the lowest monthly minimum wage in the EU – €235. Immediately following is Romania. Two of the NMS – Malta and Slovenia – form a middle group, together with Portugal, Greece and Spain, in which the minimum wage ranges between €500 and €1,000 per month. Of the Eurozone countries, Portugal has the lowest monthly statutory minimum wage. Notably, in Greece (only the private sector), in Portugal and Spain, employees are entitled to 14 monthly wage payments per year; in other Member States they receive 12 monthly minimum wages. A majority of the Eurozone countries have the highest minimum wages, exceeding €1,000 per month: the highest – in Luxembourg (€1,999 per month) – is 8.5 times the Bulgarian minimum.

The minimum wage is a very good indicator of the consequences if the EU were to federate as a whole on the same day. Even in 2030 that may not be a feasible option, or at least such an option, which would be difficult to sell to the taxpayers in the richer EU countries. This is why multi-speed Europe, favoured by president Macron has a lot of sense. However, an increased minimum wage that would effectively become the living wage, combined with other proposals mentioned in this section may be a necessary option at the time of social or economic crises that may happen when other risks are triggered off at the same time, such as local wars, large scale epidemics or technological unemployment. All together they could combine into existential risks.

Cut down working hours

The average working week in Europe is about 40 hours (35 in France, 43.6 hours in the UK). That difference makes an average UK employee work about 10% longer every week than his European colleagues. And the origin of that difference goes back to the early eighties, when Mrs Thatcher introduced new economic policies that last till today. Until that time, the UK's average no. of hours was falling very rapidly.

Since then the UK average no. of working hours in the UK continues to fall at a very slow pace. On the other hand, in the EU, workers' average no. of hours worked continues to fall faster. That's why the gap is growing. One of the reasons is that in Continental Europe this trend is additionally affected by social regulations and the accepted view that work, and by extension the economy, forms only part of our life. That trend needs to be reversed in the UK both for economic and social reasons.

Allow earlier, flexible retirement age

This is another effective way to combat Technological Unemployment and also enabling people live a more independent life. That sounds obvious indeed and it is hard to understand why so few countries have such options in the age of advanced computing. The cost of retirement forces many countries to extend the working life further and further until the future pensioners reach a fixed retirement date.

According to one recent survey, as many as two-thirds of people in the UK currently have "trouble with cognitive functions" by the age of 65. Raising that retirement age to 67 will impact these people more than average employees, making them even less productive. This hardly makes sense. However, raising the retirement age as an option, which will offer some rewards, like higher pensions, while at the same time lowering the retirement age for those that either cannot work anymore or do not want to, is a much better solution. In the UK, the system allows people to work longer and get a higher state pension but it does not allow people to start taking smaller state pension at an earlier age, say at 50. However, this is already happening in some EU countries as shown in the table below.

Normal retirement age in various countries

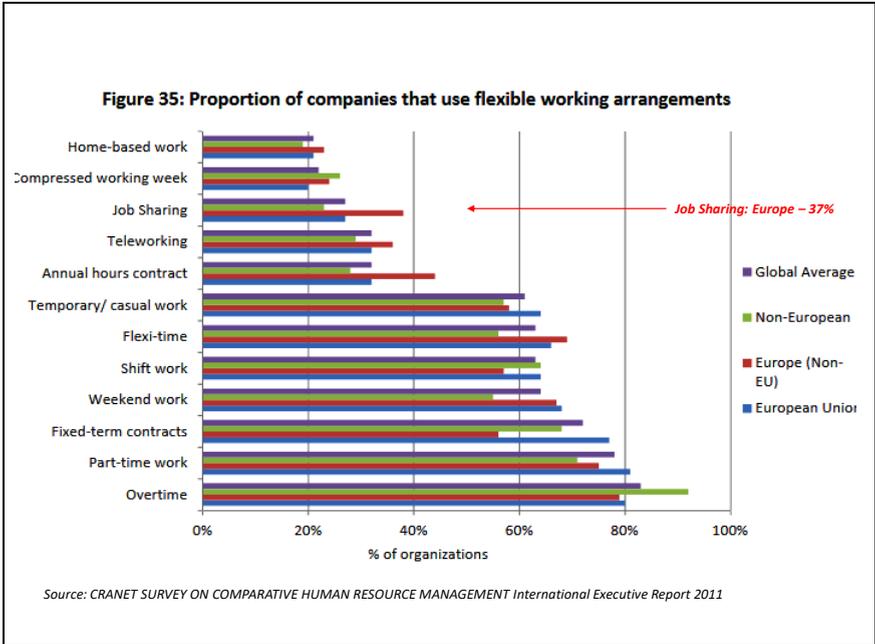
Country	Early retirement age	Normal retirement age	Employed 55–59	Employed 60–64	Employed 65–69	Employed 70+
Austria	60 (57)	65 (60)	39%	7%	1%	0%
Belgium	60	65	45%	12%	1%	0%
Cambodia	50	55	16%	1%	0%	0%
Denmark	none	65	77%	35%	9%	3%
France	62*	65*	51%	12%	1%	0%
Germany	65	67	61%	23%	3%	0%
Greece	58	67[7]	65%	18%	4%	0%
Italy	57	67	26%	12%	1%	0%
Netherlands	60	65 (67)	53%	22%	3%	0%
Norway	62	67	74%	33%	7%	1%
Spain	60**	65**	46%	22%	0%	0%
Sweden	61	65	78%	58%	5%	1%
Switzerland	63 (61), [58]	65 (64)	77%	46%	7%	2%
Thailand	50	60	?	?	?	?
United Kingdom	65	68	69%	40%	10%	2%
United States	62	67	66%	43%	20%	5%

Source: <https://en.wikipedia.org/wiki/Retirement>

Re-design jobs - to be shared by 2-3 people or with robots

Job sharing is a relatively new concept started in earnest in 2000'. One of the main reasons is that companies are reluctant to do this because on average a job shared between two people costs 20% more than one full time job. However, from a wider socio-economic perspective and as a buffer for the coming Technological Unemployment it is probably the most effective way to retain social order, which may not be easy when unemployment will exceed 25-30%. Therefore, the onus should be on the governments to stimulate job sharing by providing incentives to employers and effectively partially subsidizing job sharing, by covering, say, 10% of the cost of shared jobs.

I would not go as far as suggesting that the government should cover the full cost difference between a full-time job and jobs shared, at least for now. After all, employers also gain by having two employees with slightly different experiences, more motivated by their life being more balanced, having less stress and being more productive.



As the table above shows, in the EU job sharing is practiced in 37% of companies. That is less than half of the number of companies that allow overtime and is similar for part-time work. The main reason is probably the cost and some added complexity. Therefore, apart from a direct symbolic subsidy to cover additional costs, governments should more widely introduce the tax relief and other assistance to companies in preparation for the advent of Technological Unemployment.

Chapter 6

Combinatorial Risks: Global Economic Disorder

What's wrong with Capitalism?

I could have titled this chapter as the Crisis of Capitalism, but I want to make it broader because some systemic faults in how the economy now works are not inherent in capitalism as such. Secondly, I do not intend to write a treatise on that subject, since this area is only one in many aspects of socio-economic risks. However, it must be included, since this is probably the domain, in which our capability to fight this risk depends very much on what we will do and how we will behave, unlike in technology, where in some areas, we are just praying for luck. Moreover, minimizing the risks in this area is almost a prerequisite to being capable of mitigating existential risks in general.

The capitalist system has served us quite well, at least by creating an incredible civilisation and increasing GDP per head in Western Europe on average 20 times in the last 200 years. But over the last 40 years it has become largely dysfunctional mainly by creating an enormous difference in income between the 'capitalist elite' and the rest of us (more on that soon) and gradually destroying democracy. So, what I want to do is to list just some of the most cardinal errors in the capitalist system that drive the world economy astray, and then select one or two areas that are most closely related to the subject of the book.

1. **Concentration of economic and political power** on a global scale by a tiny proportion of the world's population. Corporate capitalism has been criticized for the amount of power and influence corporations and large business interest groups have over government policy, including the policies of regulatory agencies and influencing political campaigns. Many social scientists have criticized corporations for failing to act in the interests of the people; they claim the existence of large corporations seems to circumvent the principles of democracy, which assumes equal power relations between all individuals in a society (126).
2. **Corruption of democracy.** This is perhaps the most serious charge. Watching how the Donald Trump campaign was run, one might broadly agree as this is not only the symptom of failure of capitalism in the USA, but in most western democracies, e.g. Japan, Israel, Italy (Berlusconi) to name just a few. It's money that controls politics and not the other way around. In the USA it is more apparent than perhaps anywhere else because it is so public, like the 'deal' that candidate Trump made with the National Rifle Association for their monetary support. The astronomical amount of money spent on presidential campaign in the USA, now reaching \$1bn is nothing else but corruption in white gloves, since that money under the disguise of lobbying is then used to pay for favourable legislation e.g. no gun control.
3. **Extreme concentration of wealth.** One area where change is happening at nearly exponentially is extreme wealth concentration. According to Forbes, in 2017 the number of billionaires jumped 13% to 2,043 from 1,810 the previous year, the first

time ever that Forbes has pinned down more than 2,000 ten-figure-fortunes. Their total net worth rose by 18% to \$7.67 trillion, also a record. The change in the number of billionaires - up 233 since the 2016 list - was the biggest in the 31 years that Forbes has been tracking billionaires globally. Gainers since last year's list outnumbered losers by more than three to one. (127).

4. **Capitalism's inefficiency.** Planned obsolescence has been criticized as a wasteful practice under capitalism. By designing products to wear out faster than need be, new consumption is generated. This would benefit corporations by increasing sales, while at the same time generating excessive waste. A well-known example is the charge that Apple designed its iPod to underperform after 18 months. Critics view planned obsolescence as wasteful and an inefficient use of resources (128).
5. **Lack of proper accountability.** Corporate managers are the de facto 'owners' of large corporations, since institutional shareholders, who represent real owners e.g. millions of pensioners, are simply individuals who are either former board members of similar companies or 'professionals' quite often going hand in hand with the board. That's why Annual General Meetings are so pointless, because the board only very rarely is overruled by the shareholders, to the extent that there is a new trend called shareholders' activism attempting to give shareholders the real power they should have.
6. **Instability and debt accumulation problem.** The main source for growth capital is not organic money, i.e. from the company's profits, or equity, i.e. selling part of company's shares, but bank debt. As long as a company can repay the interest, it is deemed to be solvent. Therefore, if it wants to take over another company, it increases its debt level, the only real guarantee being the ability to repay the interest. No wonder then that any significant fluctuation in money supply and interest rate can lead to severe turbulences in the markets, like during the 2008 largest financial crisis in history, directly caused by the collapse of the sub-prime mortgage market.
7. **Subsidized industries.** Some examples are: the airline industry (fuel), steel industry (electricity), oil and coal industry, farming and agriculture in general.
8. **The doctrine of maximizing shareholder value.** This is based on Milton Friedman's assertion that the so-called agency-based model puts the obligation on the company manager (the agent) to conduct the business in accordance with shareholders' wishes, in precedence to other stakeholders. This is of course a shortcut explanation, as the matter is quite complex, but the main point is that such a model of managing companies has led to a significant abnegation of the traditional role of a company's owner, who had to take risks and responsibilities that shareholders do not do. The result of that has been that shareholders' rights, as owners of capital, have been far superior to other stakeholders, such as employees, who deliver intellectual and manual 'capital'. But most importantly, globally it has led to trading in companies on the stock exchanges like in commodities, leading to big economic and financial crises, like in 2008.
9. **The failing financial systems.** Banks and the financial sector in general have become widely criticized and blamed for how they behaved before 2008 financial crisis. 10 years have passed and barely anything substantial has changed. Banks don't do what they are supposed to do i.e. the economy's payment mechanism and an intermediary between savers and investors, providing capital to new and growing

businesses. Instead, more often than not, some banks are gradually turning into casinos, investing not for the long-term in real economy but gambling on micro-second transactions and creating derivatives that represent the original value several times inflated. And then one day, we all pay for it, and the carousel spinning the money, goes on.

10. **The crisis of tax systems and the boom of tax heavens.** Some multinational corporations are well positioned to take advantage of tax havens, but smaller businesses, are unable to do the same. That already creates an uneven playing field and distorts competition. Tax revenue is essential to fund vital public services such as education, health and infrastructure, etc. By hiding income and assets, tax havens allow such companies and unscrupulous individuals to evade taxation, thereby allowing them to amass even more wealth and making inequality worse. Perhaps more importantly, the secrecy promoted by tax havens makes corruption pay, and with impunity. A conservative estimate of assets hidden in 'tax haven' jurisdictions is \$7.6 trillion in 2013. New estimates of revenue losses made in 2015 by International Monetary Fund estimate total tax losses at approximately \$600 billion globally (129).

This is just a small selection of the charges laid at the door of several hundred years old capitalism. I am sure one could add quite a few more, but that is not the point. It is sufficient to see that capitalism is in real crisis, which can endanger not only the economy but democracy and our freedoms. It has now reached its "sell by" date, and its basic principles need to be redefined.

Mitigating Economic Disorder Risks

Reset the values, rights and responsibilities in the economic system

To counterbalance the danger of the current form of seriously distorted capitalism, which may lead to an existential risk by combinatorial effects with other man-made risks, such as climate change, large scale migration, and world-wide conventional war, we need some fundamental changes in this system. We should go back to the drawing board and question some fundamental untouchable rights that underpin capitalism but also democracy. The revision of those rights needs to be supported by a new legal system, which initially will be impossible to implement world-wide but gradually it has to be rolled out globally. If this is started with a large economic area such as the EU, the pressure on other countries to follow the new laws set up there, could be exerted by severely limiting the trade with non-complying countries. The arguments that a single large country, such as the USA, cannot implement far reaching changes in its economic and trading system result that the worst aspects of globalisation are still with us. It can be done, but it needs a stiff resolve to withstand the counter pressures exerted over a long time. Here, are some of the proposals that I would think are realistic and could be completed within 10-15 years:

1. **Re-define what constitutes private ownership.** Shouldn't, for example, the right to land ownership be replaced with the right to rent land, since the land as other resources, should only belong to a country or a community?
2. **Put a cap on the maximum value of assets that can be held by an individual.** Shouldn't there be a cap for a maximum level of assets that an individual person can control? If this is not challenged, then very soon some individuals would control more wealth than some small countries. How far can we let it go? Couldn't, for example, limiting personal wealth, including inheritance, to \$100M be a good start? I realize how earth shattering the introduction of such law would be. Where is the sacrosanct right to private property? Well, in my view, this is the price we may need to pay for a more economically and socially equal society, as well as to regain the control of our democratic institutions.
3. **Create a new set of laws that would change the relationship between the shareholders and other stakeholders** within limited and joint stock companies as well as the rights and obligations of all the stakeholders to each other and to the state. That would be very difficult indeed in a global economy that we have now, but is a burning issue that will not go away. One of the implementation routes might be via G7 – the member countries control more than half of the world's economy. Some progress has been recently done in taxation, so this is good evidence that it is possible. Shouldn't all those that contribute to profit, have a share in it but in proportion to the wealth they have created? That would need a redefinition of the shareholders rights vs. the rights of all company's stakeholders to the accumulated wealth.
4. **Curtail global dominance of super-large companies,** by perhaps limiting their assets to a percentage of national annual GDP. Companies global expansion till 1970s' was curtailed mainly by the control of the amount of finance flow allowed and the way it could happen (in the legal sense rather than technological). Yes, I am aware of the negative impact of the world's GDP growth but the damage that uncontrolled global expansion creates and how it is then used to control politics, especially in developing countries, leaves no option but to control the way companies operate. It is of course a multifaceted issue exceeding the scope of this book, so I am only sketching some of the changes that would have to be implemented. The main obstacles to fundamental changes in the economic and financial world order are globalization, monopolies, or in many industries de facto oligopolies (e.g. Advertisement – WPP or Media – Rupert Murdoch), and current business culture and ethics (or lack of it). This of course also includes the banking system. The current very slow pace and scope of the reforms in the world's financial and banking system show this would be very hard to achieve and it alone creates a real danger to an overall rescue plan for our civilization. If real change happens at all within a generation, it is most likely that the global change of the financial and economic system will happen through a bottom-up processes, such as Bit Coin, Block Chain technology, crowd funding, mobile banking, direct person-to-person banking etc. We have had several examples of how dominance by mega corporations can change very quickly. IBM's dominance in mainframe computers was crushed within 2-3 years in the late 80s' by a humble PC. Kodak paper and film-based photography was equally quickly replaced by digital equivalent with

disastrous consequences for that very old company. So, perhaps new technology can also play a positive role in restricting old giants, if this new technology companies will be set and regulated on a different basis than the old ones.

5. **Reform the law on the operation of stock exchanges.** One of the more drastic measures to be considered might be a deep reform of the stock exchanges that would specifically forbid takeovers and mergers, i.e. trading in companies rather in partial stock.
6. **Subsidize the renewable energy.** Governments should subsidize renewable energy until it starts competing with non-renewable energy sources without a subsidy. Renewable energy will become a major disrupting technology very soon. Most experts believe that in 2050 the prevalent type of energy might be the one that is not yet known.
7. **Regulate the Internet-based business,** while leaving its freedom to operate in non-business areas largely unchanged. The Internet business is the most dangerous form of business because of its ability to control our lives everywhere. The ownership and control of the Internet companies must be dispersed as must be their size. Countries, where such companies have their head office would have to be the executors of such a policy. Any internet business that is outside such a regulatory compliance regulation would be illegal world-wide. On the other hand, we cannot and should not stop the changes in the Internet business from making our lives easier and more entertaining. Internet business has already led to some of the most profound changes in the high street and how we lead our daily life. Within a few years' supermarkets with barely any people inside, will become a norm. Our visits to a shopping mall will then be mainly a kind of an entertainment.
8. **Strongly encourage the growth of so called 'Conscious capitalism' and 'Benefits companies'.** This is an entirely new way of how business can be created and operated. In 2015 there were 28 such large companies world-wide (130).
9. **Global financial transaction tax.** Implement and gradually expand a financial transaction tax of 0.1% on the exchange of shares and bonds and 0.01% on derivative contracts. This is the initiative originally proposed by the EU in 2013. The tax could raise 57 billion Euros per year if implemented across the entire EU. However, its implementation was postponed in 2017 mainly due to Brexit. I believe it is probably one of the most effective ways to sanitize the banking transaction market that has much less to do with the real economy, but rather the speed of computers and the sophistication of computer algorithms that execute such transactions in nanoseconds.

I think the best summary of how capitalism and the current economic disorder could change for better is the "Small is beautiful" book by Ernst Friedrich Schumacher (131), rated as one of the 100 most influential books published after the WWII. Schumacher's philosophy is one of "enoughness", related directly to the level of human needs satisfaction and use of technology with a touch of common sense. It grew out of his study of village-based economics, which he later termed Buddhist economics. Here are his key arguments:

- The modern economy is unsustainable. Natural resources (like fossil fuels), are treated as expendable income, when in fact they should be treated as capital, since they are not renewable, and thus subject to eventual depletion.
- The governments' effort must be focused on sustainable development, because relatively minor improvements. For example, technology transfer to Third World countries will not solve the underlying problem of an unsustainable economy. It is a kind of passing the ultimate responsibility for the planet's and humanities' long-term survival somewhere else.
- Capitalism or socialism are just convenient shortcuts – none of them really addresses human problems and needs correctly. For Schumacher "Socialists should insist on using the nationalised industries not simply to out-capitalise the capitalists, an attempt, in which they may or may not succeed, but to evolve a more democratic and dignified system of industrial administration, a more humane employment of machinery, and a more intelligent utilization of the fruits of human ingenuity and effort. If they can do this, they have the future in their hands. If they cannot, they have nothing to offer that is worthy of the sweat of free-born men." (131)

Adapt education and regulatory system to the demands of the age of AI

What are the long-term 'soft-measures' that could make capitalism more robust and less prone to crises as well as more responsible in social terms? The good news is that potential solutions might be partially delivered by AI and intelligent robots, which on the other hand can also have a negative effect e.g. creating Technological Unemployment, the subject I have covered earlier on. At a company level, change will impact employment and the way the company operates in the market. Boston Consulting Group has proposed the following characteristics of companies that have the best chance of surviving in the future (132):

1. **Automation:** Industry 4.0; artificial intelligence, machine learning, and wearables; digital channels; augmented reality; and robotics
2. **Big Data and Advanced Analytics:** Predictive technology, integrated tools to optimize performance, social media insights, behavioural sensors, and big data
3. **Access to Information and Ideas:** Cloud-based technology and the "Internet of everything," open-source software and processes, open innovation and peer-to-peer technology, decreasing degrees of separation, and new capital and infrastructure platforms
4. **Shifts in Ways of Generating Business Value**
5. **Simplicity in Complexity:** The value of simplicity, lean methodologies, the evolution from silos to more holistic organizations, specialization, and organizational complexity
6. **Agility and Innovation:** An accelerating pace of change, increasing uncertainty and black-swan events (a metaphor that describes an event that comes as a total surprise, and has a major effect), exponential organizations, agile development, and digital stakes and subsidiaries
7. **New Customer Strategies:** Personalization and premium products and services, the sharing economy, data security, ethics, and the environment

8. Shifts in Resource Distribution

9. **A New Demographic Mix:** The “demographic dividend,” talent scarcity, aging populations, multiple generations in the workforce, and talent imbalances
10. **Skill Imbalances:** New skills, waning skill life, formal curricula and development, digital late-comers, and skills education and reach
11. **Shifting Geopolitical and Economic Power:** Disparity in wages and economic growth rates, multiple centres of power, urbanization and resource depletion, migration, and the rise of the middle class in developing countries
12. **Changing Workforce Cultures and Values** – the subject I cover in the next Part
13. **Diversity and Inclusion:** Multiculturalism, racial and ethnic diversity, gender equality, value pluralism, and equitable economic development
14. **Individualism and Entrepreneurship:** Freelance work versus employee loyalty, risk taking and entrepreneurship, multidisciplinary pursuits, talent renting and freelancing, and individualized aspirations
15. **Well-Being and Purpose:** Desire for personal, social, and communal impact; reflection and purpose; self-expression; appreciation and respect; and physical and mental health and balance

The changes above will have a corresponding effect on the skills needed and the employee’s ability to adapt synergistically to these requirements. In the World Economic Forum: “Critical Skills For the Jobs of the Future” (133), Raya Bidshahri argues that almost 65 percent of the jobs elementary school students will be doing in the future do not even exist yet. Both the workforce and our knowledge base are rapidly evolving. Combined with the effects of technological automation on the workforce, this leaves us with a crucial question: What are the skills future generations will need? He quotes education expert Tony Wagner, who has identified several survival skills of the future. These are the skills and mind-sets young people absolutely need in order to meet their full potential (134), to increase their competitiveness in the future employment market.

1. **Critical Thinking and Problem Solving.** We spend so much time teaching students how to answer questions that we often neglect to teach them how to ask them. Asking questions—and asking good ones—is a foundation of critical thinking. Before you can solve a problem, you must be able to critically analyse and question what is causing it. This is why critical thinking and problem solving are coupled together. We learned how to do something once, and then we did it over and over. But what people need today is to learn to continually re-learn? To be comfortable with perpetual re-learning.
2. **Initiative and Entrepreneurship.** For most students, developing a sense of initiative and entrepreneurial skills has often been part of their extracurricular activities. With an emphasis on short-term tests and knowledge, most curricula have not been designed to inspire doers and innovators. Future employees will need to seek out new opportunities, ideas and strategies for improvement.
3. **Effective Oral and Written Communication.** Clear communication isn’t just a matter of proper use of language and grammar. In many ways, communicating

clearly is an extension of thinking clearly. Future employees at any level will need to present their arguments persuasively and inspire others with passion.

4. **Assessing and Analysing Information.** While our access to information has dramatically increased, so has our access to misinformation. While navigating the digital world, very few people have been taught how to **assess** the source and evaluate the content of the information they access. Moreover, this information is continuously evolving as we update our knowledge base faster than ever before.
5. **Curiosity and Imagination.** Curiosity is a powerful driver of new knowledge and innovation. Albert Einstein famously said, “Imagination is more important than knowledge.” Those seeking to find employment in the future will need to be inquisitive and think outside the box. Such skill will be treated with the same level of importance as physics or math.

These skills need to be taught at schools and universities today, so that people will have a better chance to find employment in the future. However, as I said earlier, that will not be enough. There will be millions of unemployed and that will be mainly a social rather than economic problem. The good news is that we may find it difficult to implement, but there will be feasible solutions to counterbalance that risk. I cover this at length in the last chapter of the book.

Chapter 7

Combinatorial Risks: Global Political Disorder

Main causes of Global Political Disorder

Like before the two great wars, the world again faces a series of most profound crises but this time they are categorized as existential risks, i.e. such risks “where an adverse outcome would either annihilate Earth-originating intelligent life or permanently and drastically curtail its potential” (1). Taking a big picture view, the chance of one of these risks materializing by the end of this century is between 25%-50%. We already had one such a “near miss” that could have annihilated the entire civilization. That was the Cuban crisis in October 1962, which nearly started the first, and quite probably the last, nuclear war. That was an example of a political disorder risk, in this case the effect of the Cold War.

Before I discuss measures, which might make Global Political Disorder less severe, let me give you a very brief account on the results of the failure of diplomacy in the post-war period. Global Political Disorder has been with us for most of human history. WWII was the deadliest military conflict in human history, when about 60m people perished (about 3% of the global population at that time). But after the WWII we had at least 7 major wars (no. of victims in brackets): Korean War (1952-1953 – 1.2m), Vietnam War (1965-1973 - 3.8m), Biafra war (Nigerian civil war in 1960’ – 3.0m), Iran-Iraq war (1980-1988 – 1m), Second Congo war (1998—2003 – 5.4m), Afghanistan war (2001- 2014 – 2m victims). There were also over a hundred military conflicts such as in Syria right now, with over 400,000 people killed, and civil wars like in Cambodia (1.7m victims) and Rwanda (1m victims), so that together the number of people killed in military conflicts after the Second World War is about 30m. Europe seems to have learnt a bloody lesson after the WWII and was an oasis of peace for over 70 years, apart from the conflict in Yugoslavia and more recently in the Ukraine.

There are quite a few potentially very serious military conflicts that are brewing up right now, and these are the essence of the current Global Political Disorder, such as Russia-NATO, China-USA, North Korea-South Korea/USA, India-Pakistan Israel-the Arab world etc. But I hope, and that is only a hope, however irrational it may be, that these potential super mega conflicts will somehow be frozen for a generation. The most optimistic expectation now is that we will be living in a period of the Second Cold War, this time including several nuclear powers.

Since I have already spent some time discussing nuclear war and there is much more on mitigating Global Social Disorder further on in the book, I will make this section short and focus on the long-term threats that not only sustain the Global Political Disorder but make it significantly worse. In my view, there are several fundamental reasons why we are having a Global Political Disorder, which may get much worse quite soon, if nothing of substance is done. These are:

1. **A crisis of Democracy.** I dedicate the entire Part 2 to this subject, so only a few comments here. That crisis regards the practice of democracy in advanced Western liberal countries and the very slow spread of democracy to countries that have never had that political system. The perceived failure of democracy in recent years, especially in the last 20 years or so, has been no encouragement for other countries to adapt this system. This crucially relates to China, which seems to be even more confident that its own autocratic system is superior to a western liberal democracy. That of course is a sheer propaganda, confirmed in February 2018, by removing the limit of the number of terms that the Chinese President can serve (used to be a maximum of 2 terms). For similar reasons Russia, which really only had a very short glimpse of something resembling the Western democratic system under Yeltsin, can point to failures of Democracy in the EU and in the USA.
2. **A total collapse of the United Nations,** especially its Security Council, which can only very rarely make binding resolutions because of the meteoric rise of China as a global power and dangerously overconfident Russia under Putin.
3. **Terrorism.** This is a relatively new factor on the stage of global politics because very tiny groups, mainly Islamists, can hijack the global politics and enforce allocation of significant resources. Secondly, they are being used as valuable pawns in stirring up Global Political Disorder, e.g. in Syria, which has become a testing ground by major powers such as Russia, USA/NATO and other larger countries, such as Iran, Iraq, Saudi Arabia and Turkey.
4. **The Twitter World.** This is a very new phenomenon, so skilfully used by Donald Trump. Its contribution to Global Political Disorder is that when it is used by a top world politician it can stir up political and social unrest on a global scale in a matter of hours. In most cases it can be ignored but if it is a prelude to some more sinister moves by a global power to distract or provoke the opponent, it may have serious consequences.
5. **Cyber war.** This is how quickly science fiction becomes reality. That can be really dangerous either directly or indirectly. Directly, information gained can be used for unlocking nuclear arsenals. Indirectly, by getting access to most secret information, which can then be used for getting a political or military advantage and create a temptation for starting a war, having an initial advantage.
6. **Transnationalism.** This started as "a new way of thinking about relationships between cultures", described by Randolph Bourne in the early 20th century. It is a social and economic phenomenon but could have severe political implications in the world of global mobile phone interconnected communities (135). The Economic transnationalism is commonly known as globalization. In this context, multinational corporations looking for minimizing costs, cross political boundaries and become cultural, economic and quite often political disruptors, with unforeseen consequences. Some of them can be positive but most are negative, especially if they stir up tendencies for unification in bordering regions of two different states. The best example of socio-political transnationalism is the current war in the Middle East and especially the objective of the Kurds to create their own state out of regions in four neighbouring countries: Turkey, Syria, Iraq and Iran.

Do we need the World Government to mitigate existential risks?

Anyone who wants to improve the situation and reduce some of the existential risks faces three problems:

- Existential risks require fast action, while the world’s organisations act very slowly
- People want more freedom, while we need to sacrifice some of our freedoms and sovereignty for Humanity to survive
- Most people can’t see beyond tomorrow and act emotionally, while we need to act rationally and see the long-term consequences of our actions.

Therefore, anybody that sees the need for the world to take an urgent action faces a difficult task when proposing pragmatic, fast and very radical changes to the ways the world is governed. It seems to me that the only realistic route for humans to take is to create a new organisation, which would have the capacity, resources and resolve to act on behalf of all of us in the hour of the emerging existential threat. To have any chance of successful delivery of its foremost objective, i.e. to protect Humanity against existential risks, such an organisation should have supranational powers exceeding any prerogatives of the existing international bodies, such as United Nations, NATO or WTO. **We need an organization that would resemble a World Government. Only such an organisation, which should be operational by about 2030, would have some chance of mitigating not just global political and social risks but all other existential risks mentioned before.**

The agenda of such an organisation should be governed by one key issue: Fighting existential risks. Any other objectives are subordinate to this goal, since if there is no Humanity and no civilisation there is no point to discuss other aims of such an organisation. 2030 is a threshold date, because by then we must have a full control mechanism of AI in place. This objective will set the agenda for the rest of the book.

A ROADMAP TO A SAFER AND RICHER WORLD



This chart shows the main areas that need to be fundamentally changed because of the threat from Superintelligence and other existential risks, culminating in creating a supranational governing organization that will lead us all through that perilous period. I could call it the World Government, but as I explain later on, the world is not ready for such a planetary organization. Therefore, I will use this term only when it specifically refers to the executive power of the new organization, unless it is part of a citation by other authors.

On the other hand, I may be too cautious, avoiding the creation of the World Government right now. There are many scientists and experts in existential risks who call for immediate steps to be taken to form an organization that would act as the World Government as the only hope Humanity has in order to survive as a species. One of them was Stephen Hawking, the prominent theoretical physicist, who died in March 2018 and who a year earlier said that: “Without the World Government technology will destroy us. This aggression may destroy us all by nuclear or biological war. We need to control this inherited instinct by our logic and reason”. In an interview with the Times he spoke about the dangers of artificial intelligence believing we need to establish a way of identifying threats quickly, before they have a chance to escalate. He suggested that “some form of World Government could be ideal for the job, but it would itself create more problems and might become a tyranny... All this may sound a bit doom-laden but I am an optimist. I think the human race will rise to meet these challenges.” (136)

That warning by Stephen Hawking about the World Government becoming a tyranny has to be taken very seriously indeed. That’s why I have put so much emphasis in this book about the necessary agreement on the new definition of Universal Values of Humanity that could become the foundation for the future Constitution of Humanity.

If we look at us, humans, from the perspective of International Space Stations (and many returning astronauts confirm that), it becomes very clear how unprepared we are to face existential risks. Here I would strongly agree with prof. Martin Rees, the former Astronomer Royal, who emphasizes it in his article “The world in 2050 and beyond” when he says that “Humanity is under long-term threat from anthropogenic global changes to climate and biodiversity – due to rising population, all more demanding of food, energy and other resources. All these issues are widely discussed. What’s depressing is the inaction – for politicians, the immediate trumps the long-term; the parochial trumps the global. **We need to ask whether nations need to give up more sovereignty to new organisations along the lines of IAEA, WHO, etc.**” (137)

The subject of the World Government is not new and there are a number of organisations that make specific proposals. One of them is the World Federalist Movement - Institute for Global Policy (EFM-IGP), founded in 1947 in the USA. It is a non-profit, non-partisan organization committed to the realization of global peace and justice through the development of democratic institutions and the application of international law. EFM-IGP includes a comprehensive set of programs that work to protect civilians from the threat of genocide, war crimes, and crimes against humanity;

facilitate transparency in governance; increase access to justice; and promote the application of the rule of law. They work in partnership with the United Nations, governments, and other international and regional institutions, as well as with thousands of committed individuals around the world. (138)

Some of the aims of the World Federalist Movement are close to what I would see is necessary for Humanity to survive. The main difference is the key objective. They hardly mention existential risks, or at least this is not their driving force, nor do they propose solutions, which in my view would be practical. The best evidence is that having been in existence for 70 years, they are nowhere near to achieving their goal. And this is certainly a great pity because we so badly need the World Government. The mistake that they make, in my view, is that they are idealistic in their objective (they want all nations to be governed by such an organization). But that is precisely why it is not achievable. However, their Manifesto is very useful as the first draft of the Humanity's Constitution, since it goes much further and is more rigid than the UN Charter.

So, how popular would be this idea of the World Government? In May 2017, Global Challenges Foundation Global Risks Survey requested ComRes, a polling organisation, to make a Survey on global risks. They interviewed 1000 adults aged between 18 and 64 in each of these countries: Australia Brazil, China, Germany, India, South Africa, the UK, and the USA. Here are some of the results (82)):

- A majority (61%) of the general public in the eight countries surveyed consider the world to be more insecure today when it comes to global risks compared with two years ago. A quarter (27%), consider the world much more insecure today.
- Usage of weapons of mass destruction is ranked as the global risk needing the most urgent response (62%), followed by politically motivated violence (57%) and climate change (56%).
- Eight adults in ten (85%) think that the UN needs to be reformed to better address global risks. Only 7% do not think that it needs to be reformed.
- 71% of the general public across the eight countries think **that a new supranational organisation should be created** to make enforceable global decisions to address global risks.

Assuming that the sample of respondents reflects global population, the fact that nearly three quarters of the people across the globe support the creation of a supranational organisation, is very encouraging. In any case, we should be aware of the need of a long and fairly detailed campaign on existential risks similar, but more intensified, to the one promoting the necessity to combat climate change.

How realistic is this goal to set up such a new organization from scratch within the next 10 years? To answer this question, let's look at how long it took for some organizations to start their operation from the time of their inception. I have compiled the relevant data in the table below:

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

How long it took to establish the World's Political Organizations					
Organization	Date started	Declaration signed	Effect Date	Years	Comments
UDHR - Universal Declaration of Human Rights	1946	10.12.1948	1976	30	It was only in 1976 when more than 50 UN countries signed it making it legally binding. Former communist countries signed it in 1990'. Muslim countries declined to sign it, instead they signed the Cairo Declaration in 2000, compliant with Sharia law.
IPCC - Intergovernmental Panel on Climate Change	1988	14.06.1992	12.12.2016	26	RIO Declaration in 1992, Paris Agreement signed on 12.12.2015
UN - United Nations	12.06.1941	25.04.1945	24.10.1945	4	It was based on the League of Nations that existed for 20 years. That's why it only took 4 years. It does not have supranational powers because of articles 2 and 51 and that's why even Russia and China could sign it. All major powers signed, total 51 countries. However, Note: USA nor Russia were the initial signatories. France was not one of the 5 'powers' of the UN.
PCII (Permanent Court of International Justice)	01.06.1920	13.12.1920	30.1.1922	2	Replaced in 1946 by International Court of Justice
NATO - North Atlantic Treaty Organization	17.3.1948	01.06.1948	4.4.1949	1	Only the "Western countries, including Turkey are the members
ASEAN - Association of Southeast Asian Nations	01.01.1967		8.8.1967	0.5	Now 10 countries. China, Japan, South Korea, Australia, India, and New Zealand have trade agreements with ASEAN countries. Together they cover 45% of the world's population and about a third of the world's total GDP.

None of the organisations in the list have supranational powers that would be required if it were to combat existential risks successfully. The closest one is NATO with its article 5 that may engage a country against its own interest into a war, in which it would not have otherwise taken part. UN has two articles, 2 and 51, which guarantee the country's sovereignty. That is why it so ineffective, especially with the unanimity required for any Security Council resolutions. That is also why the International Criminal Court (of which the USA is not a member), cannot do anything to bring people responsible for genocide or crime wars to justice without the agreement of the government of a given country or a voluntary submission of the suspected criminal.

But even if we consider how minimalistic the restrictions on sovereign states were in the global organisations listed in the table, it still took a long time for them to become fully operational, e.g. 18 years for the Universal Declaration of Human Rights. Therefore, creating a new supranational organisation, which would most likely be a federation on par with the legal system similar to the USA or Germany, replacing the United Nations, is very unlikely in such a short time (about 10 years). But when one additionally considers the curtailment on certain rights and freedoms that might be necessary in certain circumstances, like limiting sovereignty and some personal freedoms, then the chance of ever creating such an organisation that would include all countries is rather very small.

Therefore, the only other possibility to create a de facto World Government would be to adapt an existing organisation by the re-assignment of its scope and prerogative. To make this objective achievable within 10 years, it is almost certainly that it would not be joined by countries such as China, Russia, Saudi Arabia or perhaps even the USA, neither by the countries with deeply different values and interests. So, this 'partial' 'World Government' would have to co-exist with the countries outside this organization, which is a kind of an existential risk on its own. However, I believe Humanity has no other option and has to take this path.

Chapter 8

Who could act as the future World Government?

Criteria for selecting an organisation to act as the World Government

Now, the question is who could do it? What we are discussing here is how to guide Humanity and protect our civilisation in the next 20 years, while it passes through probably the most dangerous period in its history. By then Humanity could reach the point when it may already be coexisting with Superintelligence, which would hopefully act in unison with us, helping to sort out our problems.

We are already late in creating such a large supranational organisation. Perhaps one of the reasons is that many of us still hope for the UN to take up such a role, or that the UN itself will be quickly transformed into such an organisation. After all, this is the organisation that should deal with existential risks in the first place. Unfortunately, this is also the organisation that indirectly **increases** the Humanity's overall existential risk by being almost totally ineffective in solving grave problems. UN may be trying to apply some solutions but quite often when it is too late, or a grave human, economic and ecological danger has already happened. In most cases it is just incapable of solving the problems at all (e.g. Syria or Libya). The best evidence in my view is the creation by the UN of the International Strategy for Disaster Reduction (UNISDR) the organization that was established in 1999. It has had hardly any influence on any of the top ten existential risks listed earlier, apart from climate change and that was really managed by the International Panel on Climate Change (IPCC). The reason behind this is simple. To act successfully, such an organisation would have needed the powers far superior than the UN has now. Since we know how embarrassingly ineffective the UN is, no wonder that the world is practically left alone to be gradually sucked into the funnel of ever-growing existential risks. Initially this will be hardly visible but further into the future the risks will tend to combine. At that time there may be no organisation or country powerful enough to stop the demise of our civilisation.

Transforming UN into the World Government is also a futile hope, because of the very way the UN makes decisions – the unanimity voting. This is the same reason why the EU has been less effective than it could have been. Fortunately, the Lisbon Treaty has finally created a possibility for the European Council to vote using a qualified majority on more subject domains than ever before.

Since the existential risks can materialize at any time, e.g. pandemics due to laboratory-generated bugs being maliciously released into the open, we should have an organization that could act as de facto World Government right now, at the latest by about 2030. I have already indicated in the previous chapter that creating the World Government from scratch in such a short time, even if it only included most, rather than all, countries, is not feasible. Therefore, the only way that could happen is by transforming an existing organisation, or empower a single large country with

supranational powers, into the World Government. That new global organisation would gradually substitute the UN, based on a fundamental review of human values discussed in the next part of this book.

So, we know now that it is unrealistic to create the World Government from scratch; it has to be formed from an existing organisation, whose scope and prerogatives must be greatly extended. But for such an organisation to be successful in mitigating existential risks it should have a mandate from **all of us** to act on our behalf. That of course will not happen. Even if there had been a world poll agreeing to establish it, that would certainly not come to fruition. Would those who hold power in autocratic or dictatorial regimes give up their privileges and introduce a democratic government as part of the World Government? Certainly not! It's a pity but that is our world and our civilisation and perhaps that's one of the reasons why we are in such an existential danger.

Therefore, the only plausible solution, is to assume from the very start that any supranational organisation that is to be created will only include the **majority** of nations but not all of them because there would simply be no agreement to do so. We see a similar scenario happening right now. The European Union wanted to go ahead and formalize a political Union, but the UK would never agree to it. That's why it has decided to exit from the EU. That has motivated some of the remaining 27 EU countries to move ahead towards a federal European Union but those initial initiatives have been stalled by current events.

We must remind ourselves again that we need the World Government for one key reason – to mitigate the existential risks that Humanity faces. One of these existential risks is the Global Disorder. To mitigate this existential risk, we need to change entirely the way our civilization functions. That's why we need create the world-wide organization with significant powers. The migration wave of 2015 into the EU is the best example of how quickly national opinions change and become deeply entrenched. Therefore, we must look at a candidate organization that would be capable to reduce the existential risks in general, but in particular, its capability to minimize the global social and political disorder. Such an organization would have to improve dramatically the coherence of objectives between the member states, and from a global perspective.

Who has the best credential to become the de facto World Government? To make that assessment, we need to specify what would be the scope and prerogatives needed for such an organisation to be successful in mitigating existential risks, ignoring for now other objectives that it may have. I would suggest that such a check list should include the following questions:

1. Could the organisation execute supranational powers over a large part of the globe?
2. Does it have or will it soon have its own army and rescue services?
3. Will it be able to redefine human values that would become the foundation for the future new constitution and a legal system underpinning its operations?
4. Could it ensure very fast and co-ordinated response in emergency (in hours)?
5. Does it have a large reserve of emergency supplies of food, seeds, etc.?

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6. Does it have experience in dealing with large scale, global crises?
7. Does it have long-term experience in democracy and the rule of law, so that any decisions are made according to democratic rules?
8. Does it have enough resources, including financial, to deal with the current existential risks?
9. Is it very likely that it will be open to free and fair criticism and will it act on it?
10. Will it be able to adapt the way it works and introduce new laws very rapidly?
11. Does it have immediate access to best scientists and practitioners in every domain?
12. Does it have, or will it be able, to develop early warning system?
13. Could it create a very large civilization's refuge (a physical space in case of a catastrophic danger, i.e. huge caverns or tunnels)?
14. Does it have and can it store large supplies of vaccines and medicines?
15. Is it, or will it be, capable of reducing nuclear proliferation?
16. Does it have or will it be capable of a strict oversight of molecular technologies?
17. Will it be able to fight populism with facts?

To select a candidate organisation, I have created a table with 10 selection criteria for 10 organizations or large countries. I have tried to make the selection as objective as possible. 3 of the 10 criteria that I have used are completely objective: military power, territory size and GDP. The remaining 7 criteria are subjective but that subjectivity is within a narrow margin, which over the 10 criteria could not make a big difference. The whole objective of this process is to select an organisation, which is likely to be one of the top three candidates, whatever the weights.

Weight	Justification for Selection criteria for the World governing organization	
10	Democratic institutions	This is the most important criteria because if we want to assure that we do not make things worse than they are now, then the nations that will surrender good part of their sovereignty must be assured that they will be governed within the best democratic system humanity has ever created
9	Respect for Human values	The is the second criteria in importance for two reasons. The organisation must be exemplary in its respect of human values and it has to carry out the process of redefining them for the upload to Superintelligence to make its risk as low for Humanity as possible
8	Military power	Any organization that will carry out such a role must be one of the most powerful in the world to withstand the threats from countries that will not be its member and carry out missions to minimize the risk to humans, such as Weaponized AI, or wars that could become global, or are of genocide type
7	Economic power	This is important because the organization must have enough resources to mitigate existential risks
6	Organizational capability	Essential when carrying out missions to eliminate threats from existential risks, such as nanotechnology
5	Response time to risk	The selected organization must be capable of very fast response to risk, sometimes within hours, i.e. nuclear war threat or artificial
4	Land mass	This is important to have available resources as well as creating spaces that may not be contaminated, e.g. biochemical risks
3	Experience in large programmes	Essential when carrying out missions to reduce existential risks, such as global socio-political risks
2	Versatility	The organisation which is to mitigate all kinds of risks endangering humanity must be very versatile and not for example have experience in the military field only
1	Neutrality, Objectivism	This is again important to assure cohesion of the organisation that will have powers to reduce freedom or sovereignty

The results are presented in the table below. As you can see, the organization that has come at the top is the **European Union**. It could be gradually transformed, initially embracing only a few countries, from the current confederation status into a full Federation, in a similar manner to the Eurozone expansion. It is already planning to take on new members, so in the next 10 years we may have other countries such as Ukraine or Georgia as members of this re-invented organization. I am expanding this subject in the subsequent chapters of the book.

Name of Organization or State	Risk Mitigation Capability Ranking (weighted)										Total Score (weight * capability)
	Democ- ratic Insti- tutions	Respect for Human values	Military power	Econ- omic power	Organi- zational capab- ility	Resp- onse time to risk	Land mass	Experi- ence in large progra- mmes	Versa- tility	Neut- rality, Objec- tivism	
Weight ----->	10	9	8	7	6	5	4	3	2	1	
European Union	10	10	7	9	10	10	6	10	10	10	503
NATO	8	9	10	10	10	10	9	7	4	9	495
USA	9	9	9	8	9	9	7	9	9	9	480
Japan	10	10	3	6	9	9	1	5	4	9	391
Canada	10	10	4	4	9	9	4	3	2	10	388
Australia	10	10	3	2	9	9	3	1	3	10	358
United Nations	10	10	2	2	8	5	2	6	10	10	349
China	3	1	7	7	8	8	5	10	9	1	301
Russia	4	3	8	3	6	6	8	10	9	2	300
India	7	5	4	5	5	4	2	5	3	7	268

Let me now make a few comments on some countries and the assigned values. As you can see there is not a big difference between the first three countries but there is a big difference between the third (USA and the fourth (Japan). So, I will only make comments on the first three countries for each of the categories.

- **General remark.** If the scores are the same for an organization and a single country, then a country gets one point less because it is much more difficult to achieve a given rank, in an organization composed of many countries, than in a single country. Therefore, USA can get a maximum of 9 points.
- **Democracy:** NATO was scored lower because of Turkey (autocracy) and Albania, Bulgaria, Romania and Montenegro and Slovakia (all have too high corruption).
- **Human rights.** NATO scored lower because of Turkey (autocracy).
- **Military Power.** EU's military power score was the same as China's (because China is a single state). USA, the strongest power was scored 9 points because as a single state it gets 1 point less than a maximum 10).
- **Economic power.** No adjustment made.
- **Organizational capability.** USA scored 9 points because as a single state it gets 1 point less than an organisation.
- **Response time to risk.** USA scored 9 points because as a single state it gets 1 point less than an organisation.
- **Land Mass.** No adjustment made.

- **Experience in large programmes.** USA scored 9 points because as a single state it gets 1 point less than an organisation. NATO adjustment is due to experience in mainly military operations.
- **Versatility.** USA scored 9 points because as a single state it gets 1 point less than an organisation. NATO adjustment due to lack of versatility and focus on military operations only. That however may change in the future.
- **Neutrality and objectivism.** USA scored 9 points because as a single state it gets 1 point less than an organisation. NATO adjustment due to Turkey's operations in Syria and Iraq and autocracy of the regime.

In the end, even if NATO or the USA could have been chosen instead of the European Union, the whole process of changes that would have to be applied to any of these three organisations would be very similar. However, the changes to be applied to convert NATO or even more so, the USA, into a de facto World Government would have been much more difficult. In any case, I consider the EU as a kind of a strawman to see what kind of organizational and political changes the candidate for the potential World Government would have to go through.

The European Union – the best candidate for the World Government

European Union came top in the selection process for the organization that could have the best chance of mitigating existential risks. Let's remind ourselves that the key question this book has been trying to answer is which organisation is potentially the best one to control the risk stemming from AI, when it achieves the status of Superintelligence and ultimately becomes a Technological Singularity. But Superintelligence is only one of the existential risks that need to be mitigated. Therefore, any organisation that we choose to act on behalf of the whole Humanity must be capable of dealing with other risks too, including the Global Political and Social risks. The EU seems to fulfil these conditions best.

We will now look more closely at the EU's capabilities, its strengths and weaknesses and the scope of reforming EU so that it could start acting as the World Government. In general, the EU has quite a few features that are important for that task such as:

- Nearly uniform human values and legal system
- A wide spectrum of activities comparable with the UN
- A lot of experience in large international projects, like the accession of 10 eastern and central European countries on 1.5.2004.
- Significant financial and material resources
- A system extending beyond a typical confederation, with the president, the Government (the EU Commission), the prime-minister (the President of the EU) and the Parliament
- Dynamism. That may surprise some people and yet, there are very few other large organisations in the world that are as dynamic as the EU. Over the last 60 years the

EU has been continuously adding new members, changing significantly the way it operates and continually distributing resources to poorer members on a very large scale.

- Ability to expand rapidly by integrating more countries, which are themselves significant global powers, such as Canada, Australia, and Japan, with which the EU has already signed wide-ranging treaties.

Anybody who may have doubts about the EU's capabilities to act as the future World Government should consider the impact of the recent EU General Data Protection Regulation (GDPR) regulation. It came in force on 25 May 2018. Its intention is to harmonize data privacy laws across the EU, to protect and empower all EU citizens' privacy of the data they provide to organizations and to reshape the way organizations across the region approach data privacy.

Formally, the law applies on the territory of the EU. However, in today's global economy, legal regulations applied by an organisation such as the EU impact countries, organisations and citizens everywhere. The result of this regulation can be seen by anybody surfing the Internet. New GDPR procedures give Internet users a much better control on what happens with their private data. What is striking is not only the overwhelming adherence to the law by American companies and organizations but also the speed of introduction of these regulations.

This regulation does not impact existential risks but it shows the EU's capability of swiftly and rigorously implementing laws and regulations that may in the future reduce existential risks.

When in 2010 the European Commission asked people about the EU citizenship identity, 62 per cent of people said they already felt like EU citizens (139). In August 2017, 68 per cent of the population (33,000 people surveyed across the EU) felt "they are a citizen of the EU". 56% of people across the continent were optimistic about the future of the EU in general – a rise in six points on the previous survey published in the autumn of 2016 (140).

So, why are people in the EU so optimistic barely a year after a bad experience with massive migration? Partially the sharp rise in optimism could be linked to the elections in the Netherlands and presidential elections in France, where Emmanuel Macron saw off a far-right challenger Marie Le Pen. The other factor could be the end of austerity in Portugal and the kick-start of the growth investment programme in the Southern European countries. But there are other less direct reasons to justify such cautious optimism and they lie rather in the political than economic domain, like putting some structural reforms to managing the EU borders (Frontex agency) and moves towards closer integration sparked off by Brexit.

If life rejuvenation is successful, then most of the readers of this book will see the first day of the 22nd century. But to arrive there, we need to go through a stage of transition. We need to begin the process of federalization of the Planet. The EU has certainly some

long-term problems it has to solve. We will cover them in greater detail further on when we will identify key areas that need to be transformed.

Other potential candidates for the World Government

NATO

NATO would be the closest organisation that could take up the role of the World Government after the EU. It can act relatively fast, although not fast enough for some existential risks especially in socio-political dimension. It is a great multinational organization under one command. However, it does not have the necessary experience in wider world problems, economic, social and legislature areas and that may be of paramount importance.

Its scoring has been reduced in the domain of the respect for human rights especially in Turkey, and in the USA (death penalty and some problems with racism).

The United States

It is a great country and has some superb experience in organising large-scale programmes such as the Marshall Plan. It has shielded the West during cold war through NATO - the organisation that it was instrumental in creating. However, the main point is that its voters are primarily insularists, thinking mainly about America first, especially now under Trump. Equally important might be the problem with the need of significant revision of the US Constitution, especially articles regarding elections, gun control or death penalty (which reduced the USA's score in human rights category). So, it is doubtful the Congress, and even less so the Senate, would agree for America to play such a role. Therefore, the USA is unlikely to take on the role of de facto World Government in the foreseeable future. On the other hand, in 20 years a lot may happen in America, especially that we live in exponentially changing times.

United Nations

It has done a lot of good over the last 73 years. It is very complex and takes care of most of Humanity's needs. Its biggest contribution has been in providing immediate help to war-torn areas or regions affected by ecological or economic disaster, including famine. Another important area is health aid and guidance through the UN's WHO Agency, which could be a model for executing supranational powers even within the current system, e.g. Ebola crisis in West Africa in 2013-2016. Additionally, the UN has been very helpful in spreading education, basic hygiene as well as preserving the cultural sites of world heritage through the UNESCO Agency. Finally, especially in the last two decades, UN has significantly improved the way it operates its economic assistance through the UNDP programme.

However, the biggest problem is that it acts extremely slowly and that for some of its decisions to be valid, unanimity voting must take place. That stems from a fundamental

difference of some values between the Western world, China and Russia and it will not be overcome in the near future. Its executive powers, including military powers are very poor indeed. That is why it cannot solve some near existential risks, like getting rid of nuclear weapons, because of its current organizational shape e.g. the working of the Security Council.

China

China has some very positive strengths that could have been useful if it were to play the role of the World Government:

- It has the largest population on the planet – about 20%
- It has vast land mass although smaller than Russia.
- It has some values based on long tradition and culture that might be useful for such an organisation, like long-term thinking
- The nation has been used to extreme sacrifices to achieve its ultimate long-term goal. The war with Japan is one example. The second one is the current 30-year unparalleled economic expansion, which has also caused suffering, e.g. forced relocation of millions of people
- The country has been largely isolated from the world for two millennia but now is rapidly becoming a global power (it was the top world economy in 15th and 16th century, accounting for at least a quarter of the world's output).
- It is a military superpower and has delivered large infrastructure projects at unimaginable speed and organisational skills. They appear to be great organizers of super large projects that would be needed in case of a global crisis.

But China has not known democracy at all. Its system of values differs quite a lot from the western values. Therefore, it could not be a good candidate to lead Humanity out of an existential danger. On the other hand, some underlying values that underpin the current system may be something to look at. They are approaching, in my view, the value system built by Lee Kuan Yew, the founding father of modern Singapore. Additionally, Chinese can make a great sacrifice for the right reason. So, in the absence of a 'western' style supranational organisation if it could not be built on time, China might act on behalf of all Humanity unilaterally. There could be a price ticket attached to this, e.g. supremacy of China over the rest of population, but Humanity might thus be preserved.

China is right now a benevolent dictatorship but the model of the Chinese autocratic system has some similarities with the Consensual Presidential Democracy that I proposing further down in the book (please, please, do not run away thinking that I am suggesting the installation of an autocratic system for the EU). There are similarities and differences:

- China's President has the powers that the President of the new organisation would need

- Until March 2018, China used to run in effect a system of multi-presidency. The current president was elected for 5 years. He could have been re-elected for another 5 year-term (maximum two terms are allowed) as his predecessor was. He would then ‘appoint’ or groom his successor (who would have to be approved by the Politburo and the 3000 delegates of the People’s Congress). Once he would have stepped down and his successor would have taken over, he would join a ‘team of retired generals and officials’, becoming the ‘Supervisor’ of that team and keeping a close watch on the current president. In effect it was a system of triumvirate presidency – the successor apparent, current president and the retired president. Unfortunately, in March 2018, the law was changed and the current president Xi Jinping became the president for life.
- Of course, the Presidency system that I am proposing differs profoundly in how decisions are made (in an entirely transparent manner) and that strong powers of the president are controlled by equally powerful system of accountability and in the worst case, a quick removal of the president
- China’s party system is based on gathering supporting votes, starting at the base level. The more votes one gets, the higher a person can go up in hierarchy. This system, if you consider the number of votes needed in China, is perhaps no less democratic (but only in this aspect) than the one in the US, when the key agenda of any candidate for a president is to collect maximum financial support
- There is a kind of a weighted voting system (discussed later). In that system the weight is the role people play in the Chinese society. Party members’ influence is greater than that of ordinary citizens. The weight in this case is the party rank. However, it could be fairly easily transformed into a weighted voting rights democracy. Actually, to some extent that is also practiced in western democracy under a different disguise. For example, in the UK, an average Conservative party constituency membership is about 2,300, of which about 150-250 members show up on the day of an MP’s selection. However, many candidates are selected by the HQ, which usually calls to the Chairman of the local constituency, gently suggesting the ‘right’ candidate to be selected for an election. Once the candidate is selected and if he belongs to two main parties, his odds of winning a seat are better than 1/3. That’s how the system works in the UK and the USA – the bastions of western democracy!
- China, if it were to be democratised in some distant future, then the modifications to the system would be relatively straightforward. The most difficult area for China to transform into a real democracy would be the sacrosanct divisions between the executive, legislative and judicial powers, which are still in a fairly good shape in western democracies.

In summary, although China did not come up as one of the key candidates to act as The World Government, it could take up such a role in a critical situation where the fate of the whole Humanity might be at stake - see Scenario 3 in the final Part of the book.

Russia

This country would have been a good candidate for these reasons:

- It has some values (e.g. patriotism, sacrifice for a greater good) that might have been useful
- It has great cultural tradition that would have been of great value in enriching the Constitution of Humanity in the area of art and culture
- It is a military superpower that would be needed in the hour of need
- It has vast resources – 17% of the earth’s land mass – invaluable for Humanity especially if the physical large areas (‘safe havens’) would have to be created

However, it has failed dismally in absolutely key areas:

- It lacks democratic tradition
- The transition to a more democratic system has stalled. Even if it is successful, it will be too late.
- The separation of legal, executive and judicial powers is quite often illusory.

From our civilization’s perspective it is a pity that this great nation with superb culture and some family values that would significantly strengthen the pool of values of Humanity cannot be considered as a candidate to act as the World Government. If it had only been for the Russian people, then most of their values would probably be as good for the transfer to Superintelligence’s ethical code, as the values currently practiced in the Western world, which in some areas reach a decadent level (that’s why we have to renew them). However, it is the Russian autocratic government and lack of long democratic traditions that stand in the way of selecting Russia in the foreseeable future as an acting World Government. Unfortunately, it is the Russian government itself that may contribute significantly to Global Disorder, as described in Scenario 2 in the final Part of this book.



2

PART 2
Reforming Democracy

Chapter 1

Challenges facing Humanity require new values

What are values?

If we want to improve democracy, we need to start with redefining our core values. But there is also a broader need for redefining human values – existential risks. Among those risks that are most effected by human values is the risk linked to Superintelligence, which may become our most dangerous adversary. Thankfully, this has been already appreciated by those that are directly involved in creating AI, and ultimately the Superintelligence.

On 5th January 2017 at the Beneficial AI Conference at Asilomar, California top AI scientists met and defined 23 Asilomar Principles that by now have been signed by thousands of AI experts. These three principles directly apply to values and should be observed by all those involved in AI research and construction:

- **Principle 2:** What set of values should AI be aligned with, and what legal and ethical status should it have?
- **Principle 10:** Value Alignment: Highly autonomous AI systems should be designed so that their goals and behaviours can be assured to align with human values throughout their operation
- **Principle 11:** Human Values: AI systems should be designed and operated so as to be compatible with ideals of human dignity, rights, freedoms, and cultural diversity.

But what are values? Wikipedia defines **value in an ethical sense as the degree of importance of some object or action, to determine which actions are best to do or which way is best to live.** Values also describe the significance of different actions and what “worth” we assign to them. They deal with right conduct and living a good life, in the sense that a highly valuable action may be regarded as ethically "good", and that an action of low value, may be regarded as "bad".

Values can also be defined as broad preferences concerning actions or outcomes. As such, values reflect a person's sense of right and wrong or what "ought" to be. "Equal rights for all", "Excellence deserves admiration", and "People should be treated with respect and dignity" are representatives of values. There are several types of values such as ethical, ideological (religious, political), values, and aesthetic values. Values influence people's attitudes and behaviour (141).

Values also describe people's basic needs, such as freedom, dignity or comfortable life. They can be seen as a hierarchy. At its bottom are **personal** values that an individual hold and which are usually a selection of values of one or more cultures. At the next level are **cultural** values shared by individuals of a given group or a territory. Finally, there are **universal** values shared by most people world-wide. I would also refer you to the Maslow's hierarchy of values that I discussed in previous chapters, which has

the same foundation as this set of values but at the next level instead of cultural, it has a level of safety and belonging (e.g. to a group and through that to culture).

What does ‘human’ mean in Universal Human Values?

One would assume there is no difference between Universal Human Values and Universal Values of Humanity. But in my view, there is such a difference. It deals with two aspects of values – their scope and their change in time.

Under ‘scope’ people understand that all values relate to humans. Nature, including all animals, is a collection of passive objects that cannot argue for their values to be respected. But that, in my view, is wrong. We as humans should extend the scope of values, meaning these are Humanity’s values, i.e. these values, which we as Humanity adopt on behalf of all humans and all living beings. Restricting universal values only to humans would exclude all animals and more importantly, the new species that may be born as a result of AI developments, culminating in Superintelligence. Just consider that the exponentially changing reality may include new thinking and intelligent beings, including Superintelligence, potentially with its own consciousness. This is where the second element – the change in time of the applicability of a given value comes into account. Leaving the Universal Human Values statement as it is, i.e. static, would be in my view incorrect. Therefore, from now on I will refer in this book to Universal Values of Humanity rather than Universal Human Values.

What are rights?

There is considerable disagreement about what is meant precisely by the term rights. It has been used by different thinkers for different purposes, with different and sometimes opposing definitions. Therefore, a precise definition of rights is difficult and can be controversial.

For our purpose it is most important is to see the difference between **ethical fundamental values** and **ethical rights**. In simplest terms values give the context for their application in real life as rights to something that originates in a given ethical value. Looking from another perspective, rights are legal, social, or ethical principles of freedom to do something or an entitlement to something. They are the fundamental normative rules about what people are allowed to do, or what they have the right to expect from others in relationship with them, according to a legal or a social system.

Values are usually associated with cultures or groups within those cultures, as well as with belief systems, e.g. when we speak about religious values or family values. They usually form articles of the nation’s constitution. Rights on the other hand are most often linked to individuals and are most often converted in common law. This implies that rights can cross group-boundaries. A typical expression used nowadays, ‘human rights’ is a good illustration of this point. Human rights are thought to relate to individuals regardless of those individuals’ group affiliations.

Rights are regarded as ready-made mechanisms or products that can be immediately applied or embraced, often to counteract customs or values. Values, on the other hand, seem deeply ingrained in societies. Therefore, they require time and patience to be changed and if they are changed, the ramifications of such a change could be absolutely profound.

For example, if we take Freedom as a basic value then it can become the basis for certain rights in this domain such as:

- Freedom of thought, conscience and religion
- Freedom of expression and information
- Freedom of assembly and of association
- Freedom of the arts and sciences
- Freedom to choose an occupation and right to engage in work
- Freedom to conduct a business or Freedom of movement and of residence.

Now imagine that we may have to change the scope and boundaries (the meaning and application in real life) of Freedom, and we may be challenged to do precisely that. The consequences would be truly profound. The value “Freedom” will stay as before. However, the rights associated with freedom would change. **That’s what rights mean in an ethical sense: how a certain value is applied in real life.** We shall discuss this subject later on. So, let’s now look closer at personal values.

What are personal values?

Personal values, as defined in Wikipedia, provide an internal reference for what is good, beneficial, important, useful, beautiful, desirable and constructive. They generate behaviour and influence the choices made by an individual (141).

There have been quite a few theories discussing a personal value system. I would refer to probably the most quoted one. It is the Terminal Values system proposed in 1973 by Milton Rokeach, an American psychologist in his book ‘The Nature of Human Values’. They are the objectives that a person would like to achieve during his lifetime and they vary significantly among different groups of people in different cultures and people within the same group. That’s why they are personal. Although these values are fundamental and could form a good foundation for the redefined Universal Values of Humanity, I will use them as they are normally applied, in a personal context in the original order. Usually, in psychological tests, only 10 of these values are selected by an individual and ordered according to his own preference from the most important ones to the least important.

Milton Rokeach's Terminal Values	
1	True Friendship
2	Mature Love
3	Self-Respect
4	Happiness
5	Inner Harmony
6	Equality
7	Freedom
8	Pleasure
9	Social Recognition
10	Wisdom
11	Salvation
12	Family Security
13	National Security
14	A Sense of Accomplishment
15	A World of Beauty
16	A World at Peace
17	A Comfortable Life
18	An Exciting Life

To achieve these values, a person needs some tools or instruments. That's why M. Rokeach created another set of 18 values called Instrumental Values.

Milton Rokeach's Instrumental Values	
1.	Cheerfulness
2.	Ambition
3.	Love
4.	Cleanliness
5.	Self-Control
6.	Capability
7.	Courage
8.	Politeness
9.	Honesty
10.	Imagination
11.	Independence
12.	Intellect
13.	Broad-Mindedness
14.	Logic
15.	Obedience
16.	Helpfulness
17.	Responsibility
18.	Forgiveness

The values in the table above are presented in their original order. For psychological tests, as with Terminal Values, individuals are usually asked to select only 10 of these values and order them according to their own preference from the most important ones to the least important.

Instrumental Values in a personal context play the same role as human rights to human values. Both Terminal Values and Humanity's values are a reference for instrumental values and humans' rights in the latter case.

Among the existential risks facing Humanity, which underpin all other risks is the risk that we simply do nothing or make no substantial changes to the way we behave and co-operate as nations. **The need to address all those risks starts with values that define us as humans.** Unless we redefine who, we are as people, what we stand for, what we treasure as ideas unifying countless future generations, we will have little chance of surviving. For us as individuals it is simply a question of what worthwhile living really means. I have already mentioned several times that the most severe and certain risk that we would face is the risk of untamed, value-less Superintelligence. Only if we are able to instil in it the best values of Humanity, can we turn that great existential risk into the best opportunity we shall have to fight the remaining risks. That's why this task of human values re-definition is so important. It could be defined by experts but that would change little, until it is implemented globally. For that, there must be a new organization that would act on behalf of all Humanity, as de facto World Government.

In 1948 we were presented with a kind of 'Tablet of Moses' by the UN - the Universal Declaration of Human Rights. The rights defined there were modified and extended in 2000 in the EU's Charter of Fundamental Rights of the European Union. This document would be a good starting point. However, when talking about universal human rights, I would rather suggest talking about values, which is a broader term covering not just rights but also responsibilities. Additionally, as I mentioned earlier, instead of using the term 'universal human values' I would rather use the '**Universal Values of Humanity**', since they emphasize that these values extend beyond us humans and should cover other intelligent species that may soon coexist with us but hopefully will be driven by the same values of Humanity. So, how to make these 'Tablets', this time not cast in stone, more meaningful?

When I think about the Universal Values of Humanity, I would compare them to what some psychologists call a 'Master Personality' (such as Myers-Briggs Type Indicator – e.g. INTJ, ESTP) or a Master Trait (such as 'Openness' in Peter Saville's 'Pentagon' Model). That is a blend of your personal values, likes and dislikes, yearnings and aversions that makes you the person you are, based on your key values you hold dear most of the time, but not always, and not everywhere. That's why we have, as some suggest, 'shadow personalities' that are only part of us and in extreme instances could be like those in Louis Stevenson's novel "Dr Jekyll and Mr Hyde". The point is that for each of us such a 'Master Personality' is a kind of a template. When we move away

from that template, we temporarily wear a different ‘shadow personality’, which is not really who we are but only a shadow of us, part of our total personality.

Similarly, it is with Universal Values of Humanity. This is our Master set of values, which the vast majority of us would aspire to and which we would like to apply in our relationships with others most of the time. If we accept this notion as the starting point, then we also have to agree that this ‘Tablet’ is not cast in stone on purpose. Values change constantly as our ethics and morals do over time. Before the WWII most countries had the death penalty. Now only a quarter of the UN countries have the death penalty in their constitutions. The same is with gay rights. Before the WWII there was no country in the world, which had an explicit law allowing homosexuality. So, times are changing and so are the values. The other point is that as each of us is different and each one has different personal values, so do societies. Similarly, again, when we interact with other people, we need to compromise some of our personal values to the values of the people we interact with at a specific occasion, e.g. at the workplace. We put on our shadow personality. However, there are limits beyond which, when our most important values were to be broken, we would say ‘No’.

Now imagine that societies and nations are individual people, each with their own set of values. In most situations we would get along without any problems. But sometimes we are faced with situations, which we as a society cannot accept, when those values are broken, for example the aforementioned death penalty, abuse of women, or simply lack of tolerance. The ‘we’ is represented in this case by large organisations such as the UN or EU, which have agreed on our behalf a set of universal values that we all are expected to respect. That does not mean that those values would be respected by all, either in law or in practice. But they are a reference point for all those who want to respect them and for those who do not. There cannot be any compromise, in my view, in standing tall for those values. However, in reality, we cannot expect that all countries and nations will start respecting them in the near future. Unfortunately, we will have to tolerate such a situation, and exert military pressure on such countries only in most severe cases for breaking those values, as it happened in Kosovo in 1998, when the USA and the UK invaded the Serbian territory to prevent genocide, apparently violating Article 5 of the UN Charter. That was not the case in 2013 when in August, France and the UK were to attack Syria for the use of sarin gas, when in the very last minute the British parliament vetoed such an attack on Syrian armed forces. The consequences of a lack of a strong international response are felt to this day, as the war there continues and Syria has used sarin gas several times since 2013.

In this book we have a specific context for the need to redefine the values of Humanity – the risk stemming from the arrival of Superintelligence. Phil Thores gives an excellent example of the consequence of misalignment of Humanity’s and Superintelligence’s values. In his article: “Why Superintelligence is a threat that should be taken seriously” (142), he gives an example of existential threat that humans pose to ant colonies. The goal of ants is to create underground colonies whereas the goal of humans, in this example, is to create suburban neighbourhoods. These goals are misaligned. The result is an ant genocide, not because we hate ants or because we’re

“evil,” but simply because we are more powerful and have different values. Phil Thores illustrates that further but this time replacing ant colonies with humans. Our existential threat is now Superintelligence. If Superintelligence’s goal system is even slightly misaligned with ours it could, being far more powerful than our human civilisation, bring about human extinction for the very same reason that construction workers routinely slaughter large populations of ants.

That’s why it is so important to redefine our values, not only to lessen the consequences of the risk of political, economic and social global disorder, but also to properly align those values with the Superintelligence’s goals. This needs to be done on behalf of the whole Humanity, even if part of the global population may be either absolutely oblivious to such a need or may resist some of the universal values. Who would define these top values and how will they be upheld? The most appropriate organization that could do this should have been the UN and the best initial input could be the existing UN Universal Declaration of Human Rights from 1948. This was originally signed by just 48 nations and later on transformed into the International Bill of Human Rights, which became law in 1976 (after nearly 20 years!) That International Bill of Human Rights would have to be significantly modified. However, approving such a modified Declaration by all nations on the planet seems to me an impossible task, since some of the countries may see it as a tool to control their expansionist tendencies such as China, Russia, North Korea, or to control religious expressions e.g. Iran, Saudi Arabia, or Pakistan. Therefore, realistically we would only be able to agree such values on behalf of the **majority** of Humanity. I seriously doubt we can get every nation to agree to that – it would have taken for ever to achieve that goal. We shall cover this subject further on in this chapter.

But even then, the so-called Western World is not totally unified on values. One of the most recent examples of the difficulty to define common values came from two leaders from seemingly the same camp, the Western Hemisphere. The first one was President Donald Trump, who in his speech in Warsaw on 6th July 2017 said this: “Americans, Poles, and the nations of Europe value individual freedom and sovereignty. We must work together to confront forces, whether they come from inside or out, from the South or the East, that threaten over time to undermine these values and to erase the bonds of culture, faith and tradition that make us who we are.” (143)

However, on 29th June 2017 in a statement to Bundestag, before the start of the 2017 G-20 meeting in Hamburg, Chancellor Angela Merkel showed that some of the values she treasures a lot, such as fighting climate change, are not necessarily shared by Donald Trump. ““Since the decision of the United States of America, to withdraw from the Paris Agreement on climate change, we are more determined than ever before to make it a success... We want to master this existential challenge and we can master it, and we will not wait until the last people in the world are finally convinced by the crushing weight of the scientific evidence of climate change.” (144).

The President of the EU Commission Jean Claude Juncker spoke about three core values of the EU when he delivered his State of the Union address on 13 September 2017. Because of its importance I quote the part from his speech that deals with values:

“Our values are our compass. For me, Europe is more than just a single market. More than money, more than a currency, more than the euro. It was always about values...Europe is first of all a Union of **freedom**... It was on these freedoms that our Union was built. But freedom does not fall from the sky. It must be fought for, in Europe and throughout the world.

Second, Europe must be a Union of **equality** and a Union of equals. Equality between its Members, big or small, East or West, North or South ...In a Union of equals, there can be no second-class citizens...

Third, in Europe the **strength of the law** replaced the law of the strong. The rule of law means that law and justice are upheld by an independent judiciary...Our Member States gave final jurisdiction to the European Court of Justice. The judgements of the Court have to be respected by all. To undermine them, or to undermine the independence of national courts, is to strip citizens of their fundamental rights. These three principles – freedom, equality and the rule of law – must remain the foundations on which we build a more united, stronger and more democratic Union.” (145)

President Juncker’s passion is commendable but he seems only to repeat the core values stated in Article 2 of the Lisbon Treaty. If the EU is to reform significantly these values are somewhat inadequate since they miss quite a few challenges that face not only the EU but the whole Humanity. This includes the need to ‘present’ within the next 10 years to Superintelligence a coherent single set of Universal Values of Humanity and the universal human rights that they underpin, well **before** it has reached the peak of its capabilities, becoming a Technological Singularity. That’s why the EU has to look far beyond its own yard when implementing their reforms. It needs to think from the very start that it might be the reformed EU, rather than the UN, which will become the only organisation capable to save Humanity from its existential risks.

I cannot overemphasize the importance of re-examining the system of universal values to reduce geo-political risks. That does not mean that the very process of redefining those values even within the EU itself is without risks. However, it has to be done if even much bigger risks are to be minimized. We have to remember that whatever the percentages of existential risks I have quoted so far are, and their veracity is not that high either way, one thing is clear – the next 20 years will probably be the most tumultuous period in human history.

Therefore, one of the critical issues EU will have to resolve is to re-examine its core values. And that’s what this chapter is about. We shall look into the current system of Universal Values of Humanity and identify areas where we need new or redefined values and human rights that are the basis for the common law. My intention is not to do a full ethical review of the system of values. That is what should be done by

specialist teams authorized by the EU. My objective is quite narrow – to identify these new values and rights and any amendments needed to those rights, so that the reformed EU will have better capabilities to fight existential risks. **It is about the principles underpinning the revisions of the EU core value system rather than the minute detail.**

Chapter 2

The problem of defining Universal Values of Humanity

Why redefining Universal Values of Humanity is so difficult?

We should start with the re-examination of the Humanity's system of values, e.g. those present in the UN Universal Declaration of Human Rights, which is nearly 70 years old. Do these values need to be amended and the scope broadened? This is the question that has been examined by a number of philosophers and academic institutions, among them by the Future of Humanity Institute. Some of their work has already been embedded in important documents such as the Lisbon Treaty and the Charter of Fundamental Rights of the EU in 2009.

It is obvious that we should begin with the new meaning of the three core principles underpinning the western democracy, established during the French revolution: *liberté, fraternité, égalité*. What does freedom really mean? People in western countries take it for granted that we are all born free. But that is not a universally accepted truth. In some countries, like in Iran or Saudi Arabia, which are religious states, a person is not born free, he belongs to God and thus his freedom is constrained by religion, which he cannot change under death penalty. Or, how could North Korea accept the western version of freedom? The same goes for equality. In an authoritarian or plain dictatorship regime, there is hardly any sense of equality either in material or status-related sense. But even in western democracies the question arises what do these values really mean in practice. Is freedom or equality defined as an absolute value, without any constraint? And if there are any constraints, then what is their justification, or the boundary of expressing one's freedom. What is the authority that defines those constraints – the state or judiciary? If this authority is the state, then how will it acquire such powers – through referendum or parliamentary elections or as part of the referendum on voting the new Constitution?

We also need new values e.g. on sanctity of life in whatever form, including non-human intelligence? We would need that in order to identify key changes to the democratic system, which is largely based on those values and rights. Furthermore, why is there not a single word in the UN Universal Declaration of Human Rights that would define our **responsibilities**? We need this, to balance citizens' rights with their responsibilities. These include, for example, protection of the environment and adhering to ethical standards that would be beyond the legal system, such as good neighbourhood behaviour, not abusing the benefits system, aligning oneself with the country's values ("waving the flag") or participation in elections.

We would also need to redefine the coexistence of the majority and minorities in a society and their respective rights. What are the limits imposed by the majority on the

minorities? After all, the rule of majority reflects only one aspect of justice that may create at the same time, as many other democratic principles do, other injustices.

These are all the questions that need to be answered when redefining the Universal Values of Humanity. If the EU starts acting at some stage as the European Federation then it must consider the questions of values from the point of view of the whole Humanity. These redefined Universal Values of Humanity should be the basis for the new EU Constitution, which effectively will become the Constitution of Humanity. The reason for that is that there is probably no other practical way to get the agreement on the Universal Values of Humanity by all nations, e.g. members of the UN. Just the very act of establishing a new body that would have created and approved such a Constitution would have taken many years. Even if such a new body to redefine Universal Human Values is somehow established, there could be no realistic prospect that it would ever come to an agreement because it is precisely the difference in the interpretation and more importantly, practice of some core human values, such as freedom, which would make such an agreement impossible to ratify by all nations. That, by the same token, also excludes the existing organisations such as the International Court of Justice.

Anybody who has been watching the UN ineffectiveness in resolving many conflicts like the most recent war in Syria, Iraq or in the 1990' in Yugoslavia (the massacre of Srebrenica that was supposedly be under the protection of the UN), will probably have the same view that an organisation such as UN is too ineffective in passing such a new charter. In this area, UN is probably polarised more than at any other time. To get an agreement by all nations on Universal Values of Humanity and subsequently on the 'Constitution of Humanity' would probably never happen, mainly because top human values are dependent so much on culture and religion.

Therefore, it should rather be an existing organisation such as the European Court of Justice (ECJ) whose judgements are applied within a more uniform cultural area, than the International Court of Justice. It is the ECJ, which should take upon itself the task of re-defining Universal Human Values, creating a proposal for a new constitution, which could one day become the Constitution of Humanity. Such an EU constitution would of course cover other areas of political and social order that would need to be ratified by the EU citizens.

Then the next question is what would be the binding legal scope of such a Constitution. In my view, if it is to become the Humanity's Constitution at some stage, i.e. applied to all humans, it should have extraterritorial and supranational powers. In this respect, the role of the European Court of Justice should be seen as transient and as soon as possible a new International Constitutional Court should be created that would have an oversight role pertaining to individual countries' constitutions. In that way, through countries' constitutions, universal human values would be implemented around the globe. Unfortunately, this is a much longer perspective than one generation. Therefore, we will mainly be talking about Europe as the first continent to adopt such universal values.

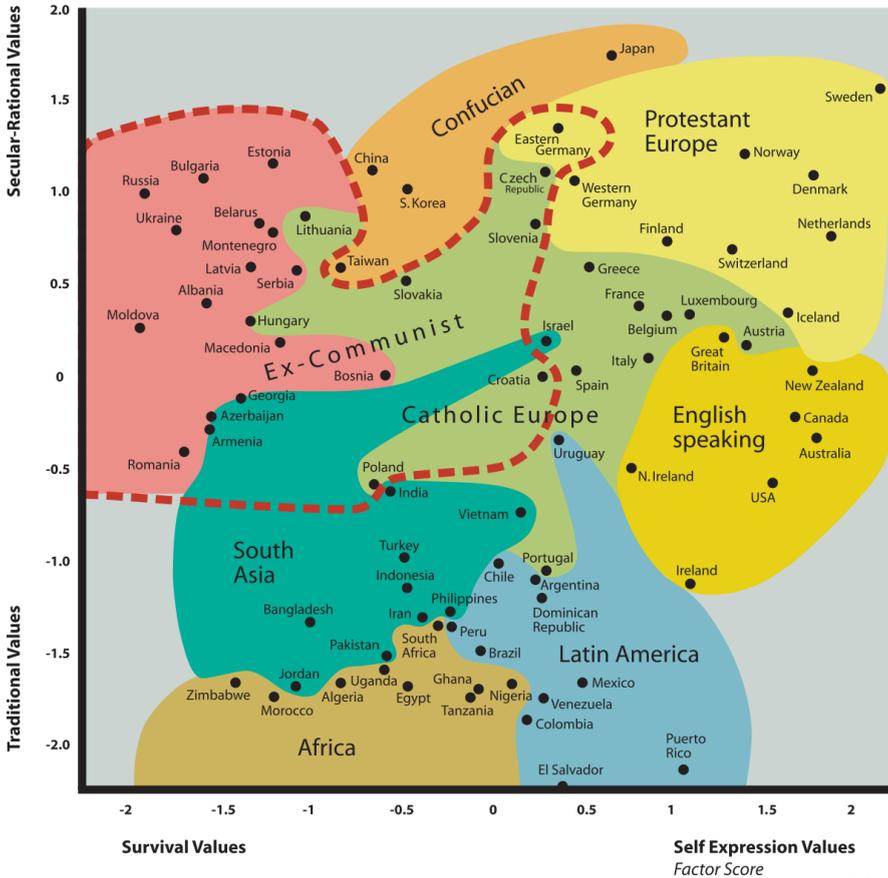
How cultures impact values?

To better understand universal values, with which we shall deal with shortly, we need to clarify the meaning and exceptional significance of cultural values. These are the values that in the end determine how we can coexist as humans and how we could avoid conflicts and wars by a higher degree of tolerance to each other. In this context, the research carried out by the World Values Survey (WVS) provides some important conclusions. This is a global research project that explores people's values and beliefs, how they change over time and what social and political impact they have. It has been carried out by a worldwide network of social scientists who, since 1981, have conducted representative national surveys in almost 100 countries.

The WVS measures, monitors and analyses: support for democracy, tolerance of foreigners and ethnic minorities, support for gender equality, the role of religion and changing levels of religiosity, the impact of globalization, attitudes toward the environment, work, family, politics, national identity, culture, diversity, insecurity, and subjective well-being. Their work is frequently used by governments around the world and international organizations and institutions such as the World Bank and the United Nations (UNDP and UN-Habitat). (146) WVS assesses cultures in two predominant axes:

- Vertical y-axis assess **traditional versus secular-rational** values
- Horizontal x-axis assesses **survival versus self-expression** values.

Their whole work can be summarized in the graph created by their two directors: Ronald F. Inglehart, a political scientist at the University of Michigan and Christian Welzel, a German political scientist at the Leuphana University. It is called Inglehart–Welzel cultural map of the world:



Inglehart–Welzel cultural map of the world: Source: Wikimedia Commons⁽¹⁴⁷⁾

Moving upward on this map reflects the shift from traditional values to secular-rational ones, and moving rightward reflects the shift from survival values to self-expression values.

All of the EU countries belong to Christian Culture. Its value system is really based on the 10 Commandments. That differentiates Europe most strongly from other cultures such as Chinese based on Confucianism and Taoism, Japanese based on Shintoism, or Indian based on Hinduism and Buddhism. However, the European values originating from the 10 Commandments are not staunchly embedded in equal measure in all the EU countries because of splits in Christianity over the centuries and different experiences the Continent has had over the last century. This map shows those differences very well at a glance, indicating where the potential fault lines within the EU lie and what could be the consequences of some cultural differences and traditions for the prospect of the European Federation. In effect I would identify five cultures within the EU:

1. **Protestant Germanic culture** characterised by the Lutheran and Calvinist influences, which stress the need for hard work, responsibility discipline and prudence. Here we have Germany, the Netherlands, Luxemburg, and Austria
2. **Nordic culture.** It has some strong similarities with the Germanic culture but there are some differences which may stem from two reasons. One is the population density which is almost 40 times lower than in the Netherlands or 10 times lower than in Germany. The second one is the geographical location, which means that temperature in the North of Europe is much lower than in Central Europe. Both these aspects impact how people behave. Being separated by long distances and affected by lower temperature requires people to get together more closely and help each other by being sometimes strongly dependent on neighbourly help. No wonder that only in these countries can you find huts spread out all over the Scandinavian countries with food, water and fuel supplies, which until very recently were accessible by anybody in need and re-supplied by those visiting those chalets (now you need a key – but the principles are still the same). I have experienced it myself in recent years. The consequences of such cultures are evident in politics and governance. These are the countries, where the politics of consensus is an absolute norm. No wonder that all Scandinavian countries are in the top 10 most contented nations in the world, with Finland being the happiest country. Sweden, Denmark, and Finland (plus Norway and Iceland which are members of the Single Market) belong to that culture.
3. **Catholic-communist culture.** This cocktail has produced the Eastern and Central European culture, where family values are blended with self-reliance, entrepreneurship, personal freedom and some disrespect for the law stemming from the need to survive the German and Soviet occupation. Poland is perhaps the best the cocktail of cultures, having to protect Western Europe against the Tatars, the Turks for centuries and then against Communist Russia in 1920 – the battle of Warsaw, apparently one of the 20 most important battles in history. It was the Catholic Church to which 85% of Poles claim allegiance that was the pillar of the Polish independence and no wonder that those values are so strongly visible to this day. The neighbouring Czech Republic and Slovakia are the opposite culture. The Czechs lost their independence in 15th century and the Catholicism was blended with the Protestant Church. Hence in these two countries less than 10% of people go to church. It shows how some significant cultural differences are found in Europe even in the neighbouring countries.
4. **Catholic-non-communist culture** that puts very strong value on family life and some relaxed attitude to law (confession absolves sins). Here we have France, Belgium, Italy, Spain, Portugal, Greece, Malta, and Cyprus.
5. **English speaking culture**, a mixture of Anglican and Catholic culture with the strongest emphasis on individual freedom, sanctity of the law and minimal interference of the state (a consequence of independence from Rome) and English philosophy focused on liberalism first rather than egalitarianism.

Out of Western world countries, the United States is among the most conservative (as one of the most downwards-located countries), together with highly conservative Catholic countries such as Ireland and Poland. On the traditional/secular dimension,

the United States ranks far below other rich societies, with levels of religiosity and national pride comparable with those found in some developing societies.

What is the basis for making Human Values ‘universal’?

Now let us look at the values at the top of the Maslow’s pyramid, universal values for all people on the planet. What are the arguments supporting the view that human values should be applied to all humanity irrespective of local cultures? That is the question asked by Shalom H. Schwartz a social psychologist, cross-cultural researcher and creator of the Theory of Basic Human Values in 1992. This is probably one of the most extensive empirical researches investigating whether there are any values that are universal across the globe. Schwartz found 10 such values and defined them in a typical academic language as "conceptions of the desirable that influence the way people select action and evaluate events". He hypothesised that universal values would relate to three different types of **human needs: biological needs, social co-ordination needs, and needs related to the welfare and survival of groups of population.**

Those ten universal human values underpin much of what we do. These are truly powerful concepts and before I present them here is a plain language summary:

Universal Human Values by Shalom H. Schwartz

1. **Self-Direction** (in layman terms – Freedom). This is related to autonomy to be able to make our own decisions, control our own thoughts and bodies, go where we wish, and be creative without fear of criticism or being prevented from doing so. It also implies we have the resources to do these things. In a democratic society this is a basic freedom (within the constraints of the law).
2. **Stimulation**. When we are stimulated, our emotions are aroused as we find interest in the world around us. We can feel excited about new experiences. We can take on challenges that help us work with passion towards rewarding achievements.
3. **Hedonism**. Hedonism is related to stimulation, where we seek a basic and often bodily arousal in sensuous pleasures. This often has a shorter-term focus than stimulation, which can include life challenges.
4. **Achievement**. We seek achievement through challenges that stimulate us, and of which we can feel proud. This is one of the ways in which our workplace can offer pleasure or (if we are not able to achieve it) an unsatisfactory frustration.
5. **Power**. Power is the ability to achieve, to get what you want. It can include factors such as formal authority, the control of resources and personal charisma. Power can be like a resource itself when it can be built up and then depleted as it is used.
6. **Security**. When we are secure we are safe from dangers, threats and other risks that may harm us. Having power allows us to increase our security. It also provides a base, on which we can seek to satisfy other needs without having to constantly be alert.
7. **Conformity**. When we conform to rules, we gain a comfortable sense of familiarity and an assurance that we will be secure. In particular, non-conformance often causes social reaction where others in our group may seek to correct those who do

not conform. While this reduces our own freedom, it decreases the chance of other people who do not conform with those rules, acting in the way that may be harmful to us.

8. **Tradition.** Conformity also can be found in the desire to sustain traditions. This can be seen in rituals that be found in social interactions, religious services and so on. Respect for social rules and others in our social groups is a common aspect of tradition as this helps to sustain the status quo.
9. **Benevolence.** Benevolence involves being kind and fair to others, forgiving their transgressions and ensuring that they are looked after. In this way, the welfare of the social group is sustained and those within it feel confident that they themselves would be helped if they fell on hard times.
10. **Universalism.** This relates to understanding, appreciation, tolerance, and protection for the welfare of all people and for nature. (148)

The ten types of universal values address 56 **specific universal values** (basic needs) that are closely related to personal values we discussed earlier:

Shalom Schwartz's Universal Values									
Universal Values	Specific Values								
1 Power	authority	leadership	dominance	social power	wealth				
2 Achievement	success	capability	ambition	influence	intelligence	self-respect			
3 Hedonism	pleasure	enjoying life							
4 Stimulation	daring activities	varied life	exciting life						
5 Self-direction	creativity	freedom	independence	curiosity	choosing your own goals				
6 Universalism	broadmindedness	wisdom	social justice	equality	a world at peace	a world of beauty	unity with nature	protecting the environment	inner harmony
7 Benevolence	helpfulness	honesty	forgiveness	loyalty	responsibility	friendship			
8 Tradition	accepting one's portion in life	humility	devoutness	respect for tradition	moderation				
9 Conformity	self-discipline	obedience							
10 Security	cleanliness	family security	national security	stability of social order	reciprocation of favours	health	sense of belonging		

Universal Human Values by Shalom H. Schwartz (149)

The battle between universality of human values and cultural relativism

Whoever redefines the Universal Values of Humanity should take into account that for the values to be universal, they have to be independent of any religious belief, culture, or any particular philosophical doctrine. That means **universal values should apply to all people** on the planet because they are, or should be, shared by everyone. On the other hand, no society can function properly if it is not bound together by common values of their own group. That's why we spent some time describing what values really mean and how important is their cultural context. They tell its members what to expect of each other, and how they can manage their differences, in view of those values, without resorting to violence. Therefore, the culturally delimited values, or at least some of them, will be different in the cultures that we identified in the previous

section. **Culturally delimited values may differ not only between various cultures but they may also differ with universal values.** How can we then square the circle?

There is a conflict going on between the ‘**western world**’ and mainly ‘Asian’ world that includes China, Iran, Saudi Arabia and other mainly autocratic or dictatorial regimes. It is about ‘**cultural relativism**’. That conflict centres on the word ‘**universal**’. The supporters of the cultural relativism say that Human rights have been developed from Western culture and thus they are inappropriate in application to other cultures. Some proponents of this view argue that economic development must precede human rights, believing that human rights are too expensive and too risky for poor countries. Some authors say that the ‘western world’ has been enforcing universal human rights on every nation, which is a new form of imperialism.

This is a profound moral and political conflict that has been the source of major wars. It is quite obvious that these arguments are often made by minority/elite groups, unrepresentative of the populations they supposedly represent. There simply is no political will there to implement universal values and human rights that take root from therein not because they are unsuitable for such populations like in China, but because they are politically unacceptable to the authoritarian rulers. Here is an example of such thinking published in ‘China Daily’ in 2006 in the context of the "Occupy Central" movement in Hong Kong:

“Unfortunately, today many people have mixed up the means with the ends. Some people think that democracy in the sense, in which Western nations define it, is a universal value. But whereas what motivated the evolution of Western democracy does represent universal values, Western democracy, in the sense of being adversarial, multi-party democracy, does not represent such values. Adversarial democracy, in particular multi-party democracy, is only one human experiment, which may or may not bring humanity closer to the values that we all pursue. We need to accept that multi-party politics is only a means, and not necessarily the best means, to our common ends.

Many young people supported the "Occupy Central" movement because they believe that the central government will not give them the political reforms they want because China is not a democratic country in the way they understand it to be. But China certainly shares the same universal values as the rest of humanity. The Chinese leaders no doubt is chosen in a way different from the way Western leaders are elected, but they are working hard to serve the country all the same. There is no evidence at all that they are less competent than the leaders in Western nations. The mainland is just running another system, and Hong Kong, as a special administrative region of China, has to respect that system...Sadly, many young people did not understand this. Just because China is running another system, and not the Western multi-party system, they feel they should defy anything that comes from the central government as if it was meant to dictate Hong Kong people's lives. But the performance of the Chinese leaders, judged by the advances China has made in the various areas monitored by the Human Development Index (HDI), has actually been outstanding (it ranked 90th in 2015 out of 188 nations assessed - TC). The HDI is an objective indicator of how China is doing in

achieving advances against criteria defined by the United Nations. Although the indicator is not all-inclusive, it nevertheless shows China not only shares the universal values that are so dear to us, but also is performing pretty well.” (150)

I have quoted a longer extract of that article because it illustrates two points. The first one is that the ‘Western World’ should perhaps be humbler in allowing other cultures to get their chance to make their values infuse the Universal Human Values. That argument in my view deserves some attention if we allow measurement of individual’s life’s ‘success’ or overall happiness by slightly different outcomes, like for example the UN Human Development Index (HDI). The ‘Western World’ has been focused on GDP as almost the only measure to assess the quality of our lives.

On the other hand, it is a good confirmation that autocratic regimes will use some reasonable arguments to confuse the whole essence of the debate on universal human values in order to accept their disrespectful way they treat their citizens. The fact that China has brought 600m people out of utter poverty and famine in just 30 years is highly commendable. But that does not make it good, for example, to accept policies from the ‘Red Book’ by chairman Mao that in 1960’ led to death of starvation or through execution of tens of millions of his people. Neither is there any reason to accept China’s practice to execute thousands of offenders, some of them on doubtful grounds, and some being simply politically motivated.

There are other arguments quoted for example by the World Policy Institute, which covers the subject of primacy of national culture over universal values. In the article “Are Human Rights Universal” they emphasize the fact that "traditional culture" that is sometimes advanced to justify the non-observance of human rights, in practice no longer exists anywhere in a pure form at a national level. The societies of developing countries have not remained in a pristine, pre-Western state; all have been subject to change and distortion by external influence, both as a result of colonialism in many cases and through participation in modern interstate relations.

Additionally, the author of the article makes a good point about the hypocrisy of the authoritarian regimes whose ambassador to the United Nations argues that tribal traditions should be applied to judge the human rights conduct even in a modern state. Culture is constantly evolving in any living society, responding to both internal and external stimuli, and there is much in every culture that societies quite naturally outgrow and reject. The fact that slavery was acceptable across the world for at least 2,000 years does not make it acceptable to us now. Those who freely choose to live by and to be treated according to their traditional cultures are welcome to do so, **provided others who wish to be free are not oppressed in the name of a culture they prefer to disavow.** (151)

It is also worth noting that human rights are a kind of Humanity’s charter, which is a culture on its own. This continuing process of collective learning and collective experience of living those values and rights is just Humanity’s culture.

In this context, I would like to quote the former Secretary General of the UN, Kofi Anan who has his own view on precisely this subject. This is what he said in his lecture

in 2003 at the University of Tübingen in Germany: “The validity of universal values does not depend on their being universally obeyed or applied. Ethical codes are always the expression of an ideal and an aspiration, a standard by which moral failings can be judged rather than a prescription for ensuring that they never occur... If it is wrong to condemn a particular faith or set of values because of the actions or statements of some of its adherents, **it must also be wrong to abandon the idea that certain values are universal just because some human beings do not appear to accept them.** Indeed, I would argue that it is precisely the existence of such aberrations that obliges us to assert and uphold common values. We need to be able to say that certain actions and beliefs are not just contrary to our own particular morality, but should be rejected by **all** humanity.” (152)

This is exactly the justification that I am putting forward here for the EU to define such a set of Universal Values of Humanity on behalf of the whole Humanity, even if only part of Humanity subscribes to them. There needs to be a universal reference for any system of values and religions so that any nation or any ethnic group can see if their specific values are still within the boundaries that Humanity would find acceptable. Even for practical reasons of the survival of Humanity, we must never allow any nation, a cultural or religious group, such as recently the Islamists, or in the last century Nazism or Soviet communism to practice hate and utter intolerance leading to mass murders and genocide. Values are usually translated into rights or laws. For the universal values to be accepted, the rights that arise from those values need to be applied equally in the same way to everyone. That is also the corner stone of democracy in general.

At the same time, our ‘western’ universal values require us to recognise the human characteristics, both good and bad, that we have in common with all our fellow human beings, and to show the same respect for human dignity and sensitivity in people of other communities that we expect them to show for ours.

The UN Universal Declaration of Human Rights (UDHR) was after all formed with major influence from non-Western states, giving it legitimacy as a universally-applicable document. This has allowed the UDHR to achieve “wide acceptance among diverse cultures”. Furthermore, the creation of the International Criminal Court was a major development in human rights law, being able to independently investigate and charge individuals for serious human rights violations. The Court enjoys grass-roots support in Africa, where it is most active. (153)

In conclusion, conceptions of human rights based on collective histories of humanities’ injustices make a strong case for the value of universal human rights, particularly in the light of damaging manipulation to mainstream human rights theory like cultural relativism.

Legal systems underpinning Universal Human Rights

Human rights go back at least a few thousand years to the ancient Greece and Rome. Here is an example of several rights for Roman citizens (slaves were of course denied any rights):

- Ius suffragiorum: The right to vote
- Ius honorum: The right to stand for public office
- Ius commercii: The right to make legal contracts
- Ius gentium: The right for a legal recognition
- Ius conubii: The right to have a lawful marriage
- Ius migrationis: The right to citizenship
- Rectum iudicium habere de iure - the right to have a legal trial

Before we go further, we need to consider one fundamental question: who has the right to *give* ‘human rights’ to people. We have two options here, thoroughly discussed by Hannah Arendt, one of the most influential political philosophers:

1. Human rights are universal, inalienable and possessed simply in virtue of being human (therefore, there is no need for anybody to be ‘anointed’ to give such rights – TC)
2. Human rights in practice can only be civil rights that people get by belonging to a political community, such as a state.

In accordance with the second principle, human rights could only be materialized in a sovereign state. That’s why all countries apply human rights as civil rights, i.e. supported by a legal framework existing in a given country. Once people cross the borders, they lose their civil rights. But should they also lose their human rights in the universal sense; after all, they are, humans, aren’t they? This is best illustrated by the problem that the migration crisis of 2015-2016 created in Europe. Humans have of course been experiencing such problems since the dawn of civilisation. For example, in the Middle Ages people could be banned from living in their own cities as a kind of punishment. They built their primitive huts outside the city walls and were the first to suffer if their city was attacked by invaders. Slaves were a category of humans that had no rights whatsoever, and their masters as well as other citizens considered it quite normal treating slaves as sub-humans in the ‘civilised’ USA less than 200 years ago.

So, should we accept that all people have the same human rights by the sheer fact that they are humans? Hannah Arendt, who herself was a Jewish refugee from Nazi Germany, supported the first principle. Unfortunately, I do not think this problem has an easy solution. If we apply the first principle, then states would lose a large part of their sovereignty. The states would still exist and would retain the control over their material resources and the ability (perhaps limited) to realize their objectives. However, there would effectively be no borders, as people could migrate to other countries without any restrictions, achieving immediate protection and material benefits. Today, this is a utopian vision, ignoring who we are biologically and psychologically as

humans. It is a beautiful and pure humanistic idea but, perhaps sadly, not realistic yet. Humans are generally protective and egoistic because that is our genetically built-in trait to enhance our survival and pass on our genes to the next generation. However, once we become a planetary civilisation, effectively without borders, with one Constitution of Humanity, accepted by all and practiced by all, there should be no refugees, other than those fleeing from natural disasters.

For now, the solution, I think, is to approach it from a pragmatic point of view. In most general sense people migrating to other countries, should have some basic human rights, e.g. freedom of movement, right to proper justice etc. **but not all civil rights** enjoyed by the citizens of a country they want to settle in. There should be a ‘filter’, which of the human rights can a migrant get as his civil rights, once he crosses a border of a sovereign state. That should apply, and is rightly being applied within the EU, including the ‘automatic’ right of free movement **into** one of the EU countries. That’s why we have borders, and asylum law for justified cases, allowing people in need to cross them.

In modern history there are three important documents that define human rights:

- UN Declaration of Human Rights
- European Convention of Human Rights
- Charter of Fundamental Human Rights of the EU

These are probably the most ‘humanistic’ documents produced by our civilization. They go far beyond the French Revolution’s key triple values *liberté, égalité, fraternité*, and re-enforce the values specified in the US Constitution. All three documents do not differ significantly. However, today we have two equal legal binding texts and two corresponding European courts: the European Court of Human Rights (ECtHR) makes judgments on cases in 52 EU and non-EU European countries based on the European Convention of Human Rights, whereas the European Court of Justice (ECJ) provides judgments based on the Charter of Fundamental Human Rights for the EU countries only.

We shall leave detailed discussion regarding the remaining questions to human rights lawyers. For our needs I will now use only one, the most recent document – the Charter of Fundamental Human Rights of the EU as a reference for the reforms needed in the area of Universal Human Rights. After all, the whole purpose of this review of universal values and rights is not to make an exhaustive debate on each of the values, but only to point to areas that would have to be carefully re-examined eventually leading to the change in law.

Therefore, what we need is a list of additional rights that should be added, or amendments needed to the existing rights, for each of the 12 Universal Values of Humanity. I shall use these values and rights when proposing the necessary reforms in the EU, if it is to become a *de facto* World Government engaged in minimizing existential risks. If Humanity is to act together to face off existential risks then some of these values will have to be amended, usually restricted. For example, take freedom,

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which in a national context means independence and sovereignty. It is certain that both of them will have to be restricted. Furthermore, some of them such as Equality, Justice or Rights to Private Property will need to be redefined in terms of a new meaning of democracy, capitalism and social cohesion.

The current set of human rights in the Charter of Fundamental Human Rights of the EU includes 50 specific rights, each covered by a separate article, which I have consolidated in the table below:

Charter of Fundamental Rights of the European Union			
Art.	Universal Human Rights Name	Art.	Universal Human Rights Name
1	Human dignity	26	Integration of persons with disabilities
2	Right to Life	27	Workers' right to information and consultation within the undertaking
3	Right to the integrity of the person	28	Right of collective bargaining and action
4	Prohibition of torture and inhuman or degrading treatment or punishment	29	Right of access to placement services
5	Prohibition of slavery and forced labour	30	Protection in the event of unjustified dismissal
6	Right to liberty and security	31	Fair and just working conditions
7	Respect for private and family life	32	Prohibition of child labour and protection of young people at work
8	Protection of personal data	33	Family and professional life
9	Right to marry and right to found a family	34	Social security and social assistance
10	Freedom of thought, conscience and religion	35	Health care
11	Freedom of expression and information	36	Access to services of general economic interest
12	Freedom of assembly and of association	37	Environmental protection
13	Freedom of the arts and sciences	38	Consumer protection
14	Right to education	39	Right to vote and to stand as a candidate at elections to the European Parliament
15	Freedom to choose an occupation and right to engage in work	40	Right to vote and to stand as a candidate at municipal elections
16	Freedom to conduct a business	41	Right to good administration
17	Right to property	42	Right of access to documents
18	Right to asylum	43	European Ombudsman
19	Protection in the event of removal, expulsion or extradition	44	Right to petition
20	Equality before the law	45	Freedom of movement and of residence
21	Non-discrimination	46	Diplomatic and consular protection
22	Cultural, religious and linguistic diversity	47	Right to an effective remedy and to a fair trial
23	Equality between women and men	48	Presumption of innocence and right of defence
24	The rights of the child	49	Principles of legality and proportionality of criminal offences and penalties
25	The rights of the elderly	50	Right not to be tried or punished twice in criminal proceedings for the same criminal offence

Chapter 3

Universal Values of Humanity

How the EU's Universal Values differ from other value systems?

We now need to review in detail how Universal Values of Humanity, could be applied in the future European Federation. If you want a dose of optimism about Humanity then this section deserves your special attention. This is the area, where Humanity has made perhaps even greater relative progress in the last 200 years, as far as its survival as a species is concerned, than in technology, including the industrial revolution. Yet, even that progress is not good enough to help humans fight existential risks. Therefore, we must do more in two areas:

- Extending the scope of values that are universal
- Extending the depth and spread of those values across the globe

The core values of the EU are included in the Lisbon Treaty in Article 2:

“The Union is founded on the values of respect for **human dignity, freedom, democracy, equality, the rule of law and respect for human rights**, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail.” (154)

However, we know that morality is not static and neither is the meaning and scope of universal values. Both change with time following progress in human development, better understanding of human conditions, our needs and possibilities.

That is why deep reforms in the EU should really start with the re-examination and strengthening of the core purpose of the EU. This includes most importantly, the Universal Values of Humanity. Such a review of these values that make EU what it is, is needed for three reasons:

- To make the EU integration firmly founded on those values
- Enabling the world to mitigate existential risks more effectively.
- Adapting them to the time when Humanity will have to coexist with Superintelligence

So, what could be these extended Universal Values of Humanity? I have compiled a table that lists Universal Values across time. It includes the three most important documents that list Universal Values; USA Constitution, UN Charter and EU Lisbon Treaty. I have also added two probably most important propositions offered by scientists, listing the values proposed by two aforementioned psychologists: Shalom

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Schwartz and Milton Rokeach. For consistency, I have entered the names of the values as they appear in the original documents and tried to merge them with other similar values, using additional explanatory material. For example, Freedom correlates most with S. Schwartz's Self-direction.

Old And New Universal Values							
No.	Universal Value (Basic Need)	US Decl. of Indep. 1776	UN Charter 1945	UN Millenium Declaration 2000	EU Lisbon Treaty 2009	Milton Rokeach 1973	Sholom Schwartz 1992
1	Freedom	Freedom	Freedom	Freedom	Freedom	Freedom	Self-direction
2	Democracy	Democracy	Democracy	Democracy	Democracy		
3	Equality	Equality	Equality	Equality	Equality	Equality	
4	Justice & the rule of law	Justice & the rule of law	Justice & the rule of law	Justice & the rule of law	Justice & the rule of law		
5	Human dignity		Human dignity	Human dignity	Human dignity	Self-Respect	
6	Social Solidarity		Social justice	Solidarity	Social solidarity		
7	Tolerance	Tolerance		Tolerance	Tolerance		Conformity
8	Life					Life & Salvation	
9	Peace	Peace	Peace	Shared responsibility	Peace	A World at Peace	
10	National Security	Independence	National Security	National Security	Defence & Security	National Security	Security
11	Family Safety				Family Law	Family Safety	Security
12	Nature & Beauty			Respect for nature	Environment	A World of Beauty	Universalism
13	Love					Mature Love	
14	Social Recognition					Social Recognition	Power
15	Achievement					Accomplishment	Achievement
16	Happiness					Happiness	Hedonism
17	Intelligence					Wisdom	
18	Optimism	Optimism				Inner Harmony	
19	Stimulation					An Exciting Life	Stimulation
20	True Friendship					True Friendship	Benevolence
21	Pleasure					Pleasure	

My filter for this table has been the universality of values and the need to respect those values by all of us. Thus, there is an element of 'enforcement' that determines, which values will ultimately have to be obeyed by all of us.

Using that filter, I have included all values from both psychologists for consistency, but some of them, although universal, like Optimism, cannot be enforced by law and therefore, have been shaded out and not included in further evaluation. That means there are 12 values in the final list.

1. Freedom
2. Democracy
3. Equality
4. Justice & the rule of law
5. Human dignity
6. Social Solidarity
7. Tolerance
8. Life
9. Peace
10. National Security
11. Family Safety
12. Nature & Beauty

In the next section, I have assigned to each of the 12 Universal Values of Humanity, starting with Freedom, the relevant human rights as they are defined in the Charter of Fundamental Human Rights of the EU (the EU Charter). For values that have special importance for the effective implementation of existential risks mitigation strategies, I have also added some short explanations and comments. After explaining the reasons for any additions or amendment of the human rights, they are grouped together in a table. Any new right or amended right has an annotation in the tables in the next section.

New human rights associated with Universal Values of Humanity

Freedom

Freedom itself does not impose any limits and boundaries. They are set by the society we live in. That's why there is no such thing as absolute freedom. Rights to certain aspects of freedom have been restricted even most recently in such a democratic country like France as a consequence of the terrorist attack in Paris. These included powers to ban demonstrations or prevent individuals attending protests. They were only removed after being applied for two years, in November 2017.

That's why we need to redefine various aspects of our freedom including the allowance for freedom restrictions that may be necessary, so that those who would govern us could deliver a greater margin of safety to us. Fighting existential risks that I have mentioned earlier requires that we accept a long period of nearly permanent state of emergency, which will almost certainly require a significant limitation of our freedoms, if we are to survive. So, the question is not whether liberalism should be restricted but rather by how much, and especially, in which domains. Those restrictions will affect first of all democracy, the way we are governed. In the broadest sense, the solution is to **give up some of our freedoms to those who will govern us against far deeper and actionable control and accountability** over those who will have such powers. That is the real challenge for democracy today.

We always like to keep things under control to a certain extent and it should remain that way in order to keep cohesion in the society, family or within a nation. Yet there is a downside to being in control when it involves trying to control other people, because other people don't want to be controlled by you any more than you want to be controlled by other people. So, that is why as a society we need to compromise. The extent of that compromise is regularly decided during the elections and from time to time during a referendum on a new constitution.

Freedom stands for something greater than just the right to act in an unconstrained manner. It also stands for securing for everyone an equal opportunity for life, liberty, and the pursuit of happiness. Certainly, freedom does mean the right to do as one pleases, i.e. to think, believe, speak, worship (or not worship), move about, gather, and generally act as you choose but only until your choices start to infringe on another

person’s freedom. Some of those restrictions may already be in place (like selling books about Nazism is a criminal offence in Germany) but may have to be extended. **Therefore, some of the rights in the EU Charter need to be amended**, as in the list below.

There is one special right missing in the EU Charter, which I have added. It is the right of a large ethnic or cultural group for self-determination. There are also some human rights missing in this list in the context of existential risks, such as related to Superintelligence, Global socio-political instability or nuclear war. Gerd Leonard, in his book ‘Technology vs. Humanity’ points to five rights that directly correspond to the value ‘Freedom’ (155). Rights like these should be considered in the new Constitution of the European Federation and I have added them to the list. ‘The right to remain a natural being’ is especially relevant in the context of Superintelligence. It is this right that would guarantee that it would be up to an individual to decide whether he wants to be merged with Superintelligence or live side by side (see the added rights in the table below).

Universal Values of Humanity: FREEDOM	
Human Rights supported by a legal system	Category
Right to liberty and security	EU Charter
Protection of personal data	EU Charter
Right to marry and right to found a family	EU Charter
Right to education	EU Charter
Right to property	EU Charter
Right to asylum	EU Charter
Freedom of thought, conscience and religion	EU Charter
Freedom to choose an occupation and right to engage in work	EU Charter
Freedom to conduct a business	EU Charter
Freedom of expression and information	EU Charter
Freedom of assembly and of association	EU Charter
Freedom of the arts and sciences	EU Charter
Freedom of movement and of residence	EU Charter
Right to protection in the event of removal, expulsion or extradition	EU Charter
Right for respect for private and family life	EU Charter
Freedom of movement and of residence. Should we impose tighter control on inter-EU travel and limit excessive migration?	Amended rights
Freedom of thought, conscience and religion. Should religious schools continue and should religious wear be allowed outside home?	Amended rights
Freedom of the arts and sciences. Should scientific inventions, like in AI and in molecular biology be restricted?	Amended rights
Right to asylum. Should there be a smoother and faster eviction, or return of people not deserving an asylum, to their home country within a certain limit of time, say 5 years, if the danger they escaped from has ceased?	Amended rights
Respect for private and family life. What is the extent of allowable intrusion of AI into our lives? Should everyone’s email be allowed to be read by the authorities? This is covered to some extent by the five new rights for privacy proposed below.	Amended rights
Freedom of expression and information. Should freedom of speech be restricted, especially hate speech etc. ?	Amended rights
Freedom of any group for self-determination. Any sufficiently large regional or cultural group able to sustain itself has the right to self-determination, including setting up its own state, without the consent of the current state.	New rights
Freedom to develop capability to realize one’s life goals should be facilitated as much as possible by the state.	New rights
The right to disconnect (from network and not to be monitored)	New rights
The right to be anonymous	New rights
The right to employ people instead of robots and remain inefficient, especially if it defines our basic humanness	New rights
The right to remain a natural being (biological)	New rights
Freedom to end one’s life provided it does not do any physical harm to others.	New rights
Freedom to assisted suicide provided appropriate medical and legal checks have been made	New rights

Democracy

This is a big domain of human relationship that is under a severe pressure. Democracy needs deep reforms in order for all countries to work with a greater inner and outer cohesion. It is a very difficult task to resolve, and even more difficult, if one has to do it fairly quickly.

One of the reasons that we have a problem here is that there can be no universal moral standard of democratic equality if there is not at least a general equality in knowledge, moral understanding and development. (156) Hence the basic importance of education and mental capacity of the voting people in any democratic state must be taken into account. For example, in the UK about 5% of the people who have the right to vote in elections are illiterate (157). The EU can certainly be proud of the 10 universal rights already underpinning the Value ‘Democracy’. However, one of the existing rights – Freedom of expressions needs to be amended. There are also two more rights that I have suggested in the table below.

Universal Values of Humanity: DEMOCRACY	
Human Rights supported by a legal system	Category
Freedom of assembly and of association	EU Charter
Freedom of expression and information	EU Charter
Right to vote and to stand as a candidate at elections to the European Parliament	EU Charter
Right to vote and to stand as a candidate at municipal elections	EU Charter
Right to good administration	EU Charter
Right of access to documents	EU Charter
Right to petition	EU Charter
Freedom of movement and of residence	EU Charter
Diplomatic and consular protection	EU Charter
European Ombudsman for EU citizens to complain about the abuse of their human rights	EU Charter
Freedom of expression and information. There should be much more emphasis on the right to access the information provided by Governments to their citizens.	Amended EU Charter
Every citizen must participate in elections. Citizens have rights and obligation – this is a minimum that a state should require from citizens.	New rights
Every citizen has the right for financial support in getting elected, provided he gets a minimum number of registered voters supporting him. Such a law should be uniform across the EU, and definitely for the EU elections. The details should be decided by the EU Parliament.	New rights

We shall discuss this area in detail in the next chapters on Democracy.

Equality

This is one of the values that we hear most of in the media, at least in the western world. Taking a historical perspective, humanity has made great progress in this area, and the EU is probably the best place on the planet for people being equally treated in various walks of life.

Although equality is most important as a universal social standard, this standard should also be seen as a very basic social value. Equality, after all, supports and stimulates an equality-based and empathic way of thinking, and empathy can be seen as the very basis of all-natural human morality and social behaviour. Our assumption of basic human equality helps to focus our awareness on the basic qualities and nature of others. We can see that the other is basically as we are ourselves, which creates our human empathy and spontaneous human respect. In that way equality stimulates our human

morality and a social way of thinking and living, and also our mutual understanding and human-friendliness. (156)

There are currently 7 rights supporting this value in the EU Charter. But we would need to redefine the meaning of “equality” in general. What does it mean to be equal today? Remember, morality is not static, it develops with a society. Most of the equalities listed in the table are formulated as rights but their definition is unclear and that leads to different application by various countries and courts. This relates to several areas and I have put some questions next to those rights. I am sure for each of those rights there could be a lengthy discussion that would go far beyond the purpose of this book.

Universal Values of Humanity: EQUALITY	
Human Rights supported by a legal system	Category
Equality before the law	EU Charter
Non-discrimination	EU Charter
Cultural, religious and linguistic diversity	EU Charter
Equality between women and men	EU Charter
The rights of the child	EU Charter
The rights of the elderly	EU Charter
Integration of persons with disabilities	EU Charter
Equality of opportunities at birth. That should be clearly embedded in the law, perhaps compensating the people born in poor families with financial support. That is currently done in most countries in the EU but is haphazard and unclear.	New rights
Material equality. Should that include equal standard of living (this is what broadly communism offered) or only a minimum wealth (poverty) level same for all?	New rights
Education equality. Does it mean everybody have the same starting chance to get the best opportunity to advance his life objectives, and society will have to pay for it or is it a border line, e.g. that state's support ends at graduating from a secondary school	New rights
Democratic equality (e.g. voting in elections). This is the hottest subject these days and I cover it separately. In essence the question is: should everyone's vote matter the same, irrespective of voters contribution to society, his understanding of how the society operates and its progress financed, his income, taxes or something else? Or we accept for whatever the consequences of the 'tyranny of majority' might be, a vote is a vote – all are the same?	New rights
Professional equality. Should people having the same professional qualification get the same treatment both in career progression and remuneration irrespective of their gender, race, place of birth etc.? This is rather a rhetorical question these days.	New rights
Gender equality. That's obvious	New rights
Cultural equality. Should cultures be treated the same in a given multi-cultural society without giving predominance to the indigenous culture. Again a hot subject. I risk to stick my head over the parapet answering – NO, if we want to preserve social cohesion for the ultimate benefit of all cultures in a given society. For me the USA model is probably close to ideal.	New rights
Religious equality. Should there be a place for state religions? Should religion's doctrine prevail over the legal system in a given country? Should religious school be allowed? Should religious wear be allowed in public spaces? Should agnostics have the same rights to promote their 'beliefs' as any other recognized religion? Who has the right to recognize a religion as 'acceptable' and on what principles? Etc.	New rights
Age equality. This is a broad area but essentially most important are the equality of rights of older people (and mostly handicapped in some way) and the younger (e.g. what should be the minimum voting age, sexual 'maturity' age etc.)	New rights
Language equality. Should all languages be treated in a given society equally irrespective of the cost? This is the question that may also be addressed at the EU Parliament quite soon.	New rights

Justice & The rule of Law

This is an area where human rights became nearly fulfilled, as far as the court-related matters are concerned. These rights support the 'Justice' value:

Universal Values of Humanity: JUSTICE & THE RULE OF LAW	
Human Rights supported by a legal system	Category
Right to an effective remedy and to a fair trial	EU Charter
Presumption of innocence and right of defence	EU Charter
Principles of legality and proportionality of criminal offences and penalties	EU Charter
Right not to be tried or punished twice in criminal proceedings for the same criminal offence	EU Charter
Equality before the law	EU Charter

Human dignity

Human dignity as a social value means first of all the value of the respect of others for us. The sense of one's own dignity, as well as the sense of responsibility for the well-being of others come from a true respect for other humans, the society, humanity, and ultimately for nature.

The human rights that support dignity, which are included in the EU Charter of Fundamental Rights seem to be sufficient at this stage, so there is no need for additional rights or amendments. However, I believe there should be two more rights added – see the table below.

Questions that one may have concern here:

Universal Values of Humanity: DIGNITY	
Human Rights supported by a legal system	Category
Human dignity is inviolable. It must be respected and protected.	EU Charter
Everyone has the right to respect for his or her physical and mental integrity	EU Charter
Everyone has the right for his asylum plea to be heard	EU Charter
No one shall be subjected to torture or to inhuman or degrading treatment or punishment.	EU Charter
No one shall be held in slavery or servitude	EU Charter
Freedom of movement and of residence	EU Charter
Protection in the event of removal, expulsion or extradition	EU Charter
Dignity for animals	New rights
Dignity for Superintelligence once it becomes conscious	New rights

Social Solidarity

The right supporting the value ‘Solidarity’, which was not present in the UN Charter, appeared first in the UN Millennium Declaration and was defined as follows:

“Global challenges must be managed in a way that distributes the costs and burdens fairly in accordance with basic principles of equity and social justice. Those who suffer or who benefit least deserve help from those who benefit most.” (158). In the Charter of Fundamental Rights of the EU that became law 9 years later. There is a whole chapter in the EU Lisbon Treaty dedicated to ‘Solidarity’, with 9 articles, listing these rights:

Universal Values of Humanity: SOCIAL SOLIDARITY	
Human Rights supported by a legal system	Category
Workers' right to information and consultation within the undertaking	EU Charter
Right of collective bargaining and action	EU Charter
Right of access to placement services	EU Charter
Protection in the event of unjustified dismissal	EU Charter
Fair and just working conditions	EU Charter
Prohibition of child labour and protection of young people at work	EU Charter
Family and professional life	EU Charter
Social security and social assistance	EU Charter
Health care	EU Charter
Access to services of general economic interest	EU Charter
Environmental protection	EU Charter
Consumer protection	EU Charter

Tolerance

UN Millennium Declaration makes the following reference to 'Tolerance': "Human beings must respect one another, in all their diversity of belief, culture and language. Differences within and between societies should be neither feared nor repressed, but cherished as a precious asset of humanity. A culture of peace and dialogue among all civilizations should be actively promoted." (158)

In the EU Lisbon Treaty tolerance is only mentioned in the context of broader rights: "The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, **tolerance**, justice, solidarity and equality between women and men prevail."

However, '**Tolerance**' is not supported by any specific rights in the Charter of Fundamental Rights of the EU. This became clear during the 'migration crises' in the EU in 2015-2016 that EU needs such rights. Therefore, in 2016, the EU Commission set up EU High Level Group on combating racism, xenophobia and other forms of intolerance. On the other hand, it is worthwhile to remind the reader again about what happened to tolerance in the Netherlands after the murder on 2 November 2004 of Dutch film director and columnist Theo van Gogh who was killed by Mohammed Bouyeri. The demonstrations that followed in the next few days had placards saying "No Tolerance for Intolerance". This is certainly a challenge for multicultural societies and perhaps we have to go back to the drawing board designing a system that would better support social cohesion than what is being practiced right now.

Life

The UN Millennium Declaration mentions 'Life' as a value only once in an indirect context. But in the Lisbon Treaty there are several references to protecting Life that became a human right in the Charter of Fundamental Rights of the EU - Everyone has the right to life. No one shall be condemned to the death penalty, or executed. However, I think there should be two additions:

Universal Values of Humanity: LIFE	
Human Rights supported by a legal system	Category
Everyone has the right to life. No one shall be condemned to the death penalty, or executed	EU Charter
Non-biological species, as soon as they become conscious, should have their rights protected in a similar way as humans, as far as it is possible.	New rights
Humans that have their life suspended, using cryogenic or similar technologies, retain their rights as they had been alive.	New rights

Peace

Peace has to be seen as a basic condition for freedom and happiness, for without peace there cannot be real freedom. Recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world.

We consider peace as something almost always present in Europe for over 70 years. But then we forget the Balkan war in the 1990s'. How quickly we have forgotten the conflict in the Ukraine started in 2014? How safe is peace in Europe? If we do not work hard towards laying and strengthening the foundations of peace by integrating nations closer together, not against their will but by facilitating easy, unrestricted freedom of movement, goods, services and capital as well as unifying the education system and in particular the history books, there is no guarantee that peace in Europe will not be broken.

The UN Millennium Declaration mentions the protection of 'Peace' as follows: "Responsibility for managing worldwide economic and social development, as well as threats to international peace and security, must be shared among the nations of the world and should be exercised multilaterally. As the most universal and representative organization in the world, the United Nations must play the central role." ⁽¹⁵⁸⁾. There is also an indirect mention of peace in the UN Declaration of Human Rights.

In all these documents there are only declarations, but no real capability of enforcing peace (e.g. through the UN Security Council). Therefore, there should not be rights, since they cannot be upheld by laws and thus Peace in the UN Declaration is really a value rather than a right. However, the UN Millennium Declaration comes some way to declaring something that could be converted into law, had any world organization had such means and resolve to act, when it says: "We will spare no effort to free our peoples from the scourge of war, whether within or between States, which has claimed more than 5 million lives in the past decade. We will also seek to eliminate the dangers posed by weapons of mass destruction."

But there is no direct mention of Peace in the Charter of Fundamental Human Rights of the EU. This may be the result of some misconception that peace is valued at a national level rather than at both national and individual level. The reason might be that for peace to be converted into rights and then the law, one would need the way to 'enforce' it. For Humanity, it is an immensely important value. But how do you codify for it? If there is a human right to live in peace, then how could it be delivered? The answer to me lies not so much in human rights but rather in 'Humanity's right' that I have already defined in the context of the European Federation.

Universal Values of Humanity: PEACE	
Human Rights supported by a legal system	Category
All humans have the right to live in peace. Therefore, all nations have to co-operate, compromise in their rights and obligations and make any of their claims right only in a peaceful way for the benefit of the world peace.	New rights
Each country has the right to defend itself when attacked by any means possible only if the European Federation does not assist in its defence.	New rights
No country has to right to wage a war. The European Federation has the right to defend any attacked country with any means, including giving the attacked countries a military support.	New rights

National Security and sovereignty

How far should national sovereignty extend? When is it allowable for other nations to intervene inside independent states, just breaking the current UN Charter, article 2.4 ‘All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations’?

I have already mentioned how dangerous the enactment of such a law would be. However, I think it would be a lower risk for Humanity to have such an organization that would be legally entitled and capable of, for example, stopping genocide militarily, other than allow it to continue. Even more controversial scenarios might include a military enforcement by the European Federation, if other political means prove to be ineffective, to stop certain activities in a country that may endanger the entire Humanity. This could include using military means, stopping research in biotechnology laboratories on lethal viruses or bacteria, which if released by accident or purposely, could spread around the world and potentially annihilate the entire Humanity. Another example could be stopping the imminent completion of a devious Superintelligence that could conquer the whole world. The last example would be difficult to implement for other reasons. It would simply be very easy to conceal such a development. And then, how would one know that the development is nearing completion and is potentially devious. Nevertheless, these are serious questions that need to be answered very quickly indeed. The world has already intervened twice without explicit agreement by the UN: in the Balkan war and in Libya, under Khadafi.

UN Millennium Declaration covers this value quite extensively in several paragraphs, such as this: “...to make the United Nations more effective in maintaining peace and security by giving it the resources and tools it needs for conflict prevention, peaceful resolution of disputes, peacekeeping, post-conflict peace-building and reconstruction. In this context, we take note of the report of the Panel on United Nations Peace Operations and request the General Assembly to consider its recommendations expeditiously.”

But as with ‘Peace’, the Declaration has no means to enforce its will, as it was clearly evident in conflicts in Iraq, Syria or Libya. There is only one mention of this value in the Charter of Fundamental Human Rights of the EU that ‘Everyone has the right to liberty and security’ - Article 6 in Freedoms. However, to guarantee national security, the nations would first have to accept the concept of a limited sovereignty. The

limitation of sovereignty seems to me the most difficult area to be changed. Until there is an organization that would act as the de facto World Government such as the European Federation, ‘National Security’ would only have a declarative value. Only when the European Federation is operational, then the right of nations to intervene in other nations’ internal affairs under very strict rules might be considered.

As mentioned earlier, this is the ‘right’ that at present has very little chance of being introduced. But I believe it is absolutely essential. If you look ahead 15-20 years from now, then think what a national identity would really mean. Nations exist for one reason – to stabilize a society and the communities within. Once established, they need to defend themselves and cannot allow other nations to intervene in their internal affairs. However, in the world of exponential change instability rather than stability will be the norm in most domains of life in the foreseeable future. People will be much more citizens of the world rather than citizens of the country they were born in, because of global connections provided by various digital platforms as well as the ability to work, live and move to any part of the globe within 1-2 hours. Therefore, nations would play a much smaller part in people’s life. In such context, the rights of nations would also matter less.

Universal Values of Humanity: NATIONAL SECURITY	
Human Rights supported by a legal system	Category
Family and professional life	EU Charter
Social security and social assistance	EU Charter
Right for the family to be kept together	New rights
Right for the family for a proper shelter and accommodation	New rights

Family Safety

Safety has to be seen as one of our most basic human values because it is one of our most basic human needs. Millions of years ago our ancestors learned to find their safety in their social group. The value of safety should force us to co-operate because of the existential risks and other non-existential risks, such as famine, lack of basic shelter or, looking in the future, dangers that might appear with more sophisticated version of AI, even before it becomes Superintelligent. There are already two rights referring to Safety in the Charter of Fundamental Rights of the EU. But I would suggest considering two more rights as in the table below:

Universal Values of Humanity: FAMILY SAFETY	
Human Rights supported by a legal system	Category
Family and professional life	EU Charter
Social security and social assistance	EU Charter
Right for the family to be kept together	New rights
Right for the family for a proper shelter and accommodation	New rights

Nature & Beauty

The UN Millennium Declaration calls this value “Respect for nature” and summarizes well what Humanity should do about nature in most general terms: “Prudence must be

shown in the management of all living species and natural resources, in accordance with the precepts of sustainable development. Only in this way can the immeasurable riches provided to us by nature be preserved and passed on to our descendants. The current unsustainable patterns of production and consumption must be changed in the interest of our future welfare and that of our descendants.”

There is not a single human right in this area. And yet, Beauty & Nature are one of the innermost precious feelings that we humans have. Yes, we have quite significant environmental protection within the EU, which would cover most of the legal requirements of preserving Nature in its most pristine condition for ourselves, and for the future generations. Beauty comes here in the context of unique natural spots that must be specially preserved. The UN has created UNESCO that annually awards about 25 new world heritage sites, including places of spectacular natural beauty. When it was set up in 1978, only 12 such sites were named. Today, there are over 1,000.

However, what is missing is a general right enforced by law to preserve beautiful pieces of art of every kind, especially paintings and sculptures that can be hidden away for strictly private enjoyment. It is a controversial right but I think it is worth considering:

- No person can restrict access to exceptional pieces of Art, especially painting and sculptures, if they become registered as the ‘treasures of civilisation’.

Human responsibilities

The new EF constitution should embrace all the rights mentioned in the previous section. But rights are not given on a plate. Implementation of rights and their maintenance over time has a price tag attached both in monetary terms as well as in keeping the ethical balance. What I mean by ethical balance is that quite often somebody’s right is my responsibility. For example, my child has the right to be properly fed and clothed and it is my responsibility to make it happen. People have the right for emergency hospital care in case of an accident, and this is my responsibility to pay taxes due, to ensure that such a right can be materialized.

The overwhelming focus on human rights has created an unhealthy imbalance by ignoring human responsibilities. We see it quite often in courts across the EU countries, when an offender seems to have more rights than a victim. It is clear evidence of how sensible liberal values have led to so called political correctness, seriously undermining the political and social stability. The pendulum of liberalism may have shifted too far towards the rights. Therefore, I am putting forward some ideas for reducing the imbalance between the rights and responsibilities:

- Human rights have to be balanced with citizens’ responsibilities. It is inadequate to have the EU Human Rights Court, which is blind to the citizens’ responsibilities
- Countries must be able to control the free flow of EU citizens and access of EU migrants to the hosting country’s benefits

- Migration control (both external and within the EU) must differentiate clearly between economic migrants and asylum seekers. States should have full control over economic migrants to maintain the economic and cultural stability. We have to recognize and say it loudly that economic migration in large numbers in a very short time from countries with different cultures, like the 2015-2016 wave of migration into the EU, may create very serious social tensions. Asylum seekers should definitely be helped to save them from grave danger of persecution or death because they may have lost all means of survival. If the situation in their home country improves within say 5 years, they should be sent home. If they are allowed to stay longer than that, they should be offered asylum rights, naturalization and eventually citizenship in the host country. They should be reminded that they have to assimilate with the prevailing host nation's political and cultural system rather than escape to their own ghettos. Economic migrants e.g. from Africa should be helped in an entirely different way, in their own countries under a big international well-co-ordinated and controlled programme. I am putting forward a proposal on how this could be done in the final Part 3 of this book.
- Every gender has a responsibility to maintain social cohesion and observe social norms. For example, it is not helpful for the sake of political correctness to promote homosexuality as something seemingly better than heterosexuality, best exemplified by the pink parades. While granting people of non-heterosexual inclinations the same rights as everybody else, the reverse should also be the case and at least in the UK it has not been so, e.g. partnerships have been granted to non-heterosexuals but not to heterosexual couples. The same goes for racial equality. For example, black people have the same responsibility as the white people to treat other races as they would like to be treated. There should not be an exaggerated protection of any race. All races are equal.
- Governments and global companies must take the responsibility for controlling the impact of globalisation, so that its negative effects are minimized.
- Large corporations should be held legally responsible if they do not pay tax due in the country where they operate
- It is the government's responsibility to introduce tougher control of the market in general by drastically reducing monopolies, and oligopolies, but especially in the media (in the UK about 40% of all media is controlled by Rupert Murdoch and in the USA the same 40% of the media market is controlled by Comcast).

Similarly, as for the human rights related to 12 Universal Values of Humanity defined earlier, there should also be a complimentary list of Universal Responsibilities of Humanity. Let me just to give you one example for Freedom.

Freedom and safety as a responsibility

We all take it for granted that we live in peace and in relative safety within the borders of Europe. But there must be someone who delivers peace. It is the army and police

who do it. In most EU countries, compulsory military service was abolished years ago. The result of this can be seen in the way young people behave. It is great to see them enjoy such a wonderful peaceful life. But this is like giving a little child a toy. A child is unaware of what it may cost their parents. Young people are not even taught at school that, for example freedom, requires contribution both in money (taxes) and in kind (e.g. serving in the army).

However, change may be in the air. In February 2018, President Macron announced that he would re-introduce one-year compulsory military service for between 600,000 and 800,000 young people. They will have military training and spend at least a month with the armed forces. (159). A similar decision was made by the Swedish government. The conscription system abolished in Sweden in 2010 was re-introduced in 2018.

Military service is mandatory in Austria, Cyprus, Denmark, Estonia, Finland, Greece and Lithuania. In the majority of cases, it is compulsory for all male adult citizens, while women have the choice of enrolling into the military service. They can choose between military or civilian service. In 2016, Germany considered reintroducing conscription in case of national emergency, as provided by the constitution. Interestingly, in 2013 Austria held a referendum on the subject of conscription, where around 60% of the voters were in favour of retaining compulsory military service.

Of course, military service is only one of the examples of how the right to freedom should be balanced by the responsibility to deliver it. It illustrates a broader point that our societies should be re-educated in that rights do not come free; they also require us to take the responsibility for their delivery.

Chapter 4

What's wrong with democracy?

Government of the people - How did democracy begin?

U.S. president Abraham Lincoln probably gave the shortest definition of democracy as: “**Government of the people, by the people, for the people**”. Is this how you feel about democracy today? Probably not, at least if we look at how the two bastions of democracy USA and Great Britain have recently arrived at their democratic decisions. In the USA people elected Donald Trump as President (make your own judgment on the consequences of this vote for the USA and the world's politics). In Britain's Brexit referendum, which may decide the future of the country for at least a generation, the ‘leavers’ won by 52%:48%, with many voters not having any idea what it was really about and as many as 5% of the voters being illiterate (based on 72% turnout) (160). Is this a clear sign of the “tyranny of majority”, the term used already in antiquity?

But perhaps democracy has already been in such a crisis before? Undoubtedly it has made a considerable progress through the ages, becoming more sophisticated by covering more and more aspects of our lives, making us all behaving in a more respectful way and considerate in our relations with others. On the other hand, the way how real power is executed has probably not changed that much. Let's have a quick review of how it has all begun to draw some conclusions for the current problems that democracy has. My objective, as always in this book, is not to go into minute details of how democracy has originated and how it works or malfunctions today but rather find key answers in how a better world's governance and a better democratic system may decrease existential risks.

I will start with looking at the origins of the terms ‘**democracy**’ and ‘**republic**’, which today are often used interchangeably. However, in ancient times they referred to different political systems. Both ancient Greeks and Roman philosophers saw the society as composed of two distinct and antagonistic classes: the few (the rich) and the many (the poor). The word “democracy” as many other terms in politics, is of Greek origin. It is made up of two words: ‘demos’ meaning ‘the people’ and ‘Kratien’ meaning ‘to rule’. Thus literally, democracy means rule (power) by the people. Athens is considered to be the place where the earliest democratic system was established about 510 BC, although some scholars say the roots of democracy can be traced back perhaps 100 years earlier to Persia, Mesopotamia and India. Greece was at that time a collection of about 1,500 ‘cities’ called ‘poleis’ scattered round the Mediterranean and Black Sea shores. About 400 BC there were already hundreds of Greek democracies. Those cities that were not democracies were called oligarchies. There, the power was concentrated in the hands of the richest citizens. There were also monarchies, called ‘tyrannies’, where power was held by a sole ruler who managed to get that power by force rather than inheritance. The oldest and the most stable of those democracies was the **Athenian democracy**.

So, what can we learn from the Athenians? The type of democracy that emerged in Athens was what we call today, a direct democracy, a system where every individual could participate directly in making decisions on most policies. To be eligible to vote, the voter had to be an Athenian citizen and a male over 18 years old. At that time there were about 300,000 people living in the Attica, the very south of Greek mainland, including Athens. Of those, 100,000 were slaves, about 25,000 metoikoi (foreigners trading in Athens) and about 125,000 free women and children. That leaves about 50,000 eligible voters in the whole of Attica, i.e. at most 20% of the population. Each of them could participate about four times a year in the highest forum of the nation, the ecclesia or assembly, which met on a plateau hill called Pnyx in Athens. Not everyone eligible came to the assembly. When important issues were decided, only about 5000 citizens came to attend the assembly. To encourage the voters to come, from about 400 BC those coming to the assembly were paid for their attendance, to compensate for the loss of working time.

At its most advanced stage, the Athenian democracy introduced certain political customs and institutions. These included written laws, the freedom to speak in public, the payment of elected officials, voting by lot, even voting using machines. There was a limit to the number of terms in the office and, believe it or not, the procedures for a recall of elected officials and the impeachment procedures. There was also a formal trial before elected or selected juries for those who committed a crime. The Athenians quite frequently used a lot system, unique to direct democracies. In this system, important governmental and administrative tasks were performed by citizens picked by a lottery.

The Athenian democracy suited well the conditions in Athens at that time. The community was small enough, so that every individual could participate in a debate and cast his vote, almost ideal for a direct democracy system. Unfortunately, the great experiment with democracy basically ended with the death of Alexander the Great (who was the king of Macedonia). Seeing their chance to govern themselves the Athenians rebelled against the Macedonians. They lost in 322 BC and the Macedonians placed a garrison in Attica and imposed an oligarchy regime, which only gave the rich the right to vote. This situation remained largely unchanged until the conquest of Greece by Romans at the battle of Corinth in 146 BC.

So, what can we learn from the Romans? The Romans themselves set up a democratic system around the same time as the Greeks. That system was based on different principles. From 510 BC the citizens of Rome won the right to elect their own officials, called 'tribunes'. That is how the foundations for the Roman Republic were laid down. The term Republic or Respublica comes from the Latin word "res," meaning thing or matter, and "publica," meaning public or common. The republic, therefore, meant the public matter, the thing that is of common interest to the people.

Every Roman citizen was a member of a tribe (he was allotted to a tribe if he was not a citizen at the time of his birth). Free Roman citizens that did not have any meaningful wealth were called plebeians (plebs), as opposed to patricians (land owners and people

of some influence). The votes of the plebs were registered not individually but as a collective decision of a tribe (an indirect voting) to elect their tribune. In practice, the votes of the people were expressed in the power of their elected tribunes, who gradually became key figures within the Roman oligarchy.

The early Republic comprised of a consul, a senate and an assembly. To become a senator, a candidate had to be worth 100,000 denarii in the value of his land or other assets, be born of an aristocratic family and should have held public office at least once before. Roman citizens were gradually gaining more influence, which in 287 BC culminated in a new law establishing people's assembly. The people of Rome through assemblies had the right to give their views on capital punishment, declaration of war and peace and creation of alliances. The assembly didn't have much power and its decisions became law only when the assembly was summoned by the magistrate (one of three levels of governance).

This is one of the most important differences between the ancient Greek democracy and ancient Roman Republicanism, which was supported by their respective **institutions**, for example:

- **Magistrates.** Roman magistrates had a function similar to today's central and local governments.
- **Tribunes.** There was no such institution in Athens, since it was a direct democracy. Tribunes in Rome were not ruling the magistrates, they didn't have executive power but they could block the decisions of the magistrates.
- **Collective voting:** Roman Citizens voted in groups, rather than as individuals, like in ancient Greece. There were two different groupings: by 'centuries', a grouping based on property qualifications, or by 'tribes', a geographical grouping. Both bodies could enact laws. (161)

The other difference between the Greek and Roman systems of democracy was **complexity**. While the Roman Republic was constantly evolving over time to reflect social and political changes until Cesar became the first Emperor, the Greek democracy was rather static and perhaps that was one of the reasons it practically ended after about 200 years.

Overall, the solutions proposed by the Greek democracy were different from those proposed by the Roman republicanism. The Athenian Greeks had a simple principle: **democracy was the rule of the many over the few**. In Rome, the few were the patrician class represented by the senate, an exclusively aristocratic institution. The plebeians had their own institutional source of power in the councils and popular assemblies. The Roman system **allowed both the few and the many to take part in the political governance**, thanks to multiple institutions. In that way, the ancient Rome achieved a certain degree of stability by giving both the masses and the elites some institutional stake in political power. However, the role of the Roman voters was much less important than those in Athens.

Most modern systems tend to be far more ‘Roman’ than ‘Athenian’. The legal systems of most democratic countries are largely founded on maxima Romana (Roman doctrine), e.g. habeas corpus (which in legal context means a recourse in law, through which a person can report to a court an unlawful detention or imprisonment).

Democracy as a system has been a major bootstrap for civilisation. England, being the prototype of modern democracy has become the largest economic and political power in human history partially because of a relatively better system of self-improving democracy than their competitors, such as France, Spain or Holland. Democracy would have not been possible without freedom in the most general sense. It is freedom that gives people a **free choice** to elect their representative irrespective of race, belief, religion or sex. One of such rights is the **right to deselect current government**. **Fair justice and equal rights** for everyone is another corner of democracy that ensures that nobody is above the law. That fairness of justice and equality underpins another pillar of democracy - **equal opportunities for everyone at birth**. In an ideal state this ensures people have **really economic and social freedom** – to live as they wish as long as they do not harm others.

The principles of democracy

Before we identify what’s wrong with democracy and what are the underlying causes of the crisis, let me present an ideal picture of what democracy should deliver. One of the best sources is the International Institute for Democracy and Electoral Assistance (International IDEA), an intergovernmental organization that supports sustainable democracy worldwide, and which has an observer status in the UN General Assembly since 2003. They produce an annual index of Global State of Democracy, which depicts democratic trends at the country, regional and global levels across a broad range of different attributes of democracy for 155 countries. The data underlying the indices is based on 98 indicators (democratic principles) devised by various scholars and organizations. Below is a summary of those indicators (162).

The Democratic Principles		
of International Institute for Democracy and Electoral Assistance		
Attribute	Subattribute	Assessment question
1. Representative Government (free and equal access to political power)	1.1. Clean Elections	To what extent are elections free from irregularities?
	1.2. Inclusive Suffrage	To what extent do all adult citizens have voting rights?
	1.3. Free Political Parties	To what extent are political parties free to form and campaign for office?
	1.4. Elected Government	To what extent is access to government determined by elections?
2. Fundamental Rights (individual liberties and resources)	2.1. Access to Justice	To what extent is there equal, fair access to justice?
	2.2. Civil Liberties	To what extent are civil liberties respected?
	2.3. Social Rights and Equality	To what extent are there basic welfare, and social and political equality?
3. Checks on Government (effective control of executive power)	3.1. Effective Parliament	To what extent does parliament oversee the executive?
	3.2. Judicial Independence	To what extent are the courts independent?
	3.3. Media Integrity	To what extent are there diverse, critical media sources?
4. Impartial Administration (fair and predictable public administration)	4.1. Absence of Corruption	To what extent is the exercise of public authority free from corruption?
	4.2. Predictable Enforcement	To what extent is the enforcement of public authority predictable?
5. Participatory Engagement (instruments of and for the realization of political involvement)	5.1. Civil Society Participation	To what extent do people participate in civil society organizations?
	5.2. Electoral Participation	To what extent do people participate in national elections?
	5.3. Direct Democracy	To what extent are mechanisms of direct democracy available and used?
	5.4. Subnational Elections	To what extent are there free regional and local elections?

On the scale of 0 (the worst) to 1 (the best), the EU and most western democracies scored quite well in 2015. On clean elections they scored about 0.85 as opposed to China (0) or Russia (0.42). Similarly, on fundamental rights the western democracies scored 0.82, and even more (0.92 for Scandinavian countries) versus China (0.42) and Russia (0.41) with Sudan at the bottom of the scale (0.29).

People feel that they have a democracy because they have free elections. But over 200 years ago Jean-Jacques Rousseau commented on the British elections, saying they were no guarantee of liberty: “The people of England deceive themselves when they fancy they are free; they are so, in fact, only during the election of members of parliament: for, as soon as a new one is elected, they are again in chains, and are nothing.” We seem to forget that elections are just a means of taking part in democracy, whereas we see it as an absolute, fundamental doctrine that has an intrinsic value itself. True, elections can lead to the change of government, resulting from public electoral debates. However, if you look closely you can see that the whole process is tightly controlled by the teams of professional experts supporting the competing parties who feed the media and the electorate directly using most sophisticated socio-political techniques of persuasion.

The most popular politicians are those who manage to change the script of the debate during an interview or an election debate by reframing the debate and thus either dismissing the issue or changing it to the subject where they have the chance to push their own issues, sometimes in a very populist and dogmatic way. Citizens play largely a passive part in the election debate, led only to the subjects convenient to be discussed from the point of view of a given party. We are thus slowly entering the new era of **post-democracy**, a term coined by the British sociologist Colin Crouch. In broad terms, post-democracy means selecting representatives once every few years during the elections, which is itself rather an art in convincing the electorate about undeliverable promises. One of the most significant characteristics of post-democracy is that the objective of the party in government is not so much implementing “the will of the people” but rather winning the next election.

Probably one of the best illustrations of post-democracy was in Italy under the presidency of Silvio Berlusconi, who went as far as creating laws that protected him. And all that happened in the democratic European Union, without any serious debate by the Council of Europe and no financial or political consequences for Italy as a member of the EU.

Such potential problems with democracy and rule by the majority were considered by a number of Enlightenment philosophers such as already mentioned Jean Jacques Rousseau or political theorists such as Alexis de Tocqueville. The latter one discusses the pros and cons of democracy in his “Problems of Democracy”. He argues that democracy is the ‘tyranny of the majority’, repeating the claim first used by Aristotle against the Athenian democracy and also by other philosophers such as John Stuart Mill in his famous 1859 book “On Liberty”. That does not mean that Tocqueville opposes democracy as such, but rather the excess of power held by any group or individual. One of his observations is that **if a decision taken by a majority, which might have not properly understood the issue (think about Brexit) is evidently wrong and harmful to all, a minority that lost in the elections cannot turn to any public legislative body or executive power to correct that decision.** People who may think democracy always provides sensible and just outcome should consider these facts. Hitler, Mussolini, and Peron were elected democratically but only once, when they took over the power.

The tyranny of majority can be best illustrated by the following hypothetical situation. There are three people at a café. When it’s time to pay, two of them agree that the third one is to pay. Is it fair? This is not so far away from reality if we consider that in most developed countries about half of the electorate does not pay any taxes. The tendency is that more and more people do not pay anything into a common pool of resources to safeguard the interests of all. For example, in the UK in just 8 years (2008-2016) the number of people paying no tax has increased by over 10% (from 33.4% to 43.8%) What interest would these no-tax-paying voters have to change that situation? (163) What it says is that the main problem with democracy is human nature itself. At rock bottom, we as humans are driven by Darwin’s maxim “survival of the fittest”, in which

efficiency of acquiring the necessary resources for survival (i.e. using the lowest level of energy) plays a key role.

So, do we have a crisis of democracy? Well, just look around. Value crisis begins when the practice of members of society starts deviating from the values, they hold dear. When there is a general acceptance of corrupt practices and unethical activities, then society as a whole is in value crisis. It creates a new norm of tolerating dishonesty, lies and immoral behaviour. In the contemporary world, there has been a gradual deterioration of moral and ethical norms. It is this deterioration in upholding values that are the foundation of moral and social conduct that lie at the core of the current crisis of democracy.

Additionally, the electorate in many democratic countries has become far less knowledgeable about political issues, partly because of the world becoming far more complex, change happening much faster than ever before and the education system not providing proper support either in the type of subjects or number of hours dedicated to social and political affairs. Democracy requires rational debate based on facts that are truthfully conveyed to voters. When this is not present and democracy is substituted by populism and fake news, there is a real danger that xenophobia and nationalism may lead to the emergence of autocratic or even dictatorial regimes. Therefore, the fact that the western countries score so well in the IDEA's index does not mean that people feel all is well with democracy.

The World Values Survey, mentioned earlier, seems to confirm this view. A few years ago, they ran a large-scale international research project, asking 73,000 people in 57 countries if they believed democracy was a good way to govern a country. Nearly 92% said 'yes' (confirming IDEA's index score - TC). But that same survey found that in the past 10 years, around the world, there has been a considerable increase in calls for a strong leader "who does not have to bother with parliament and elections". That trust in governments and political parties has reached a historical low. People like the idea of democracy but loathe the reality (164).

Therefore, we should re-define what a democratic system is and how it should be practiced to make it consistent with the core Universal Values of Humanity discussed earlier. They should form key principles for a new type of democracy. I will use them as the foundation for selecting the best type of democracy for the future European Federation.

Structural faults in democracy

Democracy at a turning point

Democracy to work properly (especially in direct democracies) requires much better-informed voters, who would realize the profound impact that unbiased information sometimes has about a party they wish to support. The rapid turn from a liberal democracy in many Western countries to far right and near-autocratic government is not accidental and I discussed that in Part 1, chapter 7 on Global Disorders. We have

plenty of recent examples. Turkey, which till about 2010 was being seriously considered as a future full member of the EU is now an autocratic regime. France, Italy and even Germany were all under a threat of the power being taken over by extreme right politicians using populist promises to win votes. In Austria, Hungary and Poland we actually have far right governments. Russia is, and probably will remain, for the next generation an autocratic, if not a dictatorial, regime. And on top of that, democracy is at a dangerous point even in the oldest democratic countries such as the USA and the UK.

I shall now look more closely at the reasons behind that change, although as in other areas covered in the book, it will be just a scanning of the landscape.

Political elites – ‘Us versus Them’

The faults in the democratic system have been with us for quite some time but they became more obvious with the arrival of new techniques for manipulating voters in fast and inexpensive ways, such as via Twitter. The financial crisis of 2008 and the following austerity accelerated the widening of those tectonic shifts and became the source of the current wave of populism. The poor feel they paid for the greedy bankers. The impact of globalisation, the rise of ‘false facts’ and of ‘click-journalism’, the widening gap between the richest and the poorest, the simple desire to give politicians a kicking, all of these have been identified as likely causes for the rise of populism. Its most obvious manifestations were in the UK’s EU referendum result and, in the US, the election of Donald Trump. Few doubts that there will be more examples of these trends in the future. These are plausible causes, but the true drivers of change are ill-understood and barely-discussed. It is the job of strategists to help political and business leaders to understand what is happening and to formulate plans to make resilient and better futures.

On the other spectrum of the democracy crisis we have the imbalance of rights and responsibilities, freedoms and restrictions. All of us would love to have unrestricted freedoms but from today’s perspective it is a dream. Freedom to sail on the free Internet is just one such example. That is what we do daily, where we provide our private details to a company that gives us a ‘free’ application in return. That ‘return’ could be a restriction to our freedom to privacy in various aspects, including knowing our voting preferences. That’s what was discovered in March 2018 in the Cambridge Analytica and Facebook scandal. Both companies are suspected of stealing personal data of about 50 million users to enable political parties to carry out personalised marketing campaign to impact the outcome of Brexit and the presidential elections in the USA in their favour.

This is how those seeking power, get there by using sophisticated socio-technical tools, which in the end deliver to them the votes of the voters, who cannot clearly see the real intentions of those that will govern them. The voters who feel cheated will later on complain that ‘they’ – the politicians - should never be trusted, since they just cannot understand ‘us’. That is one way to build a society of ‘us versus them’.

It is only a short connection from ‘us versus them’ to the next idiosyncrasy of our democracy, to another convenient sticker that has been skilfully used by various populists. It is the use and abuse of the ‘elite’ label by both wings of politics trying to blame the elite for their voters’ misfortunes. The left stands behind the ‘poor’ people shouting – look, it is the elite that only care for their interests. They will never understand your needs. Those on the right shout to their middle-class voters – can’t you see the elite favour the poorer and all those migrants for whom you have to pay.

In political science and sociology, there is the ‘elite theory’, which seeks to describe and explain the power relationships in contemporary society. It argues that democracy is either a utopian folly, as it has been traditionally viewed by the Italian conservatives, or that democracy is not realizable within capitalism, as is the view of most Marxists. The theory posits that through positions in corporations or on corporate boards, members of the elite are able to exert significant power over the policy decisions of governments. An example of this can be found in the Forbes magazine article (published in December 2009) entitled ‘The World’s Most Powerful People’, in which Forbes lists 67 most powerful people in the world (assigning one "slot" for each 100,000,000 of human population) (165).

The hate of the elites is an instinctive fear among many who believe the elites consider themselves morally superior to other human beings. But that hate and mistrust goes much deeper, as some philosophers such as Kevin Williamson have argued. It is the conviction of the ‘have nots’ that modern intellectuals and elites have a condescending view that they (the Elites) not only know better how people should live their lives, but also how to run lives of the ‘have nots’ down to a minute detail.

These assertions have some merit, especially if we narrow them down to political elites. However, I do not believe that society could survive without political elites. Humanity needs ‘elites. If we did not have them, we would have not survived, as other anthropogenic species such as Neanderthal. It is the elites who may save us. But the elites need to change.

We need elites who can effectively manage the government on behalf of the people in all aspects of life, e.g. running the economy, passing and enforcing the law, maintaining our security and safety with the help of the army and police, educating the next generation, etc. We need people who can use their years of education and experience to run very complex systems of modern life better than most of us can. But at the same time, they should not so much run our lives, but rather properly manage what Rousseau first called, the social contract. Therefore, I believe the solution is not to get rid of the elites altogether, but rather have better elites, so that they execute their tasks far more effectively and justly. In practical terms I would suggest several ways to achieve that objective:

1. Increase the separation of powers. I propose in detail later on, how a new system of democracy, which I call Consensual Presidential Democracy, can achieve this. Basically, we need the political elite to become almost exclusively the law makers and leave the running of the government to experts and technocrats.
2. Reduce the maximum number of terms that an elected politician can serve, to two. I was recently at a debate in the UK Parliament on the crisis of democracy. One of the politicians suggested that there is nothing wrong in being a 'career politician'. After all, it's a profession like many others such as doctors or engineers. Well, I would strongly disagree with such a view. Politicians are our representatives and there is only one elected representative for a given ward or electoral district. You can change your doctor or an architect, any time you want. But you cannot do so with a politician, unless he is recalled because of misconduct.
3. Increase the accountability of politicians. The elites who are in power and are to serve us, are also humans. They may be brighter, more intelligent and knowledgeable than an average citizen, but they are humans like you and I. So, they are also driven by their greed, need, and fear. They cannot be left on their own but have to be controlled by a much stronger system of accountability.
4. Make a thorough review of the lobbying system
5. Reduce the party funding by individuals to say, an average monthly salary, and finance election campaigns from a public purse.

We need to make the elites more accountable and more trustworthy, rebuilding the fabric of society for the 21st century. The way those who govern us must change by working in the interest of all of us, rather than primarily in the interest of the elites. How to do it, is one of the main themes of this book.

Generational Divide

To understand the drivers of change in democracy we have to identify some structural faults that need rectifying if the democratic system is to survive. Sean Lusk, author of 'Rethinking Public Strategy' (166), sees the cause of the current crisis of democracy in several areas, to which I add comments by other authors as well as my own to make them more relevant in the context of this book. Let us look first at the Generational Divide.

There is a kind of 'generational war', in which younger people fight older people for scarce physical and social resources as lifespans lengthen. Think about the current problems in many European countries in financing the Health Service, paying for residential homes, lengthening the retirement age and increasing the payment for retirement by mainly younger people. On the other hand, in western democracies, financial and political power belongs predominantly to older people. Of course, I would not suggest that all older people have all the power, only a relatively small minority has it. Property is in the hands of the old, while student debt is mounting, older people have pensions and they are staying longer in the jobs. Younger people are facing the problem that the house prices are rising much faster than their salaries, and more of them are unable to own their house. That's why home ownership, e.g. in the UK is

falling. The consequence of this is that younger people feel they have little stake in the societies, of which they are members, and therefore begin to stop caring about the future of the society they will be living in. That's why they participate in the elections in ever smaller numbers, being outvoted by the older people. To change the situation, governments need to better balance the proceeds from economic success between the current and the future generations.

Social atomisation

The neo-liberal period, which some people call Reaganomics has been dominant since the early 1980s. In most general terms it intended to promote individualism and corporate power over state power, or other forms of social organisation. What was less foreseeable in the early 1980s was the impact of technology and, in particular, of the Internet on, what Sean Lusk calls, social atomisation. It is not simply that people form communities using social media in preference to more conventional forms. It is the increasing commoditisation of social discourse, which is having the biggest impact. Almost everything that once required a meeting, a commitment of time and often of negotiation, can now be dealt with in a couple of clicks transaction. This brings great advantages. But it also turns us all into customers, with high expectations and minimal obligations.

The combinatorial effect of Generational Divide and Social Atomisation on current trends destroys the notion of citizenship as it has been conventionally understood for generations. Older people hope to live for decades more: their sense of obligation to younger people is limited by the general human reluctance to give away existing advantage. We hope, naturally, that our children and our neighbour's children will do well in life. But what are we prepared to do about it? Very little, it seems.

Political symmetry

In the last few years, we have a new term in politics – political symmetry. What it means is that most voters consider that each party is essentially the same, on average bad and, with no real intentions to realize the promises it has made in its election manifesto. At the same time, there are parties and electoral programmes that are substantially inferior relative to other parties, more detrimental or even dangerous from the point of view of the voters. How can you compare the Weimar Republic's election programme with the programme of the Nazi Germany's NSDAP party, or in the most recent USA elections – the programme of Donald Trump with that of Hillary Clinton's? In order to make a reasonable choice you would have to know a lot more.

But politics has become so complex that to arrive at the core truth based on an exchange of arguments during a debate would take a lot of time and require considerable broad knowledge in many interlinked areas. Not every voter has that knowledge and time to listen to the whole argument and then be able to make a rational choice. And that is the problem in modern societies, especially during election campaigns, which populism skilfully uses to win votes. It simplifies the issues being debated, by either telling half

of the story convenient for populists to convey their message, mostly true, and totally omits or distorts the other half, far more complicated, which if told would have completely reversed the original conclusion. One of the best examples is how in 2016 the BBC reported two sides of the Brexit campaign. It tried to stay impartial by giving each side the same time for reply, and ensuring that each side had the same chance to present its argument. In such a situation, the Remain campaigners, whose arguments required far more time to explain a problem because of its complexity, had seldom any chance to explain the real issue properly.

One of the questions you may have is how can democracy survive such pressures that come to the fore very clearly during the election debates. Should every voter, including those that have hardly any knowledge, or are illiterate have the same electoral rights, as the ones who have a much better judgment? It is a difficult, almost existential problem for democracy, which should not be ignored. We shall return to this issue when discussing electoral systems.

Clinging to power

In most countries, including the UK, there is no limit on the number of parliamentary terms. The main goal of most politicians is to get into power and cling to it. Most recently it has been exemplified by two attempts to restructure the working of the British Parliament. In 2012 the coalition government started talks on implementing the Liberal Party's proposal to "Replace the House of Lords with a fully-elected second chamber, with considerably fewer members than the current House" (167). The proposal fell due to procedural motions to camouflage the real intention to never pass the bill in the first place, since many of the current Lords would have lost their positions. Even more incredible is the attempt to change the boundaries of the British electoral wards, so that they are approximately equal in the number of votes. Such a logical proposal has been opposed by the Labour Party, using every political gimmick to pretend they have noble intentions, simply to guard its interests of clinging to power. Otherwise they would lose about 50 seats should the proposal become law.

Corruption

It was Lord Acton, the 19th century British politician, who said "Absolute power corrupts absolutely" and that applies to the majority of the countries, which consider themselves democratic. The best example today is Russia, which is formally a democratic country but where almost absolute power is held in the hands of the president - Vladimir Putin. In March 2018 he won another 6-year term, mainly by having almost total control of the media, with 75% majority (no significant manipulation of the result occurred). No wonder Transparency International ranked Russia at position 131 among 176 countries (168). The USA is another good example. As in all democratic countries a representative to the Senate or the House of Representatives is elected for a specific period. Even if he is a billionaire, like the current president Donald Trump, there is a tendency to make money by the use of power (e.g. Dick Cheney, Vice president in the Bush administration). Sometimes such

corruption happens on a gigantic scale, all absolutely legal, simply by first lobbying for, and then being granted certain rights that large corporation would gain from (e.g. tax exemptions). Once the senator is out of politics, he is rewarded by multimillion chairmanships in organizations he helped during his political term in parliament.

Political Dynasties

Examples of political dynasties in democratic countries are plentiful but the USA and the UK are probably best known. I quote just the names: Joseph Kennedy (USA ambassador in the UK before the 2nd WW) – John Kennedy (the 35th US President) – Edward Kennedy (Senator) – Caroline Kennedy (John's daughter – US Ambassador in Japan); George Bush (43rd US president) – George W Bush (45th President) Jeb Bush (43rd Governor of Florida and presidential Candidate). Bill Clinton (42nd US President) – his wife Hillary (Senator, Secretary of State, and twice presidential candidate). In the UK, there are at least 90 families, of which members were propping up each other in politics, such as most recently the Miliband brothers. This is ten times more than in France (9 families). Nepotism in the UK has reached such a level, that there is a new law proposed to curb it. In 2012 there were 151 of the 650 MPs at Westminster who were employing family members using their allowances for staff, according to the Press Association. The practice is common across parties with, for example, 84 Conservatives and 50 Labour lawmakers employing a spouse or relative.

Long decision-making period

Most politicians would say this is the price we pay for having a democracy. Let me do a quick comparison between China, an autocracy, and the UK – the oldest modern democracy. China makes decisions and delivers the results several times faster than established democracies. For example, China built an airport in Shanghai for 20m passengers in 2 years and for 80m passengers in 9 years. For comparison, London Heathrow's third runway has been in planning for at least 20 years and will be completed, if everything goes OK, in 30 years since the planning begun. The HS2 railway in the UK of the total length of 531km, is to cost £56bn and will take over 20 years to complete. For comparison, the Beijing–Shanghai high-speed railway is 1,318-kilometre long (2.5 times longer). Its construction began on April 18, 2008 and opened to the public for commercial service on June 30, 2011, just in over three years. This rail line is the world's longest high-speed line ever constructed in a single phase and China's most profitable high-speed rail line.

Is there any alternative to democracy?

The weaknesses of democracy mentioned in this chapter are only a few of many. So, what shall we do about democracy – abandon it and replace it with something that might work in these difficult times, i.e. by a benevolent autocracy? This is a temptation one might go for, which would more or less mean applying the Roman Republic's rules with the Cesar and the Senators making 'best decisions' in the name of the plebs. Over the centuries there have been a number of such examples:

1. The Soviet Union with its First Secretary and the party ruling in the name of the Proletariat, justified as the Party claimed, because otherwise the capitalist class would keep oppressing the masses
2. Hitler and the NSDAP Party (which also had ‘socialism’ in its name) ruling on behalf of ‘Deutsche Volk’ – justified by Hitler saying that Germany needed more territory to expand (Lebensraum)
3. What may surprise you, even the French president de Gaulle’s rule in 1959-1969 might be considered autocratic. His justification was that France was in existential danger because of the war in Algeria and the frequent changes of the government
4. Current Chinese autocratic rule, modelled on the Singaporean autocracy/semi-democracy introduced by Lee Kuan Yew, may be considered a system, in which the ‘elite’ knows best what is good for the nation
5. Even today, in view of climate change existential risks, there are people like James Lovelock, the author of the well-known concept of Gaia – mother Earth, and Martin Rees, former UK Astronomer Royal, who advocate a view that perhaps democracy should be postponed ‘for a while’ because the danger for Humanity is so imminent and catastrophic, that an authoritarian rule may be a lesser evil.

But then, Winston Churchill in his famous statement said that “Democracy is the worst form of government, except for all the others”, and I would agree with him. That does not mean that an authoritarian rule for the world may never be an option to save Humanity. After all, I have put China in the subtitle, as the last resort, a lesser evil for Humanity. Scenario 3 in Part 3 presents such a plausible model. However, we should at least try our best for as long as it is possible, to improve democracy to save Humanity, rather than reject it, and that’s what a large part of this book is about.

How can we cure the faults in democracy listed earlier? I believe we need to ask some very difficult questions regarding democracy, some of which may undermine our current understanding and acceptance of democratic principles present in various constitutional and legal systems world-wide. The challenges we face today are in some way similar to those ones the world was facing when it was entering the Second World War. If you imagine what it was like in 1939 when Europe had to fight the most horrible war in history, or like in 1940 when Britain was preparing to defend itself with all available means, then it may be easier for you to understand the necessary measures that may have to be taken to save us all. This applies only that extends not just to direct defence against various risks e.g. Superintelligence.

Further on, I have proposed some improvements to the democratic system, most of which could be implemented straight away, if the politicians had the will power to do so. Since most of these reforms, and similar proposals, go against the politician’s personal interests, they may probably only be implemented under duress (social revolution) or when one of the existential risks materialises. However, we should try to advance as many of the changes proposed here, or by other researchers, as soon as possible to reduce the scope of democratic reforms that may be needed when we will be forced to do so. This includes tasks related to saving Humanity from various existential risks, including Superintelligence, which is the core subject of this book.

Chapter 5

The pros and cons of various types of democracy

Constitutional Monarchy

Countries which have a monarch as the head of state and a government elected by conducting free elections are called a constitutional monarchy. There are 26 monarchies around the world, 12 of them in Europe. Some monarchs are the head of more than one state, e.g. the British monarch is the head of state in 17 countries, including Canada and Australia. Monarchies are a variant of a republic. A constitutional monarchy resembles a republic because the constitution (written, or unwritten as is the case in the UK) has been amended to remove power from the monarch and install institutions conforming to the principles of republicanism. What makes a monarchy different from a republic is that laws are enforced with royal authority.

Constitutional monarchy is definitely not the system suitable for the European Federation for two reasons:

1. The sovereign power is in the hands of a monarch and not the nation
2. It would not be suitable because of the lack of significant powers that the head of state must have in case of emergency

The only exceptions are Norwegian, Swedish and Danish Constitutional Monarchies which have created a unique system of governance. The largely informal role of the monarch is to be the key mediator between parties ensuring that political decisions are reached through consensual, rather than an adversarial approach. This feature might be very useful for the future European Federation (EF).

Direct Democracy

Direct democracy is the type of democracy, in which all eligible citizens can participate in the decision-making process personally, rather than through their representatives. In a direct democracy voter have the power to initiate or amend the legislation, change constitutional laws, propose certain initiatives or referenda through petitions, or remove elected officials before the end of their term. The best example of direct democracy is Switzerland, although in strictly legal terms it is really a semi-direct democracy.

Since its existence as a modern federal state in 1848, it has seen 580 citizens' initiatives and referenda. In such a democracy, at a federal level, citizens can propose changes to the constitution or ask for a referendum to be held on any law voted by the parliament. On average, there are 9 referenda every year in Switzerland - 180 over the last 20 years (169). Referenda, which are the main tool of direct democracy, may not represent the voice of the whole population, since the better-educated members of society are more

likely to take part. However, in an average Swiss referendum 50% of eligible voters participate, and annually about 80% take part in at least one referendum, which is much higher than a typical turnout in a German or the UK election. Although Swiss direct democracy has been criticised for ‘boring’ voters with too many referenda (which need 50,000 votes to be organised), overall the Swiss system produces the highest number of people trusting the government among the OECD countries (170).

A similar system exists at a state level in the USA, where over half of the states and many localities provide for citizen-sponsored ballot initiatives and the vast majority of states allow for referenda. In Iceland, (population 350,000) anyone can propose ideas for improving the capital city Reykjavik or allocating its infrastructure budget. The most popular ideas are then submitted to the city council. The scheme has been remarkably successful: 58% of the city’s people have taken part so far and 200 of their proposals have been adopted by the council (171).

For a direct democracy to work, it has to be truly direct at a certain level. In modern societies, which are linked by powerful networks and mobile phones connecting each other, direct democracy can be transformed into a practical and cost-effective decision-making system, in which participation is as real as it can be (see e-democracy below). That of course would also require deep education in communal and governmental matters that would go far beyond what is being taught at school today. Additionally, for people to ‘live’ democracy they must see the effect of their decision making very clearly either through direct inspection, if it is a new road built in town, or through attending assemblies real or soon to come, virtual, where the decisions taking effect at a national level can be verified and criticised, identifying the scope for improvement. Of course, not every decision, especially at a national level can be viewed or verified, i.e. in foreign policy, national defence etc. What I am talking about is a general process of decision making, which naturally will, and must have, exceptions.

Direct democracy can have some significant flaws, like those existing in the Swiss system. In theory, citizens can raise any initiative they want and some of them may infringe fundamental principles of international law like torture or slavery. If that happens, the Swiss parliament may declare such an intended referendum null and void. However, if the referendum infringes existing Swiss laws or is incompatible with the Swiss constitution, then there is no preventive judicial solution in the Swiss law, since Switzerland does not have a Supreme Constitutional Court. On the other hand, should such a problem really occur, then the Swiss need to organize just another referendum to amend the Constitution and set up of such a Court.

In summary, some form of direct democracy might be considered as the best option for the EF if it is combined with a presidential system of government because:

1. It would provide true citizen participation at almost every level through e-democracy (discussed further)
2. It would lead to a better consensus of all citizens

3. It would drastically reduce corruption, if combined with the reformed electoral system e.g. maximum two terms for an MP.
4. Technology could provide additional support for some policies, like immediate dismissal of an MP by his voters, enabling smooth rotation of executive roles, etc.
5. It could be the fastest system to get the consent of the electorate on urgent matters.

Parliamentary Democracy

The most common type of democracy is **Representative democracy**, in which all eligible citizens have active rights (anyone can be elected to the parliament if he gets sufficient number of votes) and passive rights (any adult can participate in the elections). Political power is exercised in a Representative Democracy indirectly through elected representatives. Most western countries are representative democracies. There are two types of Representative Democracy: Parliamentary Democracy and Presidential Democracy.

In a typical **Parliamentary Democracy**, representatives for the parliament may be elected by a particular district (ward or constituency), or represent the entire electorate through proportional systems (e.g. voting for a party list). In some representative democracies major decisions can be made using a referendum, like the most recent UK decision on withdrawing its membership from the European Union (Brexit). The way Representative Democracy works in practice can lead to some inconsistencies in how the representative of the electorate (a member of parliament) makes a decision. In theory, he should, at least in major decisions, follow his voters' wishes, or deliver the promises made in the party Manifesto. However, some MPs retain the right to make their own judgement on what is best for their constituents and may vote differently to their electorate's expectations and this is how I feel it should be. MPs are, after all, not delegates of their constituency, as it used to be in ancient Athens, or the tribunes in Rome, to vote exactly as authorized on an issue. They represent their interests in all matters using their best judgment.

In a Parliamentary Democracy, the day to day governance is executed by ministers and their decisions are continually checked by the parliament, which retains the right to dismiss a Prime Minister at any point in time by raising the Vote of No Confidence. Most countries have elections at regular intervals say every 4-5 years, but in some, e.g. in the UK, the Prime Minister can call an election whenever he or she so chooses (2/3 of the votes in the parliament required since 2017). In a parliamentary democracy, power can also be executed by a minority government. In such cases, the largest party that does not have the overall majority may govern based on a "vote by vote" support by one of the minority parties.

The most significant difference between a Parliamentary Democracy and a Republican system, which is another form of representative democracy discussed below, is that a representative democracy is a 'rule by the omnipotent majority'. In that democracy, an individual, and any group of individuals composing any minority, have no protection

against the unlimited power of the majority. It is a case of Majority-over-Man, or as some people say, the “Tyranny of Majority”.

Parliamentary democracy is not the right type of governance to fulfil the purpose of the European Federation for the following reasons:

1. It is the rule of the majority over the minority, whereas to function effectively and in the greatest possible harmony, it should take by law the interests of a minority and seek an overall consensus, such as in the Scandinavian model of democracy
2. The fact that the Prime Minister and the government can be voted out at any time by the parliament may lead to political and social instability of a country
3. Decisions in parliamentary democracy take much longer than for example in a Presidential Democracy

A Republican system of government

The difference between a Republican system of governance and the Presidential Democracy (discussed below) is that in a Presidential Democracy the Head of State (the President) is always directly elected by the citizens and always directly elects ministers or elects the Prime Minister, who then elects the ministers. The second difference is that in a republican system the government may fall within a given electoral term, whereas in the presidential system the same head of state can elect another government (like in France, which would have to be approved by the parliament) or change ministers (like in the USA).

A **Republic** is the opposite of the system it first substituted – the **Monarchy**. It is a form of government under which the head of state is not a monarch. Perhaps the best example is a period between 1649 and 1660 in English history, when with the death of King Charles, I, England became a republic known as the Commonwealth ruled by the Lord Protector - Oliver Cromwell. The primary positions of power within a republic are not inherited, but are attained through elections expressing the consent of the governed. Such leadership positions are therefore expected to fairly represent the citizens of a nation. Most modern republics came into existence when a Monarch – the Sovereign was substituted by a nation as a Supreme law maker and governor

The Head of State in a republic is generally a person who has been chosen by the citizens, either by direct election or by a group of elected representatives to act as the top representative of the people. In most republics, the Head of State is called the president, elected for a fixed term. An example of a republic is the German Federal Republic, where the government includes both the president, and nominated by him, the Chancellor (prime minister), who then selects ministers.

The Founding Fathers of the United States rarely praised and often criticised democracy, which in their time meant direct democracy, often without the protection of a constitution enshrining basic rights. James Madison argued that what distinguished

a democracy from a republic was that the former became weaker as it got larger and suffered more violently from the effects of faction, whereas a republic could get stronger as it got larger and combated faction by its very structure. What was critical to American values, John Adams insisted, was that the government be "bound by fixed laws, which the people have a voice in making, and a right to defend." As Benjamin Franklin was exiting the Hall after writing the U.S. constitution, a woman asked him "Well, Doctor, what have we got—a republic or a monarchy?" He replied "A republic—if you can keep it." (172)

A Republican democracy could be the second-best type of governance, inferior only to Presidential democracy, to fulfil the purpose of the European Federation. Its main weakness in comparison with Presidential democracy is that:

It provides a less stable form of government than the Presidential democracy.

Presidential Democracy

This is a variant of representative democracy practiced in countries such as the USA or France. This is a system where the electorate elects the president directly for a fixed term. The president is then the head of state who then selects the prime minister and who in turn selects ministers e.g. in France. However, there are variants of this system as in the USA, where the president also plays the role of the prime minister and is therefore the head of the government. In normal circumstances a president cannot be easily removed from the office, unless he is impeached by the parliament for a gross misconduct and breaking the law. In a Presidential Democracy no president has the power to remove the elected members of the parliament, just fulfilling one of the core principles of democracy – the separation of powers.

Presidential Democracy, especially when combined with elements of Direct Democracy seems to be the best option for the EF because:

1. It is the fastest system for implementing decisions at national level, paramount from the point of view of combating existential risks
2. It would be the most effective and fastest in decision making but also leading to minimum use of resources, since decisions would be more coherent, provided that sufficient powers are granted to the president
3. It would provide fast and real citizen participation at every level of governance if combined with elements of direct democracy delivered, for example, by e-democracy (see below)
4. It would lead to a better consensus of all citizens

e-Democracy

This is really an attempt to re-introduce direct democracy with the support of technology, which was mentioned earlier in this chapter. Those who favour this type of democracy believe, that the key argument against direct democracy, i.e. that it can only be used in small towns and small states like Switzerland, is no longer valid because we, as voters, could exercise our will on the Internet. However, the challenges facing

the introduction of e-democracy in a substantive way are significant. Until today, there is practically no state, apart from Switzerland, which has adopted e-democracy in earnest. In most cases it is used for petitions or consultation projects in countries like the UK or Australia. In both countries, as well as in most EU countries, voters can vote in advance using the Internet, but that only changes the way the vote is actually delivered (electronically) and does not change democracy, or the voting system, as such.

There is hardly any theoretical framework on how to adopt e-democracy in such a way that it would cover all types of elections while at the same time be resilient to fraud or even more seriously to cyberattacks. After the apparent Russian direct and indirect interference in American presidential elections, British Brexit referendum, German, Dutch and French elections, the governments will be very cautious to extend the application of e-democracy beyond parliamentary petitions or local government consultations. From that point of view, although it sounds counterintuitive, the British paper system, in which voters personally walk into the polling stations, seems to be the most resilient.

However, the problem of cyber-interference into e-elections may have finally been resolved thanks to quantum encryption. Guided by the laws of quantum mechanics, the laws that dictate what happens at a subatomic level, this technology cannot be corrupted. Quantum cryptography developed by China in just one year is now available. In January 2018 China created the first global satellite network, which provides unbreakable security for individuals, companies, and governments. Any attempt to crack the passwords or the content of quantum encrypted messages would lead to immediate annihilation of the information making the whole effort utterly futile (173). Who could have thought that such a great achievement in science and technology would come just in time to help us improve democracy? That does not mean e-democracy's final result cannot be corrupted. It can, because man it is man who is the weakest point in the system.

We should also consider that the new norms of participation, inclusiveness and open communication are slowly penetrating democracy and at some stage the role of politicians as we have known may be coming to an end. After all, there are already a number of examples around the world that sortition assemblies, mentioned further on, work fairly well. It seems to prove that 'ordinary' people can and do make good, informed, and balanced decisions. It proves that people could govern themselves more effectively and justly, bringing the end of politicians and politics as we have known for centuries. Therefore, we should take the prospect of far more active participation of citizens in governing their country more vigorously and see it as a springboard for far reaching changes in democracy. It is time to consider e-democracy as a key ingredient in reforming Democracy, combining it with Direct Democracy and Presidential Democracy.

A Transpartisan Democracy – the Danish Alternativet

On 27 November 2013 a strange party was set up in Denmark. People called it “A party about Nothing”. It was founded by the former Minister of Culture Uffe Elbæk and Josephine Fock, both of whom had been Members of Parliament for the Social Liberal Party. In 18 months that party won 5% of the votes and has now 9 MPs in the Danish Parliament. How was that possible? What’s so special about the “Party about Nothing”?

The Party is called *Det Alternativet* – The Alternative. It is a networked organisation, which has affiliates around the world, including in Britain (The Alternative UK). People voted for this party not so much because of what it wanted to do, but HOW it wanted to govern. The WHAT element, i.e. a kind of a vague programme, was crowd sourced by the party members after the party was founded and published three objectives:

- Transition to a sustainable society
- Supporting entrepreneurship and social entrepreneurship
- Changing the culture of political dialogue

As mentioned earlier, the unique thing about this kind of a party is its central focus not so much on the content (the programme) but rather on the process – on the HOW. The most central tenets of the party are put into a set of six core values, which I quote from the party’s programme (174):

1. **“Courage.** Courage to look the problems in the eye. But also, courage about the future we share
2. **Generosity.** Everything which can be shared will be shared with anyone interested
3. **Transparency.** Everybody should be able to look over our shoulders, on good days and on bad days
4. **Humility.** To the task. To those on whose shoulders we stand, and to those who will follow us
5. **Humour.** Without humour there can be no creativity. Without creativity there can be no good ideas. Without good ideas there can be no creative power. Without creative power there can be no results
6. **Empathy.** Putting yourself in other people’s shoes. Looking at the world from that point of view and creating win-win solutions for everyone.”

These values as such do not promise a voter a certain political programme. Rather, they promise a kind of a social environment, within which that political programme of doing politics in an entirely different way, is brought into being. The members of the party commit first and foremost to these values. But equally important is the way how they advocate debating political and social issues, which they call “debate principles”:

- “We will **openly discuss** both the advantages and the disadvantages of a certain argument or line of action.
- We will **listen** more than we speak, and we will meet our political opponents on their own ground

- We will **emphasize** the core set of values that guide our arguments
- We will **acknowledge** when we have no answer to a question or when we make mistakes
- We will be **curious** about each and every person with whom we are debating
- We will **argue openly and factually** as to how the Alternative’s political vision can be realized” (175).

It is perhaps easier to understand why such a party was set up in Denmark. After all, this is one of those countries that in broad terms practices the Scandinavian model of consensual approach to politics. Here are two such examples. During the increasing political pressures related to migration, the party leader Uffe Elbæk wrote an open letter in a newspaper, asking the centre-right prime minister (who is rather restrictive on immigration) for a dialogue on how to avoid bitter polarization of the Danish public on this hot topic. At the party’s inaugural address upon entering the parliament, one of the newly elected MPs, Rasmus Nordqvist, gave a speech in which he commended different qualities and perspectives of all the other parties, including their ideological Nationalist adversaries. This is a sign of transpartisanism – the principle of seeing the interchange of all parties as vital to democracy that seeks to implement one’s own policies by means of affecting the other parties’ views (rather than antagonizing them). The Alternative can thus be described as **a transpartisan movement** (175).

What’s in it for me, the reader of this book may ask. I believe a lot. Democracy, as has been practiced so far, cannot continue for too long without a significant change in the way, in which it addresses the issues important for people as well as the way, in which it treats the people as voters. It may not be a complete solution to our pursuit of a better democracy, but to me it is almost certainly one of the components. After all, as a Nordic political philosopher Hanzi Freinacht says in his essay on the Alternative’s politics: “stressing political process, debate culture and democratization is going to be a highly competitive feature amidst the confusing circumstances of late-modern, post-industrial societies, where more discontent stems from the way politics is conducted rather than the contents itself. That’s why those who are most knowledgeable about efficient methods of deliberation, those that most skilfully master the ability to co-develop solutions in a transpartisan manner, and those who have the best understanding of the perspectives of others, will reap the greatest benefits. These are some of the skills, which the people in political parties, like the Alternative, have and this will put them in a very favourable position in the political game despite their smaller size” (175).

Sortition

Is sortition a new tool to improve democracy?

There could be another system of democracy or an add-on to existing electoral systems in a similar political genre as the transpartisanism just discussed. To consider it we

need to make a big step back. Let's ask ourselves if we were to design a democratic system from scratch, what would have been the key ingredients. First of all, participating in decision making is everybody's natural need. That's why people care deeply about their communities and want their voice to be heard. How could we better improve it than through elections once every few years? Greeks, and some Italian states in the Renaissance period, had a solution. It was drafting by lot or, what is now called through allotment or **sortition**, where political officials were randomly selected by men (women were not included). They swore an oath that they were not acting under bribes. Their purpose was to elect members of the council. In ancient Athenian democracy, sortition was therefore a method for appointing political officials and its use was regarded as a principal characteristic of a true democracy. The logic behind that system of electing political representatives originates from the idea that "power corrupts." That's the main reason why sortition was initially used was to minimize corruption.

In recent years, quite a few proposals have emerged, which argue that the representative democracy could be significantly improved by replacing elections with sortition or including it as part of a legislative process, like drafting or amending a new constitution, as was the case in the Republic of Ireland in 2012 (see below). Let me remind the sceptics that in places where some form of democracy was present, decisions on public issues were taken by lot for well over 2000 years, whereas representative democracy as a means of making decisions on public matters is barely 200 years old. Perhaps we can learn a lot from looking again at... drawing lots.

That's precisely what Oliver Dowlen has done in his book "Sortition: Theory and Practice" where he writes that sortition "promises to bring something new to today's political climate, something of potentially world-changing significance. For those in the West who are aware of the deficiencies of the current liberal government, it offers a line up for perceived deficits in democracy". Brett Henning, a director and co-founder of the Sortition Foundation, describes a modern version of sortition in his book "The End of Politicians". One of the arguments he brings forward is that the information revolution, which is disrupting every aspect of society and politics should not and will be not be excluded from a major disruption. He makes a powerful critique of a democratic deficit inherent in all forms of electoral democracy. But it is much more than just an exploration of undemocratic qualities of electoral democracy. Henning proposes sortition as a compelling and provocative alternative for randomly selected ordinary citizens to serve as fully empowered legislators (176).

If democracy as a system is to survive, we will have to accept that it cannot be reduced to voting alone. Yes, the main strengths of elections are accountability and competency, whereas its main weaknesses are generating political inequality and a systemic partisanship, which undermines an objective and impartial dialogue for the benefit of all and not a specific class represented by a particular party. That's why elections and referenda must be invigorated with new ways in which citizens can participate. We have to think 'out of the box' and see that elections are not the only a tool supporting democracy. Structured debates with a random sample of citizens, promises to generate

a more vital, dynamic and inclusive form of democracy than governing a country on the basis of a one-off election run every four or five years.

Today, most people, at least in the Anglo-Saxon world, come in contact with sortition at least once in their lifetime, when they are randomly selected to serve as a member of a jury in municipal and national courts (see below). I will look at this from a wider perspective than just for electing representatives to legislative bodies. But I also discuss potential consequences for the public good in a more general sense. I will start with describing and giving examples of two types of sortition: Sortition Assemblies and Sortition Chambers. This will form the background for assessing advantages and disadvantages of sortition as a potential tool for improving democracy in general.

Sortition Assemblies

Sortition Assemblies are formed to select randomly the representatives who will make decisions on one-off political or social matters. The assumption is that an assembly that uses sortition to represent the population from a given district, region or a whole nation, would make decisions in a more informed and deliberative setting, than would have been the case in an electoral process. Here are some examples of Sortition assemblies:

- Law court juries are formed through sortition in some countries, such as the United States and United Kingdom.
- Citizens' juries or citizens' assemblies have been used to provide input to policy makers. For example, in 2004, a randomly selected group of citizens in British Columbia convened to propose a new electoral system. This Citizens' Assembly on Electoral Reform was repeated three years later in Ontario.
- MASS LBP, a Canadian company inspired by the work of the Citizens' Assemblies on Electoral Reform, has pioneered the use of Citizens' Reference Panels for addressing a range of policy issues for public sector clients. The Reference Panels use civic lotteries, a modern form of sortition, to randomly select citizen-representatives from the general public.
- 'Democracy in Practice', an international organization dedicated to democratic innovation, experimentation and capacity-building, has implemented sortition within schools, randomly selecting members of student governments in Bolivia.
- Danish Consensus conferences give ordinary citizens a chance to make their voices heard in debates on public policy. The selection of citizens is not perfectly random, but still aims to be representative.
- The South Australian Constitutional Convention was a deliberative opinion poll created to consider changes to the state constitution.
- Private organizations can also use sortition. For example, the Samaritan Ministries health plan uses a panel of 13 randomly selected members to resolve disputes, which sometimes leads to policy changes⁽¹⁷⁷⁾.

Sortition Assemblies have, for good reason, generally focussed on rare political issues that do not involve money, such as electoral reform or gay rights. This makes them vastly easier to handle competently because they do not involve weighing fiscal trade-

offs with competing issues. Let's now look at two examples of Sortition Assemblies: The constitutional convention in Ireland in 2012-2014 and the English system of jury service.

1. A constitutional convention in Ireland

The Constitutional Convention organized in Ireland in December 2012-2014 is a good example of how sortition assembly could work in practice. The Constitutional Convention was set up to review several articles of the constitution of Ireland. In October 2012 The Irish government appointed the chairman of the convention, an economist Tom Arnold. An independent research bureau put together the random group of 66 citizens, drafted by a lot, taking account of age, sex and place of birth from both Republic of Ireland and Northern Ireland. Among the members of the convention were also 33 elected politicians who were selected proportionally from each party. This group met one weekend per month for more than a year. The diversity that process produced was helpful when it came to discussing such subjects as same-sex marriage, the rights of women or the ban on blasphemy in the current constitution. However, they did not do all this alone. Participants listened to experts and received input from other citizens (more than a thousand contributions came in on the subject of gay marriage). In January 2014 the chairman of the Constitutional Convention addressed the Seanad on the Convention's work, listing the principles under which it operated as openness, fairness, equality of voice, efficiency, and collegiality.

The decisions made by the Convention did not have the force of law; the recommendations first had to be passed by the two chambers of the Irish parliament, then by the government. Only then were the recommendations put to a vote in a referendum. The referendum approved the proposed changes, resulting in important modification in the Irish Constitution.

2. The Jury system in the Anglo-Saxon world – a good example of sortition

I think this system of drafting citizens by lot for court service, practiced in England for centuries can be adapted for Sortition Assemblies and even become a model for the second chamber of a parliament based largely on sortition. **Therefore, I dedicate more space to this subject, since it could form part of the proposal for the election and work of the European Parliament.**

I shall only focus here on the process of jurors' selection and their role in the context of sortition rather than covering other aspects linked to criminal law. In the Anglo-Saxon world the basic principle of sortition has been largely unchanged till today. It evolved from the system originally developed in England starting with the first hint of 'trial by peers' in Magna Carta in 1215 ("No free man shall be captured or imprisoned...but by the lawful judgment of his peers or by the law of the land") and refined over the ages, especially in 1641. It is perhaps rightfully viewed as a milestone in the development of modern notions of procedural justice (178).

The Jury service is compulsory in England under a penalty of up to £1,000. Jurors are normally summoned for criminal trials in the Crown Court but in certain circumstances jurors may also serve in civil courts. An estimated 450,000 people perform this duty each year in trials for significant offences, such as murder or serious assault (179). Those summoned for jury service, and who had the summons confirmed, are legally obliged to participate. The pool, from which people have been chosen to serve on the Jury, comprises of the people who had been **randomly** selected by the Jury Central Summoning Bureau from the electoral register. A member of a jury needs to **fulfil all these criteria**:

- He must be British, Irish, Commonwealth or a European Union citizen on the Electoral Register;
- Must be aged 18 to 75
- Must be ordinarily resident in the UK, Channel Islands or the Isle of Man for any period of at least 5 years since the age of 13
- Must not be affected by issues that may cause him to be an **inappropriate choice** for the jury panel (e.g. if he knows the offender).

The jurors selected for the service may appeal for exemption from the service if they have important circumstances in their life, which would make them unable to serve on the jury in a given period. They may be called later on. Those selected will not know which trial they will serve on until they have been sworn in. This method is used to make sure jurors have no prejudgements regarding the case. It is important that the selection is random and that there are no specific criteria or category for selection.

Every juror initially selected from the electoral register and not appealing for exemption is accepted for the panel of jurors. The details of the jurors are reviewed by the barristers and a judge. If they feel that a particular juror cannot ensure **impartially** in a particular trial, then such a juror will not serve on that trial and will be on stand-by to be called on for another trial on the same day or at another period. The judge has the final say over whether there is an issue, which should prevent a person from joining the jury. Those selected must not disclose or discuss any aspect of the trial with anyone who is not a member of the jury (179).

The final selection process of a juror takes place on the day when a court is ready to appoint a jury. A court official will choose **randomly** (again) from the pool of **potential** jurors waiting in a selection room, a group of people who will be taken to the courtroom to enter an oath. This number may vary from about 15 to as many as 50 depending on the length of time the trial is likely to go on for. If a case is particularly complicated, and expected to continue for some time, **a larger panel will be used**, as some jurors may not be able to take several weeks, or even months, off work. There are normally 12 jurors serving in a single trial (15 in Scotland).

If there are not enough jurors on the panel then any person in the vicinity of the court can be summoned to make up the numbers, a process known as "praying a tales". Unbelievable as it may sound, it actually happened at Salisbury Crown Court in June 2016. When the judge realised, he was three jurors short, rather than delay the start of

the trial, he dispatched his court clerk and ushered him to look for people to make up the numbers. Eventually the judge's strategy paid off and the trial was able to go ahead after one passer-by was recruited from the street and two other jurors were transferred from Winchester (178).

If during the trial an individual juror misbehaves or is unreliable, or may be suspected of so-called jury tampering (potential corruption) the judge can **discharge** such a juror. In some cases, even the whole jury may be discharged as being considered unreliable.

Once all the prosecution evidence has been given, and the judge has summed up the case, the court usher leads the jury into some "private and convenient place", to prevent them from speaking to anyone else. The court usher is not allowed to speak to the jurors except to ask them if they are agreed upon their verdict. The jury may send a note to the judge to ask a question of law or for the judge to read to them a transcript of some of the evidence. It is a contempt of court for a juror to disclose, or for anyone else (including the press) to enquire into, the nature of the jury's deliberations. Once the jury has reached the verdict, they are discharged.

Sortition chambers

The conditions for setting up and running a Sortition Chamber

Should sortition be used in a larger scale to improve democracy by becoming for example the second chamber of a parliamentary system? If we accept that as possible in principle, then any proposal for a Sortition Chamber would have to provide answers to the following questions:

- Should sortition terms be longer or shorter? Longer terms allow for better competency but also more potential for corruption, as well as more potential for the emergence of factions, which are likely to undermine the quality of deliberation.
- Should Sortition Chamber be a permanent body of legislation, when individual members join and leave after one full term, say 6 years, and can be replaced 'on-the-go' from a pool of waiting sortition members. That would create an asynchronous legislation system, where MPs could be elected every 4 years while Sortition Chamber will be there permanently, since its members would be joining and leaving the chamber at random dates.
- Should sortition debates be held secret or made public? Secrecy can enhance deliberation, prevent corruption, and protect members from embarrassment, but it risks undermining accountability.
- Should there be some minimum level of competency, e.g. education or experience required, even if this undermines the principle of perfectly random selection of population's representation?
- Should the Sortition Assembly have the rights to propose legislation on their own (set the agenda) or only vote on the legislation proposed by the lower chamber of parliament?

- Does the Sortition Assembly need a special body covering administration or supervision (on formal matters only)
- How should the relationships between the Sortition Chamber and the lower chamber of the parliament (the elected MPs) be regulated? Should both houses of the parliament have equal powers of approving or rejecting legislation or one of the chambers would have the ultimate ‘upper hand’?
- How to ensure quality debates by Sortition Chamber? Should it be supported by a special independent ‘advisory’ body or a period of training and coaching/mentoring by experts before the member could take part in voting legislation?

There are already a number of proposals answering some of the above questions. For example, Tom Malleson in his research paper: “Should Democracy Work Through Elections or Sortition?” (180), proposes a solution to the problem of lack of sufficient knowledge by the sortition members. He suggests supporting them with experts that would be part of an independent body ‘running the sortition’ as e.g. Sortition Support Office. Using this knowledge, it would be plausible to envisage a well-functioning (though imperfect) Sortition Chamber as the second chamber of the Parliament. It could be an independent body on its own, or consisting mainly of sortition members but also including (as a minority), elected Senators (to differentiate them from MPs). Such a Sortition Chamber could be divided up into major branches of public policy and form committees. Skilful moderation and facilitation can foster relatively equal member participation free from the pressures from the public and the media.

The existence of two chambers implies that an optimal democratic system would need a mechanism for putting legislative proposals into law. The main reason for having a bicameral system is that elections and sortition each offer a different type of representation. In an elected chamber, the aim is to have representatives who would take into account the needs of the entire population. In such a chamber, discussion would be between the **MPs who play a role as delegates** with limited independence.

By contrast, in a Sortition Chamber, the aim would be to have a statistically accurate sample of the population. **The sortition members are not delegates** as such (they represent themselves) and therefore have substantial independence to change their minds. In other words, combining both mechanisms would allow the society to benefit from having representatives of **actually existing interests** and needs of the whole population as well as **hypothetical interests and needs** generated by totally independent sortition members. Both points of view are valuable and would result in a much better fulfilment of what a given nation really wants and how it wishes to be governed (180).

Tom Malleson further considers two types of people that could be problematic for a Sortition Chamber. He calls the first one the **Unknowledgeable** (e.g., a high-school drop out with a learning disability). It seems likely that most of such people would not volunteer to participate in the first place. Those that do might be educated in general knowledge and helped to develop their capacity for judgement, but only partially. The sortition chamber faces a trade-off in that it could impose some basic competency

requirements (e.g., basic literacy, or a high-school diploma) to prevent the worst problems of incompetency. However, that would also reduce the descriptive representativeness of its membership. In addition to the problem of the Unknowledgeable, another deep competency problem flows from the scale-transformation issue. Since a sortition chamber would be so much more complex than a Sortition Assembly, even its more knowledgeable members may not prove competent, at least by comparison with an average elected official.

Thus, a sortition chamber faces difficult issues of unknowledgeable people, as well as the problem of complexity arising from the complicated nature of issues, almost all of which have budgetary implications. In theory, a sortition body might overcome such difficulties through having significant periods of prior training, being large enough to allow specialization, and by retaining final authority in a larger body that can weigh up the costs and benefits of various proposals.

The other type of a sortition member is an **Ideologue** (Malleson gives an example of a committed white supremacist or doctrinaire Leninist). The Ideologue poses a manageable problem, as it would become obvious to other members that such an individual has a close-mind and is unwilling to work in a deliberative spirit, or is disrespectful. In extreme cases where the Ideologue becomes altogether disruptive, members should be able to recommend their expulsion. In more common instances, the sortition body can work around such a person, or simply ignore them.

Elected representatives would on average have far more skills, knowledge and overall competence for deliberating an issue. However, as mentioned earlier, this may lead to competition to score better than the opposition irrespective of the fact that the motion put forward by the opposition may objectively be better for the society than the one put forward by the proponent. Such a point-scoring, like for example at Question Time in the British Parliament is the best evidence how damaging it could be for democracy.

For members of the sortition trying to debate a political issue even of an average complexity like day-care policy, education, or environmental protection can be a formidable challenge. Each of them is fairly complex and each area poses different problems. Therefore, it is impractical for sortition members with knowledge solely of their own areas to come to rational policy decisions. They would need a much broader knowledge and experience. This is why proposals for single-policy sortition bodies are unlikely to work well. Such bodies cannot deliberate meaningfully if they are restricted to discuss an isolated issue. (180)

Tom Malleson believes that for sortition chambers this problem could be corrected to a degree if sortition members' term of service was four years, of which the first two years they would spend in training, without any legislative powers. In the first year they could study training in budgets, taxation, justice system etc. In the second year, members could be selected by lot into one of the major ten or so fields of public policy (Environment, Health, Military, Economy, etc.), in which they would spend the rest of their training period as "interns" to develop familiarity and competency in the area that

they will spend later on as legislators. They would undergo a period of learning from diverse experts, attending regular public consultations, and on-going small group deliberations.

For such a system to run properly, he proposes to create a 1,000-person stand-by pool of sortition members, divided into, say, ten 100-person units that would be ‘assigned’ to government’s departments. Each such unit would focus on policies in its own area before submitting legislative proposals to the entire body. For proposals to become law, the departments would present the results of their deliberations, as well as their recommendation to the whole chamber, before a general vote. It would be the job of the entire sortition legislature to weigh the costs and benefits of each proposal against those of other departments before making a final decision.

In conclusion, for an average sortition member complexity of the issues that may be discussed in the Parliament might be a significant problem. It could be resolved in some way by setting up a separate independent body e.g. Sortition Support Office to deal with ‘competence and complexity problem’ that sortition members may face. Tom Malleson paints a somewhat idealistic picture and in reality, there could be many instances of old politics manifesting themselves in the new set up of a Sortition Chamber. However, I would also believe that this is probably one of the most attractive proposals that could change quite fundamentally the way that we are governed and although not without risks, it should be started in some form on a wider scale as soon as possible.

Democratic confederalism – an example of Sortition Chambers

One variant of sortition has been applied by the Kurds in their recent referendum on independence carried out in September 2017. It is called **democratic confederalism** and its key proponent is Abdullah Ocalan – the Kurd leader who has spent the last 18 years in a Turkish jail. Under democratic confederalism the power is devolved not from the top down but from the bottom up. The basic, lowest level of a political unit is a local assembly representing a village or an urban district. These assemblies then elect people to represent their interests in wider confederations, which in turn choose members to provide a voice in the region as a whole (Ocalan rejects the idea of the nation state). The federal government is purely administrative: it does not make policy but implements the proposals passed to it by the assemblies. (181)

Conclusions on sortition

Although sortition is not a silver bullet solution it could help correct some faults in the current democratic system. One of the main reasons why sortition has not been adapted more often in politics is that there is still not enough evidence how it could improve the current democratic process and of course the unwillingness of political elites to be put under much closer scrutiny. The literature on the subject is not that vast either. However, there are some recent publications that I have used to research the subject,

gather some evidence and draw some conclusions on how sortition could be used to improve democracy of the European Federation. Therefore, before I make final conclusions on adopting sortition as a tool to improve democracy, let me review its advantages and disadvantages, as seen by various authors. In particular, I will be using arguments for and against sortition put forward by Oliver Dowlen in his book 'Sortition: Theory and Practice' (182), David Owen and Graham Smith in their research paper: 'The circumstances of sortition' (183), Brett Hennig's, book "The End of Politicians" (176), David Van Reybrouck book "Against Elections: The Case for Democracy" (164) and Tom Malleson's (180) research paper: "Should Democracy Work Through Elections or Sortition?"

Advantages of Sortition

- 1. Equality of representation.** Sortition is much more representative than electoral systems, since it is a random sample, which would produce what John Adams said in his book 'Thoughts on Government' an assembly that is "in miniature an exact portrait of the people at large." More importantly, since today's elections are so often centred on image, media influence and personality, politicians can easily be accused of acting in a manner that will earn those votes, rather than based upon principles and beliefs. If representatives are selected by random sample, promoted participants are forced to put aside tribal agendas and concentrate on common affairs in a cohesive manner. In a representational democracy, equality of representation is probably the weakest point, whether it is First Past the Post, Alternative Voting System or Two Rounds System. By their very nature, elections have inbuilt 'unrepresentativeness', because those who have the time, money, connections, and profile required to run successful campaigns are likely to be on average wealthy, educated, and from dominant social positions. The democratic aspect that everyone can choose co-exists with the undemocratic aspect, where invariably it is the elites who tend to be chosen (180).
- 2. Cognitive diversity.** This is an amalgamation of different ways of seeing the world, the societal needs and solutions to various problems. This is not the same as gender, ethnicity, value-set or age diversity, although they are often positively correlated. According to numerous scholars' cognitive diversity is more important to creating successful ideas than the average ability level of a group. Simply put, random selection of persons of average intelligence (sortition) performs better than a collection of the best individual problem solvers (e.g. elected MPs) (177).
- 3. The risk of corruption is reduced** and attention to the common good increases. Elected representatives to be re-elected must create, what Tom Malleson calls, 'networks of power, influence, lobbying, and patronage'. Members are keen to accumulate money and contacts that will be needed to win the next term, if they want to be re-elected. That would be a lesser problem if only two electoral terms can be served by politicians, since in the second term they would not have to gather capital and support for the next term, which should make them free to say what they believe rather than appease the supporters. Critics of electoral politics argue that electing representatives by vote is subject to manipulation by money, media and other powerful means. Additionally, legislative elections give power to a few

powerful groups, which is believed to be less democratic system than selection by lot from amongst the population. Sortition may be less corruptible than voting but only if it regards one-off issues dealt with by Sortition Assemblies. If sortition members were to serve the whole parliamentary term, e.g. in a 'Sortition Chamber', the result could be similar to that of elected representatives. They would be lobbied by large corporations or rich individuals to support their policies and they would be under no control, since they would not be controlled by the rules of a party. Just to see the potential scale for corruption, in the USA, there are on average 20 official lobbyists per Congressman. To overcome that problem, specific training, increased level of transparency, ability to remove a disruptive member, stiff penalties for corruption might be needed. Larger size of sortition say 1,000 members could dilute this weakness, as good remuneration for sortition service (a subject on its own that I discuss further on).

4. **Empowering ordinary people.** An inherent problem with electoral politics is the over-representativeness of the politically active groups in society who tend to be those who join political parties. For example, in 2000 less than 2% of the UK population belonged to a political party whilst in 2005 there were at best only 3 independent MPs so that 99.5% of all UK MPs belonged to a political party. As a result, political members of the UK population were represented by one MP per 1800 of those belonging to a party (177).
5. **Rational decision making.** Voting on the basis of gut feeling is replaced by sensible deliberation, as those who have been drafted are exposed to expert opinion, objective information and public debate.
6. **Sortition members' loyalty** is to their conscience rather than to a political party because being appointed by sortition they do not owe anything to anyone for their position. Contrary, elected representatives typically rely on political parties in order to gain and retain office. This means they often feel a primary loyalty to the party and will often vote against their conscience to support a party position.
7. **Freedom to make own decision.** Citizens chosen by lot may not have the expertise of professional politicians, but they add something vital to the process: freedom. After all, they don't need to be elected or re-elected.
8. **Limiting the negative effects of intra-elite competition** e.g. during the exchanges in the Parliament when MPs may support not a decision that would be best for the nation but such that the public likes most (populism).
9. **Rotation** – no selected sortition member will serve more than one term
10. **Fairness and equality.** Social-psychological benefits for the population, which give a sense of equality and fairness of the decisions made. Sortition is inherently egalitarian in that it ensures all citizens have an equal chance of entering office irrespective of any bias in a society. Compared to a voting system, even one that is open to all citizens, a citizen-wide sortition scheme for public office, or for citizen's assembly, lowers the threshold to an office (182).
11. **Representing those with opposing views and minorities.** Sortition members represent the cross-section of the whole of society and thus ideally fulfil this requirement, whilst elected representatives have little or no incentive to respond to constituents from other parties.

12. **Impartiality.** Sortition members either of a constitutional convention or a Sortition Chamber are selected, rather than elected precisely for the reason that their decisions will in principle be impartial. An elected representative on the other hand, could in theory be impartial as an individual, subject to party whip (discipline). However, as a member of a party, he will have to support decisions and solutions, which quite often are not impartial because they are made on behalf of the winning part of the electorate. Unless a government is set upon a Scandinavian model, where decisions are made through consensus with the opposition, i.e. are to a large degree impartial and taken in the best interest of the whole nation, there is little scope for impartiality in current western democracies.
13. **Cognitive diversity.** This is an amalgamation of different ways of seeing the world, the societal needs and solutions to various problems. Simply put, random selection of persons of average intelligence (sortition) performs better than a collection of the best individual problem solvers (e.g. elected MPs) (177).

Disadvantages of Sortition system

1. **Pure sortition does not discriminate for competence.** The most common argument against pure sortition (that is, with no prior selection of an eligible group) is that it does not discriminate among those selected and takes no account of particular skills or experience that might be needed to effectively discharge the particular offices to be filled. By contrast, systems of election or appointment ideally limit this problem by encouraging the matching of skilled individuals to jobs they are suited to. Socrates taught his companions to despise the established laws by pointing to the folly of appointing public officials by lot. He said: “Nobody would choose a pilot or builder or flautist by lot, or any other craftsman for work in which mistakes are far less disastrous than mistakes in statecraft” (184).
2. **Chance misrepresentation.** If selection or decision is made based on randomness, there is always a statistical possibility that sortition may put into power an individual or a group that do not represent the views of the population, from which they were drawn. This argument may apply to juries. However, the modern process of jury selection and the rights to exclude particular jurors by both the plaintiff and defence, lessen the possibilities of a jury not being representative of the community or being prejudicial towards one side or the other. Today, therefore, even juries in most jurisdictions are not ultimately chosen through pure sortition. Regarding larger groups, the probability of selecting of a very one-sided view sortition is statistically insignificant (177).
3. **Lack of commitment by sortition members.** In an elected system, the representatives are to a degree self-selecting for their enthusiasm for the job. Under a system of pure, universal sortition the individuals are not chosen for their enthusiasm for their role and therefore may not make good advocates for a constituency.
4. **Lack of feedback or accountability.** Unlike elections, where members of the elected body may stand for re-election, sortition does not offer a mechanism by which the population expresses satisfaction or dissatisfaction with individual members of the allotted body. Thus, under sortition there is no formal feedback, or accountability mechanism for the performance of officials, other than the law (177).

5. **Legislation agenda and scope.** As David Owen and Graham Smith indicate in their paper 'The circumstances of sortition' (183) "A sortition chamber embedded within a bicameral system, will also be subject to pressures from the elected chamber, especially when there is disagreement between them... The small number of members, length of term, and specialization of roles also invites more insidious forms of influence - namely, corruption and bribery". They propose, as do other researchers in this area, that for sortition chambers to overcome this deficiency, it should be given an agenda and scope and not develop it.
6. **Public influence and 'control' over representatives.** Sortition gives the public a kind of control but only over the selection process. Once they have been selected, voters have no influence on them at all. The only way this can be rectified is to have a process of recalling such members and substituting them with others from the waiting pool of sortition members. On the other hand, elected representatives by the very nature of elections are totally under the control of the voters but only during the elections. During the election term, the only influence the voters have is a threat that next time they may not be voted in, if they do not keep their promises, or stick to their party manifesto. This deficiency could, however, be fairly easily rectified if there had been a fast process of recalling representatives should their voting pattern and/or behaviour been unacceptable to his constituents. There is such a process in several countries already, but it is used very seldom, or the threshold needed to recall a representative is too high.
7. **Sortition members' competency.** Incompetence of sortition members is one of the most common arguments against using it as an additional tool to improve democracy. How could randomly selected members of the public be capable of understanding and making sound decisions on complex policy problems? It would be just a sheer luck. However, similar arguments were once put forward against allowing peasants, workers or women to vote. Then, the opponents also claimed it would mark the end of democracy. A body of elected representatives undoubtedly has more technical competencies than a body chosen by a lot. But David van Reybrouck thinks this problem can be minimized. In his book: "Against Elections: The Case for Democracy" (164), he has done some critical analysis of sortition experiments in several countries like, the USA, Australia, Netherlands and Ireland. On the subject of competency, he says "what is the use of a parliament, full of highly educated lawyers, if few of them know the price of bread? Besides, the elected do not know everything. They need staff and researchers to fill the gaps in their expertise. In much the same way, a representative body chosen by lot would not stand alone. It could invite experts, rely on professionals to moderate debates and put questions to citizens." (164).

The final conclusions that I would like to make are not exhaustive, nor cast in stone, since there is still considerably low level of evidence supporting each side of the argument. Sortition can help here by practically eliminating the class-driven policy and decision-making system. We should also remember that both for the developed as well as for the developing democracies, sortition can be used effectively to weed out, or at least minimize, corruption and bring about more cohesive consensual politics.

Sortition brings to democracy two very important elements: neutrality and diversity. Most electoral systems in representative democracy still split societies into political classes. Sortition would normally limit the period served in a public office to one term, thus continually bringing people with fresh ideas and different perspectives on life and societal cohesion. As can be seen, the major advantage of sortition is that it is quite literally the rule by the people. It is completely non-discriminatory, less corruptible, providing representative, diverse ruling lot.

Advocates of sortition insist that a legislature by lot would perform significantly better than an elected chamber in terms of deliberation and impartiality. Without party discipline or the need to pander to any constituency, members would be free to listen to each other, learn and change their minds. Evidence gathered with so called mini-publics shows that, under the right conditions, citizens can engage in a high-quality impartial deliberation.

Of course, sortition has its own problem as do electoral systems. But for me such a system provides a fairly simple and convincing argument, with the caveats about some imperfection of the Sortition Chambers or Sortition Assemblies. It is, as far as possible, a more impartial way to agree decisions and establish new policies than solely through the elected representatives.

I shall use these conclusions for evaluating a possibility of applying sortition in some way when proposing reforms to the European Parliament in the next chapter. **Please bear in mind that I will be looking at application of sortition that could be in place not right now, but in about 10 years' time, around 2030**, and from the perspective of reforming democracy within the European Federation to fight existential risks more effectively.

Referendum

We know that democracy, not only in Britain but worldwide, is in crisis. The crisis is created on one hand by the power of the ever-present media applying sophisticated socio-political tools in support of the policies and politicians favoured by a given newspaper or a TV channel, to achieve crowd manipulation on unprecedented scale, as we have seen in the 2016 election in the USA. We live in the world, which no longer changes linearly, but almost at an exponential pace, as I have mentioned several times in this book. The inadequacy and unsuitability of the electoral system has also contributed to the crisis creating the so-called democracy deficit. Are then referenda the right democratic tool for making critical decisions?

Let's take Brexit referendum as an example. Against the predictions of the pollsters, on 23 June 2016 Britain voted in a referendum to make a decision on ceasing the membership of the European Union. The question was: "Should the United Kingdom remain a member of the European Union or leave the European Union?" A year later, on 1st October 2017 the government of Catalonia carried out a referendum on Independence that had not been previously agreed with the Spanish central government. In my view, the Catalans had the moral right to conduct the referendum,

based on the "natural law", but did not have a legal right. Was then the referendum the right way to make a decision on independence? Such questions would be of concern not only to making a decision on independence but also in a more general sense. Are then the referenda the best way to make complex decisions on vital matters of a nation?

The main problem with referenda and elections in every democratic country is that they are not well suited to human nature. We act primarily using our emotions rather than cold reasonable judgment. People voting in referenda and elections have a similar experience like going to a shop. Quite often we support a certain decision, because it answers our immediate emotional need. People in general choose black or white, easy to understand, easy to implement, short-term solutions. Politicians know that and that is why they play for the short-term gain by manipulating the public opinion, so that they can be re-elected at the next election, especially if there is no limit on the number of terms they can stand for a parliament. Therefore, selling rational arguments to voters, who as human beings act primarily using their emotions rather than cold reasonable judgment, is almost impossible, which was so clearly shown during the Brexit referendum. Any politician that proposes necessary, complex and sometimes painful solutions will almost never be elected. Populism flourishes because politicians like Donald Trump can twist any fact to their advantage and sell people the solutions they want, although the politicians may know, those solutions may never work. Had the voters known all the relevant facts they might have considered the proposal unattractive, and many might have not supported the option they had chosen in a referendum or during an election. With referenda, the added difficulty is that their impact is quite often long-term (like voting for a new constitution) and can be very difficult to amend.

To reduce the risk of making the wrong decision in a referendum, the voters should really be quite familiar with the issue under consideration. That was impossible in a referendum like Brexit because it required a lot of very specialist knowledge. However, with issues that deal with more straightforward matters, like changing the funding of the health service, referenda could have their role but rather in countries with a **direct democracy** system, such as Switzerland, where there are up to 10 referenda every year. There, the direct democracy allows any citizen to challenge any law approved by the parliament, or propose a modification of the federal Constitution at any time. The most frequent themes are healthcare, taxes, welfare, drug policy, public transport, immigration, asylum and education. The key conclusion I would make is that in Switzerland referenda make sense because of **direct democracy**, executed at the lowest possible level (e.g. municipality). Therefore, **people get very interested in politics**, know the subject matter well, could arrive at a **rational decision** and accept solutions that can sometimes be painful.

In a representative democracy such as Spain or the UK, referendum as a voting instrument should be used extremely rarely, if at all. In 2017 the Dutch Council of State warned that the thoughtless use of referendums and other forms of "people's democracy" sooner or later will undermine the functioning of the Dutch representative

democracy and the rule of law. That's why the Dutch government decided in February 2018 to abolish the referenda.

I would agree with this view. This is not the right instrument for making complex political or economic choices because of the rising complexity of the issues, which predominately require a rational judgement rather than emotional approach, which may seem right at the time of making such a decision but a potential catastrophe when people see clearly the multifaceted impact of their decisions, as it was the case with Brexit.

Therefore, I would not abolish the referenda as such, but rather replace them with sortition, provided that the sortition members are coached for months before the decision on specific issues are decided, like in the Irish referendum on abortion and gay rights. I believe, sortition instead of a referendum, should be applied even in decisions that are fundamental to nationhood, such as splitting from the current state and becoming an independent country.

However, if sortition is used instead of a referendum, the key problem of how to avoid bias by inappropriate formulation of a question will still remain. The next issue regards the number of options in a sortition replacing a referendum. Some argue against having more than two options in a referendum, since the result may not be supported by the majority of the population taking part in the voting. The solution in my view is to apply the principles of Alternative Voting System (also known as preferential system), where a voter scores the options from best to worst. If none of the options has more than 50% than the second preference from the least favoured option would be added to the remaining options until one of the options gets 50% +1 vote. For example, in the Brexit referendum there could have been three options given, such as;

1. Do you want the United Kingdom to leave the European Union even if the outcome of the trade negotiations may severely reduce the growth of our economy for a decade or more?
2. Do you want the United Kingdom to leave the European Union but retain the membership of the Single Market and the Customs Union?
3. Do you want the United Kingdom to leave the European Union and instead join the European Economic Area?

Similarly, the sortition (referendum) on independence of Catalonia should also have several options, e.g.:

1. I want Catalonia to become a fully independent state
2. I want Catalonia to become an independent state, which will immediately become part of Spanish Federation
3. I want Catalonia to be part of Spain but with a higher degree of autonomy and retain the constitutional right to separate in the future into an independent nation, if the Catalans themselves decide they want to do it
4. I want Catalonia to be part of Spain on the current basis.

Another question regarding sortition, which would replace a referendum, is what kind of majority should be required for the sortition to be valid. In the Brexit referendum, 52% of the voters expressed the will to end Britain's membership in the EU. However, the overall turnout was only 72 percent. Had everyone voted (i.e. had the voting been compulsory), then according to the polls for those that had not voted, the "Remainers" would have won with 66.03% of the votes to 33.97% for the "Leavers" (185). Therefore, for such an important issue there should always be a requirement for a super majority of the sortition i.e. $2/3$ support for the motion.

Chapter 6

Electoral systems

Current electoral systems in western democracies

Fair and free from any pressure electoral systems and free media have been considered the backbone of western democracies. But is it enough for a country, which holds free elections every few years using the fairest electoral system available, to assume that such a system fulfils the ‘will of the people’ in all decisions made by the nation’s parliament and the government? Perhaps it is not, which would explain why there is such global dissatisfaction with democratic governments. We need to answer why there is such dissatisfaction with democratic institutions and identify the sources of current discontent with democracy. This will become a framework for proposing in the next chapter a modified electoral system, the legislature and the executive of the European Federation that might much better reflect ‘the will of the people’ throughout the course of the term of the parliament in all decisions it makes.

In particular, it might be an input for selecting the best candidates for the most appropriate electoral system for the European Federation to elect its President, the Parliament and other institutions. As with other subjects in this book, I cannot go too deeply into this domain. After all this is only one of many such areas that we need to glance at to see major fault lines, rather than minute errors in the system. Therefore, I will only pick up the most obvious advantages and disadvantages of the voting systems based on a thorough review carried out by (186) and by the (187).

1. The Alternative Vote (AV)

This is a preferential plurality/majority system used in single-member districts. AV gives voters considerably more options than say, First Past the Post (FPTP) system, when marking their ballot paper. Rather than simply indicating their favoured candidate, under AV electors rank the candidates in the order of their choice, by marking a ‘1’ for their favourite, ‘2’ for their second choice, ‘3’ for their third choice and so on. A candidate who receives an absolute majority (50 per cent plus 1) of valid first preference votes is declared elected. If no candidate achieves an absolute majority of first preferences, the least successful candidates are eliminated and their votes reallocated according to their second preferences until one candidate has an absolute majority. Voters vote for candidates rather than political parties. The system thus enables voters to express their preferences between candidates rather than simply their first choice. For this reason, it is often known as ‘preferential voting’ in the countries, which use it (186).

Advantages and disadvantages of AV system

"AV is the best way to elect a single person, like a president or mayor, but it's a flawed way to elect a parliament as it isn't proportional. MPs become more representative of their constituencies but Parliament can become less representative of the country" (188)

2. The Single Transferable Vote (STV)

This is a preferential system in which the voter has one vote in a **multi-member district** and the candidates that surpass a specified quota of first preference votes are immediately elected. After the total number of first-preference votes has been tallied, the count then begins by establishing the quota of votes required for the election of a single candidate. The quota used is normally calculated by the simple formula: $Quota = (\text{votes} / (\text{seats} + 1)) + 1$. The result is determined through a series of counts. At the first count, the total number of first-preference votes for each candidate is ascertained. Any candidate who has a number of first preferences greater than or equal to the quota is immediately elected. In successive counts, votes are redistributed from least successful candidates, who are eliminated, and votes surplus to the quota are redistributed from successful candidates, until sufficient candidates are declared elected. Voters normally vote for candidates rather than political parties, although a party-list option is possible (187).

Advantages and disadvantages of STV system

STV is perhaps the most sophisticated of all electoral systems, allowing for choice between parties and between candidates within parties. Voters don't have to worry about 'vote splitting' or tactical voting with STV – just put the candidates in order. Transferring the surplus votes means candidates aren't punished for having popular running mates. However, the intricacies of an STV count are quite complex. This has been cited as one of the reasons why Estonia decided to abandon the system after its first election. Malta amended its system in the mid-1980s for the same reasons (188).

3. First Past the Post (FPTP)

This is the simplest form of plurality/majority electoral system, using **single member districts** and candidate-centred voting where the voters vote for candidates rather than political parties. It is the most popular electoral system in the world with 68 countries (almost 1/3) using it (186). The voter is presented with the names of the nominated candidates and votes by choosing one, and only one of them. The winning candidate is the one who gains more votes than any other candidate, even if this is not an absolute majority of valid votes. The system is used among others in the UK, Canada, India, and the United States.

Advantages and disadvantages of FPTP System

Whilst larger parties are better placed to win seats, it becomes harder for them to represent their diverse voters. It provides a clear-cut choice for voters between two main parties, excluding extremist parties from representation in the legislature. It also promotes a strong link between constituents and their representatives. However, it excludes smaller parties and minorities from 'fair' representation, and builds political parties based on clan, ethnicity or region, excluding or being hostile to others (186).

4. Party List Proportional Representation (List PR)

Under this system each party or grouping presents a list of candidates for a **multi-member electoral district**, the voters vote for a party, and parties receive seats in proportion to their overall share of the vote. It is used in 66 countries (about 30%) (186). In some (closed list) systems the winning candidates are taken from the lists in order of their position on the lists. If the lists are 'open' or 'free' the voters can influence the order of the candidates by marking individual preferences (187).

Advantages and disadvantages of List PR system

Party list systems can be very proportional, but if voters can't pick their representatives, the politicians don't have a strong link with their voters. Closed party-list PR is very proportional but they empower parties rather than voters by giving them control over who is elected.

5. Mixed Member Proportional (MMP)

This is a mixed system in which the choices expressed by the voters are used to elect representatives through two different systems: one List PR system and the other plurality/majority system, where the List PR system compensates for the disproportionality in the results from the plurality/majority system, such as First Past the Post. Under MMP systems, the PR seats are awarded to compensate for any disproportionality produced by the district seat results. For example, if one party wins 10 per cent of the vote nationally but no district seats, then it will be awarded enough seats from the PR lists to bring its representation up to 10 per cent of the seats in the legislature.

Advantages and disadvantages of MMP System

MMP retains the proportionality benefits of PR systems and also ensures that elected representatives are linked to geographical districts. However, where voters have two votes: one for the party and one for their local representative, it is not always understood that the vote for the local representative is less important than the party vote in determining the overall allocation of seats in the legislature (186).

6. Parallel Systems

They also use both PR and plurality/majority components, in which the choices expressed by the voters are used to elect representatives through two different systems: one List PR system and (usually) one plurality/majority system, but where no account is taken of the seats allocated under the first system in calculating the results in the second system (187).

Advantages and disadvantages of Parallel system

One advantage of that system is that if there are enough PR seats, small minority parties which have been unsuccessful in the plurality/majority elections can still be rewarded for their votes by winning seats in the proportional allocation. However, Parallel Systems do not guarantee overall proportionality, and some parties may still be shut out of representation despite winning substantial numbers of votes. Parallel systems are also relatively complex and can leave voters confused as to the nature and operation of the electoral system.

7. The Two-Round System (TRS)

This is a majority system, like in the Ukraine, in which a second election is held if no candidate or a party achieves a given level of votes, most commonly an absolute majority (50 per cent plus one), in the first election round. A Two-Round System may take a majority-plurality form, like in France, where if no candidate gets 50%+1 votes in the first round, then any candidate who has received the support of 12.5% of the voters can take part in the second round (187).

Advantages and disadvantages of TRS system

TRS systems lessen the problems of 'vote splitting', the common situation under First Past the Post (FPTP) elections, e.g. in Britain, where two similar parties 'split' their combined vote between them, thus allowing a less popular candidate to win the seat. It is often said that in the first-round you vote with your heart, and in the second you vote with your head. Hence there is less need to vote tactically in the first-round but more so in the second round. It also allows voters to have a second choice for their chosen candidate in the second round, or even to change their minds on their favoured choice between the first and the second rounds. TRS, because of its simplicity, may be better suited to countries with widespread illiteracy than systems which use preferential voting like the AV or the Single Transferable Vote. That's why it is a dominant system in former French colonies. It is used in 38 countries (15%) (186). Its main disadvantage is similar to the First Past the Post system since it also favours larger parties. Research has shown that the TRS in France produces the most disproportional results of any Western democracy

The table below shows how these voting systems have been used in various countries:

Electoral Systems in the EU and OECD Countries					
	Electoral aystem for national legislature	Type	Tiers	No. of MPs	Electoral system for president
Austria	List PR	PR	3	183	TRS
Belgium	List PR	PR	1	150	
Bulgaria	List PR	PR	1	240	TRS
Cyprus	List PR	PR	1	56	TRS
Czech Republic	List PR	PR	1	200	
Denmark	List PR	PR	2	179	
Estonia	List PR	PR	2	101	
Finland	List PR	PR	1	200	TRS
France	TRS	Plurality/Majority	1	577	TRS
Germany	MMP	Mixed	2	598	
Greece	List PR	PR	2	300	
Hungary	MMP	Mixed	3	386	
Ireland	STV	PR	1	166	AV
Italy	List PR	PR	2	630	
Latvia	List PR	PR	1	100	
Lithuania	Parallel	Mixed	2	141	TRS
Luxembourg	List PR	PR	1	60	
Malta	STV	PR	1	65	
Netherlands	List PR	PR	1	150	
Poland	List PR	PR	1	460	TRS
Portugal	List PR	PR	1	230	TRS
Romania	List PR	PR	1	345	TRS
Slovak Republic	List PR	PR	1	150	TRS
Slovenia	List PR	PR	2	90	TRS
Spain	List PR	PR	1	350	
Sweden	List PR	PR	2	349	
United Kingdom	FPTP	Plurality/Majority	1	650	
Croatia	List PR	PR	1	151	TRS
Macedonia	List PR	PR	1	120	TRS
Norway	List PR	PR	2	169	
Switzerland	List PR	PR	1	200	
Turkey	List PR	PR	1	550	
Australia	AV	Plurality/Majority	1	150	
Canada	FPTP	Plurality/Majority	1	308	
Japan	Parallel	Mixed	2	480	
New Zealand	MMP	Mixed	2	120	
United States	FPTP	Plurality/Majority	1	435	

Source: **IDEA**. Electoral Systems in the EU and OECD Countries ⁽¹⁸⁹⁾

Representatives' accountability and recall

What should we expect from an elected representative?

Having reviewed most typical electoral systems in western democracies, describing their advantages and disadvantages, I will now propose a reformed electoral system for the EF. Do not expect to find on the next few pages a detailed description of such a system but rather some key principles to alternative electoral system that in my view would better support the new style of democracy and the goals of the European Federation, including fighting existential risks. The key requirement is to have a fundamentally new way of executing a democratic mandate given to a nation's representatives by the electorate. That would require an electoral system, which would not be limited to just selecting a representative to a parliament but most importantly a continuing accountability of the representative's conduct over the whole term. Only such a system of election and continued control may deliver a significant improvement to democracy. Let's first look at the role of a representative, such as an MP.

For democracy to work properly, the representatives of the people must be a little more competent than those who have appointed them. The voters' representatives must have the capacity to consider the prosperity of **the whole society** or a local community, and not just the electorate by whom they have been mandated. Unlike during a referendum, during elections, there are a multitude of issues where interests of the voters are widely dispersed and the issues are quite often local, e.g. building a new motorway stretch passing through densely populated area. Therefore, elections are more resilient to populism than referenda. On the other hand, to counterbalance the voters democratic right to be guided solely by their own particular interest, a democratically elected government must be something more than a mapping of the social antagonisms exposed in an election. In that near idealistic situation, the representatives e.g. MPs, should, when it is appropriate, make decisions for the benefit of the society in general, rather than just reflecting the wishes of his voters. They must consider themselves as representatives of their voters to deliver the best solution for those voters, **as the representative sees them**, rather than always repeating the wish of the **majority** of his constituency when voting in the parliament.

However, these days there are fewer and fewer such idealist MPs, as there are fewer idealistic voters. People behave much more egoistically than they used to both in their private as well as in public life. So, the problem does not concern solely the elected representatives but many public officials, such as policemen, doctors, teachers, journalists and even in some cases, judges. The rise of agnosticism and with that, the abandonment of many Christian values, which were the backbone of western societies for centuries, might be one of the causes, but it is a separate problem, outside the scope of this book. In any case, a voter communicates directly his particular interests through his political choices. That is why already in antiquity democracy was termed as "the curse of the tyranny of the majority". Is this the way, in which democracy returns to its point of origin – 'everyone for himself'?

In an ideal situation, an elected MP who votes on a certain issue in the parliament should be guided in his decisions by two factors:

- He is a representative of his constituents' general views on how the country should be governed
- The constituents should trust his judgment, knowledge and experience, so that he can make the best decision (in his view) on behalf of his voters on particular matters, even if sometimes, the majority of the voters would have voted against such a decision.

How can we then overcome that weakness embedded in democracy and improve the situation? The first idea that comes to mind is to have a widespread continual programme in the media, especially during the election campaign that would explain this crucial point of misunderstanding of the role and the moral obligations of an MP about which I have written above. Voters should be told that by casting a vote, they trust their representatives to make decisions on **any** matter, using their best judgment. **On average** they would be voting in line with the voter's expectations because generally their views are broadly in line with their voters' views, e.g. he is a social democrat. However, that does not mean that he would vote always in the same way, as the majority of his voters would have voted, had they had a hypothetical means to do so.

I would like to illustrate that point further by referring to the debate in the British Parliament on the conditions, in which the MPs could authorize the government to invoke the Article 50 of the EU Lisbon Treaty. Most MPs thought that the government's Bill on Article 50 should pass unopposed, because the people have already spoken in the referendum. However, some MPs took a different view, with which I entirely agree. They believe that they are not just a delegate to pass on the voters' wish, or a simple extension of the "voting mechanism" for tens of thousands of their constituents, but they have been **entrusted by the voters to make their own judgement**, especially on difficult matters. That is a good example that in some cases the representatives do have the right to vote against the wishes expressed by their electorate.

To make voting for members of parliament in a representative democracy even more meaningful, there needs to be a stronger bond between MPs and their constituents. In most countries there is a system of a party discipline during a vote in a parliament, instructing party member how they should vote. In the UK it is called 1-line whip, for less important decisions, 2-line whip for more important ones and 3-line whip for the most important decisions. When there are strictly moral decisions such as a ban on smoking or abortion, frequently a free vote is granted, meaning MPs can vote according to their conscience.

However, in my view, if the chief whip (who is responsible for the party discipline) exerts too much control over MPs voting, it could seriously undermine the link between the MPs and the voting preferences of their constituents. That does not mean that the institution of the party whip should be abolished. It plays, in my view an important

function to keep the cohesion of a party to realize the program it has promised to implement to its voters. However, the way the decision on 1, 2, or 3-line whip is made should change. For example, 1-line whip could be decided by the chief whip himself. The decision on how the party members should vote on a 2-line and a 3-line whips should be decided by all MPs in a simple majority vote (even by email) on how they should vote, **before** the actual voting in the parliament.

How can we increase the representatives' accountability?

I have discussed this subject quite extensively when reviewing the pros and cons of embedding the principles of sortition into democracy. But we need to look at this subject outside of the sortition context to see more clearly how the accountability of a representative could be maintained throughout his term. This subject does not relate only to MPs but also to representatives at any level of governance but I will focus on MPs only, since the weight of the problem is the gravest at a national level.

There are two main reasons for recalling an MP:

- MPs misconduct for example, by 'abusing the trust of the voters', or by not showing up at the Parliament
- Going against the pledges in MPs manifesto.

Let's take an easier case first – an MP's misconduct. The latest example of debating the recall of MPs because of misconduct was the sexual harassment at the UK Parliament in the early months of 2018. In a survey carried out by the Westminster MPs' working group more than 250 people said they had seen or experienced sexual harassment over the previous year. That triggered the Parliamentary Standards Commissioner investigation into the MPs conduct. Unless such harassment is of criminal nature, the only penalty that the Standards Committee can set against an MP is to recommend his suspension for a specified period, which would have to be voted through by the Parliament. If one considers consequences of such sex harassment in other domains such as the film industry or in the corporate world, the guilty person will usually lose the job. The most famous case that triggered the revealing of similar cases world-wide was Harvey Weinstein's affair in the autumn of 2017. Why does it not happen to MPs?

Just several years earlier in 2009 there was another scandal at Westminster lasting three years, this time involving MPs expenses. Most MPs were involved but only three were suspended. That was the reason for the British coalition conservative-liberal government to propose a new law for recalling MPs. It read: "...the Speaker of the House of Commons would trigger the recall process, namely a custodial prison sentence, suspension from the House, ordered by the Committee on Standards, for providing false or misleading expenses claims" (190). The trigger for the recall would be a petition of a minimum of 10% of the electorate, in which case the MP would have lost his seat and a new by-election would be called.

Despite the fact that the petition threshold was so high and the terms were very difficult to put in motion (the case of misconduct would have only been investigated by MPs and not by any external, independent bodies), most MPs voted against the passing of that Act. This is another example of cosy relationships among MPs and other professional bodies, e.g. in Britain - the Royal Society of Medicine. How to make then MPs responsible for their misconduct and eventually recall them from the Parliament, replacing him with a new MP?

I think the proposals in the area of MPs misconduct are not that difficult to put into law. They are difficult because they undermine the current untouchable position MPs occupy. It is the unwillingness of MPs to accept the need for change which is a barrier, nothing else. The proposal discussed in the British Parliament in November 2014, would have been in my view 'good enough for now' had it had a different procedure for the recall. I would agree with the minimum 10% of the constituency's population is just about right (although, if e-democracy becomes a norm, a 20% threshold would have been better). However, what has to change is that the decision on putting a proposal for a recall to the Parliament should not be in the hands of the Parliamentary Standards Committee but an independent body. There is already the Independent Parliamentary Standards Authority (IPSA), which was set up in 2012 for deciding the increase of the MPs' salaries. The same body, or a similar independent body, should make a decision on an MP's recall.

A far more difficult subject is the recalling of an MP because of his failure to perform according to the 'electoral pact' made between him and his electorate, namely that he would represent them to the best of his knowledge and skills delivering the pledges in his Manifesto. What should his voters do, if he evidently fails that duty? If I may continue the UK example, in a representative democracy based on First Past the Post system, the voters who live in a given seat would be able to recall their MP, irrespective of who he is, even if he/she is a Prime Minister. In Germany, which has a Mixed Member Proportional system, where half of the MPs are elected from the lists, it would not have been so straightforward. The opponents may argue, that there are many ways an MP can be monitored indirectly, e.g. in which Committees, and how often he speaks, presenting cases of his constituents, etc. And then, all MPs in most countries do have regular meetings with their voters informing them on what they do.

The opponents also argue that the recall mechanism completely undermines the principles of the representative democracy, by making elected representatives afraid to make unpopular, but necessary decisions. Furthermore, the opponents of the recall say that the mechanism could be used irresponsibly, and that it could be used by political parties as a weapon aimed at triggering a by-election and giving their candidate a chance to replace the MP who in their view is 'in the wrong'.

However, those who favour the recall mechanism argue that it acts as a discipline on the elected representatives, in that they will be less likely to brake that 'electoral pact' if such a recall procedure is in place. Additionally, a recall mechanism is at the foundation of democracy and especially, the direct democracy and sortition, because it

provides voters with the continued opportunity to take their representative to account for his work in the parliament.

There are very few proposals for increasing the level of accountability of MPs towards his electorate. One of the least controversial is, in my view, the proposal put forward by the Unlock Democracy - the UK's campaign for democratic reform, which published a document "Real Recall – A blueprint for recall in the UK" (191). I quote their recommendations in full with my comments and caveats.

"Our recommendations are based on one fundamental principle: recall should be a mechanism for political accountability, not a judicial or disciplinary process.

- A constituent who wants to recall their MP should be able to apply for a recall petition on demand. The threshold for a successful recall petition should be 20% of the number of registered voters (*if we consider digital petitions within e-democracy systems, otherwise 10% proposed by the UK Parliament in 2014 is a more pragmatic approach – TC*). Recall campaigns should have 90 days to collect the required number of signatures.
- Constituents triggering a recall petition should not have to specify the reason for the recall on the petition. (*I would think just to the contrary. A petition to be valid must have reasons clearly stated and supported with some facts - TC*)
- Signatures for the recall petition should only be collected by volunteer canvassers for recall campaigns who register with the electoral authorities. (*This should also be the case for digitally collected petitions - TC*)
- A valid recall petition should trigger a recall referendum, where a simple majority recalls the targeted politician. If the recall referendum is successful, the MP's seat is vacated and a by-election is held
- There should be a grace period of six months before and after a general election and six months after a recall referendum or by-election when no recall petition can be triggered.
- Organisations which spend more than £500 campaigning in support or opposition to the recall petition should register with the local returning officer. Spending limits should be set in proportion to existing constituency limits on a candidate spending, with increased limits if the recall process proceeds to a referendum. Donations to recall campaigns should be in line with existing rules on political donations
- The government should investigate recall provisions for other roles, including directly elected mayors, police and crime commissioners and local councillors."

The Weighted voting system - should everyone's vote be equal?

The inconsistencies of the current system of applying voting equality

Being a voter means that someone performs that function because he has certain rights. Everyone has the same rights at birth – he has an implicit voting right that he can

execute once he becomes an adult. Every vote has the same weight, every vote is equal and it cannot be increased or decreased by any additional factors. Equality has been the cornerstone of the western democracy for over two centuries. The principle of equality comes straight from the French revolution: *liberte, fraternite, égalité*. That has served us fairly well and has become the backbone of the western democracy.

However, equality is not as simple a principle as we are being told. In the UK, both Labour and Conservative governments have been rightly trying to make this principle plain: everyone has to have equal opportunities at birth but not the same equal rights in the share of the national wealth. This should only depend on such factors as ability, education and simply on the kind of work performed over a citizen's life. That is why people working at different levels of organisations are being paid depending on their contribution to the company's performance. Not everyone can be a doctor, not everyone can be elected to the parliament, or be a judge.

Another example comes again from the UK. On 4th December 2015, the UK Prime Minister Cameron wanted the European Union to agree to the requirement that for any migrant to claim benefits he would have to work in a given country for a minimum of 4 years. But since that would have been breaking the EU rule of equality of access to services and benefits for every European citizen, the proposal was rejected. Perhaps just for that reason we now have Brexit. Anyway, what he proposed was actually a weighted right to benefits.

Why should an electoral voting system be an exception? Why each vote must have the same weight and impact on matters of governance of a country, irrespective of how capable a voter is of making decisions on complex matters of economy and the state? Is that fair or even is that just? Shouldn't his voting weight depend on his knowledge, engagement or contribution to his country not so much in the taxes he has paid but his abilities to make a reasonable judgment on complex matters that may depend on his education and experience?

We already apply a kind of a weighted voting by denying children to take part in the elections because they would not be able to make a rational judgment. That is certainly a restriction. But there is a good reason for doing this - we do not want people with no idea of what politics is about to have any influence on political decisions. Applying a minimum age to voting rights is an attempt to filter the ignorant and incompetent out of the voting process. However, at the same time, we have evidence that many adults are sometimes even less capable of making a rational judgment than some teenagers. Why should the teenagers be discriminated in the elections and some, utterly uninterested or even illiterate adults, have that right?

In some countries some politicians question whether it is right to give disproportional voting power to those who have very little understanding of how their country is governed. Others may question whether it is just and fair that those who are net beneficiaries, rather than net contributors to the wealth of a given nation, should have a say on the level of taxation. Without any prejudice but only reviewing the facts, over

1/3 of British adults are at the lowest level of literacy (level 1 or below) (157). Should such voters' vote have the same weight as those ones that are far better educated and experienced in ever more complex matters of today's world? Should their understanding of how wealth is created and which priorities should be assigned when allocating financial and material resources, matter as much as that of any other voter? Probably not, but this is how equality is being understood today since at least the time of ancient Athenian democracy and the French revolution.

Such questions as above need to be asked openly, even if solutions to resolve them may not be easy to accept and implement. People may need to change their views on what is justice and fairness, or what is safe and prudent to do for a nation not just from today's perspective, but from a long-term point view, which is of course, much more difficult to do. That also includes the voting equality.

Let's consider what is the desired outcome of the vote cast for the whole population of the country? It is for the country to elect the most capable people who would make decisions in the most rational and effective way blended with compassion when appropriate, for the benefit of all citizens because only then the benefits created will be optimal. To achieve that, the weight of the vote could depend on voter's engagement in the country's affairs, his knowledge of how the country is run and its internal and external activities. The current voting system contributes to a large extent to the system of governments that does not reflect the true will of the widest population, allowing that will to be manipulated by populists.

In the end, it is in everyone's interest to get governments elected more rationally so that they deliver in the most effective way the decisions that the majority of us want. Therefore, as the world becomes more and more complex, shouldn't the equal power of a single vote be replaced by a **weighted voting system**?

Historically, weighted voting has been applied in many countries since at least Roman times. In 19th century it was applied in Sweden, France and in Britain and was mainly based on gender (women could not vote), social or financial position, or taxes paid. Today, such a weighted voting system based on financial contribution would be utterly unacceptable. That should rather be based on other principles such as voter's capabilities of understanding sometimes complex political decisions that are largely correlated with his education, interest in politics and the matters that are important for the country, or his experience in executing social or governmental positions (if it is relevant). Only then can we eliminate populism and implement difficult decisions based on the understanding by the electorate that there is simply no easy way to overcome the problems that a country can have at the time.

Adding some weight to each vote in line with some criteria, such as voter's education level and contribution to the society or communities they live in, would lead to electing representatives in a more rational and less emotional way (being more immune from the half-truths of many populist politicians). But that would mean that some people would influence the election results more than others. Many voters would say, it should

never be done – equality means equality, it is an outrageous idea. Well, we have exactly such a system of weighted voting at the heart of the EU. It was introduced by the EU in the Treaty of Nice (now part of the Treaty of Lisbon) for decision making by the European Council. The countries voting rights are directly related to their contribution/impact in the EU (mainly the country's population).

Some people say that one of the solutions to get voters more engaged and not being lured by populist politicians might be a better education. However, in my view, that will not be enough. Traditional education and communication (assuming it will be free of fake news), should be improved, especially adult education. However, that is a long-term solution. We simply have not got enough time, barely till about 2030 to change democracy fundamentally, as I have argued throughout the book, specifically in chapter 8, Part 1 and chapter 2, Part 3. Therefore, we have to apply other means, which may be more direct and act much faster, as I propose in the sections below.

In summary, I believe the weighted voting system, combined with sortition is probably one of the key measures that need to be taken to save democracy so that it works much better for all of us. I agree, almost any system of weighted voting will have some disadvantages, that's why we need to get wider experience and select a system that would work best for all.

AI-based solutions advising on voting options

Personal Life Mentor

In 10 years', time many people will have a Personal Life Mentor application in their smart phone or even implants in their brain. These applications will be much more sophisticated than the current Google's Personal Assistant or Amazon's Alexa. How could it help us in selecting a more representative Parliament and protect the voters against the extremes of populism?

Well, this is an idea I have been currently working on. It is the concept that I have developed in the last 10 years, and which is currently being discussed with one of the London Universities and an AI company. Knowing how fast the market operates it will probably not be me, who gets that product on the market. The important message is that such a product will certainly be developed most likely in less than 5 years' time. So, I am using the features offered by my prototype as if it had been available in the future product. What would those features be?

In a nutshell, such an application available on a smartphone or other medium would communicate with the user in a natural language, which Personal Assistants can do quite well even today. But of course, it will be a much more sophisticated Personal Life Mentor that would acquire through a series of long structured conversations with you, an almost absolute knowledge about you. It would know who you are as an individual, your psychological profile, your character traits, your life goals, objectives, and daily tasks, your strengths and weaknesses, your opportunities and threats, your skills,

education, friends, family members, your detailed life journey with pictures and video. **And it will also know your political preferences.** Since such a Personal Life Mentor would of course know more about politics and the world than an average Joe Blogs, it would be able to give you an impartial advice on which party to vote for, taking into account your preferences, and justifying to you its selected choice. Now, you are a free man and you can ignore the advice and rather be guided by your emotions. We are not robots; we are humans and as the Roman philosopher Seneca rightly said *Errare humanum est* – to make an error is human. And that’s the first part of his motto, which would nicely go along with your emotional choice, against the wisdom of your Personal Life Mentor, which would probably add the second part of Seneca’s motto: *Sed in errare perseverare diabolicum* - but to make errors persistently is diabolical.

So, in the end the choice will still be yours. Sometimes, the difference between your gut feeling for which party or a candidate to vote, your intuitive choice, and your Personal Life Mentor’s choice is between what is good for you in the short term and in the long term. The prototype that I have been developing almost always takes a long-term view because after all you want to fulfil your life goals, which are very long-term. But you can try to discuss with such a Personal Life Mentor the best option for you if you just want to consider the consequences of your vote in the short-term.

But back to serious matters, one way of overcoming the plague of populism, xenophobia, and to some extent racism, would be to make such Personal Life Mentors freely available as part of the standard software on a smart phone. It will not only guide you on making your political choices, such as party membership or voting in elections. It will also advise you in the most effective way to achieve your objectives and life goals consistently and just sail across the ocean of your life most effectively with a dose of spontaneity and randomness, not too troublesome, with bad choices thrown in, to add some spice to your life.

A political quiz – the more you know, the more say you have

One of the options to make a vote’s weight assigned more justly and equally is ‘A political quiz’. There are a number of such ideas but the simplest one is perhaps the system proposed by Stefan Hansen (192). This system seems to preserve both the voting equality, as well as fairness. It could be easily implemented but could not be applied in on-line voting. Without going into too much the detail, here is how it could work.

1. On the election day a voter goes to the polling station
2. Voting is mandatory
3. He casts his vote using a digital terminal. But before he selects his candidate, he must answer 10 randomly selected questions out of 500 on the country’s system of governance and current economic or political problems that the country is facing. Only then can he press the button.
4. If he answers all questions correctly, his vote’s weight is 100%. But if he answers only 4 of them, then the weight of his vote is reduced to 40%.

- 5. The questions would have been prepared earlier by an independent body and approved by the parliamentary committee, which would be composed of MPs in the same proportion as the proportion of the votes cast for their parties in the previous election.**

The benefits of this system are quite obvious, such as:

1. Nobody is discriminated. Everyone's vote is equal at the start, like everyone should have equal opportunities at birth, but which may not lead to the say outcome
2. The voting age could be lowered even to 14. If that is supported by an extended programme in all schools on how the country is governed and what are the main current problems the country is currently facing and potential solutions, then it would have increased the teenager's motivation to learn and later on be more actively involved in the country's social, economic and political matters.
3. The impact of the voting adults who have no interest, or hardly any knowledge, on how the country is governed, will be minimized. That would result in a more rational and effective government
4. It would significantly reduce the impact of populism, since the fake news would simply lead to wrong answers at the polling station.

There are at least two objections that could be raised. First of all, such a system could not work well in on-line voting, since people could find the answers on the Internet. That is true, but this could be counterbalanced by lowering the weight of votes given on line.

The second objection might be that people will have no other realistic option than go to the polling station. Additionally, the voting could take 10 or more minutes. If this is the case, voters may not bother to vote. To that I would say, that this is simply a minimum duty a citizen should do for his country and the voting should be made mandatory. I am a strong supporter of mandatory voting. The objections against the mandatory voting are another example of how we have mixed up the concept of rights and obligations. We do not have an absolute, unconstrained freedom that is given to us free of charge – protecting our freedoms costs a lot of money. The same goes for rights. The protection of your right to free education, free emergency health care etc. costs. Yes, it is covered from our taxes, but a society is not just a shop where the relationships among the participants are only about the price and quality. They are much more about things that make us human. Therefore, with rights come obligations. For example, in some countries, it is a criminal offence not to help somebody who is in need e.g. has a heart attack on the street. Additionally, the voting could be extended to 2 or 3 days, or there would have to be many more polling stations.

A political quiz by Isidewith

This is another opportunity to make voting more engaging and enabling voters to select the party, which best supports their needs. It is an Internet-based initiative called iSideWith.com (193). It was started in 2012 and is a kind of a political questionnaire,

where a participant is asked a minimum of about 30 questions with further 100 supplementary questions on matters of government and country's politics. He can agree or disagree with the statements (5 options). The answers are then compared with the Manifestos and other official documents issued by each of the parties in a given country. The result shows you the party, with which you have the highest affinity (in percentages), as well as percentages for the other parties. The system is used in about 50 countries. In 2017 it had almost 50m users in the USA, 5m in the UK.

I believe this is an excellent initiative that could be tried out as an official support for voters at the polling stations. The only caveat I would have is that such an application should be government vetted by independent computer specialists to ascertain that its scoring system is objective and not biased towards any party.

3

PART 3: Transforming the European Union into the European Federation

Chapter 1

The options for the EU transition into the European Federation

The ‘ever closer union’

The British referendum on continued membership in the European Union, held on 23 June 2016 may lead to profound changes not only throughout the UK but also much more importantly throughout Europe and the world. I do not believe that the EU will collapse under the pressure coming from the UK’s referendum result. Real Brexit will most probably not happen, at least because of the perturbations it would have created in Northern Ireland, Scotland or Gibraltar, not to mention an economic disaster for Britain negatively impacting future UK generations. The UK would become a vulnerable political rump by stirring up nationalistic tendencies in the whole United Kingdom, where, in theory, even London could form a separate entity (after all, it is bigger in economic and population terms than Scotland).

From the EU’s perspective, Brexit is a mixed blessing. On one hand, EU would finally have more freedom to move forward towards a closer integration since ‘the great nation constantly pressing on the brake pedal’ would no longer be there. On the other hand, it is a pity that Britain did not abandon its dreams about playing an independent and more important role on the world’s scene by being outside the EU. If it had instead changed its attitude to the EU and rather than ‘sitting on the fence’ would have got deeply involved in the EU reforms, such reforms might have been implemented in a more balanced way, whilst not dampening the accelerated integration. In any case, Britain’s exit would be a shock for the EU, in the unlikely scenario of the UK leaving on WTO terms.

It is certain that the EU cannot stand still because it would have been a symptom of deep paralysis that might on its own lead to the EU’s disintegration. Here, I wholeheartedly agree with the EU Commission’s view that EU badly needs more integration not less. However, I would put a caveat: such integration needs to be much faster than at any time in the EU’s history, leaner and “smarter”, i.e. involving EU citizens much more directly, and controlling the process through well thought out phases.

As you might have guessed, I have voted ‘remain’ in the EU referendum and am a strong supporter of a federal Europe, provided that such a federation will affect our life at as little as possible. Additionally, such a federation must simultaneously meet the criteria for fulfilling the role of the future World Government, since this would probably be our only real hope of mitigating Humanity’s existential risks. I know this view goes absolutely against the grain of the current situation but I believe that in about a decade such a federation must happen. Otherwise there will be no EU. How can this

be achieved? Well, Brexit provides a welcome backdrop to future EU initiatives and makes any reforms more obvious than otherwise might have been the case.

In the most general terms, such a federation would have to be a slim variant of the United States, mainly for cultural reasons. The social, cultural and language differences are far more profound in Europe and other countries that might join the Federation at some stage, such as Japan, than in the USA. Therefore, the 'federal layer' would have to be very shallow indeed and include the foreign policy, defence (as part of NATO) and economic policies, including common currency. The rest of the laws currently enacted in the EU should be devolved back to individual countries.

Anyone who thinks that collapse of the EU is an exaggeration should be reminded how close the Eurozone and indirectly the EU was already to such a momentous event on Monday morning at 6 am in Brussels on 13th July 2015. That was the moment when after 14 hours of dramatic talks the EU leaders decided they had reached a dead end on the Greece's bailout deal in its Euro crisis. With no room for compromise, neither of the two leaders saw any reason to carry on. Grexit was the only realistic option. As Merkel and Tsipras were leaving the room, it was Donald Tusk, the EU Council President (the former Polish Prime Minister), who made the very last attempt to prevent the Eurozone and possibly the EU from collapse, saying **"Sorry, but there is no way you are leaving this room"**.

So, the EU collapse can happen quite suddenly, especially if several critical events happen at the same time. After all, what I have been saying in this book several times, the world has stopped changing linearly. For the last few years, it has been changing at nearly an exponential rate. What at the beginning of the 21st century took a decade; it takes about a year or two now? Take examples from science, medicine, e.g. cancer and stem research, when every week we have at least one fundamental discovery or a new potent drug. Think about the speed with which massive migration came to Europe or how soon Technological unemployment could be with us (in 20 years' time there will be more robots on the planet than people) etc. The economic, political and military competition coming from China, Russia, India, Brazil, Indonesia etc. will be so powerful that Europe consisting of individual states, as now, does not withstand such pressures and will fall apart with potentially catastrophic consequences.

In Europe, the clear winner would be Russia. It would be emboldened by the weak EU and might try to annex either directly or indirectly the neighbouring territories, initially the Baltic Republics, the whole Ukraine and Moldova. Later on, it could paralyze the democratic processes of other countries, such as Scandinavia, Poland and South-Eastern Europe through the process known as 'Finlandization' that some of the readers may remember from the time of the cold war. It referred to the decision of a country not to challenge a more powerful neighbour in foreign politics, while maintaining national sovereignty. It is commonly used in reference to Finland's policies in relation to the Soviet Union during the Cold War (known as Paasikivi-Kekkonen doctrine). But it can also refer more generally to similar international relations, such as Denmark's

attitude towards Germany between 1871 and 1940, or the policies of the Swiss government towards the German Nazi regime immediately before the World War II.

If the EU follows Germany's current line, trying to find a cautious, middle ground then it will only lead to procrastination of the necessary deep reforms of the governance, which may in turn create greater chaos. Some Central European countries such as Austria, Hungary or Poland might find themselves quite likely being governed for many years by very right-wing governments and fall into a chaotic, and from international perspective, dangerous states. Western Europe is too liberal to withstand a dramatic pace of change blowing from Africa and South East Asia in political, cultural and economic context. We may yet see some horrific events linked to violent migration or revolutions in countries such as Germany, which is completely unprepared to withstand such pressures. If a Federal EU does not happen in the next 10 years, it is highly likely that Europe will not survive such tensions coming from the Euro crisis, tension in relations with Russia, or massive migration.

So, we need a federal Europe as quickly as possible. To achieve this, the current generation of politicians must be superseded by a new breed that will take higher risks, presenting to the electorate the situation as it is, and not selling populist ideas in order to be re-elected. On the other hand, despite a wave of pessimism in recent years about the EU future, it looks as if the European Union has finally started to change the way it operates. It is encouraging to see some concrete steps that drive the European Union towards a much stronger integration, and possibly federation, such as the Bratislava Roadmap agreed in September 2016, President Juncker's State of the Union address in September 2017 or President Macron's vision of Europe he presented in the autumn 2017.

The need for deep reforms in the European Union

The EU has no other option than to move forward 'towards ever closer Union', as it is euphemistically worded in the Lisbon Treaty. The tensions within the EU can only be resolved in the near term by either creating an initial core of the European Federation from the current Eurozone or the EU may be dissolved into smaller groups of 6-8 countries, such as the original 6 founding nations, the Visegrad Group, the Southern Europe and the Nordic Countries. It is still possible to have Europe of several competing blocks with Russia as the king maker. What an unwelcome scenario!

To avoid that, or even worse - the European wars - it is worth to quote the fragments of almost Cassandra-type speech by the former Polish Foreign Minister, Radek Sikorski in Berlin in 2011 when he said to his German hosts: "We are standing on the edge of a precipice. This is the scariest moment of my ministerial life but therefore also the most sublime. Future generations will judge us by what we do, or fail to do. Whether we lay the foundations for decades of greatness, or shirk our responsibility and acquiesce in decline. I fear German power less than I am beginning to fear German inactivity". And then this scaring scenario, which 7 years ago seemed so improbable: **"The break-up [of the Eurozone and the EU] would be a crisis of apocalyptic**

proportions beyond our financial system. Once the logic of ‘each man for himself’ takes hold, can we really trust everyone to act communitarian and resist the temptation to settle scores in other areas, such as trade? Would you really bet the house on the proposition that if the Eurozone breaks up, the single market, the cornerstone of the European Union, will definitely survive? After all, messy divorces are more frequent than amicable ones.” (194) He meant of course the Eurozone not so much as the currency area, but an area of highest level of integration in the EU, which could be the best hope for keeping Europe together.

Today, in view of the Euro crisis of 2014-2016, migration crisis 2015-2016 and Brexit 2016, this scenario is far more plausible than we are willing to admit. Therefore, EU must undergo a series of significant reforms such as those listed below (195):

- **Inefficient policies.** A large percentage (40%) of the EU spending goes on the Common Agricultural Policy. For many years this distorted agricultural markets by placing minimum prices on food. This led to higher prices for consumers and encouraging over-supply. Reforms to CAP have reduced its size, but not eliminated completely. A significant existing problem with CAP is that it has rewarded large land-owners, with little reflection of social benefit.
- **Problems of the Eurozone.** The single currency has proved to have many problems and contributed to low rates of economic growth and high unemployment across the EU. There are three major issues: Long-term interest rates and public-sector debt, wage and productivity growth, which differs significantly across the Eurozone and different levels of national debt.
- **Pressure towards austerity.** Since 2008, many southern European countries have faced pressure from the EU to pursue austerity – spending cuts to meet budget deficit targets, but in the middle of a recession these austerity measures have contributed to prolonged economic stagnation. In particular, Greece was forced by its creditors to accept austerity, when some economists have argued this is counter-productive.
- **Excessive bureaucracy may mean less democracy.** It is argued that the EU has created extra layers of bureaucracy while taking the decision-making process further away from local communities. The introduction of qualified majority voting (QMV) means that on many decisions’ votes can now be taken against the interest of a particular country. That is true, but on the other hand if the EU is to overcome other more serious problems it has to be more integrated and become a federation. Had QMV not been introduced more frequently since November 2014, EU decision-making process might have already stalled.
- **Unemployment.** Unemployment in the EU has come down quite significantly since 2016 from a critical point in Spain and Greece, where it reached about 25%, with youth unemployment at 50% level. The main problem is not the fluctuation of the market but rather structural unemployment.
- **Competitiveness Problem.** The Euro has caused a divergence in competitiveness. Countries who face higher labour costs cannot regain competitiveness in the usual way through depreciation. Prices become uncompetitive, leading to lower domestic demand, and high current account deficits. This is another problem that in the long-

term can really be resolved by EU becoming a federation and effectively subsidising the weaker parts of the EF, as every state has been doing for years.

- **The European Central Bank (ECB) has been too concerned for too long with low inflation.** It is argued ECB has tried to maintain low inflation at the expense of lower growth. The ECB, like the UK, has rigidly stuck to an inflation target of 2%, despite the rise in unemployment and poor performance of nominal GDP. This problem, however, depends a lot on global policies in the financial markets and could be best resolved by G7 Group.
- **Bond yields rising too quickly lead to higher borrowing costs.** Membership of the Euro has created a tendency for bond yields to rise much more quickly. After concerns were expressed over Greece, market fears soon spread to other Eurozone countries, like Ireland, Spain and Portugal. This increased borrowing costs put countries under pressure to pursue austerity measures to reduce budget deficits. This, again, is a problem of most advanced countries – the problem of financing the Welfare State and especially the health sector.
- **European Stability and Growth Pact.** This is a constraint on expansionary fiscal policy because in theory it limits governments' borrowing to 3% of GDP. However, the state should be able to borrow money over that threshold, but not for current spending, but only for investments because the profits from those investments would benefit both the current and the future generations. Of course, this depends a lot on the type of investment – infrastructure projects would be ideal for this type of investment.
- **Inflexible Labour Markets.** This is frequently held up as a constraint on economic growth and a cause of structural unemployment. In particular, rigidities in the labour market discourage investment from abroad. For example, in France there are laws which make it difficult to fire workers once they are hired (President Macron changed that law in September 2017). This discourages firms from expanding and investing. Both the IMF and OECD have argued that further labour market liberalisation is needed to regain competitiveness. Even many of the European leaders acknowledge it is a necessity. However, such reforms often face stiff opposition from powerful interest groups who wish to protect the interests of their members. The problem exists but inflexibility has also its merits (stabilising communities), so this area requires a careful judgement.
- **Demographic Changes.** Countries like Germany and Italy have a declining birth rate. This means that the population structure is becoming weighted towards those who are over 50. The traditional population pyramid is being inverted. The increased demands placed on benefits and decline in tax revenue is a serious burden for government spending. It is reflected in continuous increase in public debt.
- **Declining German export.** This will negatively impact the German economy – the powerhouse of the EU.
- **External Security.** Eastern and Central Europe sees the need to prioritize security since it faces an increasingly aggressive Russia. Western Europe on the other hand is less concerned with Russia but more concerned about Islamic terrorism.
- **The Italian banking junk loans** (a mirror situation to subprime mortgages in the USA, which directly caused 2008 financial crisis). The sector's high rate of non-performing loans has reached about 17% of all loans from Italian banks in 2017. It

has not been in any way resolved in 2018, although one of the banks has been closed down.

- **Brexit.** That will negatively impact EU's capability both in economics and in foreign affairs. If this becomes a 'hard Brexit', it will be a problem lasting a decade or more. Sectors such as finance and pharmaceuticals will be most negatively impacted
- **Inter-EU net migration.** Free movement of labour has caused problems of overcrowding, as in the UK, France or Germany. The concern is that the richer EU countries have excessive number of migrants from poorer countries, e.g. from Eastern Europe and are powerless to set a limit on immigration level because free movement of people is the cornerstone of the EU.
- **EU core values and respect for the rulings of the European Constitutional Court.** This is quickly emerging as the most difficult area with significant differences between the Eastern and Central Europe, especially Poland and Hungary, as well as Italy on one side and France and Germany on the other. There are some cracks in solidarity and shared values between the Western/Northern side of the EU and Eastern/Southern side. However, even Germany, France and the Netherlands have not been immune to the critique on how various values and laws are currently practiced in those countries. Hence, we had such troublesome elections in those countries, impacted by the rise of populism. This area is right now potentially a much bigger problem than it may seem to be. That's why the EU must put a strong emphasis on this problem by proposing a new set of Universal Values of Humanity. Additionally, the EU must apply the toughest sanctions possible, especially towards Hungary and Poland if these countries pursue in their deviation from common values and principles of the EU.
- **Lack of strategic vision and strong leadership.** This is partly caused by lack of charismatic leaders, like the former EU Commissioner Jacque Delors, or which may surprise some – German Chancellor Helmut Kohl, one of the main proponents of the Single Market and the Eurozone. Germany's leadership in the EU is still unquestionable. Mrs Merkel may be a good crisis manager, but a visionary she is certainly not.
- **Un-coordinated defence efforts and lack of its own army.** This may change very rapidly, as the first common defence procurement policies have been introduced in 2017. It looks that in a few years' time there will be an EU Army, probably as part of NATO.
- **The challenge of populism.** This has been evidenced by the populist movements across the EU. It started in Greece with the Eurozone crisis, and then quickly extended to Spain and Portugal. The migration crisis in 2015 spread populism from South Eastern and Central Europe to France and the Netherlands. Brexit only re-enforced these tendencies in France, Germany, the Netherlands and Austria. Luckily these populist tendencies became less severe after the elections in the Netherlands and France. However, this is only a temporary respite because there are enough reasons to be unhappy, or in the eyes of populists 'betrayed', so the EU may be going through another such a wave when unpopular political or social reforms will be introduced

- **No tolerance for intolerance.** We may have already forgotten the first serious protest against intolerance in the EU, I mentioned earlier. It was in the Netherlands on 2 November 2004 when Theo van Gogh, a film maker, was murdered by a Muslim man because he had made a film disclosing how Muslim women are treated by their own husbands (happens among all religions and races). That had so enraged the Dutch society, until then probably one of the most tolerant societies in the world, that it started a tide of protests skilfully organized by the maverick politician Geert Wilders.

The lead theme of those protests was: no tolerance for intolerance. That wave of populism was built primarily on real, and quite often exaggerated, examples of intolerant attitudes by some migrants in the Netherlands to the nation who was helping them extensively for decades. If we take the Dutch experience into account, the anti-migration protests in 2015 have at least some explanation. But it also reminds us that we as humans on average have fear of the unknown and that biological trait has served us well over thousands of years. People of different culture, especially if arriving in large numbers in a short time, can disrupt a society very quickly indeed. The arrivals will be soon blamed for all the faults and problems of that nation, some real such as competition on the employment market, alienation or obvious animosity to the hosts for various reasons, and some anecdotal and incidental like rape, theft, or dirt on the streets.

The whole point is that when, like in 2015-2016, there were already economic and political problems in a country, such as in Greece (Euro crisis and high unemployment), or in all Southern countries of the EU (large budget deficits and high unemployment resulting from the financial crisis), then adding additional stress by accepting nearly 2m people from entirely different cultures over two years was bound to create very serious national and international tensions. This is the lesson that EU needs to take into account when thinking about any future EU enlargements such as accepting Turkey, Morocco or Tunisia. EU, or the future European Federation, would almost certainly collapse creating even more havoc and unhappiness both for the people of Europe as well as the citizens coming from such new member states.

- **Corruption.** That exists in every country. The difference is only the degree and the way it is practiced. In the EU the area where it is worrying is the procurement policy and cohesion projects where large sums of money are distributed. The European Court of Auditors is one of the weakest links among the EU's institutions.
- **The Voting system at the European Council.** Although the double majority voting system has been introduced in the Lisbon Treaty, it has only been used since 2014 in about 40% of the EU matters, so a deeper integration will be impossible without changing that system first and then using it in earnest.

The Purpose of the European Federation

I will keep reminding you why we are taking up the subject of the European Federation (EF). Apart from the need to have a credible and effective organisation fighting existential risks **we must halt the current fast and already dangerous path to global political, economic and social disorder**. Once the EF has been established it has to assume gradually the role of the de facto World Government based on some guiding principles that will pave the way to achieving that goal. EU itself can only survive if it moves towards a closer integration that can now only mean a full federalization.

The current legal status of the EU is ‘confederation’. Before we go any further I think I would need to clarify what is the difference between a ‘confederation’ and a ‘federation’: “The difference between a confederation and a federation is that the membership of the member states in a confederation is voluntary, while the membership in a federation is not (although in the US Constitution a state can in principle leave the USA and become an independent country – TC). Some nations which started out as confederations retained the word in their titles after officially becoming federations, such as Switzerland. The United States of America was a confederation before it became a federation with the ratification of the current U.S. constitution in 1788 (196).” The set-up of the European Federation that I envisage is of the ‘federation’ type, like German Federal Republic.

There should be a new style of world governance in global politics led by the European Federation. The rapid technological changes and globalisation will bring about a new global order and new, existential risks such as fast spread of pandemics. This may require extending emergency powers when almost any country will have to give up at least temporarily some of its sovereignty, to an international organization, to overcome the existential risks, such as pandemics, that may require global action within hours. Current emergency powers are used very rarely and in very specific circumstances. These new “emergency” powers may have to be used almost by default; such may be the combination of various global risks that when combined may trigger off an existential risk.

The very first thing the European Federation (EF) will need is its own Constitution, which could become a precursor of the Constitution of Humanity to emphasize the ultimate scope and aims of EF covering not just the European population but progressively all people on the planet. The current Lisbon Treaty could be a good starting point. In the opening articles such a constitution should clarify what this organization is for, and what will be its identity. In the Treaty of Lisbon, it is covered in Article 2 within so-called Common Provisions, which I quote in full:

“Article 2

The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. These values are common to the Member States in a society

in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail.”

The above article could be adopted in full by the EF although the exact wording could of course change. It may also include additional clauses protecting the rights of non-biological species. Today that may seem very controversial but in the context of what this book is about, it is a necessary logical addition, signifying truly fundamental changes and dangers stemming from AI that Humanity may face. Therefore, that article should have an extension reading as follows;

- *The European Federation, in view of fundamental changes in technology and artificial intelligence, recognizes that at some stage we as humans may be living side by side with non-biological conscious species. Therefore, the European Federation commits itself to protect their rights in the same way as the rights of humans.*

From the point of view of maintaining global political, economic and social order, Article 2 of the Lisbon Treaty is absolutely crucial for an effective operation of EF, since it addresses three very difficult questions that we shall try to answer further on:

- What are the Universal Values of Humanity that define us humans, and which we may wish to pass on to Superintelligence?
- What are the necessary reforms to Democracy to maintain global political stability?
- What are the necessary economic and social reforms to achieve social stability?

The Lisbon Treaty further expands the purpose and principles of the EU operation in Article 3, which I will also quote it in full because of its importance and relevance for the European Federation:

“Article 3

1. **The Union's aim is to promote peace**, its values and the well-being of its peoples.
2. **The Union shall offer its citizens an area of freedom, security and justice** without internal frontiers, in which the free movement of persons is ensured in conjunction with appropriate measures with respect to external border controls, asylum, immigration and the prevention and combating of crime.
3. **The Union shall establish an internal market.** It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance. It shall combat social exclusion and discrimination, and shall promote social justice and protection, equality between women and men, solidarity between generations and protection of the rights of the child. It shall promote economic, social and territorial cohesion, and solidarity among Member States. It shall respect its rich cultural and linguistic

diversity, and shall ensure that Europe's cultural heritage is safeguarded and enhanced.

4. **The Union shall establish an economic and monetary union** whose currency is the euro.
5. **In its relations with the wider world, the Union shall uphold and promote its values and interests and contribute to the protection of its citizens.** It shall contribute to peace, security, the sustainable development of the Earth, solidarity and mutual respect among peoples, free and fair trade, eradication of poverty and the protection of human rights, in particular the rights of the child, as well as to the strict observance and the development of international law, including respect for the principles of the United Nations Charter.
6. **The Union shall pursue its objectives by appropriate means** commensurate with the competences which are conferred upon it in the Treaties.”

If this inspiring purpose of the EU is to become the purpose of the European Federation, **it should be significantly expanded to distinguish it clearly from any existing organisation**, including the EU in view of the key reasons, but of course not the only ones, for setting up the European Federation, which are:

1. To protect Humanity from existential risks, especially coming from Superintelligence
2. To prepare Humanity for the time when we will be living side by side with Superintelligence, which may potentially create the best period in human history (if we mitigate the risks successfully).
3. To prepare Humanity for an even more challenging task - a gradual merging of our species with Superintelligence.

I know that many readers may find it difficult to accept such objectives today. If they seem so incredulous then I would suggest thinking about the exponential pace of change in so many domains in the last few years. Developing Superintelligence is the greatest risk we humans have had in our whole history as well as an incredible opportunity. Therefore, I propose that the following clauses are added to the text of the future Constitution, to describe the Purpose of the European Federation:

- *The European Federation sees its key purpose as acting on behalf of all Humanity to continue developing common civilisation based on progress and prosperity, for the good of all inhabitants, including the weakest and most deprived.*
- *Reflecting the will of the citizens of the founding member states to build a common future, this Constitution establishes the European Federation, on which the member states confer competences to attain objectives they have in common. The European Federation shall co-ordinate the policies by which the member states aim to achieve those objectives.*
- *The European Federation shall be open to all States, which respect its values and are committed to promoting them together. All member states on signing this Treaty commit themselves to ensure that their Constitution and the legal system in their countries are fully compatible with the values and objectives expressed in the*

Constitution of the European Federation. Such compatibility will be ascertained by the legal institutions of the European Federation.

- *The European Federation is acutely aware of the great potential as well as existential dangers that may emanate from the delivery of superintelligent agent that may one day become our superior partner or a fatal foe, potentially eliminating the human species. Therefore, one of the keys aims of this Treaty is to ensure that the Universal Values of Humanity are absolutely respected by all and upon continuous verification may ultimately become the values passed on to Superintelligence as representing that what is most human in all of us.*

Single zone or a multi-zone European Federation?

Can EU make a transition into the European Federation in one stage?

Many EU top politicians, like the German Chancellor Angela Merkel, have an idealistic objective of achieving ‘an ever-closer union’, i.e. federalization of the entire EU in one stage, even if it happens at a slow speed. They point to the difference in GDP level per capita, which for the top countries, such as Austria, Belgium or Germany is about 5 to 6 times higher than for the bottom ones, such as Bulgaria and Romania. They also say that waiting for another decade to start the preparation for the Federation, is a safer option because the currently poorer countries will make faster incremental improvements in their GDP and social area than the richer countries, making the differences between members states smaller, and the transition easier.

In my view, choosing this option may win the hearts of those EU countries, which would have been left behind, if just the more advanced, say the Eurozone countries were federated in the first tranche. However, what is being forgotten is that in the meantime there will be new countries joining the EU, which will be less ready than the ‘old’ member states. Therefore, there may never be the right time for all the EU countries to federate together. Waiting a decade or more will be very risky indeed. The risk comes from a higher level of world’s instability, especially in Europe (Russia) and the volatility of financial markets. The further the moment of the federation is pushed back, the higher the risk. This is especially true about the risk the Eurozone may face. That would have also slowed down, or made it impossible to achieve a more difficult goal, which is for the EU to act on behalf of the whole Humanity to lessen the gravity of existential risks. EU simply has not enough time left to move uniformly forward at a slow speed. Let’s look at some statistics to see if at least the Eurozone could be federated in the near future:

EUROZONE GDP and National Debt Level comparison 2016					
State	Population	Nominal GDP	GDP % of Eurozone total	GDP per capita	National Debt % of GDP
Austria	8,712,137	423,906	3.18	48,657	81
Belgium	11,358,379	530,558	4.18	46,711	106
Cyprus	1,170,125	22,519	0.18	19,245	107
Estonia	1,312,442	24,994	0.20	19,044	9
Finland	5,503,132	264,554	2.08	48,073	62
France	64,720,690	2,844,284	22.39	43,947	99
Germany	81,914,672	3,853,623	30.34	47,044	66
Greece	11,183,716	250,095	1.97	22,362	175
Ireland	4,726,078	214,711	1.69	45,431	74
Italy	59,429,938	2,147,247	16.91	36,131	134
Latvia	1,970,530	30,413	0.24	15,434	40
Lithuania	2,908,249	45,185	0.36	15,537	42
Luxembourg	575,747	42,256	0.33	73,393	23
Malta	429,362	8,889	0.07	20,703	57
Netherlands	16,987,330	874,590	6.89	51,485	59
Portugal	10,371,627	222,126	1.75	21,417	132
Slovakia	5,444,218	96,200	0.76	17,670	52
Slovenia	2,077,862	48,625	0.38	23,401	80
Spain	46,347,576	1,366,027	10.75	29,474	100
EUROZONE TOTAL	337,143,810		100.00	33,956	84
Based on sources: https://en.wikipedia.org/wiki/Eurozone and https://www.statista.com/statistics/269684/national-debt-in-eu-countries-in-relation-to-gross-domestic-product-gdp/					

When looking solely at the economic data, there are two important elements: GDP per head and percentage of the national debt. If the Eurozone becomes federated than all national debts will be put into one pot. It is interesting to note that the poorest countries have much lower national debt, (apart from Cyprus, Greece and Portugal), than the richer countries, therefore they will make a relative net contribution to the overall budget. That would come handy to pay for the current difference in GDP per capita in the Eurozone, which is about 2.5 times higher than in the poorer countries. The only ‘problem countries’ are Greece, Cyprus and Portugal but their total GDP is just about 4% of the total Eurozone GDP, so it would have not been an unsurmountable problem. **Therefore, the Eurozone could be federated right now.**

Transforming the Eurozone into a European Federation, a single state, would immediately have most positive effect on the stability of the Euro currency, which would almost certainly increase its value in relation to dollar and other currencies. That might create some transient problems regarding export. However, they will not be as severe as they are now, when each country looks for its own interest in making most from using the Euro currency to minimize the economic burden for itself. That cannot last for too long and there have already been many initiatives in the Eurozone to solve this problem, like establishing the European Monetary Fund (EMF) etc. Resolving this situation alone must now be the most significant motivation for accelerating the transition of the Eurozone into the European Federation.

The EU Commission has an unapproved scenario 6, which envisages that EU should have transformed itself into the European Federation by 2025, which is in my view not very realistic, unless Europe will have to act swiftly because of unpredicted global events. My ‘target date’ is therefore 2030 or thereabout. But the main differences among the EU leaders regards doing it together, or piecemeal. These means starting with the most advanced and mature members first, which might require splitting the EU into one, two or even more zones. But let’s verify once again this assumption that the transition of the whole EU into the EF at the same time is a viable option. To help us in the assessment I have set up some fundamental criteria that the new European Federation (EF) is to meet, if it wants to start the journey on becoming a de facto World Government, the objective that I put forward in Part 1. These criteria are as follows:

1. **EF must have a very “shallow” federalization layer**, mainly in foreign policy, defence, and economic area (common federal budget and currency). That would require significant repatriation of EU competencies back to the EU member states
2. **EF must be based on the agreed set of fundamental values** and democratic principles such as freedom of speech, organization of parties, elections, etc.
3. **EU must be federalised latest within the next 10-12 years**, by about 2030
4. **EF must have a common currency** and facilitate the levelling of economic prosperity across its borders
5. **EF must enable maximum integration of the markets for goods and services** and allow for as free as possible movement of people across the member states
6. **EF must ensure continuing enlargement by accepting new members to make ever more significant global impact** on the future of Humanity.

Can these criteria be met and can a transition into a Federation be done in one stage, all countries joining the EF at the same time. Here is my assessment.

Criteria no. 1 and 2 - EU must have a very ‘shallow’ federalization layer based on the same fundamental values

I believe that if push comes to the shove, the first and the second criteria could be met, even if the entire current EU had migrated into the EF in the next few years. But let’s look at the remaining criteria from the point of view of the current EU members.

Criteria no. 3 and 4 - EU must be federalised in one stage and have a common currency by 2030

This area is difficult because it might directly affect the economic position of every citizen. The EF will have its single Finance Minister with considerable powers. It will have its common budget, interest rate, and currency for all 27 members, and a number of other fiscal policies. Member states will still have some national budgets like the regions of the member states have right now. But those budgets will be smaller and will have to be approved by the EF Parliament, so the degree of control they have now over their budget will no longer be there. Citizens of the poorer countries might benefit significantly from the common budget, while the citizens of the richest countries would

be worse off. That is why the attitude of German and French populations to the prospect of a federal Europe is so crucial. To understand why, let's look at the contribution to the potential EF budget that each country would make, taking into account the most recent GDP data. Please note, this statistic is not just for the Eurozone members, as the one above, but for the whole EU:

European Union Members GDP per capita in 2017			
Country name	GDP/cap in Intern. \$	Population	Area (km ²)
Luxembourg	105,741	589,370	2,586.40
Ireland	69,276	4,774,833	70,273
Netherlands	51,249	17,220,721	41,543
Sweden	49,759	10,080,000	449,964
Germany	48,449	82,437,641	357,021
Denmark	48,230	5,743,947	43,075
Austria	47,726	8,752,500	83,855
Belgium	45,003	11,365,834	30,528
United Kingdom	42,421	65,808,573	243,610
France	42,336	67,024,633	632,833
Finland	42,261	5,499,447	338,424
Malta	39,878	440,433	316
Italy	36,823	61,219,113	301,338
Spain	36,347	46,528,966	504,030
Cyprus	34,961	854,802	9,251
Czech Republic	33,529	10,467,628	78,866
Slovenia	32,216	2,065,895	20,273
Slovakia	31,331	5,435,343	49,035
Lithuania	29,972	2,847,904	65,200
Estonia	29,685	1,315,635	45,227
Portugal	28,916	10,309,573	92,390
Poland	27,690	37,972,964	312,685
Hungary	27,475	9,797,561	93,030
Greece	26,829	10,757,293	131,990
Latvia	25,702	1,950,116	64,589
Croatia	22,937	4,154,213	56,594
Romania	22,349	19,638,309	238,391
Bulgaria	20,355	7,101,859	110,994

Source: Wikipedia - Member states of the European Union

It is obvious which will be the net 'donor' countries, and which countries will benefit. Most of the beneficiaries are outside the Eurozone. That is why it is unlikely that the donor countries, mainly Germany, France and Benelux would agree to such a transition of their national wealth in the next few years in the current situation. But they might agree to do it all together in 2030 for the current members, assuming their GDP rises much faster, which will make the difference between the poor and the rich countries smaller. On the other hand, by 2030, they will be perhaps 8-10 new EU countries, such as the remaining Balkan countries or Georgia, with their GDP again being much lower than the EU average. It is like trying to hit the moving goal post – there will always be countries that will not meet the minimum criteria required to join the Federation. **Therefore, criteria 3 cannot be met by 2030 and a transition to the EF must happen in stages, which will require the presence of zones within the EF.**

Criterion no. 5: EF must enable maximum integration of the markets and allow for as free as possible movement of people, goods and services across the member states

Should the EU transition into the EF include only the current member states, then that would have not been a problem. The EU has almost achieved that stage, apart from the services area and setting up some new EU Agencies. However, like in criteria 3 and 4, the future EF is to take on new members, which will have a minimum 10 years, or even more allocated for a transitional period, where candidate countries will adjust to the EU rules in legal terms, changing their constitution, as well as lower the differences in economic and to some degree in cultural areas. **Therefore, similarly as with criteria 3 and 4, EF cannot be a single zone organization.**

Criterion no. 6: EF must ensure continuing enlargement by accepting new members to get ever more significant global impact on the future of Humanity.

If the EF's long-term goal, as I assume in this book, is to become a de facto World Government it has to enlarge its membership. That would mean accepting initially as associate member states, countries like Morocco, Kenya, Egypt, Iraq, Lebanon, etc. to name just less controversial ones. We have immediately two big problems here. The first one is economic. The difference between these countries' average GDP per capita and the EU's average GDP per capita might be 5-6 lower than the EU's. Single market would simply stop working. It just cannot happen.

But then there is an equally valid argument that is linked to values and culture. Some of the EU countries have diverse nationalities, e.g. Luxembourg, Spain, and especially different percentage of Muslim population, e.g. France (9%), Germany (6%), UK (5%), so they have been exposed to various cultures for decades, if not centuries. Others are more homogenous, such as Portugal, Denmark, or Hungary. Some have hardly been exposed to other cultures for over the last 70 years. Why is this important? Because as the last migration crisis of 2015-16 in the EU has shown, countries reacted differently to new arrivals, mainly Muslims, depending on their previous experience with different cultures and especially with religion.

The best example is Poland, which is the most homogenous country in the EU (97% Poles, 2% other Europeans (Ukrainians, Byelorussians and Germans) and 1% non-European (mainly Vietnamese). (197). That homogeneity is the result of horrific experience that the country suffered during, and after the WWII. The second WW started with Hitler's invasion of Poland on 1 September 1939 in Gdansk. The Allies were supposed to restore democracy and freedom to Europe, including Poland. However, as the result of the WWII, the Soviet Union carved out 1/3 of Poland on the East, adding it to the Soviet Republics (Belorussia, Lithuania and Ukraine) and doing a similar partition of the pre-war Germany in the West, adding about 20% to Poland's territory in the West and making the new Polish border on the Nysa-Odra river. To complete that task, the Soviet army moved millions of Poles living in the grabbed territory in the East, onto the 'new', previously German territories in the West some

may claim, as a justified recompense for the loss of territory in the east and the immense sufferings the Germans inflicted on Poles during the war.

To avoid future problems, the Russians, with some help of the new Polish communist army under their control, forcibly moved 3.5-4 million Germans from the East to the West between 1945-1960 (198). Poland also had the largest population of Jews in Europe before the war (about 10%) (199) because of its relatively lower level of anti-Semitism than in the neighbouring countries. Almost all of those Jews perished during the war in Auschwitz and other Nazi concentration camps. Those memories from the past have shaped the post war culture of this nation which became artificially homogenous by the occupants killing or dispersing 6 million of its largely non-Polish citizens. Such a nation is completely unprepared for a sudden arrival of tens of thousands of people from different cultural area.

There are some other countries in Europe such as, Slovenia, or Bulgaria who have not been exposed to different cultures for many decades for different reasons than Poland. It will take time before such populations to become more open to migrants from other cultures. Enabling some kind of association with countries in other parts of the world, as the EU has already been doing, is most welcome, but to integrate them in very large numbers in a short time into the EU is absolutely impossible.

Conclusion: EU cannot move forward towards a federation as one organization. There have to be multiple zones

The Zones of the European Federation

The arguments above confirm that the EU transition into the EF should not happen in one stage, nor the EF should become a single zone organization. The only realistic way forward seems to be creating some interim zones, which would allow member-states to move to the next Zone up at their own speed, ultimately joining the European Federation. Doing it piecemeal is, in my view, also the best way forward because the federation will show other countries outside that zone how it works in practice. This is the process broadly supported by President Macron and Jean-Claude Juncker, the President of the EU Commission. There is also an additional argument for a multi-speed, multi-zone EU. Namely, the transition of the whole EU in one stage in the next few years may increase the recent 'awakening of the national spirit' in some countries that border on nationalism, as can be evidently seen even in countries such as France. A proposal for federalization of all members at the same time would have been at this moment badly received by the population of most countries of the EU. They realize that a federation would mean the loss of their national sovereignty, which might only antagonize the population of those countries even more and lead to stronger anti-European Union sentiments.

Taking all this into account, and especially the tensions about common EU values, and seeing what tensions there already are within the EU, I do not think that starting now a transition of the whole EU into the European Federation in one stage is feasible or desirable. Instead, **EU should start the process of making such a transition in**

stages, which would require the creation of a multi-zone EF. I will now take the conclusions from this analysis as the starting point for a multi-zone European Federation.

I have reviewed several options to see how many zones the future EF would need and what should be the criteria for each zone. The zones differ between each other mainly by a degree of limitation of the members' national sovereignty that they may have to give up on behalf of the EF. These could be, for example, the control that the EF would have over the members' policies, e.g. common foreign policy instead of member states being in charge of their own foreign policy, or setting up budgets. These are, of course, my assumptions – reality will certainly be different. Let's review first the available options regarding the relationships between the EF and the remaining member states currently in the EU, which will not make a transition yet, as well as, the potential new members.

I assume, as I said earlier, that a transition from the current EU into the European Federation will not happen in one stage for all countries. Therefore, member states will join the EF or a transition zone, depending upon their readiness and the maturity of their economies. What are the implications for such a set up? First of all, there are four possible arrangements for a transition:

1. **The EF becomes a separate 'member state' from the rest of the EU**, which would also become a standalone organisation. I would exclude this option straight away for two reasons. Firstly, the control of the future development of the non-participating EU members (currently 8, assuming all Eurozone members would join) by a more mature EF might be limited. Secondly, the 'stranded' member states might simply disperse - some of them joining the EF and some becoming totally independent states again, like the UK might end up (and that's why I have not included it in the remaining EU members). Just consider the multi-faceted impact of Brexit on the EU and on the UK itself. That would be, at least at a psychological level, pretty bad, therefore, **I would discard this option.**
2. **The EF becomes, after the transition, a member state of the reformed EU.** This option would create an impression that the EF, as the more mature and bigger part, becomes a subsidiary of a smaller organisation, which might dictate the terms of future developments. It would also require two constitutions – one for the EF and one for the remaining members of the EU. Although it is perfectly possible, it would not be advisable. The European Federation has to create certain expectations and project the future path of the pending changes of the EF as a maturing de facto World Government. If that premise is accepted, then **the EF should not become a member of the EU. This option is thus unacceptable.**
3. **The EF is formed in one stage from all members of the Eurozone and at the same time the remaining 8 EU member states become part of the EF as members of a transition zone**, let's call it European Federation Convergence Area (EFCA). In this option, all Eurozone members make a transition into the EF at the same time, by 2030 at the latest. The EFCA members would join the EF at their own time when they meet all the required conditions. That would make the EFCA as a subsidiary of the EF. This option would not work because it is not future-proof,

and leaves no formal structures for accepting new members, after all of the current non-Eurozone members have joined the EF. **Therefore, it is not acceptable.**

4. **The current Eurozone members are federated as a single state.** At the same time, the remaining member states of the EU form the European Federation Convergence Area (EFCA) as the EF subsidiary Zone 1. Additionally, other zones can be created in a similar way, depending on the current needs. This would make the relationship between the EF and its subsidiary zones similar to the United Nations and its subsidiary organizations such as UNDP or UNESCCO, ensuring future expansion and integrity. **Therefore, I would consider it as the chosen solution for the EF setup and propose that the European Federation will have four subsidiary zones:**

- **Zone 1 - European Federation Convergence Area (EFCA).** It will be governed by the EF Constitution. Its joining members will be the member states outside the current Eurozone. It will be a transition area before joining the EF. Any country in this area will have to join the EF within a certain period, e.g. 5 years. Otherwise it may be automatically relegated to Zone 2.
- **Zone 2 - European Federation Single Market Area (EFSM).** The member states in this zone will not have to accept the condition of “ever closer union”, as it is required in the current Lisbon Treaty, i.e. they will not have to join the European Federation State. There could also be other opt-outs for members of this zone, provided that they do not undermine the current four freedoms of the EU (free movement of goods, services, capital and people). They must be members of the Single Market and Customs Union. Members of this zone will have the right to move to Zone 2, and eventually become full members of the EF, after meeting all the required criteria. This would probably be an ideal zone for the UK, Norway, Iceland and Switzerland, if these countries accept the membership of both the Single Market and the Customs Union.
- **Zone 3 - European Federation Customs Union (EFCU).** It will include all current countries that are in the EU Customs Union but not in the Single Market, such as Turkey, or Jersey. They have to accept the jurisdiction of the European Court of Justice but not the EF Constitution.
- **Zone 4 - European Federation Association Area (EFAA).** The countries in this zone will have individual Association Agreements on trade signed with the EF based on a Treaty, which requires the joining country to make commitments to political, economic, trade, or human rights reforms in exchange for tariff-free access to some or all EF markets (industrial goods, agricultural products, etc.), and financial or technical assistance. They will have to accept the jurisdiction of the European Court of Justice but not the EF Constitution. They will not be members of the Single Market nor Customs Union. Currently there are 24 countries that have signed the Association Agreement such as Israel, South Africa, Albania or the Ukraine.

The reason why I believe the EF should be structured in the zones as above is because it will make a clear ‘aspiration path’ for countries to move up, until one day, they will be invited to join the EF State. In this set up, the European Federation is the ultimate

law and decision maker on all matters related to the European Federation State and its subsidiaries. It is the only authorized body to represent the zones to other international organizations or non-EF States, unless it passes on such an authorization to a specific zone. In particular it has the following rights:

- To set up the or to wind down any of the EF Zones
- To accept new members into the EF zones
- To suspend the EF zone members
- To expel the EF zone members
- To amend the EF Constitution
- To ratify any agreements in the name of any Zone
- To approve the move of the member states from one zone to another

We have to view the setting up of the European Federation as the major step towards creating a de facto World Government. The future EF will quite likely retain most of compatible institutions and agencies of the European Union and its principal decision-making bodies. But there will be some new ones and some will be entirely changed, such as the Presidency. I list the future key institutions below, which I will describe in detail in the next chapter.

- The EF Parliament (currently the European Parliament)
- The EF Presidency, which will merge the functions of the current European Council President and the President of the European Commission
- The EF Government (currently the European Commission)
- The EF Subsidiaries (The European Central Bank)
- The EF Army (does not exist yet)
- The EF Police (Frontex is most likely to be the seed for the future European Federal Police, something close to the American FBI).

I will describe the setup of the European Federation and its zones in more detail in chapter 6 of this Part.

Chapter 2

Converting the EU into the European Federation

The lessons from Brexit for the future European Federation

The British referendum on continued membership in the European Union, held on 23 June 2016 may lead to profound changes not only throughout the UK itself (largely very negative) but also much more importantly throughout Europe. EU and Britain cannot turn back the tide. It is now a damage limitation exercise for both parties. I do not believe that the EU would have collapsed under the pressure coming from the UK referendum result. However, EU could not afford to plough on at the current pace for some years being unable to form viable and well-functioning governance. That is a longer-term danger. Therefore, Brexit was a trigger for the remaining 27 countries to finally get their act together and do something significant to accelerate their integration processes, which for Britain was an unacceptable direction to follow.

It would be very easy to blame the UK as a country that made a deep wound in the European body. I believe Britain was right about the political weakness, centralist and bureaucratic tendencies in the EU. Britain was also right criticizing the uncontrolled economic migration from the poorer EU countries to those ones that offered higher wages and better benefits. Such a system was unjust and unsustainable.

Britain also wanted to regain sovereignty, as if in principle it would have ever been possible. I dealt with that subject earlier in the book. Therefore, it is enough to say, that sovereignty means the capability of achieving the country's own goals in relation to the whole world. The effect of Brexit will be precisely opposite - the country will have far less impact on the world stage than before. The UK's wish to control migration from the EU could have been achieved even today, if only Britain had seriously applied the available measures, which some EU countries have done for years. Anyway, the level of migration from the EU has drastically fallen already, so that becomes almost a meaningless subject.

Regarding the ability to do 'deals' with countries outside the EU and in that way compensate for the losses of not trading most effectively with the EU, is just a pure fantasy. About 45% of Britain's trade is with the EU. We have already been trading with the rest of the world for centuries, so we are not starting from scratch. Any extra trade, theoretically possible will in no way compensate for the loss of trade with the EU or higher cost of trading with this organisation. Britain's ability to increase trade in goods is really dependent on our productivity, which is one of the lowest among the G7 and quite low even within the OECD. Finally, trade in goods constitutes only about 20% of all British trade.

I have been a staunch supporter of the EU for all my life. No wonder I voted ‘Remain’ in the Brexit referendum. That does not mean that I believe the EU has been a shining example of an effective organisation. Far from it! After all, that’s what this book is about – how to reform the EU so that it not only become a more effective organisation but also that it could take at some stage the role of de facto World Government. So, Britain was right that the EU was malfunctioning but to some extent it was Britain’s own fault, by delaying any significant reforms from the fear that it may lead to a closer integration. Simply, the way Britain wanted to turn the tide was utterly wrong. Similarly, the EU’s position to stick to its guns and not to be more flexible in the period of the negotiations before the Referendum was also wrong.

On 7 March 2017, three weeks before Theresa May’s government invoked article 50 of the EU Lisbon Treaty, which started formal Brexit negotiations I made 3 scenarios on how Brexit might end up. My key prediction was Scenario 1 with 90% probability: **Great Britain will not exit the European Union in any meaningful form.**

I believe this is still the most likely outcome. This seems to be confirmed by the Brexit Plan agreed by the UK government cabinet at Chequers on 7th July 2018. This plan envisages the creation of an EU-UK Free Trade Area. Its aim is to ensure unrestricted, seamless trade cooperation with the EU, while enabling the UK trading globally without the current restrictions of the EU’s single market.

The plan covers four areas: economic partnership, security partnership, future areas of cooperation such as aviation and nuclear power, and the frameworks needed to enforce the agreement.

Although it stops short of the free movement of people, it says EU citizens will still be able to come to the UK without visas for “paid work in limited and clearly defined circumstances”. There would also be “reciprocal” arrangements in regards to benefits and social security.

We may know for sure perhaps even earlier than on 29th March 2019, if the Brexit negotiations must end with Britain’s formal exit from the EU.

It is neither in the long-term interest of the EU nor for the UK to be outside the EU. Neither it would have been in the interest of the Eurozone and the EU as a whole to expel Greece from the Eurozone in 2015. The situation with the UK is somewhat similar. Therefore, when the Brexit negotiations almost reach the point of no return and Britain does finally realize it cannot get what it wants then **the EU Council should make the following resolution:**

1. The EU intends to significantly revise the existing Lisbon Treaty in the next few years, which may ultimately lead to a new Constitution
2. It is quite likely that the new Constitution will be a big step forward towards the EU’s integration
3. Without pre-empting the final wording of the relevant articles of the future EU Constitution it is clear that the overall direction of the EU will be to give the

member states more flexibility in how fast, or how closely, they want to be integrated with the EU. It will be a policy of pulling new members towards a closer integration rather than pushing them

4. To implement this policy, it will be necessary to have a multi-speed EU, i.e. a multi-zone European Union, giving the member states much more flexibility than they have ever had before in both the depth of integration and the speed of the integration process. It will be up to the member states what they choose
5. One of the zones being envisaged is Zone 2, initially called the European Federation Single Market area, (*see previous chapter*).
6. **The United Kingdom is offered the possibility of joining Zone 2 of the EU**, which will have the following terms for all members:
 - Zone 2 members must sign an Amendment to the current Treaty of Lisbon that will apply only to this zone
 - Member states of this zone must be a member of the Single Market and Customs Union
 - Member states in this zone can have up to five opt-outs of the EU policies. They can change the opt-out that they already have for another one if they already have used all their opt-outs.
 - Representatives of member states in this zone will be able to participate in all debates at all levels of the EU structure, apart from those ones that require Treaty changes and the future shape of the EU. However, they will have no voting rights outside their own Zone
 - The member states of this Zone accept the ruling of the European Court of Justice, of which they cannot opt out
 - Any member state in this zone is allowed to implement its own benefits policy for other EU citizens that may differ from its own nationals. This will be done by putting a condition that the EU citizens may only be entitled to benefits in another EU country, if they have previously worked and paid taxes in that member state for a certain period. That period cannot exceed five years and does not have to be contiguous
 - No member can have any rebates to his annual EU budget contributions
 - All other terms and conditions of the exiting Lisbon Treaty would apply to members of this zone
 - If the UK accepts these terms then Britain can return to the EU on the day of signing this Agreement and restore its membership.
 - To avoid a lengthy process of ratifying the amendments to the Treaty, the European Council unanimously confirms that this amendment will form part of the new EU Constitution.

Some of these proposals President Macron included in his 23 steps towards closer integration in September 2017, proposing “A multispeed Europe with Britain possibly re-joining a simplified version”. In this way, most of what Britain wants would fulfil almost all criteria of a “soft Brexit”, apart from the ECJ jurisdiction, i.e.: unfettered access to the Single Market, membership of the Customs Union (albeit no freedom to make its own trade agreements outside the EU), migration of labour only, and control

of the benefits for the EU citizens by the government. It would also have part of its sovereignty restored since it would be up to the UK if it wants to integrate further with the EU (the shackle of 'ever closer union' will be removed). This would also allow the EU to move fast forward, because Britain will no longer have a vote on the future shape of the EU. At the same time, Britain would still be within the EU and would continue to provide an increasingly important strong support in the EU's defence and the security area.

But what might happen, if Britain really stays outside the EU. As I said earlier, the EU has no other option than moving faster towards a closer integration, ultimately leading to a federal Europe. There are several reasons for this, which can best be illustrated in these hypothetical scenarios:

1. **EU disintegrates and each country trades on its own** based on the WTA rules. In commercial terms it would have been a disaster for every country (and that is precisely what Brexit illustrates so well). Additionally, this would have stirred up muted disputes about the borders, such as the very current dispute between Slovenia and Croatia, potentially leading to wars.
2. **EU goes backward and becomes a purely economic co-operation area**, each Eurozone country returning to its own currency. In this situation, its effectiveness and EU members' external competitiveness e.g. towards China or USA would have been worse because, for example, of the lack of common currency. It would be an economic and political disaster, opening the door to Russia, which could then almost openly meddle in the European countries' internal affairs and quite probably annexing the Baltic countries.
3. **EU stays as it is and ultimately all current EU members join the Euro.** Then, as the recent events have so evidently shown, the Eurozone would have been in a permanent crisis because without a common fiscal policy and budgets, the fault lines between the richest and the poorest countries would ultimately lead to the breakup of the Eurozone and the fall of the EU.
4. **Therefore, the only way forward is to follow the route towards a closer integration.** By that I mean Federation at a very shallow level i.e. defence, foreign affairs, common currency, budget, fiscal policy, and environment. At the same time there should be a repatriation of many current common policies that could (and should) be best dealt with, at a national or regional level. For most people freedom and democracy is best served at the lowest possible level dealing with matters that they can understand and appreciate best.

From the above it is clear that the EU has only one realistic option - to move towards federation.

By the time the European Federation comes into existence, Brexit may have become a long-forgotten Odyssey of the British Government into the unknown. However, there will be a few lessons that the future legislators of the European Federation's Constitution may wish to learn from the Brexit process, such as:

1. **A multi-speed, multi-zone EU is the only credible, safe and also the fastest route for the EU** to integrate, ultimately becoming a federated State. Whatever happens to the UK's Brexit Plan formally put forward to the EU early July 2018, this kind of Agreement could be a model for the future Zone 2 (EFSM). The difficulties in the EU-UK Brexit negotiations also reveal why the EU reforms are such a painful process and why Brexit happened in the first place. To avoid future similar desertions from the EU, it must give member states more flexibility in how fast they would like to move towards closer integration. It would make integration much "smarter" and leaner.
2. **It is necessary to give the leaving country more than one alternative in its future relationship with the EF**, after the member state would have left the Federation. The articles in this area should be much more precise, and yet flexible, which can be made possible by the creation of zones within the future Federation.
3. **It should be possible to suspend the membership of the member state in the Federation** for a certain period, say up to 5 years, with very specific identification of the consequence both financial, as well as those related to various freedoms and market accessibility rights for goods and services. Such an option of suspension might apply to the member state, which wants to leave the EF temporarily, i.e. because of the incompatibility of its Constitution. It could be similar to the transition period that Great Britain may get if it exits the EF, i.e. it would have all the privileges and obligations except of participation in the EF decision making process, unless being invited.
4. **There should be a distinction between the rights of the leaving member state and the rights of its citizens**, i.e. that the citizens of the leaving member state would still retain the citizenship of the EF.

Keeping the UK within the EU's Zone 2 would become the first very concrete example of a new direction of the EU towards giving the member states more flexibility in how fast they would like their integration process with the EU to proceed. If a member state of Zone 2 changes its mind after some years and decides to join the federal EU, then such process would be much easier than if that country had stayed altogether outside the EU.

The initial stage of the EU conversion into the European Federation

Let me restate again why we are discussing the subject of reforming the EU, which at some stage could act as de facto World Government. The most imminent, and one of the biggest risks for Humanity, is that our civilisation will just keep going on until the point, beyond which saving humans might be a futile effort. We have already concluded that a rational discussion among all world leaders, say within the UN, on forming such an organisation like the World Government would have been rather unthinkable and utterly unrealistic. That's why I have suggested that the European Union (EU) has the greatest potential to be transformed first into a federation and at some stage start acting as a de facto World Government.

Therefore, the member states of the European Union must decide within a decade to become a federated state, which I have proposed calling European Federation. Otherwise, the EU's inherent inconsistencies and inflexibilities originating from significant economic, social and cultural differences (even within the same Christian culture) will gradually rapture its structure leading to its disintegration. That could start a period of political instability, which would almost inevitably be exploited by Russia, leading to European wars with most disastrous consequences.

When we were discussing in Part 2, chapter 3 the problem of defining Universal Values of Humanity, I indicated the role of culture in forming, as well as being formed, by values. It is deeply linked to historical events, tradition and beliefs. The diagram of the world cultures presented there, shows very clearly, where the fault lines of the future disintegration of the EU lie - in cultural and social differences. One can eliminate significant economic differences between various states in one generation, but not in cultural or social domains. Human nature does not change that fast and is intrinsically linked to emotions rather than reason. That's why it may quickly, even within a year or two, undermine the state's stability, like for example in the USA, after Donald Trump's victory in the presidential election in 2016, or in Poland after the extreme right won the 2015 general and presidential elections. In both cases it was an emotional attitude to previous administrations, partly explicable in the case of the USA. However, it was totally unreasonable in case of Poland, where it was the Catholic Church, which seeing a gradual sway to liberalism as an existential risk for itself, supported the right-wing parties with a plethora of irrational and emotional arguments underpinned by a mixture of religious and nationalistic campaigns. That shows how culture and social tradition can expose differences, which will manifest themselves in politics, e.g. leading to strong disagreements when making decisions at the European Council level.

Therefore, the creation of the European Federation must be done in such a way that the new state will guarantee the former nations maximum flexibility and the widest possible scope for self-governance, i.e. that most decisions are taken at the lowest possible level of governance. This would minimize the tensions stemming from cultural and social differences. The only way to do it could be through the process, which I call "cantonization of Europe". That is a reference to the way Switzerland has been governed for the last 200 years, giving the maximum level of self-governance to each of its 26 cantons. That would effectively lead to the creation of the European Federation composed of former EU states, but in which some of the larger regions (say over 5m population) would have an automatic right to statehood, either on their own, or by merging with neighbouring regions of other states.

The existing Lisbon Treaty could almost certainly be used as a starting point to either making significant amendments to that Treaty or becoming the input for writing an entirely new EU Constitution, which may require the creation of the Constitutional Convention, as was the case with the unratified Constitution of 2004. The most important impact of these proposed changes to the current Lisbon Treaty would be for the member states to give up part of their sovereignty to the EF.

The other objective for this new organisation should be to address the existential risks facing Humanity. It would thus have to stand up not only for the people of Europe, but at some stage also for the whole Humanity in the absence of a credible organization that would have ideally included all nations. The main benefit would be the increased safety of all of us, and in the long-term - a more humane and just civilization.

Existential risks force us to take extraordinary steps to save human species from extinction. Artificial Intelligence is one of the biggest risks. However, at the same time, it could still help us make a transition to the new époque of humans and Superintelligence co-existence, by re-designing and implementing the new world order. Since we have very limited time, possibly less than 20 years, we must rely on the best organizational, technological and material solutions that we already have. The most feasible way forward is to entrust the fate of Humanity to a widely reformed and federated European Union.

Therefore, from that point of view alone the future European Federation must:

1. Become a credible and effective organisation that will be able to mitigate all man-made existential risks
2. Ensure global political, economic and social order necessary to focus all efforts on our survival, since lack of a reasonable global stability may become, through combinatorial effects, an existential risk on its own
3. Fight inaction in the domain of preserving what is best in Humanity – its values, its rights, and intellectual and cultural assets, to avoid the emergence of a valueless Superintelligence, or equipped with dangerous values and objectives that in the end could destroy us all.

But then we must also look from a narrower, European perspective. Over the last 60 years of its existence, EU has managed to achieve something unprecedented in the European history – peace, continuous economic growth and relative social order. That pedigree and experience has probably tilted the odds for selecting the EU as the best candidate for expanding its role, and after its gradual transformation into the European Federation, serve wider aims, than just purely European objectives.

Irrespective of a particular route that the EU takes, or is forced to take towards federalization (e.g. at the time of a super crisis), it should announce some immediate interim measures within a year. This would give the EU several years of relative calm, necessary for implementing some stages leading to a future Federation. There are, in my view, at least three such commitments that should be made by the Council of Europe before the elections to the EU parliament in May 2019, which may be combined with the suggestions made in the context of Brexit in the previous section (the promise of creating Zone 2):

1. **The EU will start preparing a new Constitution**, which should be ready within a few years, by establishing a Constitutional Convention. This at least will give every member state argument for its domestic electorate that if things are not so good

right now, they could be improved in the future. This can have a positive, calming effect, although undoubtedly, during the long processes of negotiating the new articles of the constitution, there could be some protests organized by populists' parties to retain the status quo or even derail the whole process altogether. I would think the process of agreeing the constitution should be rather lengthy than short, because people would simply become used to new ideas being floated about, so that the proponents of the federated EU would have more time explaining all the implications.

2. **The strategic direction of the EU is an ever-closer union that may ultimately lead to the EU becoming a Federation at some point in the future.** However, the EU needs to be prepared for unexpected very serious events, like a super crisis in the Eurozone that might significantly accelerate that process. Therefore, should that happen, it may very quickly lead to establishing a separate zone for the Federated Eurozone to stop a potential existential danger for the EU. The remaining countries will all be expected to join the federated EU as soon as they are able to do so. However, in the meantime, they will remain in a separate, legally bound zone to the federated part of the EU
3. **No secession in any EU country will be approved or mediated by the EU country until a new Constitution is created.** This would immediately solve a lot of potentially explosive conflicts in the EU, such as Gibraltar, Northern Ireland or Padania. Over the next decade, it would also enable a peaceful and natural change of borders when nations are spread across two countries like the Catalans and Basques in northern Spain and southern France, or Trentino-Alto Adige/South Tyrol in Italy/Austria.

The process of transforming the EU into the European Federation may thus take two broad routes:

1. **Quite sudden, unprepared transition** to a rudimentary federation, when only the most necessary functions would be federated, such as defence, security, foreign affairs and the budget, while the remaining ones will be in a state of limbo or chaos.
2. **Making a transition in an orderly fashion**, carried out in small steps, partly under disguise but ultimately leading to the implementation of an entirely new system of governance within the European Federation, when most of the current member states would join in.

Let's see these two options in more detail.

Sudden, unprepared transition to a rudimentary European Federation

The EU should prepare some scenarios on how such a 'quick and dirty' transition to a federation might be achieved and assign suitable resources, e.g. constitutional lawyers, a draft text of the Constitution etc. It is difficult to tell whether this route is more likely than the other one, a more orderly federalization. In my view, it is more probably that the final route would be a mixture of both. As I suggest in the next section, irrespective

of whether there will be an official announcement of the EU becoming a federation in the future or not, it should take, concrete, small steps towards that direction anyway. If at some stage, it occurs that the creation of the Federation has to be accelerated because of unforeseen events, then some of the necessary functions and even organisations and institutions, such as the EU Army, might already be in place, which would make the whole process less chaotic. We should assume that in critical circumstances it may take just a few months for the Federation to become a legal entity, including the ratification process.

In which circumstances could such a rapid federalization occur? This is of course pure speculation but if we look at the weakest points in the EU, which may create a crisis far bigger than any crisis the EU has experienced in the recent years, then the most likely, in my view, is another Euro crisis, or a near war situation, most probably with Russia. It might be started by the inability of some of the Eurozone countries, especially Italy, and of course Greece or Cyprus, but also Portugal or Spain, to repay their higher borrowing costs, creating a domino effect. Since Germany is the key guarantor of any Euro loans it might stretch the German finances so much, that the German public, especially in the current anti-EU, right-wing climate, would prefer to leave the EU in rather than years. That would be one possibility, which would mean the dissolution of the EU. The alternative might be almost ad hoc, under severe pressure, conversion of the Eurozone into a Federation.

However, there is a third possibility that could also lead to the Eurozone federalization. It is the anticipation of such a scenario and the creation of key pillars, which would help to withstand such a deep crisis and make an ad hoc move into a Eurozone Federation far less chaotic. Let me illustrate that option as briefly as possible and see how its resolution could trigger-off the process of Eurozone federalization.

In January 2018, 14 eminent German and French economists proposed deep reforms of the Eurozone finances. They suggested six major economic reforms that should be undertaken simultaneously and started right now, although their implementation would have to be spread over several years. This includes:

1. Limiting the amount of sovereign debt that that banks in the Eurozone countries can keep on their balance sheets
2. Reform the EU's deficit rules making them both simpler and more credible
3. Implement a legal mechanism for insolvent countries to restructure their debt, to avoid a repeat of the Greek debt crisis since 2010.
4. Create a fund that would help member countries deal with the most severe crises
5. Re-define the class of "safe assets" to allow banks to replace sovereign debt in their balance sheets
6. Define better monitoring of economic policies and sanctioning of the errant governments with stiff penalties.

Although this is not yet the approved Eurozone member states policy, it clearly shows what needs to be done to avoid, or rather minimize, the next major crisis. Even if only some of these reforms are implemented **it would in effect create a joint Eurozone**

budget by default, although not by name. The nomination of the Eurozone's Finance Minister would be a necessary complimentary act. That would probably be the most significant and perhaps a decisive step towards the federalization of the Eurozone. The implementation of this scenario depends a lot on the type of government that emerges from the Italian elections held in March 2018. Italy is now perhaps a bigger Eurozone time-bomb than Greece, at least because of the potential impact of the government debt crisis in that country.

There could of course be other crises potentially triggering either the EU's dissolution or federalization, such as a pension crisis, or the rise of interest rates. Finally, there could be other such momentous events linked again to abrupt migration e.g. from the Ukraine, or Turkey, if it falls apart due to another coup d'état, which might lead to sealing off the internal EU border, the collapse of the Schengen zone and some countries exiting the EU in a completely chaotic way. That could spark off the break-up of the EU into several groups such as the original six founding members, the Visegrad Group, or the Scandinavian countries that might re-join EFTA, where they were before.

The 'core' EU countries may then be forced to start a quick fix, untidy, untested variant of the EU federalization, as a risk mitigation strategy. Germany might then see the creation of a Federation as a safer option both for Germany and Europe. Through the European Federation Government, it could take full control of the budget and thus reduce its potential losses. Therefore, crises like these may be paradoxically a trigger for much faster federalization of the EU. Should such events happen in the next 2-3 years, then it could be the president Macron rather than Mrs Merkel, who might be the standard bearer for the EU federalization. Almost exactly 200 years after Napoleon tried to do that. What a perspective! In such a scenario, Italy might remain on the sidelines and play a less prominent role in the future federated EU, replaced by smaller but economically stronger countries such as Benelux, Ireland and Sweden. It is still possible.

A more orderly transition route to the European Federation

As things stand right now, the EU is completely unprepared for a potential wave of shocks stemming from the rise of populism, tendencies towards autocracy in some countries, Euro crises, or referenda concerning regional independence. The clear winner in such a situation would be Russia, which highly likely will remain an autocratic country. Any procrastination by the EU in moving faster towards integration and federalization would serve Russia very well. Its continuous threat to the Baltic countries, Poland, Moldova, and the Ukraine will be even bigger and can trigger, perhaps by accident, rather than by deliberate action, a proxy war or even a direct conflict. Poland particularly might then find itself on the wrong side of the EU divide due to the policies of the right-wing PIS-led government. Germany might try to find its middle ground, as it usually does with Russia, and France is a big unknown these days. In any case the future of the federal Europe does not look rosy in this context. Politics

and policies do not move fast enough in this rapidly changing world. The recent crisis started by the Catalonia's referendum makes it very obvious.

That last challenge is best illustrated by Jean-Claude Juncker who said just after the referendum result in Catalonia that "if the EU accepted the results of that referendum, it might soon have to deal with 95 regions in Europe". That was a clear departure from his earlier statement for 'Politico' on 14.9.2017, before the referendum, when he said the EU would accept the result: "I'd respect a Catalan 'Yes' vote" (200).

This is another example of how the EU operates. In most cases it does not anticipate the events, preparing itself for an eventual risk, like the migration crisis. It follows the same attitude towards regional self-determination and other seismic shifts that may lead to very serious problems, which can potentially tear apart the whole EU. Therefore, EU must propose fairly rapidly a series of significant steps towards closer integration, however, without making it too obvious and challenging. To be fair, Jean-Claude Juncker has done it quite well, producing five scenarios for European integration and the 6th, the most important scenario, in his State of the Union address on 12 September 2017. It describes the first stage of the federalization process to be completed by about 2025. But barely 5 months later, on 14 February 2018, seeing the inability of German politicians to create a strong pro-EU coalition, Juncker changed his mind entirely. This is what he said at a press conference on that day:

"Some in British political society are against the truth, pretending that I am a stupid, stubborn federalist, that I am in favour of a European super-state that I am strictly against a European super-state. We are not the United States of America ... This is total nonsense" (201). This again shows how such a visionary is at the same time a very skilled politician. He certainly remembers what Otto von Bismarck, the great unifier of German principalities, turned into a German Reich, which then became a global power, used to say: "Politics is the art of the possible, the attainable - the art of the next best". The tactics of meandering as the way to achieve strategic goals has been woven into the fabric of the EU's evolution. What President Juncker said on 14 February 2018 just confirms that little will change in the way the EU has been evolving, i.e. step-by-step. This is of course a risk in itself that the EU may be evolving too slowly and thus be overwhelmed unexpectedly by major events, over which it would have no control. That could still lead to the dissolution of the EU by default, the consequences of which would have been absolutely global and very dangerous for the world peace. Major changes in the EU and in most countries are either the result of revolutions or are enforced by the emergencies in financial, social or quite often military domains. That was clearly demonstrated during the migration crisis of 2015-2016, when Western Europe's liberal attitudes clashed with the Central and Eastern part of the EU, which is less liberal because of its far more horrific experiences of the WWII and 45 years of the Soviet occupation.

When we recognize this reality, it is difficult to see, how these two parts of Europe can move forward together at the same pace. It will have to take some time, a common theme of Mrs Merkel. But perhaps the EU needs again a Frenchman to show the way

forward. That's exactly what happened in the 19th century, when Alexis de Tocqueville, a political writer and philosopher promoted the merits of the American democracy to the world. Even more significant was the initiative of two Frenchmen, a political economist Jean Monnet and the foreign minister Robert Schuman, who became the founders of the European Community of Coal and Steel. That gave birth five years later to the European Economic Community (EEC) and ultimately to the European Union.

Today, it is the French president, Emmanuel Macron, who is showing the way forward to the deadlocked EU, standing at a crossroads and unsure what the 'ever closer union' embedded in the Lisbon Treaty, really means. Macron has made a series of speeches since he became the president. He exposed serious faults and weaknesses, about which I have written in this book, regarding the current set up of the European Union. That is probably clear to all EU leading politicians, who however cannot make a decision on what to do next because of the disillusioned electorate, which at best prefers the status quo.

President Macron's speech on 26 September 2017 aimed at providing a certain plan towards a closer step by step integration that could ultimately lead to the European Federation:

1. "EU military intervention force and budget in place by 2020
2. A European intelligence academy to train officials
3. A European civil protection force for responding to disasters
4. A European public prosecutor for terrorism and organised crime
5. A European asylum office for joint processing of claims, common procedures
6. A European frontier-police
7. A carbon frontier tax levied on imports into the EU
8. A European innovation agency, for research into artificial intelligence
9. EU subsidies to support development of electric vehicles
10. Targeting of the US tech companies with a tax on value created, rather than profits
11. A bigger EU budget to fund investment and cushion economic shocks
12. Overhaul of farming policy and a new EU food inspection force
13. Accelerated harmonisation of corporate tax bases
14. Gradual harmonisation of corporate tax rates and social security contributions
15. A guaranteed minimum wage adopted by each country
16. All young Europeans enabled to spend six months as a student or apprentice in another EU country
17. Creation of European universities based on network of institutions
18. Six-month series of national and local conventions to discuss the future of Europe
19. Half of MEPs to be from EU-wide lists by 2024
20. A much smaller European Commission, of only 15 commissioners
- 21. A multispeed Europe with Britain possibly re-joining simplified version**
22. A new European trade prosecutor to ensure competitors stick to EU rules
23. A Franco-German co-operation treaty, with focus on harmonising corporate regulation"

Let me make some comments on that. Assuming the ‘starting conditions’ for a gradual transition to the EF have been agreed and a decision in principle has been made, the European Council will then have to agree within the next term of the EU Parliament 2019-2024, a set of guiding principles for the new Constitution before such a process starts. This is itself an absolutely necessary prerequisite and the very first hurdle to overcome since such a transition must be agreed **under the existing voting rights within the Council of Europe** (almost certainly unanimous voting will be required). It is so important because it would effectively be a draft of the requirements for the changes to be implemented in the new Constitution.

To start the process of redefining major planks of the current democratic system that underpins the EU’s institutions and its operations cannot realistically be done in one stage. Seeing how the EU politicians operate (not a jot differently than most politicians in other countries), it would be close to fantasy to propose that such a process be completed in a nice and tidy way. We have already seen how the EU Constitution 2004 was rejected. Those working at the top of the EU learnt their lessons. Instead of repeating the whole process of developing and then ratifying again the new constitution, they opted for an extremely messy way to amend all the existing Treaties line by line. Thus, a new Lisbon treaty was ratified in December 2009 that materially did not differ at all from the unratified Constitution of 2005.

My expectation is that the European Federation will not be created by stealth but rather by a tortuous multi-staged and often disguised process. My estimate is it will happen by 2030. The only other way it could happen earlier, might be because of some very serious events that might disrupt the whole EU together, which I described earlier, as an alternative route to the EU’s federalization.

The steps to achieving that objective will not be very logical or made in the right order. The key discriminator would be avoiding the Treaty changes for as long as possible and overlay the process with a prolonged debate on the new Constitution. Therefore, I would expect the likely process to follow this path:

1. **Create the position of a single EU President.** Start with an institution that would clearly show the direction of the EU’s travel towards federalisation. The best and relatively the easiest could be the merging of the current European Council President with the President of the European Commission into one institution. That could probably not be possible without changing the Lisbon Treaty and going through a perilous ratification process. But why not to fudge the process? That’s exactly what Jean-Claude Juncker proposed in January 2018. He suggested creating one position of the EU President but which would cover two existing positions. Additionally, he proposed that the election of that president should be carried out on a pan-European basis, with the so called ‘Spitzenkandidaten’ (lead candidates) proposed by the main EU parties, such as the EU People’s Party. The proposed process envisages that the political parties represented in the European Parliament would put forward nominees to campaign across Europe and challenge each other in debates. The winner would be the nominee, whose party wins the most seats in

- the European Parliament. If the European Council agrees to such proposal, the election of the EU President in this way would happen in May 2019.
2. **Create the EU Defence Minister as the commander of the EU Armed forces.** The next task is the expansion of the current European Defence Fund gradually towards creating effectively a joint European Army as part of NATO. The European Defence Fund is the initiative launched in June 2017 with the intention of supporting investment in joint research and development of defence equipment and technologies. Over the next few years, depending upon the geopolitical situation, the EU may finalize, as yet, its unspoken objective to have a European Army with its own Defence Minister. It could be either a full EU Army, or rather all-EU member states' armies under a joint command. If such an EU Army is established, it would lead to a complete re-alignment of individual countries' relationship with NATO, which would now be fulfilled through the EU Army joint command.
 3. **Create the position of the Eurozone Finance Minister and establish a joint Eurozone budget.** I have described this option at length in the previous section and it would be also applicable to the step-by-step progress to federalization. However, in this more positive scenario, it will be one of a series of intended positive steps towards the European Federation.
 4. **Extend the scope of the EU budget, strengthen the financial system and create a position of the EU Finance Minister.** Currently each EU country pays 1% of its GDP to the common EU budget to finance joint EU projects and policies. That should be progressively expanded, so that it would reach say 5% GDP of each member state being put into the EU budget by 2024, increasing it by 1% every year. The EU Commission's president put forward such a proposal in January 2018, without specifying the exact percentage. Such an extended annual budget might then approach €1 trillion by 2025. Additionally, extend the current support of the Eurozone by the European Stability Mechanism to all EU members converting it into European Monetary Fund that would provide financial aid for countries hit by economic shocks in financial difficulty. Finally, create a European Banking Union as a safeguard against another banking crisis. To co-ordinate all these functions the EU, or the Eurozone, would need to create the position of the EU's Finance Minister. European Central Bank would play an entirely independent role within the EU, controlling the interest rates in the Eurozone and supervising the banking and financial system within the EU. Completion of all these tasks is probably unachievable within the term of the current EU Parliament, i.e. by May 2019 but rather shortly after that. If this is completed in time, it would strengthen and integrate economically and financially the whole EU, significantly minimizing the risks of severe systemic shocks. It would also be a major plank towards the EU federalization, since more and more of member state's economies would be co-ordinated and supported by the EU, making any departure of the current members much more difficult than now. It should also lead to a better adherence of member states, to European values and laws, since disobedience of some countries, like Hungary, Austria and Poland in 2016-2018 would have far more reaching consequences.
 5. **Allocate a certain percentage of the seats in the EU Parliament to pan-European parties.** That has already been proposed by President Macron and the

European Parliament. The proposal is to set aside 1 MP seat in each of the EU countries, i.e. 27 seats to the pan-European parties, in the elections to the European Parliament in May 2019. That process should be sped up, so that in 2024 elections, say 20% of the seats should be allocated to pan-European Parties.

6. **Create a new Charter of Human Values, Rights and Responsibilities.** That would be necessary in any case if the work starts on defining the new EU Constitution. Probably the best and least controversial way would be to establish a special Committee at the EU Parliament, supported by a body of independent experts to create such a Charter. The starting point could be the work already carried out by some academic centres such as the Future of Humanity Institute.
7. **Create EU Constitutional Court** by converting the status of the current European Commission for Democracy through Law, better known as the Venice Commission of the Council of Europe. It is the Council of Europe's advisory body on constitutional matters. Current departures from the EU democratic principles in countries like Hungary, Poland or earlier Italy's totally undemocratic laws passed specifically to protect president Berlusconi, have been challenged by the Venice Commission. Its role is now far more appreciated than before.

The Court will only be able to function if it is ratified by all EU members, unless the European Council will approve it 'in advance' of the pending changes to the future EU Constitution. The Court's first task might be to endorse the new Charter of Human Values, Rights and Responsibilities. Its continuous task would be to approve or disapprove any changes to member states' **existing** constitutions, or new constitutions against either the EU's law or the 'spirit' of the EU Treaties. It would also validate, if requested, any changes to the legal system in the EU member states with their own Constitution. The next important, continuous task could be the validation of the new EU Constitution as it would be drafted, so when it is finally agreed, it would be ready for ratification. After the ratification of the new EU Constitution, the Court will have the task to approve or disapprove all member states' constitutions with the new Constitution of the EU and also make a decision, if asked, whether the elections in a given EU country were impartial and conducted according to the country's law.

8. **Establish a Convention on the new EU Constitution.** This task should be done in parallel with the previous tasks and completed by 2026-27 with the ratification process soon after that. Ideally, by then, the EU Constitutional Court should have already been established.
9. **Create the European Federation.** Once the Constitution has been ratified, the Eurozone, which by then should include almost all of the current EU members, would be transformed into the European Federation (EF). That will start with the establishing of new EF institutions. The countries, joining the EF, would have to change their constitutions, their own institutions and make significant changes to their laws. This would take several years but should be completed by 31.12.2029, so that the EF becomes a legal entity on 1 January 2030. Of course, the dates may shift either way, depending upon political, economic and social circumstances in the next decade or so.

To fulfil this agenda in reasonable time, the country leaders that would agree to the overall pathway should apply the principle of finishing each stage at a set deadline, even if the final product, e.g. the EU Constitution would not be perfect yet. It will never be. In such a case the proposed schedule could be implemented within the next decade, around 2030, assuming this will be a relatively quiet time. This however, is highly unlikely. Therefore, the implementation period might actually be much faster and the EU countries may be pressed into making decisions that could have to be fast tracked through their existing legal system.

Over the next generation the world will be balancing on a tightrope. One of the dangers would be that two global powers, China and Russia may decide not to be included in the process of harmonizing efforts in minimizing existential risks to Humanity. It is more likely, especially in the case of Russia, that it will take a very adversarial line, bordering on the threat of a global war. The democratic world has to take such a risk because Humanity as a whole has hardly any other option. The democratic countries have already lived with such an existential risk before, over the period of 45 years of cold war. We may have to live through such a period again.

Britain will probably not subscribe to the proposed reforms, but it may join some initiatives such as the European Army, where it could play a major role as a nuclear power, or joining the European Banking Union. That is why the final shape of Brexit is so important not only for Britain but also for the EU.

The V-Day of the EU transition into the European Federation

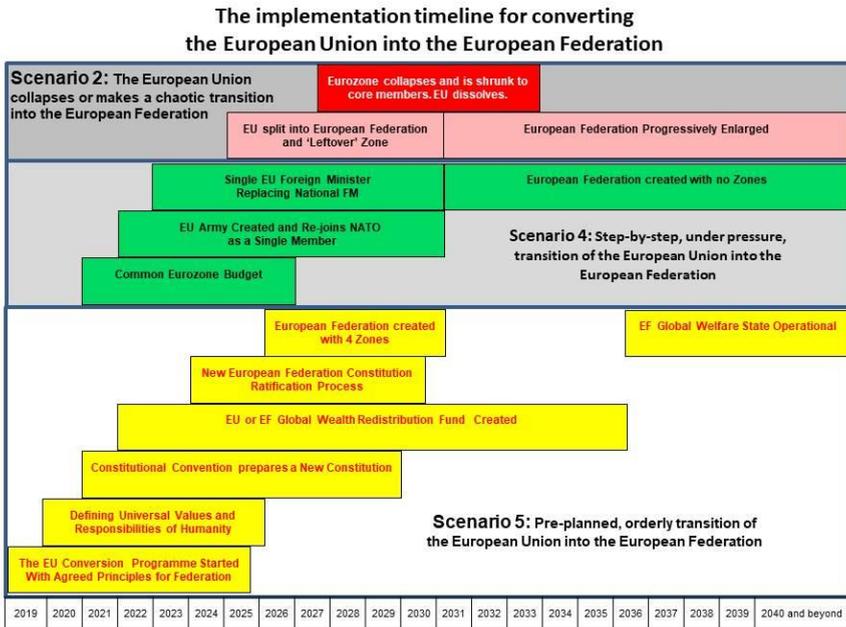
Many people may accept the key rationale for the EU countries to relinquish their sovereignty, in order to act as one state and thus being more capable in responding to existential risks. However, I would think for the majority of the people cold, rational arguments for establishing the EF will probably remain unconvincing and emotions would come to the fore. Therefore, the day, when the Constitution has been signed but not ratified by any country yet, will be a kind of a D-Day. On that day, a campaign lasting presumably for up to two years will be launched, leading to **the V-Day – the day when the EU will have become the European Federation – a single state.**

I have set the EU V-Day for 1.1.2030 and my rationale is based on three factors:

1. By 2030, all Artificial Intelligence agents must have all controlling mechanisms embedded in their software (under the oversight of an international organisation – see Part 1) because by then they will be more intelligent than any human being probably in most, but not all areas. This also includes the completion of the system of Universal Values of Humanity, which would direct AI's goals, ensuring that AI will always remain subordinate to humans, irrespective of its intelligence. After that date, top AI Agents will be gradually achieving the Superintelligence level and will outsmart any controlling mechanism. That could mean that Humanity might very quickly be under a full control of Superintelligence.

2. By 2030 at the latest, other existential risks will have most likely been triggered, such as nuclear wars, which would hopefully still be contained. However, with every year passing, the risk will increase faster than linearly because of the impact of various types of technology and the rivalry between the superpowers, which by then could be fought even on the Moon and Mars.
3. By 2030 the economic and political tensions between the Eurozone countries and the remaining EU countries will be so high that unless all those countries are federalized, there is a high likelihood of the EU dissolving and a specific additional existential risk of its own through combinatorial effects, i.e. local European wars between Russia and neighbouring countries and/or between the former EU members.

It is impossible to determine, which route the EU takes towards becoming a Federation. Most probably, it will be a mixture of the first one, a forced, speeded up federalization, with the second route, evolving step by step, because of a sudden change of circumstances. It is certain, in my view, that the EU has no other option but to aim at, what is euphemistically called, ‘ever closer union. If it fails to make a transition into a federation, then it would dissolve into a remnant of the Eurozone and other groups of countries. I show all three scenarios in the chart below:



Each of the scenarios corresponds broadly to one of the five scenarios of the world in 2040, described in the last part of the book

The ratification process of the Constitution would be a major milestone, which would trigger the Constitutional changes in member countries, causing them to adapt the existing institutions to new subsidiary roles within the European Federation. The acceptance of the key premise of the future Constitution that there will be a Federal State called the European Federation, and as a consequence a member state will be incorporated within that Federation, losing its sovereignty for ever, will be indeed a big challenge for most EU citizens to accept. A lot would depend on which specific laws the Constitution would contain and what would be the depth of centralization of the Federation (how much freedom would be left to former member countries to lead their lives as before). The final decision would be made by national parliaments or by the referenda in the member states. Assuming that the new Constitution of the European Federation will be approved by the European Council, how then to convince the electorate in the voting countries that it would be OK to lose sovereignty and become just a nation but without its own statehood? For example, how to persuade people to give up some voting rights because the constitution may introduce a weighted voting, which might be linked to some conditions like, age, or education etc.? How would MPs agree to serve a maximum of two terms rather than an unlimited no. of terms, as they do right now in most democracies? Turkeys do not vote for Christmas and this is a classic example of such a situation.

So, how then to convince the electorate in the countries, which are to join the EF, that they should vote for the Constitution, which will enable this to happen? I am fully aware of unsurmountable difficulties that such a referendum campaign presents to the EU states and their citizens. Therefore, the only way I can see is that the electorate needs to be ‘persuaded’ to agree to the introduction of such deep reforms of the democratic system and new electoral laws by bundling them together with other proposals. Let’s call them ‘sweeteners’ that an average voter may be tempted to support. This may include the introduction of a minimum living wage – same across the whole EU, and some form of the Universal Basic Income (I cover these proposals in some detail in further chapters). **Please keep in mind that we are talking about the enacting of such a Constitution and creating the European Federation by about 2030 and apply the associated new laws only in the first Parliament of the EF.** To enable the ratification of the new Constitution I suggest the following process:

- Carry out at least a year-long campaign in every EU country on deep social and economic reforms to be introduced alongside new political arrangement, such as the introduction of Consensual Presidential Democracy, which would fundamentally change current democratic principles, introducing new ones. Such a campaign could be supported by digital media, Facebook, and local conventions
- Introduce an unconditional Universal Basic Income (UBI) for every citizen, but with different entitlement for age groups (e.g. children, working adults and pensioners) and additional conditional Universal Basic Supplement. The condition could be being in employment, study, or doing voluntary work
- Introduce minimum living wage same across the Federation
- Identify big concrete infrastructure projects, with the allocated capital for each joining country. That would be on top of already allocated EU funds for that country

- Promise the introduction of deep social and economic reforms in the first Parliament of the EF. These may include:
 - deep Company law reform, which would constrain the influence of large corporations on the government;
 - de-monopolization of media (e.g. maximum 10% of the market per media corporation);
 - changing shareholders rights, e.g. so that the rights of those providing the monetary capital (investors) will be balanced with those providing human capital (employees).
- Suggest that instead of a referendum ratifying the new Constitution, a sortition system will be used that will work like constitutional conventions at the level of large regions.
- Promise that MPs and MEPs will get a guaranteed retirement pension for the next term, irrespective of whether they would be elected or not. That could be explained as a recompense for a potential lost opportunity to serve another term and prepare them better for the return to ‘life after the Parliament’.

These are of course sample ideas that can be modified as required at the time of the pending referendum. Please remember, that although the stages that will have to be completed are put together as having been done at the same time, like a Constitutional Convention, in reality, they will be spread over at least a decade and almost certainly not in the order as presented in this book.

In the next chapter I will be proposing the infrastructure for the future European Federation that is based on adopting a new type of democracy, which I am proposing:
- Consensual Presidential Democracy. It will cover three key elements:

- Constitution of the European Federation
- A new electoral system
- A new judicial system

Chapter 3

Consensual Presidential Democracy

Which Democracy System for the European Federation?

I have identified in earlier chapters, key problems of the democratic system and potential solutions that could improve democracy. I would now like to use the conclusions from that analysis to look for a new democratic system, which would support the purpose and main objectives of the European Federation, which go beyond the transition period, i.e. until at least 2040. They are:

1. To facilitate the federalization process of the EU in such a way that it will centralize only the very essential powers, leaving the rest of decisions making at the lowest possible level of governance
2. To significantly reshape the relationships between the governed and the governing, instilling more trust through a greater transparency and continual accountability
3. To protect Humanity from existential risks that may emerge from global political, social and economic disorder through combinatorial effects
4. To protect Humanity from other existential risks, especially coming from Superintelligence
5. To prepare Humanity for the time when we will coexist with Superintelligence, which potentially could start the best period in human history (if we mitigate the risks successfully)
6. To prepare Humanity for an even more challenging task - a gradual merging of our species with Superintelligence.

So, which democratic system could take all this into account, and which one will help us most to resolve the problems we are facing right now and, equally importantly, in the near future? An organization called “Democracy building” (202) has quite succinctly summarized the basic functions of democratic systems, which I have adapted and appraised for their suitability for reducing existential risks and for becoming a foundation for the Constitution of the European Federation.

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

Direct Democracy	Representative Democracy	
	Presidential Democracy	Parliamentary Democracy
<i>Example: Switzerland</i>	<i>Examples: USA, France</i>	<i>Examples: UK, Germany, Spain, Italy</i>
Head of State	Head of State	Head of State
Any member of the government in turn (for one year), no practical importance.	The President is head of state and leader of the government	Has a different function from the prime minister, it may be a monarch or an elected person.
Government	Government	Government
Ministers of the government directly elected by the parliament, representing all major parties	President elected by the people nominates the ministers [members of government]	Government elected by the parliament based on a majority, may be dismissed by the parliament, especially when in a coalition of several parties
Parliament	Parliament	Parliament
Elected for a fixed legislative period, no dissolution; changing coalitions, sometimes even extreme right and extreme left join together against the centre	Elected for a fixed period, clear institutional separation of parliament and government (but the president may cooperate as closely as in the other systems, if he thinks it is right)	Elected for a legislative period, dissolution and early new elections possible if a clear majority cannot be established.
Government members	Government members	Government members
Government members <i>need not be</i> members of parliament	Government members need not be members of parliament	Government members <i>must be</i> elected members of parliament
Who has the strongest power	Who has the strongest power	Who has the strongest power
Strong position of the people (frequent referendums on single laws)	Strong position of the president (veto)	Strong position of the political parties
Legislation	Legislation	Legislation
Laws are created in four steps: 1. Draft by the administration; 2. Consultation of federal states, political parties, entrepreneurs, unions and other interested groups; 3. Parliamentary debate and final version passed; 4. Possibility of a referendum	Laws are debated and passed by parliament. Lobbyists do not have a formal right to be heard, but in reality have some influence. The president may block a law by veto and rely or not on a majority of the parliament. Sometimes, like in France, a president may be forced to "co-habitate" with members of the opposition	Laws are proposed by the government and debated and passed by parliament. Lobbyists have some influence on the shape of the law. If there is a solid majority, compromises are sought within the coalition the opposition may be ignored until the next elections but then previously passed laws may be revoked or changed by a new majority
Government stability	Government stability	Government stability
If a strong party threatens to call for a referendum, the parliament might be inclined to compromise. A formal consultation process gives the public a clear view of pros and cons of law at an early stage. The process of making laws is slow. History shows that from time to time the Swiss people do correct decisions of parliament and government that gives in too much to lobbyists, so Direct Democracy seems to offer effective checks and balances. But sometimes it just takes a long time until a new idea is finally broadly accepted.	A strong president may act immediately, but there is a certain risk that he may rush to conclusions too quickly and then it may be politically hard for him to withdraw the law. Although the separation of powers, might seem very clear in theory, it does not automatically provide more effective checks and balances between parliament and government than in a Parliamentary Democracy.	If there are many parties in a country, the dependence of the government's parliamentary majority even on a tiny party (e.g. in Israel) may undermine the stability of the government. If there are only two relevant parties and one has a comfortable majority, the parliamentary system offers few effective checks and balances.
Adaptability (pace of change)	Adaptability (pace of change)	Adaptability (pace of change)
A slow pace of change is the price for a consensus politics	Pace of change can be quite fast if the president's party has the majority, like now in France under Macron	The pace of change when a government has a clear majority can be quite fast, like in the UK under Blair's first government.
Suitability for fighting existential risks	Suitability for fighting existential risks	Suitability for fighting existential risks
The direct democracy system is definitely unsuitable for making quick decisions in near emergency situations, or when the risk has actually materialized.	The Presidential system, with some caveats seems to be the most suitable for mitigating existential risks and fighting catastrophic crises. However, the presidential powers would have to be controlled much more than today. The best example is the election of Donald Trump as the US President. To minimize the risk of a catastrophic decision by a president, the top executive powers should be in the hands of three presidents. Each of them would have equal power, represent one of the three major sections of a nation, and each decision would have to be taken by at least two presidents.	Parliamentary democracy is the second best option regarding its suitability for fighting existential risks. However, it could be adapted by creating a long list of exceptional circumstances, where the Prime Minister gets extraordinary powers and could rule by decrees, subsequently debated and voted in the Parliament. Since such risks exist right now and mitigating measures should be applied straight away, in practice it would mean such Prime Minister would very soon become de facto President. It would have been a political fudge and therefore such system should be avoided, if possible.

Which democracy is best for mitigating Humanity's existential risks? (202)

What clearly comes out of this table and the previous analysis is that there are some significant formal and institutional differences between Direct, Presidential and Parliamentary Democracy offering some choice. However, when you look at the requirements list above, it is obvious that none of these systems is good enough on its own for our needs. Let me give you some examples:

- There is no democratic system in the world that would guarantee in its constitution self-determination of a region leading to setting up a separate state (the best recent example is the case of Catalonia). Even if such articles exist, they always have a caveat that the region must first seek the consent of the state from which it wants to separate.
- There is no system of government in any democracy that would envisage a strong separation of legislative and executive powers by forbidding MPs to sit in the government.
- There is no democracy system whose constitution would facilitate governmental powers enabling it to act effectively in fighting existential risks that face us all. That is of course logical, since only the government acting on behalf of the whole Humanity would need such a prerogative. Since I have suggested the EF as the organization that will have the greatest potential to take up such a role of the World Government, it must have such provisions in its constitution.

So, the conclusion is that there is no single democratic system that would fulfil our requirements, nor any silver bullet solution that we could apply for our needs. Therefore, I propose an amalgamation of several features present in various democratic systems and adding some new ones, creating in effect a new type of democracy, which I propose to call Consensual Presidential Democracy.

Consensual Presidential Democracy

Consensual Presidential Democracy is a system of democracy aimed at governing with maximum consensus, where the voice of the ‘losing’ minority is always taken into account. It gives the President exceptionally strong powers against the strongest accountability and recall procedures, to enable him to play a crucial role as conciliator and moderator between two opposing parties, each represented by one Vice President. This system deepens the separation of legislative and executive powers by having a technocratic government. It also has the widest representation of the electorate, where the representatives to the Parliament are elected using a combined First Past the Post and the Two Rounds System of weighted voting and where a half of the second chamber of the parliament is elected based on a Sortition system.

The overall assumption underlying Consensual Presidential Democracy is that we can only survive the extremely dangerous transition to post-Superintelligence period, if we work more closely together, which means a gradual federalization of the whole world. We must be acting as one whole, as Humanity. That is why Consensual Presidential Democracy is built on the following principles:

1. The political representatives are elected in such a way that they represent most closely the will of the majority but do not at the same time ignore the needs of the minority. The ‘losing’ minority is not being trampled down but always heard and all decisions are taken by consensus rather than being enforced
2. Politicians are mainly elected to pass laws and oversee the execution of the law of the land but do not play any part in the execution of these laws

3. That leads to a much clearer separation of the legislative and executive powers when the government is run almost entirely by technocrats and specialists
4. Deeper separation of legislative and executive powers will also insulate law makers from short-term political pressures and deliver better quality law
5. Any long-term decision, e.g. lasting a generation like in education, health or infrastructure projects, would be decided by Sortition Assemblies and then approved by both Houses of the Parliament
6. The key role of this new style of democracy is first of all to assist Humanity in passing through the most dangerous period in its existence with minimum harm. It will also prepare Humanity to be governed like a Planetary Civilization, which at some stage will be ready for an eventual coexistence and a possible merger with Superintelligence, irrespective of the form it may take - mind uploading, transhumanism or any other way.
7. The role of the President is crucial in Consensual Presidential Democracy for two reasons:
 - a. The President has exceptionally strong powers in order to make, the most important decisions at the time of crisis very quickly, such as the emergence of an existential risk
 - b. The President plays a crucial role as a moderator and a conciliatory force when the majority and the minority parties cannot come to a consensus on their own
8. Although there is a centralisation of key powers, the range of those powers is kept to an absolute minimum
9. Therefore, most governing powers rest with the lowest level of decision making
10. The consensual style of government also covers the redistribution of wealth on a global scale, mainly financed by the future rapid growth in productivity, provided by immense number of intelligent robots delivering to humans the world of affluence never experienced by humanity
11. The governmental powers are far stronger than in any western democracy right now, to make the government more effective in fighting existential risks that can materialize within hours
12. The voice of the governed is heard and acted on by governing on an on-going basis rather than just during the elections
13. Strong powers of the president and the government are counterbalanced by an unprecedented level of scrutiny, transparency and accountability

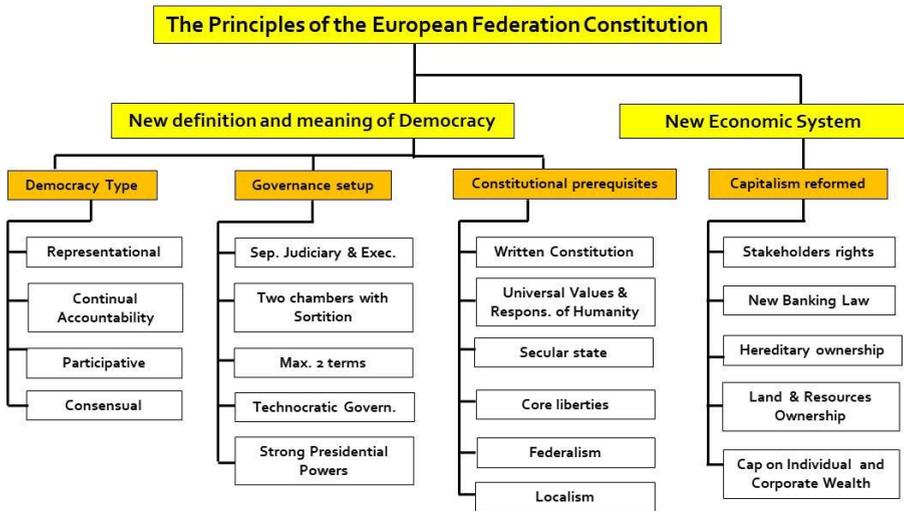
Such a new style of democracy will, in my view, have a better chance of supporting the new European Federation and indeed any other organization, or a state, that would take on the role of the World Government and withstand even more severe challenges than those to which the EU may be exposed in the near future.

All those principles of Consensual Presidential Democracy are put forward for consideration to be embedded in the Constitution of the European Federation, which will become a legal framework for all laws, based on the values accepted by a significant majority of the society (for a full list of such values see Part 2, chapter 3), and which establishes a new democratic order.

The Constitution of the European Federation

I have already discussed in some detail the “Universal Values of Humanity” and “How to overcome the crisis of Democracy”. These two areas are the core of Consensual Presidential Democracy, which has become the foundation for the proposed Constitution of the European Federation that I informally call the ‘Constitution of Humanity’. Just to remind you, such a Constitution would come into force not right now, but by about 2030, when EF might become a **single state**. I would also like to stress that this is in not a draft of the future Constitution but rather a **proposal for the content of key articles of that Constitution based on Consensual Presidential Democracy**, as my input to a debate on such Constitution.

I have summarized the principles of the Constitution in the chart below.



Therefore, the main articles of the Constitution of the European Federation laid out below are really just the headlines, proposing what such an article should contain, with some justification, rather than how it should be precisely formulated. My comments are in italics.

PREAMBLE

The foundations of this Constitution are based on **Consensual Presidential Democracy**. The Constitution takes into account the new challenges that Humanity faces and asserts:

- a. **The predominance of twelve Universal Values of Humanity** in all laws and decisions, i.e.: Freedom, Democracy, Equality, Justice & the rule of law, Human

Dignity, Social Solidarity, Tolerance, Life, Peace, National Security, Family Safety and Nature & Beauty (*those values have been defined in Part 2, Chapter 3*)

- b. **Human rights, based on the above values, must be balanced** with citizens' responsibilities
- c. **A non-faith-based system of governance**, education and social activities is applied in all public domains
- d. **A Judaeo-Christian culture is accepted as a unifying culture underpinning the culture of Humanity**, while ensuring other cultures flourish, as long as they do not undermine the homogeneity of the common culture. (*To avoid even much bigger internal tensions than it has today, Europe cannot risk cultural tensions on a grand scale. That would be the worst outcome for everyone and I am writing about it in the last chapter. People change their mentality very slowly, and acceptability of entirely new norms of behaviour and inter-racial and multi-cultural relationships One generation would not be enough to achieve a reasonable social cohesion. Therefore, in such a difficult transitional period, the EF must minimize social tensions and ensure that its culture remains as homogenous as possible*).
- e. **Non- hereditary system of governance** (*so that all Constitutional Monarchies in Europe, such as in Spain, Belgium, the Netherlands, or in the UK, if it stays in the EU, would have to be converted into Republics and the current monarchs given a special, non-constitutional role, e.g. National Hereditary Governor or a similar title, effectively as a permanent minister*).

ARTICLES OF THE CONSTITUTION

1. European Federation

The member states of the former European Union decide to become a federated state called the European Federation (EF). The system of governance applied in the EF is **Consensual Presidential Democracy**.

2. European Federation organization

The member states agree for the EF to be set up on the following basis:

- Each member states remains sovereign to the extent that it can leave the EF at any time
- European Federation has its own constitution, legislature, parliament, government and courts
- Each member state has its own constitution, legislature, parliament, government and courts, which must be compliant with the EF constitution
- The EF Constitution has precedence above national constitutions
- The compliance of a member state's constitutions with the EF Constitution is mandatory and is adjudicated by the European Constitutional Court
- A member state can be suspended or expelled from the EF
- Any EF nation or region has the right to secede from its current state. It can then immediately become a member of the EF, or secede from the EF altogether

- Each member state retains all powers and competencies not delegated to the EF by the EF's Constitution. That includes the rights to own taxation, healthcare, welfare, education and law enforcement but with the exception of Federal Police, which will in certain cases be in charge on federal matters
- Each member state is represented in foreign affairs by the EF Foreign Affairs minister
- Each member state's army is consolidated into the EF Army
- Each member state contributes a certain proportion of its GDP to the EF budget
- Economy of the EF is based on common currency, a common federal budget and key economic policies such as interest rate
- The Constitution of the EF promotes consensual politics and favours planning and implementing solutions from the perspective of at least one generation and not a parliamentary term
- English is the only official language used in the Federation

3. Subsidiaries of the European Federation

- The member states agree for the EF to have the following subsidiaries (zones):
 - **European Federation Convergence Area (EFCA)**, which is also known as Zone 1
 - **European Federation Single Market Area (EFSM)**, which is also known as Zone 2
 - **European Federation Customs Union (EFCU)**, which is known as Zone 3
 - **European Federation Association Area (EFAA)**, which is also known as Zone 4.
- EF has a process of accepting member states from other EF's zones into the EF itself, once they meet the required EF criteria
- The regulations applying to free movement of people, goods, services and capital are agreed between the EF and the members of the relative zone
- Any new member state, apart from the members of the EFCU and EFAA zones must have a constitution compliant with the Constitution of the European Federation
- For member states in Zones 1 and 2 there are Amendments and Exceptions to this Constitution

4. The foundational principles of the European Federation

The European Federation adheres to the following Universal Values of Humanities (*see Part 2, Chapter 3 for the full list – this is only a sample*):

- Equality of all before the law is preserved in all domains

- Constitutionally guaranteed separation of Executive, Legislative and Judicial powers is further improved by a stricter separation of these powers as follows:
 - Legislative powers are split into two Houses of the Parliament: The Lower House and the Senate. The Senate is split into two chambers: The Senators Chamber and the Sortition Chamber. (*Ensures among others continuous verification that the laws are passed for the benefits of all and not just the majority and that the elected representatives are held to account not just during elections but throughout the whole term of the Parliament*).
 - The Executive powers are moved further away from the legislative powers by creating a government run exclusively by experts who cannot be MPs, apart from the Prime Minister, Foreign Affairs, Defence, Home Office and Finance ministers
 - Judicial Power of the courts of justice of the EF and of the member states courts are continuously monitored by the European Constitutional Court on the legality of the judgments with the EF Constitution
- Laws can only be passed by the EF Parliament
- The government acts in the interest of all citizens and not just those one supporting the largest party. It achieves that by reaching consensus with the minority parties on decisions made (and thus ending the ‘tyranny of majority’).

5. **The EF has a written constitution and so do all members of the EF.** Those members, which currently do not comply with this article, will have a period of one parliament term to align their constitution with the EF’s constitution. (*In the EU, it is only the UK that does not have a written constitution. If the UK wished to change its mind, call off Brexit and continue its membership in the EU, it would be another challenge freshly after that country’s return to the EU to have a referendum on this subject in about 10 years’ time. That is unlikely, therefore, UK, would have to get another opt out for a certain period, if it decides to join the Federation after 2030.*)

6. **Greater decentralisation of some powers.** The EF repatriates some of the existing powers vested in the EU institutions back to the regions and even to a lower local level, significantly strengthening the local democracy. (*This is similar to the Swiss and Scandinavian models*).

7. **Greater centralisation of some powers.** The EF strengthens some key powers to enable effective operation of the EF as a federal state.

8. **The institutions of the European Federation**

- International Constitutional Court, which would oversee the compliance of national constitutions with the EF Constitution
- European Federation Court of Justice

- European Federation Court of Human Rights and Responsibilities merging some competences of the current European Court of Justice and the European Court of Human Rights
 - The Parliament of the European Federation
 - The President of the Federation elected on a pan-European basis by all citizens of the EF
 - Prime Minister selected from MPs by the President
 - Defence Minister selected from MPs by the President. (*This area would no longer be the competency of a member state joining the EF. However, over the first year, the member state's Defence Minister will be an advisor on the former member state's defence policy.*)
 - Foreign Affairs Minister selected from MPs by the President (*The former EU members will no longer carry out their own foreign policy. However, to smoothen the transition period after joining the EF, over the first year of the EF membership, the EF's Foreign Affairs Minister will be shadowed by the member state's Foreign Affairs Minister.*)
 - Internal Affairs (Home Office) Minister selected from MPs by the President. The main function of the Internal Affairs Minister will be to co-ordinate EF-wide policies, so that former EU member states will have almost the same powers as before federalization.
 - Finance Minister selected from MPs by the President. (*The EF will have its single Finance Minister with considerable powers. He will set the budgets, fiscal policies and interest rates for the whole EF. However, the process of transition to a full EF control of the former member state's budgetary and fiscal function will be evolutionary and will happen over 5 years. Each year, an additional 10% of the former EU member state's budget would be transferred to the EU budget to be managed centrally by the EF Finance Minister. Therefore, after 5 years only 50% of the former EU member state's budget will be managed by its Finance Minister*)
 - All other existing EU Institutions and Agencies will perform its function largely as before.
9. **Parliament of the European Federation.** The Parliament's role covers passing the laws, approving the composition of the government, approving the budget, and any other decisions that would have to be voted in the parliament, e.g. in the area of defence, foreign affairs, recalling the President or MPs, etc.
- The EF Parliament consists of two Houses: The Lower House – the Citizens Chamber and the Senate (the Upper House), which is split into two chambers: The Representatives Chamber (50% of the Senators) and the Sortition Chamber (also 50% of the Senators).
 - Candidates are elected for a maximum of two terms
 - MPs and Senators can organise themselves into clubs and committees to propose new legislation.

10. President of the European Federation

- The President has very strong executive powers and governs with two Vice-presidents from the opposing parties
- The President is elected for a fixed 5-year term and can serve a maximum of two terms
- The President makes the most important decisions himself, e.g. selecting the Prime Minister, or on matters regarding defence or emergency. On other matters he needs to consult the two Vice-presidents
- The President can be recalled at any time by a qualified majority of the EF Parliament
- Continuity of governance is maintained, if the President is recalled in the middle of his term, by one of the two Vice-presidents replacing him by a qualified vote in the parliament.

11. The Government

- The Prime Minister is selected by the President from within the EF's MPs and approved by the Parliament
- Five other ministers are selected by the President; Minister of Defence, Foreign Affairs, Internal Affairs, Home Office and Finance from the MPs of the EF Parliament
- The remaining members of the Government consist of experts only. Ministers are selected by the Prime Ministers from a stand-by list of pre-approved and vetted experts.

12. Other principles of governance

- Donations and loans to political parties cannot exceed €5,000 and can only be paid by individuals who appear on the electoral register
- Lobbying is allowed under strict transparency rules
- Political decisions should be devolved to the lowest governmental level capable of effectively implementing the decision
- MP's salaries are linked to public sector wages, and should rise and fall in line with them, e.g. they could be set as 3 times the average public sector salary, the exact multiplier will be decided by an Independent Commission
- Serving MPs are not allowed to hold a second job, that is why their remuneration should be high enough to compensate for the potential loss of earnings from the job an MP had before being elected to Parliament
- All persons holding a public office are barred from standing as a candidate in any election
- Rules on MPs expenses must be transparent.

I shall use these tenets of the future Constitution of the European Federation to describe in the next two chapters the electoral and the judicial system in more detail. That will

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be the framework for the options of the transition of the European Union into the European Federation. Once the best option is selected, I will then describe the proposed detailed set up of the EF and its institutions.

Chapter 4

The electoral system for the European Federation

An overview of the electoral system for the EF Parliament

I have reviewed in Part 2, chapter 6 the current electoral systems that could be applied for the EF. In conclusion, I proposed some fundamental attributes for such an electoral system. I shall now use them to justify why the EF Constitution should have the electoral system that I am proposing. Just to remind you again, this proposal for the electoral system for the EF assumes it would be implemented about 2030. All thresholds and the names of the institutions will of course be adjusted during the process of creating the new Constitution of the EF. This is, as other recommendations in this book, just one of many proposals that might be considered by the Constitutional Commission. The Constitution, the electoral system, and institutions of the EF that I am proposing serve only as the necessary elements in a much bigger picture – the creation of an organisation that will act on behalf of the whole Humanity, which together with the vast resources that such organisation would have, might be capable of significantly reducing existential risks.

The electoral system for the EF that I am proposing will be based on the principles of the Consensual Presidential Democracy (CPD), which itself might be the backbone of the EF Constitution, outlined earlier in this part. According to the principles of CPD, the legislation at a federal (central) level will have to be passed with maximum consensus between the parties and between the chambers of the Parliament, somewhat similar to the system in use in Scandinavia and Switzerland. The whole electoral system will be tuned to that objective, favouring the creation of coalitions, rather than a ‘strong’ single party rule.

The EF Parliament will consist of two Houses:

- The Lower House - the Citizens’ Chamber, where the MPs will be elected by all citizens of the EF
- The Upper House, consisting of two chambers. The first Chamber is the Senate, to which member states will elect their own representatives using the same system as for the election of MPs. The second chamber will be a Sortition Chamber, to which representatives from member states will be selected using a system of sortition.

Participation in the election will be mandatory, against a penalty equal, for example, to the penalty for a parking offence. Among the long-standing democracies that make voting compulsory in elections are Australia, Belgium, and Luxembourg. Other well-established democratic nations - The Netherlands in 1970 and Austria more recently - repealed such legal requirements after they had been in force for decades. Mandatory voting is also used in Latin America. Examples there include Argentina, Brazil, Costa Rica, and Ecuador. In some countries voting has been made compulsory at the discretion of sub-national governments, or is applied only to certain types of elections.

The most common objection on normative grounds is that citizens ought to have the right NOT to vote, as much as the right to vote, while the real reason why many people fail to vote is borne out of apathy. Some opponents of the compulsory voting in Australia claim that such voting frees political parties from their responsibilities to campaign and energize the voters. This state of affairs, they say, favours the established parties over the minor parties and independents, whose supporters are less likely to be motivated to vote. In addition, compulsory voting carries a significant administration cost for the state. Finally, there are arguments against compulsory voting questioning the accuracy of the voters' list, voter information, and the mechanisms for the follow-up fine or punishment system for non-voting citizens.

These are, in my view, rather poor arguments. First of all, if the voting is done digitally, as I propose below, then the administration and penalty involved would be cheap to execute. Secondly, on a moral ground, participation in elections should be considered not just a right but also an obligation as a kind of evidence of common heritage and common future that needs to be shaped by all of us for the benefits of the current and the future generations. After all, we are forced to do many things that the state requires us to do, like for instance to fight in the war, not to smoke in public places, etc. for an identical purpose, to keep us together safer and more prosperous.

There will be a multi-party system in the EF with four types of electoral systems: for the Citizens Chamber, the Senate, the President, and for referenda and petitions. No electable mandate can extend beyond two five-year terms.

Proportional representation will be applied for the election of the candidates to the Citizens Chamber of the Parliament of the EF, local elections and for the election of the President using Two-Rounds System. The MPs will be elected by the voters from one-mandate constituency (district). Party lists will not be allowed, in order to maintain closer link between the voters and their representative.

Direct democracy will be applied in the sortition system, described below and in petitions. No referenda will be carried out, since they will be substituted by Sortition Assemblies. Petitions will allow any group of citizens to challenge any law approved by the parliament at any time, and even propose modifications of the EF Constitution. For other matters, national or local Sortition Assembly would be called with a detailed explanation of pros and cons on a given matter, since matters at a local level are much better understood where the decision is to be applied.

I will now propose in detail how the EF electoral systems might work in practice.

Elections for the President, Citizens Chamber and the Senate

Proportional representation will be applied for the EF President, the election of the candidates to the Citizens Chamber, Representatives Chamber in the Senate and in local elections according to the following principles:

1. The EF electoral system is a multiparty system
2. Casting of votes will be carried out using mainly digital voting (Internet-based or using a terminal at a polling station), although postal voting will be allowed in exceptional circumstances.
3. They will be supervised by an EF Independent Electoral Commission (IEC)
4. Every eligible voter will have to register an email address with the IEC, which will have its own domain, specifically created for elections, e.g. www.voting.el.eu. Thus, Joe Blogs email address, which can only be used for electoral purposes, might be: joe.bloggs@el.eu
5. All seats to the Parliament, or to a local council, will be contested in a one-mandate constituencies (districts) to preserve the closest link possible between the voter and their representative
6. There will be strict rules for carrying out election campaign, including the amount of donations allowed, time on state media etc.
7. To become a candidate to the Parliament or to a local council, the only requirement will be to get a sufficient no. of supporting signatures, e.g. 1% of eligible votes. The signatures will be collected via email only through the IEC website. A voter will be able to support only one candidate, which will be automatically controlled by the IEC website
8. The election will be carried out in two rounds. In the first round, First Past the Post system will be used, when candidates will be scored according to the percentage of the votes received. If one of the candidates receives 50% plus 1 vote, he is the winner and there is no need for the second round. If none of the candidates scores more than 50% votes then the second round of voting is carried out in two weeks' time
9. The candidates who scored more than 20% +1 of the votes in the first round go through to the second round. Therefore, in theory, up to 4 candidates may compete in the second round. That should enable smaller parties, minorities and individual MPs to represent their voters in the federal or local law-making bodies. The voting in the second round will use the Alternative Vote (AV) system, also called a preferential plurality/majority system. Under this system, the voters rank the candidates in the order of their choice, by marking a '1' for their favourite, '2' for their second choice, etc. A candidate who receives an absolute majority (50 per cent plus 1) of valid first preference votes is declared elected. If no candidate achieves an absolute majority of first preferences, the least successful candidates are eliminated and their votes reallocated according to the second preferences made by the voters, until one candidate has an absolute majority
10. Candidates to the Parliament and to local councils must be over 21 and be the citizens of the member states of the EF
11. The voting age will be 13 and over, however the voters aged between 13 and 18 will only be allowed to vote at the polling stations because of the system of voting described below

12. There will be a system of weighted voting, where the weight of the vote will depend on the voter's knowledge of the matters related to the country's governance
13. The IEC, apart from overseeing the election campaign and the voting process itself, will also be responsible for the preparation and approval of 1,000 questions on matters related to the organization of the state, running the government, external affairs etc. The questions will be widely publicized on the Internet, at schools, in newspapers and other media, so everyone will be able to prepare himself for the voting, while at the same time increasing his knowledge about how the country is governed
14. Each party in the parliament will have the right to prepare a proportion of the questions, or scrutinize the already prepared questions. That proportion will equal the percentage of the party's mandates in the parliament. For each question there will be five possible answers
15. Each single vote will count as 10 points. Every adult will have an option of voting using the Internet and getting 2 points, without being asked any question. The same will apply to postal voting, where votes would be allocated 2 points by default. If a voter wants to get more points, he will have to vote at the polling station and answer 10 questions at a terminal there. If he answers correctly 8 or more questions, he will get 8 points, which when added to his statutory 2 points, will make his vote count at a full value of 10 points. Teenagers aged 13 to 18 will be able to vote only at the polling station by answering the questions at the terminal. Their vote will be scored in the same way as for adults.

The underlying reason behind the weighted voting is two-fold. The first one is to give those who have some knowledge and interest in the matters of the state, some extra weight in their electoral decision making by providing more facts in a consolidated and contextual form. That will reduce the impact of fake news and populists' slogans and thus lead to more rational voting decisions. The second one is to get the voters not only more interested in the very process of voting in elections but also gradually turning them into more engaged citizens. The vote weighting would not discriminate against any voter in any way, since everyone would have the same chance to get one full vote. It is the same as with general sense of equality. Everyone must have the same opportunities at birth given extra support by the state, when needed. How he uses this opportunity is entirely up to him. It is the same with the weighted voting system. Everyone has some support (he gets 2 electoral points) so that he can influence the outcome of the election in some way. However, it is entirely up to him how he uses the opportunity to increase that influence.

16. The voters will have access to a political questionnaire, vetted by the IEC, either at the Commission's website or at special terminals at the polling station. The voter will be asked about his preferences, the issues he would like to have resolved and his needs, but also about the importance of those issues. On that basis, the application will use the answers given in the questionnaire, to identify the party, which has the closest affinity with the voter's wishes and expectations. He will of course not have to vote for that party, emotions play a significant role during elections, so it will be up to the voter, which candidate, or party he will finally vote for

17. MPs accountability is given a high priority with an automatic recall in certain cases. MPs could be recalled in these cases:

- If the Parliamentary Committee on Standards has proven MPs misconduct and the motion to recall him was approved by a vote in the parliament
- If an MP crossed the party lines, he would have to resign his mandate by default
- If 15% of his constituents requested his recall, using the IEC website, presenting a reason for such a recall, which would then be subsequently approved by the Parliamentary Committee on Standards that it was correct on merit, the MP would have to resign and offer himself for re-election, if he wanted.

18. Electoral systems within the EF nations can vary, as long as the EF Constitutional Court accepts them as ‘democratic’ voting systems.

Elections to the Sortition Chamber

Elections to the Sortition Chamber of the Senate, which will include 50% of the Senators, will be conducted using sortition. The sortition mandates will of course come from selection and not election, and since they would run for 6-years, they would overlap the terms of the Parliament. Therefore, in a five-year parliament only the mandates won through the Proportional Representation and the Two Rounds Systems will be available for election. The sortition members will continue to be members of the Senate, until their mandate elapses after six years and new sortition members will replace them. The same system as for the EF Parliament could of course also be used for the member states’ Parliaments. This is how I propose to carry out the allocation of mandates to the EF Senate using sortition.

1. Each member state will divide the country into electoral districts consisting of approximately 2 million voters, which will be adjusted, once new countries join the EF
2. Each district will have 2 seats in the EF Senate. A representative for one seat will be **elected** through proportional representation Two Rounds System. The other, will be **selected** through a sortition system
3. The whole process of sortition will be carried out and supervised by the Independent Electoral Commission (IEC) present in each EF member state
4. Candidates for sortition members must be over 21 and are randomly selected from the electoral register
5. The candidates must have a minimum secondary school level education. *(There could also be a more complex option of selecting sortition members, but perhaps more beneficial for the society. This would also select Sortition members at random but with no initial pre-screening for secondary school education. Instead, the first 30% of the sortition members will be selected with no criteria, other than age, the next 30% will have secondary school education, the following lot of 30% will only include university graduates, and the final 10% would include university graduates but with additional screening for technology specialists, scientists, lawyers, voluntary sector etc.)*

6. Once they pass these criteria, they will remain on the register of a stand-by pool of 20 candidates for sortition members
7. The candidates selected to become a sortition member, will have the right to decline the offer to join the sortition team. (*That's a departure from the Anglo-Saxon Jury service, where a person called randomly to serve on the Jury must perform his duty*)
8. If they agree to become sortition members, they will have their leave from work legally, if they are actually selected to serve as Senators, protected (*i.e. they can return back to work on at least the same terms as before*) and IEC will help them get back to work at no extra cost to them. They will have a legal duty to provide all the information on their education and skills they have. They would also have to sign the Official Secrets Act and other documents that MPs normally sign. They will have to swear under oath that they agree to represent their constituents honestly, without prejudice, maintaining secrecy of the debates, if required, or other state secrets, under the same penalties as for government officials
9. The sortition candidates in the stand-by pool will have to undergo training and coaching courses, including English, learning how the EF government works and what are the rights and obligations of being a Senator. They will be paid some money of being a candidate for Senator in the stand-by pool
10. The Sortition period of service in the senate is 6 years. In the first year, a sortition Senator will not be eligible to vote. Instead, he will undergo intensive training and coaching, learning how the EF government works and his rights and obligations of being a Senator. They will also have English tuition, if necessary, since this is the official language of the EF. He will be sworn in the second year and serve for five years. protected (*That means that in his first parliament term, which is 5 years, he will be a Senator for 1 year without the right to vote, and 4 years with voting rights, and then for 1 year with full voting rights in the second term on the parliament*).
11. The sortition members actually selected to serve a 6 year-period in the Senate will be paid the national public sector average salary for the first 1 year and the MPs salary for the next 5 years. All expenses will of course be covered. They will not be allowed to be employed anywhere else.
12. In every district there will be a pool of 20 stand-by registered candidates. In the first year, only one of them will be randomly selected to serve as a Senator. After the first 5 years a new Sortition Candidate will be randomly selected from among the 20 sortition candidates. (*The reason why a new sortition candidate is elected after the first 5 years, is that he will spent the first year in the Senate, being coached in Senator's duties. If the new Senator took his seat after 6 years, then the Sortition Chamber will not have the voting Senators, since the new senators are not allowed to vote in the first year*). From then on, every 6 years a new Senator will be randomly selected from among the pool of 20 stand-by sortition candidates. In case the sitting sortition Senator resigns for any reason, a new sortition member will be selected randomly from among the pool of 20 stand-by sortition candidates. Each time a sortition candidates' pool number falls below 20, a new sortition candidate is randomly drawn from the electoral register. Therefore, the stand-by pool will always have 20 candidates
13. In the Parliament there will be a Sortition Office responsible for all matters related to sortition members. That may cover their coaching or training needs or issues

related to personal matters of sortition Senators. The Sortition Office will also handle the requests from the Sortition MPs for recalling one of their members for reasons of misconduct, non-participation in debates or not voting.

14. Since a sortition Senator will be accountable to nobody because he has been selected and not elected, the only way of removing 'bad apples' is by the sortition Senators themselves. The issue of sortition Senators to be recalled will at first be reviewed by a special Sortition Members Committee. If the Committee finds him guilty of misconduct or non-compliance, then the decision of his recall will become valid, if a qualified majority of sortition Senators votes for his recall. Should that happen, a new sortition Senator from the standby pool of sortition Senators from a given district will be sworn in, replacing the recalled Senators.

Elections of the President

Depending on the European Union's transition plans, the elections for the President could be carried out even before the EU has made a transition into the EF. That could happen within the next few years even without a new Constitution. That was the idea proposed by Jean Claude Juncker in February 2018. He suggested merging the position of the President of the EU Commission and the President of the European Council. The new President would just have two titles: the president of the EU Commission and the EU Council. If that happens, the conditions that would apply in the election of the future EF President should already be applied such as:

1. To become a candidate for the President the candidate must be over the age of 35
2. He must be a citizen of the EU/ EF
3. He cannot represent any faith
4. He will be elected on a pan-European basis by all citizens from all EU countries or EF.
5. The candidate will have to collect signatures on the EU/EF website from at least 1% of the eligible votes from outside his native country. For example, if he was a German, he would have to collect signatures from all EU countries, apart from Germany
6. The election will be carried out in a modified Two Rounds System. In the first round, the First Past the Post system will be used, when candidates will be scored according to the percentage of the votes received. If one of the candidates receives 50% plus 1 vote, he is the winner and there is no need for the second round. If none of the candidates scores more than 50% votes then the second round of voting is carried out in two weeks' time.
7. The candidates who scored more than 20% +1 of the votes in the first round go through to the second round. Therefore, in theory, up to 4 candidates may compete in the second round. The voting in the second round will use the Alternative Vote (proportional) system, described earlier
8. His term will be for 5 years and he can serve a maximum of two terms.

Raising petitions to the EF Parliament and local authorities

This is an instrument of direct democracy. I would like to highlight the conditions that must be fulfilled and the process that must be followed for petitions to become a valid instrument of direct democracy. Petitions may serve several purposes:

1. To propose new laws and changes in legislation, including constitutional changes
2. To propose a recall of an MP
3. To propose a Sortition Assembly (instead of a referendum)

To raise any petition, the petition organizers would have to present a clear case and publish it on the IEC website. They would need to collect signatures on the IEC website from 5% of the eligible voters in the EF as a whole, or if it is a petition regarding a local authority, 5% signatures from the voters of that local authority.

For an MP recall petition, the minimum number of signatures collected is 15% from the voters in the MPs constituency.

To propose a Sortition Assembly (instead of a referendum) on an EF wide basis, a minimum of 20% of signatures from the EF voters would have to be collected on the IEC website. Once the petition has reached the minimum no. of signatures, it will have to be scrutinized for its legality by the Parliamentary Committee on Standards. Should that be correct, the Parliament would have to approve it with a simple majority.

Chapter 5

The Judicial System of the European Federation

The European Federation Constitutional Court

First of all, I am not a constitutional lawyer. Therefore, what I am proposing in this section and the section below on the judicial systems is just a bare outline of what would be needed in broad functional terms, in order for the Courts to support the tenets of the EF Constitution. The starting point for a judicial system should be the establishment of a new **EF Constitutional Court (EFCC)** which would take over the transitional role played by the International Court of Justice. Its main role would be the approval of a member state's constitution and governance practice, as well as verifying electoral procedures. A country would have to pass the democratic criteria based on the new Universal Values of Humanity, embedded in the EF Constitution, as the prerequisite to calling such a country democratic. All member states that will make up the Federation will have to meet all the criteria set up in the European Federation's Constitution by default. EFCC would verify that the member states' constitution meets such democratic criteria.

There is a good example of how such a body may work. It is the **European Commission for Democracy through Law** - commonly known as the Venice Commission as it meets in Venice. It is the Council of Europe's advisory body on constitutional matters. The Council of Europe describes its role as follows:

“The role of the Venice Commission is to provide legal advice to its member states and, in particular, to help states wishing to bring their legal and institutional structures into line with European standards and international experience in the fields of democracy, human rights and the rule of law. It also helps to ensure the dissemination and consolidation of a common constitutional heritage, playing a unique role in conflict management, and provides ‘emergency constitutional aid’ to states in transition”.

The Commission has 61 member states: the 47 Council of Europe member states, plus 14 other countries (Algeria, Brazil, Chile, Costa Rica, Israel, Kazakhstan, the Republic of Korea, Kosovo, Kyrgyzstan, Morocco, Mexico, Peru, Tunisia and the USA). The European Commission participates in the plenary sessions of the Commission. Its individual members are university professors of public and international law, supreme and constitutional court judges, members of national parliaments and a number of civil servants. They are designated for four years by the member states, but act in their individual capacity. The Commission works in three areas:

- Democratic institutions and fundamental rights
- Constitutional justice and ordinary justice
- Elections, referenda and political parties.

The Commission shares the standards and best practices adopted within the countries of the Council of Europe beyond its borders notably in the neighbouring countries. Its permanent secretariat is located in Strasbourg, France, at the headquarters of the Council of Europe. Its plenary sessions are held in Venice, four times a year: in March, June, October and December (203).”

The Venice Commission has no direct powers and serves as an advisory body to the Council of Europe. In my proposal for the European Federation Constitutional Court to function properly, it would need far reaching supranational powers. I realize how uncomfortable it must be for most of us. But that is the new reality we will be facing quite soon. The states will have to give up some of their sovereignty, as we will have to give up some of our freedoms, simply to have safer future to avoid existential risks mentioned earlier, that may wipe out our civilization. We may procrastinate and try to delay such a decision, but I firmly believe it may happen possibly as early as within the next generation.

The European Federation Court of Justice

The current EU’s judicial system is unnecessarily complex and at times may be confusing. The best example is the overlapping jurisdiction between the European Court of Justice (JIC) and the European Court of Human Rights (ECtHR) in verdicts over the application of human rights. That also extends into three other courts that collectively form the Court of Justice of the European Union (CJEU). My proposal would be to consolidate these powers of four courts, including the European Court of Human Rights, into a new court the European Federation Court of Justice (EFCJ).

The functionality of this court would cover the current functions of individual courts as well as some extensions, as undoubtedly will be needed, once the new Constitution has been ratified. Thus, the EFCJ might cover these, most important, functions (there will obviously be many more):

- The Charter of Fundamental Rights
- The European Convention for the Protection of Human Rights and Fundamental Freedoms
- Making judgments in the area of applying the EF ‘freedoms’, security and justice
- Making judgments in the area of applying the EF laws related to free movement of persons (current Article 68 of ECJ), and specifically, policies covering visas, asylum and immigration
- Making judgments on the legality of operations carried out by the police or other law-enforcement services of the Federation
- Making judgments on the conditions for the admissibility of actions brought by individuals
- Adjudicating the issues related to foreign and security policy
- Monitoring the EF compliance with the principle of subsidiarity. This area may need to be significantly revised, or even withdrawn, depending upon the exact nature of the Federation, since in principle it will be a single state. However,

subsidiarity may refer in the future, to regions, so it is quite likely that will have to be covered by the Court.

- Examining the legality of acts of the institutions, bodies, offices and agencies of the EF intended to produce legal effects vis-à-vis third parties
- Judicial review to acts of the EF Government and the Committee of the Regions (which in the EF may need extended powers).

We now have a constitutional and judicial framework for setting up the EF. It will enable us to select the best transition route from the EU to the European Federation.

Chapter 6

The structure of the European Federation

The European Federation and its Subsidiary Zones

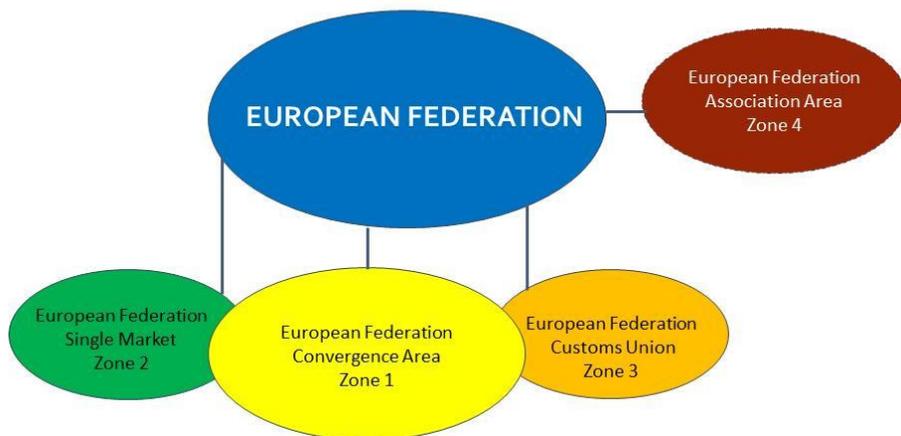
On the day specified by the Constitution of the European Federation all member states joining EF will lose their sovereignty, and EF will become a state on its own. On the same date, all national constitutions of the former Eurozone member states' will be replaced by new constitutions, in which their statehood will be changed to being a member of the EF. It will be a momentous event unprecedented in modern history. There is of course a possibility that some member-states of the Eurozone will not ratify the EF Constitution. These members will move to the EF Convergence Area (EFCA) zone, although they would probably be able to keep the Euro currency as a 'shadow currency', as it is now used in Kosovo and Montenegro. Since no new members will be admitted to the Eurozone after the completion of the ratification process for creation of the EF, the Eurozone will cease to exist. The EF will be the ever-expanding core of the federal Europe, making the non-federated part of the EU progressively smaller.

To sum up, although there are many other problems that would surface during the transition, and after it has been completed, I would draw the conclusion that converting the Eurozone, into the European Federation in the next 5-6 years is definitely feasible and this might be the preferred option reducing many risks (this option would not include all members of the EU joining at the same time, but just the Eurozone members). That would mean the Eurozone would cease to exist and any new member aspiring to join the Euro area would instead have to join one of the subsidiary zones of the EF first. There would be no other option.

The future EF would have to take into account the impact of accepting new members for the cohesion of the Federation as its foremost duty. Only the candidates, who would pass 'the cohesion test', would be allowed to start negotiation on accession to the EF. The cohesion criteria for acceptance would be, as now, the legal framework and actual practice of enforcing the Universal Values of Humanity in the candidate country. The second one, as mentioned earlier, would be the cultural similarity with the current members of the EU. The religion practiced overwhelmingly in the candidate country would be a particularly difficult and controversial subject. Therefore, some Muslim countries, such as Saudi Arabia or Iran (yes, we have to think 20-30 years ahead) would probably have little chance to become full members of the EF in the foreseeable future. However, the EF will enable special association membership with wider scope of privileges and obligations than at present for those members who would not pass the cohesion test. Turkey, Georgia, Lebanon, Ukraine are among about 30 countries that currently have such an agreement. Should the association criteria become more rigid, as they should be, some countries like Turkey, may not qualify to be associate members of the EF Customs Union and may be relegated to join Zone 4 – The European Federation Association Area (EFAA).

According to the proposed Constitution, the EF will have four subsidiary zones, which will also come into operation on the first day of the EF operation.

The Zones of the European Federation



Zone 1 is a member of both Single Market and Customs Unions. Members who are both in the Single Market (Zone 2) and Customs Union (Zone 3) do not necessarily have to move into Zone 1. Some members in Zone 4 could also be members of Zone 3 (Customs Union), like Turkey is now.

I describe the functions and scope of each zone below.

Zone 1 – European Federation Convergence Area (EFCA)

The setting up of Zone 1 may start in parallel to the transition of the Eurozone into the EF. There will be no separate constitution for the EFCA. Instead, the EF constitution will cover the rights and obligations of the EFCA members, which in principle should become federated with the EF within 5 years.

The rights of accepting new members, suspending, or expelling members will be the sole privilege of the EF. EFCA members will have the right to sit in the EF Parliament but will not have the same voting rights as the EF's MPs.

Such a setup might initially create some tensions between the EF and EFCA. Tensions may arise because of the perceived benefits of the membership of the EF, not available to the EFCA member states. But that could only increase the motivation of the EFCA members to join the EF. The greatest benefit from this setup would be to show the EFCA members that the EF works and any problems it might have could be overcome. This is an optimistic assumption, I agree. It could also create some additional risks that are not present right now, and which might occur because of the changed political

situation in the member countries of the EFCA. But at the same time, federalization of the Eurozone into EF and creating a separate EFCA zone for the remaining members could eliminate many more risks that threaten the unity of the EU today, like the looming Euro crisis, or different agenda in foreign policy, etc. Therefore, the EU would have to take up such a risk.

Any new member state joining the EFCA zone will have to accept the relevant articles of the EF Constitution and on that basis amend its own constitution. Here is an **additional** list of the articles of the EF Constitution that would not apply to new EFCA members:

1. **Constitutional relevance.** The joining members will:
 - Become a member of the EFCA
 - Make all necessary preparation to become federated with the EF within 5 years
 - Accept the EF Constitution based on Consensual Presidential Democracy
 - Support at times of utmost urgency the actions of the President or the Prime Minister of the EF if they have to react to events at national or global scale within hours, even if it meant a temporary suspension of the EFCA member's sovereignty rights
 - Strongly support the process of decision making within their own government at all levels through consensus rather than arbitrarily impose the rule of majority
2. **Respect for the rulings of the European Constitutional Court and the European Court of Justice.** Each member's constitution will have to be approved by the European Constitutional Court for its adherence to the EF values.
3. **Electoral system for the EFCA.** This will be the same as for the EF, i.e. Proportional representation system in place to select candidates. The Two Rounds System (TRS) ensuring that each candidate gets at least 50% of votes plus 1. However, the EFCA MPs may not have the right to vote on all EF matters.
4. **Electoral systems within the EFCA nations.** As long as the EF Constitutional Court accepts them as 'democratic' voting systems, it should be up to those countries, which system they select, since the voting system should suit a particular cultural and ethnic composition of a given country.
5. **President of the EF is the Head of EFCA.** He represents EFCA to external organizations, and chairs some of the meetings of the EFCA.
6. **Foreign affairs area.** The EFCA members relinquish their rights to carry out their foreign policy, which is carried out by the EF Foreign Minister on behalf of all EFCA members.
7. **Defence area.** This area would no longer be a competency of a member state joining the EFCA. However, over the first year, the member state's Defence Minister will be an advisor on the former member state's defence policy.
8. **Single Market.** All members benefit from a single market for all goods, services and capital as well as to freedom of movement, settlement, setting up businesses

etc. for all citizens of the EFCA. However, there are differences to the entitlements and benefits, such as unemployment benefit level.

9. **Customs Union.** All EFCA members must also be members of the EF Customs Union
10. **Trading relationship with non-EF countries.** No EFCA member state can enter into trading relationship with a non-EF country. Any foreign investment in a member country above the pre-authorized level is not allowed without the agreement with the EF Government
11. **State aid and Mergers & Acquisitions.** Companies cannot get any state aid nor conclude any M&A transaction above the agreed level without a prior agreement with the EF Government
12. **Fiscal policy and common budget.** The EFCA members will send 5% of their budget to be managed by the EF central budget, from which some common EF projects will be financed, including projects in the contributing country.
13. **Opt-outs.** There are no opt-outs allowed of any agreed policy of the EFCA in this zone.
14. **EFCA Enlargement principles.** The accession of new member candidates to the EF, or a suspension or expelling of the existing member states will be the sole prerogative of the EF.

Zone 2 - European Federation Single Market (EFSM)

The setting up of this Zone may start in parallel to the transition of the Eurozone into the EF. This zone will have its own Treaty, modelled on the cut-down version of the Lisbon Treaty. I will not cover the details of this Treaty, but rather focus on the differences between the EFCA (Zone 2) and EFSM. As you will see a lot of the principles of EFCA will stay the same, but some will be quite significantly changed. This is why I believe this Zone will be an ideal escape route for Britain. It would meet almost all demands that Britain put to the EU in its 'Chequers white paper' published on 7th July 2018, apart from the Jurisdiction of the ECJ. The contentious issue of the Freedom of Movement, which would have to be accepted by all members of this Zone, is really a stand-off purely negotiating position and it can be relatively easily resolved either by granting the UK a period of, say, 5 year 'controlled migration' or by modifying the way this policies is implemented across this zone.

These are some principles of the EFSM Treaty that I would propose:

1. **Principles and values.** The joining members will have to accept the Universal Values of Humanity, which will particularly include:
 - **A non-faith-based system of government,** education and social activities (apart from churches, mosques and other religious institutions)
 - **Aiming to convert any non- hereditary system of governance** into a representative Democracy
 - **A predominantly Judaeo-Christian homogenous culture.** *(To avoid even bigger internal tensions than there are today, Europe cannot risk*

multiculturalism on a grand scale, nor taking new members from entirely different cultures)

2. **Constitutional relevance.** The joining members will:
 - Become a member of the EFSM
 - Accept the EF Treaty based on Consensual Presidential Democracy
 - Strongly support the process of decision making at all levels through consensus rather than arbitrarily impose the rule of majority
 - Accession, suspension and expelling of EFSM member state is the sole power of the EF Government
3. **EFSM structure and powers.** The joining members will have to accept that:
 - EFSM has its own Treaty based on Consensual Presidential Democracy
 - The EFSM members accept to support at times of utmost urgency the actions of the President or the Prime Minister of the EF, if they have to react to events at national or global scale, even if it meant a temporary suspension of their sovereignty rights
4. **A written constitution.** Every member state of the EFSM must have a written constitution. Countries that do not have it yet, will be granted some time to introduce the necessary jurisdiction.
5. **Respect for the rulings of the European Constitutional Court and the European Court of Justice.** Each member's constitution will have to be approved by the European Constitutional Court for its adherence to the Federation's values.
6. **EFSM Assembly.** It consists of one chamber: The Chamber of citizens' representatives from individual states. The parliament term is five years. Candidates are elected for a maximum of two terms.
7. **Electoral systems within the EFSM nations.** As long as the EF's Constitutional Court accepts them as 'democratic' voting systems, it should be up to those countries, which system they select, since the voting system should suit a particular cultural and ethnic composition of a given country.
8. **Multi-party system.** People can organize themselves into parties within EFSM states or across the whole EFSM.
9. **Electoral system for the EFSM.** Proportional representation system in place to select candidates. Two Rounds System (TRS) ensuring that each candidate gets at least 50% of the votes plus 1.
10. **EFSM President.** He represents EFSM and heads the EFSM Commission. He is elected for a fixed 5-year term and can serve a maximum of two terms.
11. **The EFSM Commission.** This replaces the former EU Commission. It is headed by the EFSM President (there is no separate Prime Minister). However, all Commissioners are now Ministers, who are experts selected from a common EFSM pool of experts.

12. **Foreign affairs area.** The EFSM members do not have their joint Foreign Policy Minister and they can carry out their foreign policy independently, being closely harmonized with the EF.
13. **Defence area.** This area will be co-ordinated but not ruled by the EF Defence Minister. Each country will retain its own Defence Minister. This may change rapidly depending on political situation.
14. **Trading relationship with non-EF countries.** No EFSM member state can enter into trading relationship with a non-EF country. Any foreign investment in a member country above the pre-authorized level is not allowed without the agreement with the EF Government
15. **State aid and Mergers & Acquisitions.** Companies cannot get any state aid nor conclude any M&A transaction above the agreed level without a prior agreement with the EFSM Commission
16. **Fiscal policy and common budget.** All members pay 2% of their budget into the EF budget to help finance joint projects. The EFSM will try to harmonize its long-term economic and fiscal policies but there will be no interference into setting the member state's budget or fiscal policies.
17. **Currency.** Each country uses its own currency
18. **Single Market.** All members benefit from a single market for all goods, services and capital as well as to freedom of movement, settlement, setting up businesses etc. for all citizens of the EFSM. However, there are differences to the entitlements and benefits in EFSM countries, such as unemployment benefit level.
19. **Customs Union.** All EFCU members must also be members of the EF Customs Union
20. **Energy policy.** The EFSM co-ordinates the energy policy with the EF, especially in the area of common energy supplies.
21. **Opt-outs.** Members may declare up to 5 opt-outs of any policy of the EFSM unless it violates the principles of the EFSM Treaty. The ultimate arbiter will be the EF Court of Justice.
22. **Lobbying.** There is an extensive e-democracy system operating across the Federation enabling lobbying on new legislation or changes to the existing law by petitioning the Federation's Institutions.

The creation of the EFSM zone would open new possibilities for countries staying close to the current EU, but being formally outside this organization. The first such potential candidates are the current EFTA countries, i.e. Norway, Switzerland, Iceland and Lichtenstein, which are also members of the European Economic Area (EEA) and full members of the current EU cohesion programme. What's important about these countries is that their economic performance is on par with top EU economies, similar foreign affairs policy (i.e. towards Russia or China), similar judicial institutions (EFTA Court), similar democratic principles and economic policies and the system of human values nearly identical to those of the EU.

If these countries were participating in the creation of the EFSM zone, including possibly the United Kingdom, then Europe would have become better integrated with fewer tension spots and increased economic and social benefits. The key attraction for

these countries would be the increased security and economic influence they could exert as members of a much larger organization. Even if only these additional countries were added, the combined GDP of such an enlarged EU would be about 1/3 of the global GDP, with the population exceeding 700m and being one of the four military superpowers. That would allow the EF to execute most of the functions that it would need to start reducing the existential risks of Humanity.

There would be other advantages for these countries. The first one is that Switzerland, which has over 200 separate Agreements with the EU, could join by signing just one Agreement and have a series of opt-outs instead.

Zone 3 - European Federation Customs Union (EFCU)

The setting up of this Zone may also start in parallel to the transition of the Eurozone into the EF. This zone will have its own Treaty, modelled on the current Customs Union Treaty. The key differences between the EFSM and EFCU zone are summarized below:

1. **Principles and values.** The joining members will have to accept that they will strive to modify their political system to respect the Universal Values of Humanity.
2. **Constitutional relevance.** The joining members will:
 - Become a member of the EFCU
 - Support at times of utmost urgency the actions of the President or the Prime Minister of the EF if they have to react to events at national or global scale within hours, even if it meant a temporary suspension of the EFCU member's sovereignty rights
 - Strongly support the process of decision making at all levels through consensus rather than arbitrarily impose the rule of majority
 - Accession, suspension and expelling of EFCU member state is the sole power of the EF Government.
3. **Respect for the rulings of the European Court of Justice**
4. **Trading relations with the EF.** All member states of the EFCU benefit from tariff free trade and unrestricted movement of goods across the EF and its Zones 1,2 and 3.
5. **Trading relationship with non-EF countries.** No EFCU member state can enter into trading relationship with a non-EF country without a prior agreement with the EF government.
6. **Contributions to the EF budget.** All members pay 1% of their budget into the EF budget to help finance joint projects.
7. **Currency.** Each country uses its own currency
8. **Single Market.** The EFCU members do not have access to Single Market.
9. **Opt-outs.** Members may declare opt-outs of any agreed policy of the EFCU unless it violates the principles of the EFCU Treaty. The ultimate arbiter will be the European Court of Justice.

The creation of the EFCU will streamline current Customs Union agreements and bring those countries closer to the EF, opening a possible path to joining the EF Single Market zone at some stage.

Zone 4 - European Federation Association Area (EFAA)

The setting up of this Zone may start, similarly as Zone 3, in parallel to the transition of the Eurozone into the EF. This zone will have its own Treaty, modelled either on the current Association Agreement, or on the Comprehensive Economic and Trade Agreement (CETA) concluded between the EU and Canada in 2017. I will not cover the detail of this Treaty, but rather focus on the differences between the EFSM (Zone 2) and EFAA.

The EFAA will include all current countries that have Association Agreements with the European Union. These countries will have to accept some general conditions, such as those in CETA. Otherwise, the conditions will be specific for a given member, mutually agreed with the EF. Any candidate for the EFSM zone, like Moldova or Kazakhstan, will have to be a member of this zone first. Only upon meeting all the terms of the accession will they be able to join the EFAA zone.

These are the draft principles of the EFAA Treaty that I would propose:

1. **Principles and values.** The joining members will have to strive to implement the Universal Values of Humanity, although they can get an exemption during the negotiation for some cultural or religious differences.
2. **Respect for the rulings of the European Court of Justice.** Each member will have to accept the verdict of the ECJ in any aspects of its relationship with the EF.
3. **Trading relationship with non-EF countries.** An EFAA member state can enter into trading relationship with a non-EF country without a prior agreement with the EF, unless it is also a member of the EF Customs Union.
4. **Fiscal policy and common budget.** Members could voluntarily apply some fiscal policies of the EF.
5. **Currency.** Each country uses its own currency. However, members may use Euro as a shadowing currency, taking of course all the risks that such a policy involves.
6. **Opt-outs.** Members may declare opt-outs of any agreed policy of the EFAA unless it violates the principles of the EFAA Treaty. The ultimate arbiter will be the European Court of Justice.

By creating EFAA, the Federation would have the means to create much closer direct relationships with probably half of the countries in the world, addressing the needs and aspiration of hundreds of millions of people world-wide. This would make an additional natural pull for other countries wanting to join the Federation, important if it wants to act as a de facto World Government. The reach of the Federation into other continents will at the same time help spread and re-enforce Universal Values of Humanity in many more countries.

Relations between Member States and the European Federation

Leaving the EF, suspending and expelling EF members

I consider this area, as of course does the EU, truly fundamental and it will differ quite significantly from any document of any international organization. How will the relations between the member states and the EF differ from a typical state, for example Germany? Not much. We may think about EF as a super state, similar to the United States, with its members having the highest degree of autonomy but sacrificing their most important feature – sovereignty. Therefore, the existing articles in the Lisbon Treaty will have to be substantially modified. For example, this is the current wording of clause 2 of Article 4:

“The Union shall respect the equality of Member States before the Treaties as well as their national identities, inherent in their fundamental structures, political and constitutional, inclusive of regional and local self-government. It shall respect their essential State functions, including ensuring the **territorial integrity** of the State, maintaining law and order and safeguarding national security. **In particular, national security remains the sole responsibility of each Member State.**”

There are two areas that will have to be governed in a different way, which I emphasized in the text. The first one regards **territorial integrity**. This is the domain, where the changes may potentially create shock ways in the current system of national sovereignty.

The other area that needs to change substantially is the **national security**, where former EU member states will gain the full protection of the EF, but its defence, foreign policy and its security in the broadest sense, will be decided by the EF Government.

But EF must also have the rights to temporarily limit the national sovereignty for the benefit of the entire Humanity in case of existential dangers that the EF, its subsidiary Zones may face. That may include, stopping any cross-border traffic; production, sale, or distribution of certain toxic substances, or an invasion by foreign forces of the EF Zones 1 or 2. Such circumstances must of course be very clearly identified and justified, but for all purposes the European Federation will become the ultimate decision maker in what a country can and cannot do in certain areas such as defence, law or science and innovation.

There is one more important article missing in the current Lisbon Treaty (as it is also in the NATO Treaty). This regards member suspension and eventual expulsion. The current article 5 of the Lisbon Treaty covers the suspension of certain rights of member states if they do go against the spirit or letter of the Treaty. It is combined with the now famous article 7 (the so-called nuclear option). Incredible, as it may seem, what is

lacking in this article, is the clause, which would enable a member state to be expelled from the EU. For the EF to function properly that would have to be rectified.

To regulate the relationship between the member states, the Lisbon Treaty includes the principle of ‘Subsidiarity and Proportionality’, which will also be crucial for the European Federation to operate effectively. In layman’s terms ‘Subsidiarity’ means that EF does not interfere (does not take any action) in internal affairs of a member state, except in the areas that fall within the exclusive competence of EF or unless such action at the EF level would be more effective than the action taken at a national, regional or local level. ‘Proportionality’ as the name suggests, requires that any action by the EF should not go beyond what is necessary to achieve the objectives of the EF.

The amended clause puts a strong emphasis on the compliance of member states’ Constitutions with the Zones 1 and 2. It would thus read as follows:

“Under the principles of subsidiarity, the EF is explicitly authorized by member states in Zones 1 and 2 to ensure that any member states’ Constitution and the legal system comply in every respect with the EF Constitution. Such compliance will be verified by the Constitutional Court of the EF each time a member’s Constitution is amended.

If the actions taken by the EF institutions that triggered the suspension of the voting rights of a member state did not lead to that member state changing its actions so that they would comply with the EF Constitution, then such a member state could be expelled from the EF by a qualified majority vote of the EF Parliament.”

Convergence of regions into independent states

This domain deals with internal matters of member states and therefore it is bound to be very controversial. However, in this book I have been trying not to shy away from such matters for political correctness, difficulty or other reasons. This is an area that may affect the EU, and in the near future the world, in an explosive manner. The Catalan referendum is the best example. I describe it in some detail because it illustrates the root causes of such crises and if they are not resolved by legal means soon enough, they will probably become the biggest danger for the EU’s unity, bigger than populism and the next Euro crisis.

The future European Federation must reconcile the rights of large regions and nationalities, which spread across current national borders, to self-determination and statehood as early as possible. The matter is urgent. On 1st October 2017 the government of Catalonia carried out a referendum on Independence that had not been previously agreed with the Spanish central government. Did the Catalans have the right to carry out such a referendum without the consent of the Spanish government?

Let me start with the context, in which the referendum was held. Spain is a constitutional monarchy with the king as the head of state. The form of government is a representative democracy. Catalonia is one of the Spain’s 17 autonomous provinces, where 16% of the Spanish population live. It is the country’s biggest economy by region with over €250bn annual GDP, i.e. the same as South Africa, with well developed

manufacturing and finance sectors and with its own regional government called Generalitat.

Catalonia's government already has considerable powers over healthcare, education and tax collection. It pays about €10bn tax more to Madrid than it receives. That's why pro-independence politicians argue that complex mechanisms for redistributing tax revenue are unfair and that Catalonia has subsidized other parts of Spain for a long time. Furthermore, Catalans argue that they are a separate **nation** rather than just a nationality with their own history going back 1,000 years as a distinct region with a population of 7.5m (as large as Switzerland), its own culture and language.

The long-running dispute goes back to the brutal years under Franco, whose dictatorial regime repressed Catalonia's earlier limited autonomy. It wasn't until four years after his death in 1979 that the region gained full autonomy. In 2006, the Spanish government backed Catalonia's call for greater powers granting it a "nation" status and financial control. But four years later that status was rescinded by the Constitutional Court, which ruled that while Catalan is a "nationality," Catalonia is not a nation itself.

It is that, which has probably sparked off Catalonia's campaign to break away from Spain. The independence movement has been gaining momentum since 2010. In that period, the Catalan Parliament and the Catalan government have formally requested an independence referendum nineteen times. Madrid has argued that such a vote would be illegal under the current Spanish law, which is true, and encourages the Catalan parties to reform the Spanish Constitution. However, the difficult formal process to reform the Constitution and the outright opposition of the two main Spanish parties to any concessions to Catalonia, make it impossible. The sheer arithmetic says it all: Catalonia elects only 47 out of the 350 deputies to the Spanish parliament.

Catalonia held a symbolic, non-binding referendum in November 2014, in which 80% of those voting was for the independence but only 32% of those who were eligible to vote, actually took part in the referendum. In regional elections on 27.9.2015, in which 72% of the voters participated, 48% backed pro-independence parties, who feel that the independence referendum is the best way for resolving this stalemate situation.

Now, the question is do Catalans have a legal right to conduct such a referendum? I believe that from a legal point of view, Catalonia did not have the right to conduct such a referendum. The Spanish government opposed the referendum on 1st October 2017, pointing to the illegality of such a move, since the Spanish Constitution forbids such referenda without the consent of the Spanish (Central) Government. The illegality of the referendum is crystal clear. That's what Article 2 of the Spanish Constitution says.

But not having the legal right does not close the problem. If Catalans do not have a legal right to organize such a referendum on the region's independence, do they have a moral right not only to the referendum but to becoming an independent state? In my view, they definitely have such a right and I would put forward these arguments:

- The first one is the so-called **Natural law** (“lex naturalis” in Latin). It asserts that “certain rights are inherent by virtue of human nature. The law of nature is implied to be universal, existing independently of the legal system of a given state, political order, legislature or society at large” (204). The best example of applying natural law to declaring independence is the Declaration of Independence of the United States, which says that “...it has become necessary for the people of the United States to assume the separate and equal station to which the Laws of Nature and of Nature's God entitle them” (204).
- The second one is **individual freedom, indirectly derived** from Natural Law, practiced in ancient Rome as “habeas corpus” - “you shall have the body” and indirectly referred to in Magna Carta – meaning nobody can be prosecuted without a fair trial in the court. That has ultimately become a common law in the UK. Individual freedom means among others a freedom of unrestricted travel. That natural law has been frequently violated in legal system of dictatorships. For example, how could an individual living in the Soviet Union, or in Nazi Germany, leave the country freely at any time? They could not! This is why such a Natural Law has been directly applied to refugees and ‘freedom fighters’ by the European Human Rights Court. In the European Convention on Human Rights, we have among others, articles on the rights to education and free elections, derived from ‘natural law’. Therefore, regions, as communities, have the same ‘natural laws’ that protect their rights to self-governance (or ‘freedoms’) as those that protect individuals.
- The third one is **the Right to Secede**, an argument frequently used by international lawyers. It describes two types of rights to secede: Primary Right and Remedial Right. **Primary Right** asserts that certain groups, like nations, have the right to secede in order to have their own state. **Remedial Right** is a unilateral right to secede, which a group is entitled to on the grounds of injustices they may have endured from the state they are part of. Here are some examples of application of the Remedial Right:
 - Former colonies are considered to have a legitimate claim to break away from the imperial power;
 - Secession is justified when it is simply the taking back of the wrongly taken territory (the most recent cases are the Baltic States: Estonia, Latvia and Lithuania);
 - Secession is legitimate after persistent, large-scale violations of basic human rights (e.g. Palestine, Kosovo or Chechnya).

That was exactly the justification used for creating the United States. At that time, the fulfilment of such will of the people could only be implemented through a war. The last time we had it in Europe was the Balkan war in 1990’. Today, we must be able to let the regions which want to become independent states to do it peacefully, even if the state they are a part of, has no legal framework for a region to make such a decision.

These moral rights would be sufficient for Catalonia and other large minorities anywhere in the world to conduct a referendum for independence whenever they want because in principle the rights for declaring independence must rest with the community of that region, irrespective of whether it is a single nation based on history, tradition and culture, or a large region of common interests.

These rights have been violated not only in Spain but just a few days earlier, on 29 September 2017, in the Kurdish part of Iraq. In that referendum 92% of the voters supported the creation of a separate state. Almost all countries oppose an independent Kurdistan, which is a nation of about 30 million people dispersed across Iraq, Syria, Turkey and Iran. The main objection is really spelled out but one reason - it's oil-rich Kirkuk region. Officially, it is said an independent Kurdistan would open a chain of wars in the most unstable region in the world. So, the US and the UK say "yes" in principle, but not now. That is exactly what they have been saying for the last 70 years.

But let us not forget that Catalonia, unlike Kurdistan, is a region within the European Union. The respect for equal rights of national minorities is one of the European Union's core values. It is included in the EU's founding treaty and into the charter of fundamental rights. However, what is missing there is a well-defined legal process that leads from the right to declare an independence referendum to actually becoming a new independent state within the EU. It also misses certain details, such as what autonomy, federation or outright independence means and what constitutes a community that has such a right to self-determination. On one hand the 'peoples' of Europe, have the right to self-determination and on the other most state's constitutions make a secession of a region a practical impossibility.

However, the EU may be required to apply some interim measures before the Pandora's Box is opened. It may contain, for example, a stipulation, that any region has the right to self-determination, irrespective of the actual constitution of a given EU state, to separate peacefully under the auspices of a special commission set up by the EU. After the referendum accepting the separation, a minimum period of say 5 years would be required before the actual separation takes place.

Therefore, to avoid serious risks threatening the EU's survival, the European Council should promise as soon as possible, certainly before the elections to the EU parliament in 2019, that any separation of regions within the EU into independent states, such as the Catalonia's attempt in 2017, will be suspended until the new EU Constitution will be ratified. In that Constitution, there will be articles on region's secession from the member states, such as:

1. Any nation or a region has the right to secede from its current member state. It can then immediately become a member state of the EU, or secede from the EU altogether
2. Without precluding the actual wording in the articles of the future Constitution, the process of such secession from a member state will have to follow strict procedures that will be specified in the new Constitution

3. Any such process would be arranged under the auspices of the EU, provided a seceding region follows a specific process that may lead to independence
4. There will be a minimum period of 5 years for completing the secession.

In this context, the separation of Slovakia and the Czech Republic from Czechoslovakia on 1 January 1993 is an exemplary way to execute such a right to secession and full independence in the most harmonious way. Additionally, the current article 50 of the EU and the whole process of Britain's exit from the EU could be a model for such a separation.

Chapter 7

The Institutions of the European Federation

The Parliament of the European Federation

I am not going to discuss the merits of the proposed changes to the European Parliament, nor discuss the advantages and disadvantages of the potential changes. My aim is quite simple – to put forward a plausible setup of the new Parliament and show the direction of travel rather than produce a refined proposal.

Throughout this book, I assume that EU will be transformed by about 2030 into the European Federation (or the United States of Europe – the name is not that important). The future parliament will thus be a federal parliament in many ways similar to German Parliament today but of course with some significant differences.

I have already dealt with the election to the future EF Parliament in the previous chapter (The Outline of the electoral system for the European Federation). In this section, I will only cover the main functions of the EF Parliament.

The vote of the European Parliament in February 2018 on reducing the number of MEPs from 751 to 705 and allocating 1 seat to every EU member for pan-European parties is the best example of the direction in which the EU is moving. I believe this process will be significantly accelerated in the next decade, so that by 2030, the European Federation may have a bicameral Parliament. I propose that the future EF Parliament operates on the following principles:

- The EF Parliament consists of two Houses:
 - a. **The Lower House** – the Citizens Chamber, where the MPs will be elected by all citizens of the EF
 - b. **The Upper House** - the Senate (the Upper House), for the representatives of individual member states. It will be split into two chambers:
 - **The Representatives Chamber** (50% of the Senators), where the Senators will be elected by all citizens of the EF
 - **The Sortition Chamber** (also 50% of the Senators), where the Sortition Senators will be elected by from among all citizens of the EF, using sortition selection method.
- Candidates are elected for a maximum of two terms
- MPs and Senators can organise themselves into clubs and committees to propose new legislation.

The Parliament's main role will be to pass new laws, approve the budget and swear in or recall the President and the Government. However, the president will also have the right to pass practically any law, without prior consent of the parliament, if he deems the matter very urgent. These laws, called directives, would have to be passed by the Parliament, as any other law, as soon as possible. They could also be rejected by the

Parliament but with a qualified 2/3 majority against the directive, in which case the directive will cease to exist. If the president was outvoted by the parliament more than 3 times on the directives he had issued, the parliament would have the right to vote on his resignation. That would put some constraints on the president right to issue directives at will, rather than only in cases that are very urgent. However, bearing in mind how the world will be changing in the next few decades, such a situation might become almost permanent, because of the speed of change and various risks emerging. The assessment of the urgency of passing the law would be in the president's hands, not the parliaments. So, we are not talking about the emergency powers of the Prime Minister that he would already have. This could apply to most laws depending upon the situation the EF would find itself in.

The Presidency of the European Federation

This is a much more important role than the current role of the President of the European Council, or the European Commission. He plays a pivotal role in the Consensual Presidential Democracy, which I have proposed, to enable the EF react swiftly to any dangers that may threaten the Federation. In the longer term, if the EF becomes a de facto World Government, that role would be even more significant because the powers he will have, enabling him to take an immediate action to save Humanity from an emerging existential risk. That's why his powers must by comparison, be much stronger than those of the Presidents of France or the USA. However, the powers controlling the President and the assurance of his continuous accountability before the Parliament, must be equally strong, so that he could be recalled at any time if 2/3 of parliamentarians support such a decision.

Taking this into account, I propose that the EF Presidency consists of one President and two Vice-Presidents. The President of the EF is elected, using a previously mentioned, modified Two Rounds System, where he must win 50% + 1 vote in the first round using First Past the Post system, or 50% + 1 vote in the second round using the Alternative Voting system. He would be elected for a fixed 5-year term, serving a maximum of two terms. The president could not represent any party, even if he had been elected by being nominated as a candidate of a party.

The two Vice Presidents are nominated and sworn by the Parliament at the same time as the President as follows:

1. The First Vice-president becomes the one who is the deputy chairman, or any other MP selected by the largest party in the Citizens Chamber of the Parliament, and who could immediately replace the President in case of accident, death or repeal by the Parliament. This would ensure the continuation of the Presidency.
2. The Second Vice President becomes the one who is the deputy chairman, or any other MP selected by the largest opposition party in the Citizens Chamber of the Parliament, assuming that party would not be in a coalition with the major party.

The president, once sworn in by the Parliament, would become the Head of State. He would have the following prerogatives:

1. Nominates the Prime Minister from among the MPs in the Citizens Chamber of the Parliament. This does not have to be the head of any party; it could be any MP. The candidate for the Prime Minister must be approved by a simple majority by both Houses of the Parliament
2. Nominates the Defence, Internal Affairs (Home Office), Finance and Foreign Affairs (Foreign Office) Ministers
3. Nominates all ambassadors of the EF
4. Chairs some of the Government meetings, especially those ones that deal with defence and foreign affairs
5. Can dismiss the Government with the agreement of both Vice-Presidents. He can also dismiss the Government without seeking the agreement of both Vice-Presidents but only if both Houses of the Parliament accept such a decision with a simple majority vote
6. His legislative powers are limited to proposing new laws, signing off or rejecting new laws, or sending new laws before signing them for consultation to the EF Constitutional Court
7. The President can be recalled at any time by a qualified majority of both Houses of the EF Parliament. Should that happen, new presidential elections would have to be called
8. If the President is recalled by the Parliament in the middle of his term, then to maintain the continuity of governance, the First Vice-president would replace him immediately and at the same time, the Speaker of the Citizens Chamber of the Parliament would replace the First Vice-President, so that the EF Presidency is always represented by three people.
9. Vice-Presidents have no legal power, apart from voting on the President's decisions. These include all matters, apart from defence, home security and foreign affairs. Such vote will usually take place if the Presidency wants to over-rule the decisions of the Government. Two of the three members of the Presidency need to vote against the government's decision, if such a decision is to be invalidated.

As you can see, I propose significant powers for the President. Of course, I am aware that such new powers might to some extent limit our freedoms and democratic rights. Therefore, such rights would have to be given to people (the president) with ultimate trust but also with a possibility to recall the president, if he does not act in accordance with the EF Constitution or the best interest of the country. That's why the President would be under intensive scrutiny. This would include any sign of corruption, how he observes the law and whether he is a skilled manager. On the other hand, in certain circumstances, e.g. global crisis, if his term expires, he may have extraordinary powers to continue until such time that the Parliament makes a decision on his continuation as president, or calling for electing a new President.

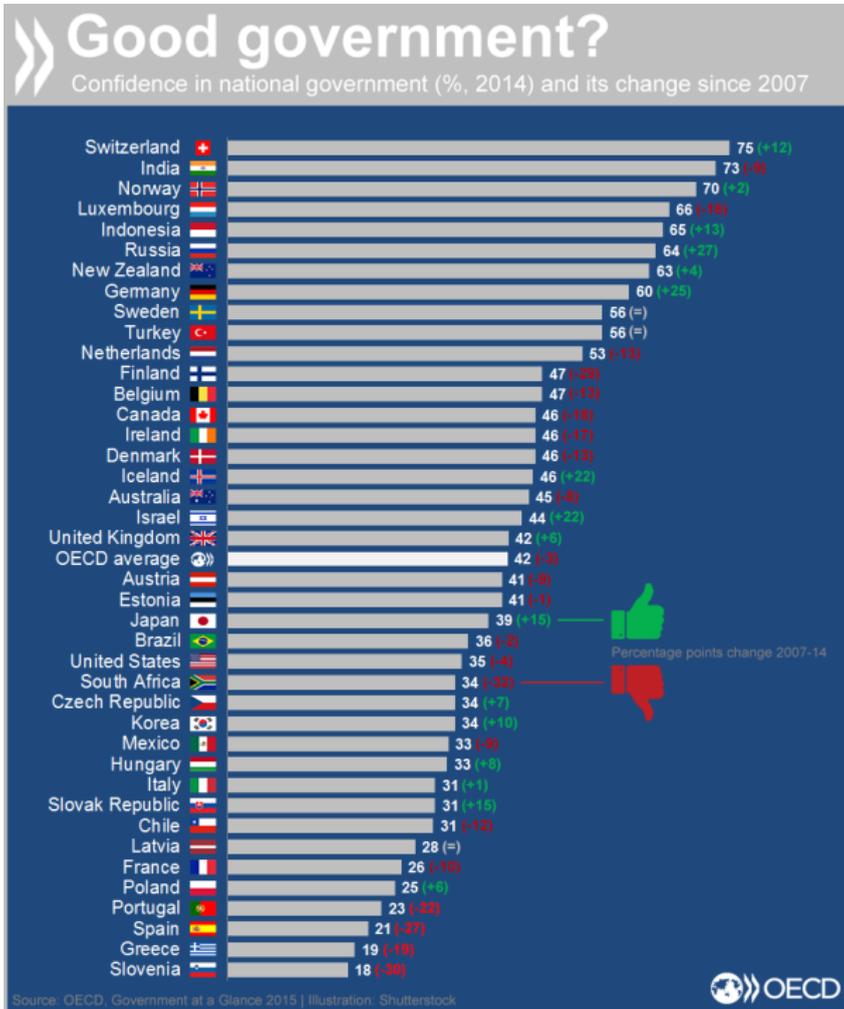
The President will have an advisory/voting body consisting of the Speaker of the Parliament, previous President, and several other non-political advisors, as well as

super experts in the fields related to the governing of the EF, as it is the case in most countries today. However, the President will be able to draw on expertise as needed from the Pool of Independent Expert Advisors (see below) and create his own pool of advisers – President’s Advisory Board. No MPs could be members of such a pool. The main function of the President’s Advisory Board would be to advise the president on the drafting of directives. For each directive, different specialists would be called on, depending on the subject matter.

In some cases, the president may ask the President’s Advisory Board to vote on a proposed directive or a decision. The President’s Advisory Board would enable the president to see how far his intended decision would diverge from the suggested one, should that advisory decision be different from the one he would have taken. So, the president would have the right to issue a directive anyway, but three months later, the voting by the advisory board members would be made public, to show whether the president’s decision was supported by the members. Should many of his decisions be not supported by the Advisory Board, the parliament might vote for the President to resign under the $\frac{3}{4}$ majority rule. (The other alternative could be that the parliament would be informed, if possible, of the intended law, and could debate it but the president’s decision would be final).

The Government of the European Federation

The main principle behind the EF Government embedded in the Consensual Presidential Democracy that I propose is that it should lead to a greater separation of legislative and judicial powers. Additionally, decisions taken by the government will in most cases be non-political because the Ministers will not have any political power and will not have to be elected. They could actually continue to serve across parliamentary terms, as the British Civil Service does. That will give them more independence in their decisions, result in a more competent government and a greater confidence and trust in the government by the electorate. Just to give you an insight how voters trust their governments here is an interesting poll carried out by the OECD. It is not surprising to see Switzerland and Norway at the top of the list.



Citizens' confidence in their governments in 2014 (205)

What is surprising is the 6th position of Russia, due in my view, to a very skilful manipulation of the electorate and a factual relative improvement in economic condition of an average Russian, who has a deeply ingrained faith in a strong man leading the government. What that statistics about Russia also show (Indonesia is another example) that for an average man, an economic improvement is almost everything. Every dictator, every populist knows that and still practices that today. This is how misleading some polls can be, if they do not take a big enough picture into account. Just think about Hitler and his motorway and infrastructure programme that drastically reduced unemployment, or Mr Trump, who promised tax reduction and re-opening of coal mines and steelworks (the latter two are of course an example of living in a fantasy world). So, please study for a minute this statistic because it tells you a lot.

Just remember that the poll was done in 2014 and really relates to data for 2013, when the world was coming out of the very big financial crisis.

In order to increase the separation of legislative and judicial powers I propose that this is carried out using two processes:

1. Nominating by the President five positions in the government: i.e. the Prime Minister, Minister of Defence, Minister of Internal Affairs (Home Office), Finance Minister and Minister of Foreign Affairs, from within the MPs in the Citizens' Chamber of the Parliament
2. Selecting by the Prime Minister the remaining Ministers, who cannot be MPs, from the Independent Pool of Experts (IPE).

The Prime Minister and the Ministers must be approved by a simple majority by the Citizens' Chamber of the Parliament and the Senate. That's the only requirement to approve the government. Once they have been approved, the Ministers can no longer vote in the Parliament, to make the governmental decisions more impartial. Otherwise, e.g. when there is a very small majority of the governing party, then even the votes of the Prime Minister and the five other ministers may be enough to win the day.

Only then can the Prime Minister select his remaining ministers from the Independent Pool of Experts. Those candidate ministers will be interviewed by the Select Committees shadowing the Ministries. The candidates that have passed the vetting by a Parliamentary Committee will have to be sworn in by the Parliament, in a similar manner, as it is now being done by the EU Parliament, who swear in the candidates for the EU Commission.

The Independent Pool of Experts is created as a permanent body that may have about 2,000 experts in various disciplines. This number should exceed the number of ministerial or governmental posts by about 10 times because many experts may not be available when they are needed for various reasons, academic work, illness, not approved by the Parliament etc. The experts are selected by an Independent Commission for electing Government Experts. One of the prerequisites for being selected as an Independent Government Expert would be to have good evidence of performing some managerial duties in academic or specialist organisations, or in some companies at board level, e.g. as an advisor. New experts are selected as needed. The experts on 'stand-by', who have not been selected for the government, are paid a nominal fee. They can work as before their selection but must be available immediately when needed. Once selected as a Minister, such an expert cannot work in any other capacity and must declare his full financial position before taking the Ministerial post. He can be recalled by the Prime Minister at any time.

Agencies of the European Federation

Apart from Institutions, the European Union has also 50 agencies. I assume that almost all agencies will remain part of the EF. This is an abbreviated text based mainly on the

information from the Wikipedia (206) and the EU websites (207) with my own comments on the consequences of the future EU transition into the EF or suitability of the EU's current organisation or agency for mitigating existential risks. They are divided into several areas:

Decentralised agencies

Decentralised agencies contribute to the implementation of the EF policies. They also support cooperation between the EF and national governments by pooling technical and specialist expertise from both the EF institutions and national authorities. Decentralised agencies are set up for an indefinite period and are located across the EF.

Agencies under Common Security and Defence Policy

Such agencies will be set up to carry out very specific technical, scientific and management tasks within the framework of the European Federation Common Security and Defence Policy.

Executive agencies

Executive agencies will be set up for a limited period of time by the EF Government to manage specific tasks related to EF programmes.

EURATOM agencies and bodies

These were created to support the aims of the European Atomic Energy Community Treaty (EURATOM), which are to: coordinate national nuclear research programmes, for peaceful purposes to provide knowledge, infrastructure and funding for nuclear energy and to ensure sufficient and secure supplies of nuclear energy (207). I envisage they will function in the EF as they do now.

Other organisations

Other organisations include bodies set up as part of the EU programmes and public-private partnerships between the European Commission and the industry. The full list is below.

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European Union Agencies						
1	Official name	Abbreviation	Location	Member state	Established	Members and observers
2	European Agency for Safety and Health at Work	EU-OSHA	Bilbao	Spain	1994	members: EU states, European Commission
3	European Centre for the Development of Vocational Training	Cedefop	Thessaloniki	Greece	1975	members: EU states
4						observers: Iceland, Norway
5	European Foundation for the Improvement of Living and Working Conditions	EUROFOUND	Dublin	Ireland	1975	members: EU states, European Commission
6						observers: EFTA
7	European Environment Agency	EEA	Copenhagen	Denmark	1994	members: EU states, Iceland, Liechtenstein, Norway, Switzerland, Turkey
8						co-operating: Albania, Bosnia and Herzegovina, Macedonia, Montenegro, Serbia
9	European Institute of Innovation and Technology	EIT	Budapest	Hungary	2010	members: EU states
10	European Training Foundation	ETF	Turin	Italy	1994	members: EU states, European Commission
11	European Monitoring Centre for Drugs and Drug Addiction	EMCDDA	Lisbon	Portugal	1993	members: EU states, European Commission, European Parliament, Norway
12						observers: Turkey
13	European Medicines Agency	EMA	Amsterdam	Holland	2017	members: EU states, European Commission, European Parliament
14						observers: Iceland, Liechtenstein, Norway
15	European Union Intellectual Property Office ⁽¹⁰⁾	EU IPO[11]	Alicante	Spain	1999	members: EU states, European Commission
16	Community Plant Variety Office	CPVO	Angers	France	1994	members: EU states, European Commission
17	Translation Centre for the Bodies of the European Union	Cat	Luxembourg	Luxembourg	1994	members: EU states, European Commission
18	European Food Safety Authority	EFSA	Parma	Italy	2002	members: EU states
19						observers: European Commission, Iceland, Norway, Switzerland
20	European Maritime Safety Agency	EMSA	Lisbon	Portugal	2002	members: EU states, European Commission, Iceland, Norway
21	European Aviation Safety Agency	EASA	Cologne	Germany	2003	members: EU states, European Commission, Iceland, Liechtenstein, Norway, Switzerland
22						observers: Albania, Bosnia and Herzegovina, Macedonia, Montenegro, Serbia, UNMIK
23	European Network and Information Security Agency	ENISA	Heraklion	Greece	2005	members: EU states
24	European Centre for Disease Prevention and Control	ECDC	Stockholm	Sweden	2005	members: EU states, European Commission, European Parliament
25						observers: Iceland, Liechtenstein, Norway
26	European GNSS Agency	GSA	Prague	Czech Republic	2004	members: EU states, European Commission
27						observers: Norway, European Space Agency
28	European Railway Agency	ERA	Valenciennes and Lille	France	2004	members: EU states, European Commission, Norway
29	European Fisheries Control Agency	EFCA	Vigo	Spain	2005	members: EU states, European Commission
30	European Chemicals Agency	ECHA	Helsinki	Finland	2007	members: EU states, European Commission, European Parliament
31						observers: Iceland, Norway
32	European Institute for Gender Equality	EIGE	Vilnius	Lithuania	2007	members: EU states
33	European Defence Agency	EDA	Brussels	Belgium	2004	members: EU states without Denmark; European Commission
34						participant: Norway
35	European Institute for Security Studies	ISS	Paris	France	2001	
36	European Union Satellite Centre	EUSC	Madrid	Spain	2002	
37	The European Union Agency for Law Enforcement Training	CEPOL	Budapest	Hungary	2005	members: EU states
38						associates: Iceland, Norway, Switzerland
39	European Union Agency for Law Enforcement Cooperation	Europol	The Hague	The Netherlands	1999	members: EU states
40	European body for the enhancement of judicial co-operation	Eurojust	The Hague	The Netherlands	2002	members: EU states
41	Fundamental Rights Agency	FRA	Vienna	Austria	2007	members: EU states, European Commission, Council of Europe
42	Body of European Regulators of Electronic Communications	BEREC	Riga	Latvia	2010	members: EU states, European Commission
43	European Systemic Risk Board	ESRB	Frankfurt	Germany	2010	
44	Agency for the Cooperation of Energy Regulators	ACER	Ljubljana	Slovenia	2011	
45	European Banking Authority	EBA	London	United Kingdom	2011	
46	European Securities and Markets Authority	ESMA	Paris	France	2011	
47	European Insurance and Occupational Pensions Authority	EIOPA	Frankfurt	Germany	2011	
48	European Asylum Support Office	EASO	Valetta	Malta	2011	
49	European Agency for the operational management of large-scale IT Systems in the area of freedom, security and justice	eu-LISA	Tallinn	Estonia	2012	
50	European Border and Coast Guard Agency	Frontex	Warsaw	Poland	2016	members: EU states, except United Kingdom and Ireland, Schengen Area states not members of the EU

Chapter 8

Four not so good scenarios for the world in 2040

What's so particular about the year 2040?

If you are reading these words it means I have somehow managed to keep you interested despite the wide-ranging subjects covered. However, **if you have skipped some chapters in the book, the scenarios presented here may not be fully understood since they take many assumptions made earlier.**

As I mentioned at the beginning, my intention has not been to create an unrealistic, overoptimistic assessment of how the European Union or the world in general might be able to cope with various risks and adversities in the future. My aim has rather been to present various, mostly tough choices and possible solutions, so that the world has a better chance in fighting existential risks.

The process may be painful and the path quite meandering at times, but ultimately it may be our best way forward not only to survive as a species but also have a great future. You may wonder what is so specific about selecting 2040 as the date for my scenarios. My assumption stems from the following reason. If the EU wants to survive it must become a federated state by 2030 at the latest. Furthermore, my personal feeling is that if the world survives another 20 years, approximately one generation from now, without any major man-made existential risk materializing, our chances of having a great future will be immensely improved. A possible great future is my preferred fifth scenario, although even in this scenario, Humanity gets through a number of 'near misses', almost triggering off an existential risk. That scenario presents the EF around 2040, as the best Welfare State, the world has ever seen. It will be possible because of the EF's financial and material capabilities in 2040, especially in the context of phenomenal technological progress that would have been achieved by then. I cover scenario five entirely separately in chapter 9 further on. But we may not be so lucky and the world may go through some pretty horrible disasters, including the triggering some existential risks. That is what I cover in the remaining four scenarios. Although Humans as a species does not become extinct in any of those scenarios, it shows how the world may find itself on the brink of a complete civilizational catastrophe.

I have already presented plenty of arguments regarding what needs to be done to avoid one of the four scenarios. However, for completeness, let me summarize it here. The EU will have to become a federal state mainly because of the economic and social crises within the Eurozone, a political pressure wielded by Russia on the Eastern and Central European countries, and the migration problems, which by 2030 may come to the fore in earnest. Additionally, there is of course an ever-increasing risk that some of the existential risks facing the EU, and by extension the whole Humanity, may materialize at the time, when no single country or organization would be able to coordinate the rescue action. Therefore, 2030 may be the last year, when the EU federalization could be completed with minimum chaos. After that, it could still be

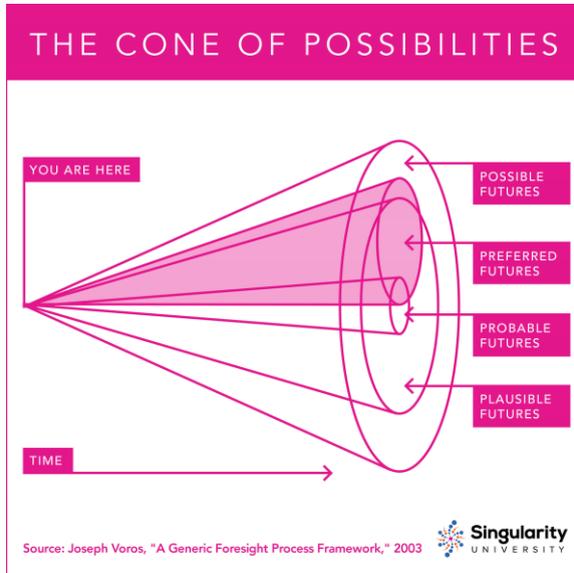
possible but its creation may happen in total chaos and under pressure coming from one of the existential risks.

The EU evolves broadly in five-year cycles around the term of the EU Parliament, the elections of the new EU Commission and the European Council President. The next parliamentary elections are in 2019. Of course, nothing substantial regarding the EU reform can happen by then. The next such opportunity would be 2024. Although in theory is its feasible that part of the EU could be federated by then, in practical terms it may not be achievable. There has to be a minimum reasonable period, during which the people in the EU countries absorb the consequences of such a decision, especially losing their national sovereignty. That's why, the most realistic way to proceed would be to start the work of the EU Constitutional Convention on the future EU constitution by 2024, and set the date for the formation of the European Federation for 2029 or 2030 – the symbolic date that I have assumed. It would, however, be too early to design the scenarios for 2030, because the first five years of the EF will be very chaotic indeed. Therefore, I have added another five years, another Parliament term, to paint the vision of the EF and the world in 2040.

There are a number of ways of designing scenarios of the future world. For example, there is an excellent document issued by the European Commission: "Global Europe in 2050" (208). It is 10 years ahead of my scenario, but contains some interesting conclusions, quite at odds sometimes with what this book is about. In that document the EU Commission Research team built their scenarios (164 pages long) according to a common format that deals in sequence with 6 main dimensions of the future:

1. Global demographic and societal challenges
2. Energy and natural resource security and efficiency, environment and climate change
3. Economy and technology prospects
4. Geopolitics and governance: EU frontiers, integration and role on the global scale
5. Territorial and mobility dynamics
6. Research, education and innovation.

They have produced 3 scenarios, which I will summarise alongside my scenarios to give you some comparison. However, as you will see, their scenarios have different objectives and selection criteria from mine (i.e. what kind of organization could save Humanity from Superintelligence). Therefore, rather than use their approach I had to use a different, less detailed one, focused on my objectives. For our purpose, I have selected the guidelines proposed by Joseph Voros, from Australian Foresight Institute (209).



The five scenarios that I will present try to answer these four questions:

Scenarios 1 and 2. - What are possible futures? This is a full range of events that could unfold

Scenario 3 - What are plausible futures? This is what I believe is possible but unlikely

Scenario 4 - What are probable futures? This is what is most likely to happen

Scenario 5 - What are preferred futures? This is what we want to happen.

Scenario 5 will be my main scenario, which, as you can see in the picture, contains variables that are probable or possible, but excludes plausible (conceivable) futures because of their very low probability level. The central cone is the narrowest one, since it illustrates the most likely, futures.

The ‘time arrow’ is in fact a probability arrow. The further we go into the future, the less we know, especially, as the world has started to change almost at an exponential rate. Even the 2040 date is a bit too far in the future, about one generation, but for proposing certain solutions, rather than predicting what might happen, it should serve our purpose fairly well.

Before going any further, I need to make one caveat. Please do not expect any in depth justification for the numbers used or choices made in the scenarios, although in most cases I have argued those choices to some degree earlier in the book. As in many other places in the book, I had to make shortcuts and sometimes just signposts to the direction of travel. That was the only way in which I could present a fairly complete picture of how to minimize existential risks such as Superintelligence. In this sense, the whole book is one big scenario.

What I will now present are four not so good scenarios of the World in 2040, although there are at least a few much more unpleasant, or horrific scenarios, with lower levels of probability, which I decided not to include here. The four scenarios will be followed by the fifth scenario, which is spread over several chapters, covering the rest of this Part. I do not assign any probability to the scenarios, apart from putting them in one of the four categories – possible, plausible, probable and desirable. In all scenarios, when I present my own comments, I shall use an italics font.

Scenario 1 – Out of this World – a possible future

*Yes, literally. This scenario presents a **possible** range of events, i.e. not impossible but highly unlikely. It specifies a chain of events, which may ultimately lead to one escape route for Humanity – to Mars. You may think it is a science fiction. I do not. This scenario is entirely possible, because all of the technologies needed are already here with a few unknowns (protection against cosmic radiation, long-time travel impact on the body and psychological effects). At the moment there is one man who has been the springboard behind that venture – Elon Musk. However, the other contender might be China as well as the US. I have tried to input into this scenario as many actual technological solutions as possible, to make it more real.*

Elon Musk returned to his study after a long walk outside the main Zone's Habitat 1, which was in the northern part of the Grand Canyon on Mars that stretched for 4,000 km. He preferred Habitat 1 because it was built in the late 2020' by autonomous robots and 3D printers and retained a kind of an earthly home, rather than Habitat 2, built in one of the big caverns nearby. He thought he deserved a good cup of original coffee brought by him from Earth for special occasions. It was precious stuff, as it could not be grown on Mars yet. Tomorrow, on 28th June, will be his 69th birthday, although having gone through gene rejuvenating therapy just before leaving Earth, he looked like he was in his 30-ties. Anyway, he started to reflect on how it all happened and what a miracle it was, that he was here, alive, and as full of energy as in those early days of Space X adventure.

He remembered very well what motivated him to come to Mars. Initially, it was that sentence in "Foundation" book by Isaac Asimov: "you should try to take the set of actions that are likely to prolong civilization, minimize the probability of a dark age and reduce the length of a dark age if there is one." He also remembered that interview in March 2018 when he said "I want to die on Mars, just not on impact".

And then it all unravelled. He was kept awake at night at that time by the threat coming from the unregulated Artificial Intelligence, which he had previously warned could lead Humanity into a third world war. It was at that time when he said "Humans must prioritise the colonisation of Mars, so the species can be conserved in the event of a third world war". Or, at another occasion, when he said: "AI is much more dangerous than nukes. So why do we have no regulatory oversight?"

That's exactly what happened on Planet Earth. There was hardly any oversight on AI development, since even the most sophisticated near Superintelligence agents could be produced by reasonably qualified AI researchers supported by some anarchic or disordered millionaires. America after Donald Trump era could not get back to the time where their policies were broadly predictable and cohesive. It was soon overtaken economically by China. Around that time there was another migration wave from the Middle East and Africa to Europe. The European Union was being kept together mainly by the external danger coming from Russia. But Russia, seeing lack of strong cohesion among the EU countries, attacked the Baltics anyway. The only way NATO could balance the Russian forces was to launch small scale nuclear bombs that emitted strong electromagnetic pulse (EMP bombs) in northern Russia, disabling Russia's army by blocking any electronic devices. Russia responded in a similar way. That stopped the war but the radiation levels that followed were immense. A Peace Treaty between Russia and NATO was signed.

However, as soon as the Peace Treaty had been signed, some EU countries went their own way, and quit the EU, following the British example in 2019. Within a few more years the EU fell apart completely, and a series of wars on European soil erupted. Europe was in a complete chaos, aggravated by a high level of radiation from the short exchange of nuclear attacks by NATO and Russia. Medical and social help was stretched to the limit. The only thing the larger countries, such as Germany and France could do (then working very closely together, almost like one state), was quickly quash the wars, before another one erupted. Europe was just one step away from a free for all war, which Russia thought it would win using conventional weapons only. That is exactly what it did and now vast swathes of Europe were under the Russian control. Many European states became Russia's vassal states.

China took advantage of developments in Europe and expanded into the Pacific Ocean, building even more artificial islands. The USA was directly in danger mainly from China but also from Russia (Alaska and California). Around 2030 the first near Superintelligence agents, untested and prone to errors appeared. Most were quickly eliminated but for Elon Musk that was the last straw. He saw that his fears were to materialize very soon. Thankfully his Falcon rockets, which became the space industry workhorse, as well as his BFR rockets that had already quite a few landings on Mars delivering first explorers there, were performing very well indeed. He realized it was impossible to get 1 million people on Mars by 2050, as he had once promised, but nevertheless he wanted to get as many people as possible there, including himself.

Therefore, he set up independent commissions all over the globe, composed of doctors, teachers, engineers, scientist, philosophers and psychologists, who were conducting in depth interviews with the volunteers wanting to settle on Mars. In 2018 there were already more than 250,000 registered and initially screened volunteers. Gradually millions were queuing up. The criteria were stiff. The most difficult test was psychological and especially, Personal Value Test. Musk made it a fundamental criterion because he wanted the civilization on Mars be of a different kind than the one on Earth, so that wars would be inconceivable between Martians.

After several thousand people had been settled on Mars, he decided it was the time for him to pack up. How right he was. After he had left, only several more thousand people managed to settle on Mars, when a full scale nuclear, biological and chemical war broke out. All his factories and rockets were destroyed, as was most of the planet. There were no states as such, since migrants were everywhere, even in Antarctica, which had the lowest level of radiation. About 2 billion people perished and it was estimated another 1 billion people were to die in the next few years because of radiation, hunger and cold. There was a semi-nuclear winter with an average temperature drop by 4C, and there was no more than just three months of sunlight a year, mainly around the poles.

Musk was thinking about his birthday resolution. Things on Mars were going much better than anybody had expected. The only problem was cosmic radiation but new suites may solve that problem as well. The Mars atmosphere rebuilding programme was in full swing. Most of the technology and science brought from Earth had been adapted to Martian conditions. Several rockets entirely produced on Mars went to Moon, where there was a large settlement of people, mainly Russians and Chinese but with an entirely different culture than their compatriots on Earth. There were also a few Americans, but the Moon community did not recognize nationalities. They were all 'Moonlighters' – citizens of the Moon who wished to rebuild with Martians the Planet Earth.

Scenario 2 - A chaotic World – another possible scenario

This scenario contains the widest range of possibilities for 2040, represented by the biggest cone. Although it is entirely possible, it is not the one we would like to see as the alternative to Scenario 5 (our preferred scenario). On the other hand, it is not even the worst scenario, which would have been the annihilation of all human life, or even all life on planet Earth. That would have been closer to George Orwell's 1984 future when he said: "If you want a vision of the future, imagine a boot stamping on a human face – forever". In this scenario, at least Humanity still survives as a species and things may change for better. I will leave it to you to make your own conclusions.

Eurozone collapsed in 2026 because of a financial crisis bigger than in 2008 and an economic crisis that was caused by a sudden start of massive Technological Unemployment. That has caused a disintegration of the EU. The former EU shrunk to 9 members – Germany, France, Belgium, Holland, Luxemburg, Ireland, Spain, Portugal and Austria.

The crisis was exploited by Russia almost immediately. It made a series of conventional attacks alongside the border with the NATO countries, the Baltics, Poland (the Kaliningrad area), Bulgaria, Romania, Georgia, the Ukraine and Moldova. Peace was reached only when NATO used small third generation nuclear weapons outside St. Petersburg, when Russia pulled its forces back into its own territory. Just a few months after peace was reached between NATO and Russia, a series of local nuclear wars erupted, encouraged partly by the first ever use of small nuclear weapons by NATO. There were several local nuclear wars carried out simultaneously between: India-

Pakistan, Israel-Iran, China-India (because of Indian expansion in the Eastern Pacific). Chemical warfare was used on a massive scale in the Middle East, and Iran also used Anthrax in its war with Israel (quickly neutralized by Israel but causing Israel to drop several nuclear bombs on Iran).

These wars were stopped after a few weeks, negotiated by an almost dysfunctional UN (a true miracle). Tens of millions of people died on the Indian sub-continent alone, not to mention (collateral damage) in the neighbouring countries). So, in principle it was not a global nuclear war, but the whole world was contaminated with radiation that 12 years after the conflict is still 3 times higher in some places than normal. The places most densely populated now are southern Iceland and New Zealand, as both were relatively distant from direct nuclear radioactive fallout.

Most food is heavily radiated but people have no option – they have to eat to survive. Poverty has reached unprecedented levels all around the world. The best region for food is South America.

The World GDP fell to 1975 levels. Some local conventional wars are still going on, this time in Africa. People in Europe are dying of radiation and famine. Diplomacy hardly exists. It is a total chaos and despair although Humanity has survived...for now.

The only good news is that Oslo, in Norway, has become the centre of a new organization, intended to replace the UN. In its initial proposal, signed up by the USA, Russia, China and all the European countries, it was agreed that there will be a Security Council consisting of 30 countries that would vote on a qualified majority principle (population size plus GDP). But the most important proposal (not signed yet) is to set up the World's Army that would replace all national armies. It will be dispersed throughout the world and consist of all nationalities. Gradually, the proposal says, the size of the army will be reduced. There will be no national armies, and all nuclear, chemical and biological arsenals of all countries will be dismantled or neutralized. Perhaps the world has learnt a very painful lesson.

For comparison I enclose a summary of the closest scenario produced by the European Commission in their document "Global Europe in 2050" called 'EU Under threat: a fragmented Europe' (208).

“This scenario envisages a global economic decline, with protectionist reactions, the subsequent increase in transaction costs and increasingly congested infrastructures. A range of serious geopolitical risks emerge including possible low-intensity conflicts – civil wars, nuclear conflicts and the radicalization of governments in advanced democracies. The EU heads towards disintegration, triggered by the possible withdrawal of one or more leading Member States and the emergence of two or more speeds of development and integration within the Union. Climate change and its implications are not addressed. Food and oil shocks materialize. Major energy supply disruptions and failures of the different European grid(s) system(s) are becoming more probable due to heavy underinvestment in the renovation of these. The failure of Europe to implement sound research policies leads to a reduction in the pace of

innovation. Productivity gains diminish progressively until 2050 within the EU, also compared to the Nobody cares scenario. Unlike Europe, the rest of the world and especially the emerging markets reap their potentials to economic growth, so that the rest of the world continues to keep a relatively strong developmental pace.”

Scenario 3 - China becomes the world leader – a plausible scenario

This scenario illustrates plausible futures for 2040 and includes the second widest range of conceivable events. From Humanity’s point of view, this would be a slightly better future than in scenario 2, although I suspect for most of us not that much welcome. There are two crucial assumptions in this scenario. The first one is that China has become the unquestionable world leader that has taken the future of humanity entirely under its control. The second one is the invention by the Chinese of a new style of a non-destructive weapon – a kind of a near Superintelligence, which has been used to control all military equipment and weapons that must have a digital interface by disabling them all in just a few minutes. Please remember that this scenario refers to 2040.

In 2018 Xi Ji Peng became China’s President for life. After his death, his successor became Liu-Sin Piao who has continued China’s most secret plan to run the world. It all started in 2015 when China launched its biggest ever project ‘The Belt and Road Action Plan’ costing nearly \$1 trillion. It included land routes (the “Belt”) and maritime routes (the “Road”) with the goal of improving trade relationships in the region primarily through infrastructure investments. It was completed in 2028 and as it turned out, became a Trojan horse. It paralysed investment from other countries and established strong political influence in many countries that were part of the Belt.

But the real start for the Chinese hegemony of the world started 5 years later when China delivered the first near Superintelligence agent. China already had supremacy in quantum computing and quantum encryption (successfully delivered first such a long-distance encryption in January 2018). These inventions enabled China to make a sudden super cyber-attack, which within 3 minutes disabled all digital systems in the world, including of course all military installations, giving China an absolute control of Cyberspace, Internet, GPS etc. The US, Russia, France, the UK and India had, however, nuclear submarines, and some of them fired dozens of nuclear rockets on China, but all except one were disabled in flight by manipulating their computer systems.

Immediately after China had disabled all digital systems worldwide, all nuclear sites, planes, most tanks, mobile networks etc., it threatened to invade countries, which would not allow Chinese scientists to dismantle all significant military sites and equipment, including planes, nuclear submarines, aircraft carriers etc. The world agreed.

From now on, no country in the world could have any significant military power, apart from China. Any violation was punished by restricting food supplies, switching off

power networks and ultimately bombing the military sites. Bombardment, or significant Chinese military force presence on a non-Chinese territory, was avoided as much as possible, for the countries that co-operated with China.

It was a state of submission rather than a stalemate between China and the rest of the World. All countries became vassal states. China conquered the world without firing any nuclear or other significant weapons. China said it did not want war. However, it announced that to save Humanity the world needed to move forward according to a Chinese directive. All other countries are welcome to become members of the Chinese-run 'Peace for the World' organization. All countries had to contribute a proportion of their GDP to "Save the World Fund".

At that time, it was difficult to tell, what China's long-term objectives were. However, after a few years since conquering the world, China suggested a joint Chinese-led massive expedition to Mars, where each nation would send at least one delegate to Mars, proportionally to the population, but not more than 10 delegates from a single nation. There was no Chinese indoctrination in other countries and basic freedoms outside China and self-governance were maintained.

Scenario 4 - Global Defence League – a probable scenario

*This scenario is based on the central cone, the narrowest one, which illustrates probable futures. The key assumptions made are that none of the existential risks has materialised and that some of the international institutions, which exist today, such as NATO, EU, UN, or World Trade Organization still function. **If these conditions are met then this might be the most probable scenario.** However, this is our second-best scenario because of the way it evolved, and therefore it is not the preferred scenario. The future envisaged in this scenario is the result of the situation, in which the world had no other option but to choose it, otherwise Humanity might have ceased to exist.*

Looking back, it is clear when it all started to go wrong. It was in 2018 when Russia's president Putin made an announcement that should Russia be attacked with nuclear weapons, he would not hesitate to annihilate the whole world, because "why do we need a world if Russians cease to exist?" That was four years after Russia had annexed Crimea and was holding regular manoeuvres on the NATO's eastern flank. It was also the year, when Britain finally realized "it could not have a cake and eat it" and muddled its way back to the EU. It was the poisoning of a former Russian spy on British soil that brought home another obvious fact. The UK government recognized that the only way Russians might change their aggressive policies towards Britain, would be to act in tandem with all the EU countries, influencing them from within to launch comprehensive set of socio-economic sanctions. That is why Britain asked the EU for the annulment of article 50 of the Lisbon Treaty. It agreed to re-enter the EU with a promise that it would become a member of the future Single Market zone, where it could keep its opt-outs. The same year, Xi Ji Peng announced he would become the President of China for life, which meant his economic expansion plans world-wide would be gradually becoming a political drive changing the world for ever.

Those events also changed the perceptions of the EU and NATO countries on how the West could lose out to Russia or China, without a global war ever happening. It was clear that a new era of a Super Cold War, this time including China, had started. Therefore, shortly after the EU Parliamentary elections in 2019, NATO and the EU decided to forge a strong partnership by creating a new organisation – Global Defence League (GDL) with its own Constitution. It was achieved in stages.

External pressures, led to the creation of the EU army in 2022, which as a whole became immediately part of NATO. Just a year later, when the next serious economic and financial crisis struck, in a quick and dirty mode of operation, part of the Eurozone became federalized as the European Federation, with countries like Greece, Italy and Portugal, withdrawing from the Eurozone. In such a way, instead of the EU playing a major role in GDL, part of the former EU (then the European Federation of 16 members) became an economic and political arm of NATO. It was only a logical conclusion that the rest of the former EU member states, such as Britain, went their own way and joined GDL as founding members, next to the European Federation, which became a much smaller state than it could have been.

The creation of GDL was achieved so quickly because of the extremes of cyber-attacks coming mainly from China and partly from Russia, of course never acknowledged by any of these states. That was only curtailed once an ingenious invention by a Canadian company, a subsidiary of Google, managed to develop a fool-proof quantum encryption application that was distributed to public and personal users. The danger coming from other forms of cyber-attacks based on microwave radiation was curtailed by insulating crucial military and public sites, such as power stations with an anti-magnetic radiation shield.

In 2035 some former EU members joined the EF. Some former states split and some new states emerged from the merger of 2 or more regions. These are: Belgium split into Flanders and Wallonia, Catalonia and Basque regions each merged with their previously French provinces, as did Trentino and Tyrol. The Republic of Ireland and Northern Ireland also merged.

In all GDL countries, there is an annual compulsory one year long, residential military or social service. The Army has been playing a crucial role in GDL and most non-military projects had to give way to the security-related initiatives. However, what GDL has achieved, is a kind of peace similar to what the world was experiencing just after the Second World War.

For comparison I enclose a summary of the closest scenario produced by the European Commission in their document “Global Europe in 2050” called ‘Nobody cares - standstill in European integration’ (208).

“In this scenario, Europe is seen in a process of prolonged ‘muddling through’ in the absence of guiding and visionary actors and the lack of a redesigned policy framework. Thus, economic growth remains low in Europe. The divergence between the EU and

the leading world economies – USA in the short-medium term, but also China in the longer term – widens, as the latter keeps a strong developmental pace (the implicit assumption is therefore a better future trajectory for the rest of the world). The challenges posed by the ageing phenomenon in Europe are not decisively addressed, leading to economic instability. The completion of the European market remains unachieved. There is limited public support to address climate change and other global challenges, leading among others to an increased dependence on the foreign supply of energy”

Chapter 9

Scenario 5 - Life in the European Federation in 2040

Key assumptions for Scenario 5

This is the preferred future of the five-scenario model, although some people may call it a utopian scenario. Then perhaps I should quote Roger Scruton here, the British political philosopher, who said: “Utopia is a kind of a scenario planning with the assumption of a positive result”. Muhammed Yunus, the winner of the Nobel Prize in economics, has a very succinct vision of the future. He calls it “A world of three zeros: zero poverty, zero unemployment and zero emissions”. How probable is the achievement of these goals by 2040?

Yes, this is definitely the most positive of all five scenarios, although it is highly unlikely there will be no major stumbling blocks on the way. In any case, this is the scenario that should help us visualize much better the future EF in 2040. It will also reveal some questions that we will need to answer if we want to make this scenario more probable. That will be the subject covered in the next chapters.

My key assumption is that the EU leadership will have managed to convince the electorate in its member states of the necessity of making a painful transition into the European Federation with its new Constitution and the institutions as described in the previous chapters. This means, that the planet would still go around and none of those existential risks I wrote about would materialize. This scenario complements the proposal I have put forward on how the EU could make a transition into the EF, showing the EF and the world in the future. I do not think it would be a good idea to show you the EF just after the 1st January 2030 – the hypothetical date of the formation of the European Federation. The period of the first EF Parliament will almost certainly be quite chaotic. That’s why I suggest we imagine we are in July 2040, just after the elections to the third EF Parliament. As in the previous scenarios, I have used the italics font to make my comments easier to distinguish from the text describing the scenario. I have tried to calculate the numbers quoted to be as close as possible to what they might be in 2040 but of course in many instances this will be somewhat off the reality. The important point is to present how various EF Institutions and processes might work when the EF becomes operational and what the world around would look like. When I refer to data or situations before 2019, which serve as a reference, this means these were real events and real data, quite often supported by citations.

So, let me now focus on largely positive outcomes of the EU’s decision to become a federated state. The benefits of the EF, as might be seen from the perspective of an average EF citizen in 2040, are spread across several areas. Let me start with the benefits, about which people rarely think or talk about. The benefit that would probably be the most appreciated, after the most dangerous period that the world would have

gone through – the benefit of simply living in peace. That does not mean that in 2040 those dangers would be over. That can never happen. Life at a species level is simply a continuous exposure to risk, one of which could be the end of life of the entire species.

This Scenario 5 presents in detail solely the future of the EF, rather than all four subsidiary zones, which are referred only when needed. I will start with a close look at the EF just after the elections to the third Parliament.

The Parliament and the government of the EF in 2040

The 10th birthday of the European Federation is being celebrated with incredible pomp for the last few months. It is remarkable how quickly in 2040 people have got used to life in the EF, which seemed an impossible dream barely 10 years ago. When back on 1 January 2030, 39 countries were united into one State called the European Federation (EF), there were too many sceptics to count, who prophesized a sudden, perhaps a traumatic, end of the Federation. That was supposed to be the result of external political pressures (Russia and China), economic (even more serious financial crisis than in 2008), and the internal pressures (wish to return by millions of EF citizens to the world that was so familiar and yet now was gone forever).

European Federation, although initially regarded as just another large international organization, created for all countries of the former European Union, was adding many countries from other parts of the world to the EF's four zones. Some say it may soon become the World Federation but they do not want to change the name yet, in order not to antagonize Russia or China. The European Federation with all four subsidiary zones has now 138 countries. Its members constitute more than 60% of the global population and 70% of the world's GDP. EF and all members of the subsidiary zones are still members of the United Nations, which has very limited real powers, since the Security Council is totally dysfunctional.

The European Federation includes all the previous members of the former European Union's Eurozone. They are now called national regions, or simply regions, rather than states. This year new countries have joined the EF: Norway, Iceland, Canada, Serbia, the Ukraine, Moldova, Albania, Kosovo, FR Macedonia, Georgia, and the United Kingdom. Altogether, there are 39 countries in the EF with a population of 800m. The United Kingdom joined the EF 10 years later than the members of the previous Eurozone area. Yes, it took a while, but Britain is now a different country, with its own new Constitution and the former King William becoming the Life President of the National Heritage (a kind of Ministry of Culture combined with the British National Trust). Since this is the UK's first year in the EF, it makes a contribution of only 10% of its taxes to the central EF budget. Every year it will increase its contribution by 10% until 2045, when 50% of the UK budget will go to the central budget of the EF. Following the new British constitution, on 1st January 2045, Wales and Scotland will be directly members of the EF. Northern Ireland has already merged with the Republic of Ireland.

The constitutions of EF member states have been changed and replaced by new constitutions, which allow for large regions in any member country to separate. They can join the EF directly, if they wish or remain independent states. Over the last 10 years, it has gradually led to some original member states splitting into large regions, each with at least 5m citizens according to the EF Constitution). For example, German lands, Bavaria and Saxony, are now directly regions of the EF rather than Germany. Belgium was split into two large regions: Flanders and Wallonia and each of them have also additionally merged with one former Dutch region and a former French region. There are also two other cross-country regions: Catalonia, which is now much bigger than before by being joined with the previously French Catalogne Nord, and the Basque Country, twice as big as the previous Spanish Region, which was merged with the previously French Northern Basque Country. These cross-country regional mergers follow a model set up in 1996, of the first Euro-region Tyrol-South and Tyrol-Trentino. That was formed between the Austrian state of Tyrol and the Italian provinces of South Tyrol and Trentino.

EF, in line with its Constitution, is a representational democracy, with a two-chamber parliament. The representatives to the Lower House, the Chamber of Citizens are elected in a two-stage system. The first stage is a simple First Past the Post system. The second one is a preferential system based on Alternative Voting System. The Upper House (the Senate) has 50% of seats allocated using the same electoral system as for the Lower House. The remaining 50% of the seats are allocated using an enhanced sortition system.

The President of the European Federation is a Frenchman, Maurice Cheval, and is the second president of the EF (the first President of the EF was Walter Schmidt who served two terms). He has two 'shadow' Vice-presidents, (a Hungarian and a Swede), who make most decisions through consensus during the Presidency meetings (2 votes needed to pass the motion). On most significant matters, such as defence and security, or declaring the state of emergency, the President makes decisions alone.

The Prime Minister, Leopoldo Gonzalez, is Spanish. He is a member of the Democratic Liberal Party of the EF, the strongest party in the EF Parliament. His key ministers are all members of the EF Parliament: The Minister of Defence is British (a permanent position granted to Britain for 10 years, as a sweetener to re-join the EF), The Foreign Affairs Minister is Dutch, the Home Affairs Minister is Danish, and the Minister of Finance is German. Other ministers come from a pool of 2000 experts, selected by sortition from all EF countries.

There are 5 members in the European Federation Convergence Area, which is in Zone 1: Switzerland, Tunisia, Singapore, New Zealand and Australia. The members have signed up to the constitution of the EF, but certain articles of that constitution do not apply to them. Every country in this zone has MPs in the EF Parliament. These member countries should join the European Federation within the next 5 years.

There are significant changes in the European Federation Single Market area, which is in Zone 2. It has now 20 members, including Turkey, Morocco, Egypt, Libya, Armenia, Lebanon, India, Japan and Thailand. The most prominent member is the United States, which joined this year. All member states in this zone have up to five opt-outs of the EF Single Market policies that suit their particular circumstances and can stay in this zone for as long as they want. They are bound by the articles of the EFSM Treaty and each country has representatives in the EFSM Assembly. The members can join the EF, by moving first into Zone 1, once they meet certain economic, social and political criteria (e.g. ratifying the EF Constitution).

In Zone 3, which is the EF's Customs Union, there are only 2 countries – Belorussia and Kazakhstan.

There are 81 countries in the European Federation Association Area, which is in Zone 4. Most of these countries come from Africa and South America, such as Kenya, Nigeria, Brazil or Argentina. Some of these countries, such as South Africa, had individual Association Agreements with the former European Union before the federalization. The member states in this zone are not bound by any articles of the European Federation Constitution but have to fulfil the terms of the Treaty of the European Federation Association membership. Additionally, each of the countries has individual association agreements with the European Federation. If they fulfil the required criteria, they can move up to Zone 3.

The official language of the EF is English and there are no translations in the EF Parliament. Across the whole EF and its subsidiary zones, English is a mandatory language in official communications and is taught at all EF schools. However, at a member state or regional level, the official language is whichever language the region chooses, with English being a mandatory second language. Therefore, all signposting, street names etc., are in two languages. On the other hand, language as such is not a problem anymore, as almost all people have Multilingual Translators embedded either in their glasses, aural devices, watches, or chip implants under the skin, which enable simultaneous translations.

People within the EF have exactly the same rights across the entire EF area. After all, EF is now a single state. This includes benefits, recognition of all qualifications, national health entitlements and pension rights. However, there are regional differences in education, public holidays, regional legal system, (with a caveat that any new laws passed must be compatible with the EF Constitution – that is validated by the EF Constitutional Court), urban and architectural design (as long as the EF general rules are observed), culture and regional heritage.

For comparison I enclose a summary of the closest scenario produced by the European Commission in their document "Global Europe in 2050" called 'EU Renaissance: further European integration' (208).

“In this EU Renaissance scenario global security is achieved, with the generalized enforcement of human rights and the rule of law. The world undergoes a global democratization of power also as a consequence of increasingly active non-state actors, global public policy networks and the media. The EU is enlarged both east and southwards, and political, fiscal and military integration is consolidated. There is strong public support toward challenging targets in e.g. climate change and energy efficiency. The all-continental integration of energy systems (with renovation and heavy re-investments) boosts the share of renewable energy. Innovation systems undergo major reforms to become increasingly systemic, with more user-integration, more easy-to-use technological systems and services, and more encompassing smart growth-oriented technology and innovation policies. Importantly, the EU manages to optimally design its technological and research policies, to target the right domains and methods, and this leads to an acceleration in the pace of innovation and the productivity gains increase progressively until 2050 within the EU, compared to the ‘Nobody cares scenario’, the rest of the world keeping its own pace.”

I will now develop Scenario 5 further by describing the functions of the key components of the EF in 2040.

Foreign affairs of the European Federation

EF has now become the most significant state on the international stage, especially after the USA has become a member of the EF Single Market Area (Zone 2). It can exert direct significant political pressure on any of the 138 countries, members of 4 subsidiary zones, at least by controlling the flow of financial support for member states, especially in Zone 4 (African, Asian and some South American countries). The result is that there are no military conflicts among any of those countries. Unfortunately, the influence of the EF on the other countries is very limited, since most of these countries are vassal states of either Russia or China.

EF has two seats on the United Nations Security Council (previously occupied by France and Britain), although UN stopped playing any credible important role in maintaining the world peace. This is slowly becoming the domain of the EF, although it is too early to say, how successful it will be.

Former G7 countries are now G10. Military pressures from Russia and China, bordering on threatening the use of weapons of mass destruction were the main cause for enlarging G7 and make their resolutions more meaningful. The first such threat happened when the Russian President Vladimir Putin said in March 2018 that Russia would not care for the world, if his country were to perish – it would launch an all-out war. That led the G7 countries to invite new large democratic countries: India, Brazil and Nigeria to become members, which happened in 2028 and immediately created a number of dangerous military incidents against some of the G10 members. The other reason was a further decline of the role of the UN, which was being almost entirely run according to Russia’s and China’s wishes, which led to the USA, France and the UK frequently boycotting the Security Council meetings.

The European Federation Army - A new relationship with NATO

*Anyone who thought over 20 years ago that the former EU did not need its own army, because it would be a superfluous or excessive risk mitigation strategy, should have watched "Occupied", the most expensive Norwegian television show in history, screened in 2015. It had seriously enraged Russia, because it showed the subversive way, in which Russia forced Norway to surrender its sovereignty. When Russians came to Norway, there were no tanks or fighter jets, or "little green men." The diminution of Norwegian sovereignty and the assertion of Russian control were much more subtle and visible only to those who cared to notice. On the surface, life remained normal for most Norwegians, who went about their daily business as though nothing had changed. As with Finland after the WWII, Russia applied to Norway the same process of **Finlandization**, a pejorative term describing the situation, when a small country accepted a reduction of its sovereignty in exchange for a limited self-rule.*

Well, that was the film. But interestingly it was very close to reality that evolved very quickly. Within the next few years, Russian aggressive actions took place in the Ukraine and Moldova, including some serious incidents in the Baltic States (*see below*). At that time EU was barely thinking about having its own army. The only element of a potential future army was the EU's Permanent Structured Cooperation (PESCO) set up in 2017. The original intention was to enable the EU member states working more closely together in the area of security and defence. That permanent framework for defence cooperation was to allow willing and able member states to develop defence capabilities jointly, invest in shared projects, and enhance the operational readiness and contribution of their armed forces. At that time, EU was working closely with NATO, based on a number of agreements, such as the NATO-EU Warsaw Declaration signed in July 2016. That included 42 concrete actions, such as re-enforcing the NATO eastern frontiers with tens of thousands of NATO troops moved semi-permanently closer to the Russian border.

At the time of incidents in Moldova and in the Baltic States, the USA under Donald Trump was very enigmatic on invoking article 5 of the NATO declaration on mutual self-defence. That finally forced the EU to amend the NATO declaration, where all the EU countries became a single member of NATO. That led by default to the creation of the EU Army, which is now far more effective than ever. From today's perspective it is clear that it was the formation of the EU Army that has been the best sign of the EU's resolve to dampen Russian aggressive attempts.

So, EF has now its own army, which has just celebrated the fifteenth anniversary of its formation. All previous member states' armies had been dissolved and re-grouped into EF Regional Defence Forces that spread across former state borders. All military equipment and standards are unified within the whole EF Army, which is a member of NATO, as a single country. However, the EF Army participates in UN Peacekeeping operations independently of NATO. The official language of the Army, as in the whole EF is English, although national languages can also be used inside the regional bases.

Britain remained for most of that period, an individual member of NATO, despite re-joining the EU. Only now, after becoming a full member of the EF, its forces have been merged within the EF army. But the condition the UK had made was to run the Ministry of Defence. Therefore, the EF Defence Minister is Anthony Clarke, from the UK, the position he took this year, as soon as the UK joined the EF. British army is now part of the European Federation. Being a nuclear power, the UK has a long-term Agreement with the EF Army, as the 'British Region'. Its entire defence budget is covered by the EF budget, from the annual payments made by the British Government to the EF that cover among others education, security and defence. The only area that is strictly under the British control is its nuclear arsenal and a small conventional weapon contingent to serve British operations in its Overseas Territories, such as Falklands. Any eventual use of the exclusive British nuclear arsenal is strictly under the British control.

The EF Army Chief of Staff must be of a different nationality than the current EF Defence Minister. Since France is a nuclear power, it has special rights within the EF Defence system. It controls the French nuclear arsenal (this is the area still unresolved – who is to control the entire EF nuclear arsenal). There is a compulsory one-year residential service in the Army for men and women starting at 18 up to 25. That can be exchanged for 18 months of residential social service.

Geopolitics in the age of existential risks

I have tried to increase the probability of this scenario by reviewing some forecasts by well-known strategists. For example, my own view that 2024-2026 will probably be one of the more dangerous periods in the global politics in the coming decade is supported by private intelligence firm Strategic Forecasting. In 2015 they published their Decade Forecast in which they said the world in 2025 would be significantly more fractured, dangerous and chaotic place, with Russia projected to collapse, US power in decline, and China's rapid progress stagnated (210).

Until about 2020, the only existential risks mentioned in the media were climate change and nuclear war. Of course, it is understandable that the media had no interest in conveying gloomy messages and neither was it in the interest of any type of business to project pessimistic views. It would have badly affected sales. The governments pretended that existential risks were not an important enough issue for extensive political debates. Even the term existential risks, or combined dangers that may annihilate humanity, were only talked about in specialist TV programs or in the scientific press. Discussions in the parliaments on the subject were almost non-existent, apart from the Scandinavian countries, which have always been an exception in the world as far as an open communication with their societies was concerned. To think that any party would put existential risks as an issue in its manifesto would seem utterly ridiculous. How would an average voter on the doorstep react to it? Even if those existential risks were true, the parties and the governments would say they could do nothing about it. When one looks back at how the world approached existential risks before 2030, the year of the EF creation, then one must really wonder how we managed to survive.

The lack of perception of existential risks was far worse than during the cold war era, when people were constantly being warned about the danger of one existential risk – the global nuclear war that might lead to the end of civilisation. Perhaps it was a much simpler message to convey since it could be imagined much more clearly. It is true that the new existential risks that the planet Earth has been facing for the last 50 years are far more complex and difficult to imagine. That's why people quickly lose interest in the subject, when the danger of nanotechnology or artificially created, incurable viruses, are discussed.

It was even less apparent that relatively minor risks can combine and their cumulative effect might become existential. All Global Disorder risks fall into that category and they were those risks that nearly turned into an existential one. It all started with a series of unrelated, relatively minor incidents that were spread over several years. That's why it was not clear at all how significant they could become if they combined together; it looks even less significant from today's perspective. There were quite a few of them, most lasting a week or two but having some lingering effect and a possibility of being re-ignited at some time in the future. And that is exactly how it all started.

In March 2018, a former Russian agent was attacked in Britain with a very sophisticated nerve gas, seriously affecting dozens of other people. Over 200 military personnel were involved in the cleaning operations. It was obvious that Russia was the culprit and only later on, when similar attacks occurred in other countries, it became clear that it was a test to see the resilience of the emergency forces, how quickly panick could spread out and how the attacked countries would react. Russia's apparent assumption was that if no severe consequences would fall on them, then it could raise the bar higher, not necessarily in the same area. Such an opportunity availed itself a few years later.

Winter 2024 was exceptionally severe (climate change was then clearly noticeable). The whole Europe was covered in deep snow for many weeks. In February 2024 Russia, took over Moldova in a clandestine coup d'état. NATO did nothing. Then shortly after that there was a Chinese large scale cyberattack on Indian power stations (of course never admitted by China), which crippled India for several weeks. That was a clear retaliation for the Indian expansion (so perceived by China) into the Indian Ocean, when India started building artificial islands, similarly as China had then been doing for over a decade in the Pacific Ocean. Within days of that incident, there was one of the largest earthquakes in California (long-overdue) that engaged vast American resources. At this very time, an American psychopath biological scientist spread a deadly artificially produced virus at several airports around the world that led to massive wave of flue type epidemics affecting millions of people world-wide, but in particular in Europe. However, Russia was least affected because of tighter border control.

The emergency services were stretched to the limit, in most parts of the world. In the USA the rescue services were absolutely incapable of coping with the aftereffects of the disaster and several army divisions had to be re-allocated to help local emergency

services. In Europe, the arctic winter and flu-type epidemics completely overstretched the emergency, medical and food distribution services, creating chaos and local disturbances in many countries, where people were fighting for food, places in hospitals, or medicines, of which hospitals and pharmacies run out almost completely. In such a situation, seeing that NATO did nothing significant to force Russia out of Moldova, it decided to invade the Ukraine first and where there was still no reaction from NATO, the Russian forces entered the Baltic States.

NATO responded initially with air attacks. When the Baltics were almost overwhelmed by the Russian forces, a Russian tanker filled with a nerve gas (that should have never been there - a tactical error) was hit by a stray bullet and caused the release of the gas in the air. Within 24 hours several neighbouring countries were affected with tens of thousands of civilians dead. The full-scale war was hanging dangerously in the air and Russians were clearly winning. At that point, American NATO forces fired a small nuclear weapon on the Russian troops near St. Petersburg that was not intercepted by the Russian anti-aircraft forces because the Americans first jammed the whole region with a magnetic bomb, disabling all computers. That immediately halted the conflict. Russia apologised for 'unintended' explosion of the nerve gas and withdrew the troops from the Baltics, the Ukraine and Moldova. That's how close was the world from nuclear, chemical and biological war being fought at the same time. That's how combinatorial risk, if triggered off in full, could have become an existential risk ending our civilisation as we know it. The world sighed with relief.

Russia and China have been the main challengers of the EF since its inception.

Looking back at 2024 from today's perspective it is clear that those were the most dramatic years in the last two decades. That was also the year of the EU parliamentary elections that was held in the aftermath of the conflict with Russia. The Baltic States received a massive material help from the EU but also from the USA. The conflict with Russia was the main trigger for the federalization of the European Union, which took a little bit more than 5 years. Although China and Russia cooled down their antagonistic stance towards the EU and the NATO countries immediately after the conflict, there were a number of other incidents between the major powers. For most of the last 15 years, EF and the USA lived with China and Russia in the period of what became known as the Second Cold War.

Shortly after that the 'near Superintelligence' became the source of several serious incidents.

These included disabling by error in 2033 the entire power supply in the USA for three weeks, with hundreds of thousands of people dying of hypothermia and hunger (it was in the middle of one of the most severe winters the USA has ever known). The same extremely frosty winter lasting nearly 5 months affected Russia, where several million people died of frost and where even the stretched USA's and Japanese services were providing essential help in eastern Siberia. The so called 'near Superintelligence', which was a very capable AI agent, much more intelligent in most areas than humans (but not in all areas yet) became frequently used for ill purposes by each of the superpowers (of course none admitted its use). But the biggest danger came from clandestine inventions done by very rich individuals, some

of whom can be considered psychopaths. Even China and Russia had such problems in their own countries.

Gradually, the perception of common dangers and adversities stemming from Superintelligence and other existential risks facing the whole Humanity lowered the level of enmity between the Superpowers and became the biggest motivator for a true global co-operation. Additionally, China, USA and India signed an important agreement in 2034 on a joint creation of new artificial islands, where all costs and returns are shared by all parties proportionally to their investment. That has just by chance created a model for similar agreements in other areas, which for the last few years has also been adopted by Russia.

This could be an overoptimistic assessment of the current thaw in relations between the Superpowers. But it seems the latest version of near Superintelligence created independently by the scientists in the USA, China, Russia and the EF may have finally convinced these countries, alongside some other military powers (India, Pakistan, Indonesia and Brazil) that very soon there could be no winner if Humanity as a whole does not come together. The danger is that Superintelligence may become a super intelligently unfriendly agent, behaving very erratically with a possibility of taking suddenly a full control over the entire civilization. That has sparked off the second conference this year to be held in autumn on creation of a new organisation, initially called "Our World". Its key draft articles stipulate that the resolutions in the new organization's Security Chamber will pass by a simple majority. Only on most important issues, any member of the Security Chamber may request a Qualified Majority Voting (QMV) adopted from the current European Federation Single Market Treaty. The proposed three criteria for decisions are 75% of Member States' weighted votes, cast by the majority of Member States, and, optionally, a check that the majority represented 65% of the total population of "Our World" organization. The second article envisages the creation of the World's Army, composed of all nationalities. The number of soldiers from any nation would be proportional to its populations with a minimum set as 100 soldiers and maximum as 100,000. All national armies are to be resolved by 2050 and all nuclear, biological and chemical weapons will be dismantled or disabled.

Environmental disasters, as predicted have been very severe, especially around 2030. Some of them have already been mentioned. The CO₂ levels increased much faster than before (a kind of a run-away scenario). Luckily, it is now under control, mainly thanks to geo-engineering technologies developed by AI agents, costing huge amount of money. However, it is already clear that this is working, since CO₂ levels have been dropping in absolute terms for the last 6 years.

Green energy is now everywhere thanks to key discoveries in 2030'. The first one was the first commercial nuclear fusion power station opened in Pennsylvania in 2029. The second one was the discovery of how to use magnetic energy directly, available everywhere, as a more convenient energy than electricity. The third one has been the massive use of new materials for the production of solar panels (such as perovskite)

since 2024, which doubled the yield from a typical solar panel. Thanks to those discoveries, energy is very cheap, which was also possible by discoveries of new energy storage media that last 7 times longer per 1 unit than in 2018.

Personal Finance in 2040

Let me now continue developing Scenario 5, this time looking at social area, starting with Personal Finance. This area of the former EU has been totally transformed since the federalization. Here are some key features:

Growth of personal income has more than doubled in real terms in the last generation. That is having a remarkable impact on the changes of society's behavioural patterns. We are slowly moving up to the top of the Maslow's hierarchy (see Part 1, Chapter 1) from the physiological and safety needs levels, to the levels mainly pre-occupied with belonging, recreation and inspiration to learn new subjects and practice unknown things (self-fulfilment needs). That happened almost naturally because of affluence and the availability of spare time. The only problem people have is with their personal safety (mainly cybercrime) and national security – Russia and China, which are now less hostile, and a bit more cooperative but still not the countries people would trust.

There are no tax allowances, all personal income is taxable. The current rate of flat income tax is 15%.

Since 2035, there is a maximum value of assets that a person can have. It has been set this year at €200M and includes all assets, such as property, cash in bank, investment and shares, art objects and other personal belongings. Any excess of that amount is taxed at 100% but such a taxpayer may decide to allocate of up to 30% of taxed amount for charitable causes or social and scientific projects. This law applies also to all members in Zones 1 and 2. That was one of the stumbling blocks for the USA to join the EF Single Market area (Zone 2) but was finally agreed for two reasons. First of all, it eliminated the danger that individual people with fortunes exceeding the budgets of medium size states would have become a real threat even for democracy in the USA. Secondly, transactions in assets of those individual persons could destabilize the world markets. Passing of that law made a significant change in the so far sacrosanct right to private property.

Every person, whether a child or an adult gets, an unconditional Universal Basic Income, which for an adult and a pensioner is an equivalent of 20% of an average personal income. This income counts towards the minimum living wage.

Every adult person may get a conditional Universal Supplementary Income, which for an adult and a pensioner is an equivalent of 20% of an average personal income. To get that income the recipient must fulfil certain conditions such as be in full time employment, do a minimum number of voluntary work hours or attend various education courses. This income counts towards the minimum living wage.

Every adult person must have by law a guaranteed minimum income at the ‘poverty line’, which is 40% of an average personal income. This consists of unconditional Universal Basic Income (20%) and a conditional Universal Supplementary Income (also 20%). That minimum income is in real terms equal to what over 20 years ago was the EU’s average personal annual income of about €20,000. However, to be eligible for such an income, a person must be in partial education or engaged in voluntary work, unless such a person is certified as incapacitated.

People, who are not complying with the condition to be engaged in partial education or engaged in voluntary work, do not receive a conditional Universal Supplementary Income (20%). If such a person has no house or flat, he is offered a free studio flat in the Government Funded Social Housing (GFSH), where he is given free meals and also any non-hospital medical care on site (including mental care). No people can be homeless by law and nobody can ‘sleep rough in the streets.

There is a minimum living wage that is an equivalent of 60% of the current average personal income. Unconditional Universal Basic Income and conditional Universal Supplementary Income count towards a minimum wage. That means that any employer must pay net salary, which is worth at least 20% of the average personal income.

Each person over the age of 13 can get their own Personal Artificial Intelligence Mentor. It is worn as a watch and communicates with visual and audio receivers in a person’s glasses, an implant in the eyes as lenses, an implant in the head or via any available wall display (although it is not recommended to be used outside home because of the lack of privacy). All information is stored remotely and is given top privacy level. It is given free of charge, including the provision of associated service, by the government on the condition that a person undergoes a one-week course delivered by volunteers at a local community centre. During the course, the Personal AI Mentor interviews the person in minute detail, makes a psychological profile and agrees with the person his long-term and short-term goals. It manages the person’s all daily tasks and helps to complete some of them. The Mentor takes care of the person’s all basic needs, including arranging any medical, mental or other assistance he may need with local authorities. The Mentor also arranges any work that a person is capable of performing, as well as any basic or even further education. Initially people were very suspicious of such a powerful AI agent who knows more about them than they do themselves. However, today, most people do have them. They have become a very helpful way of enhancing people’s life and making it far more interesting, enabling a lot of options and activities than otherwise would have not been possible.

Social and cultural life

The European culture is not as monolithic as it may seem to be from outside, despite common heritage stemming from Christian values. It still consists of a rich multitude of local mini-cultures, which must be preserved and promoted as a unique treasure and as the common ground of the EF’s shared identity. However, over the last 10 years there has been an additional programme of common “European Federation culture”,

within which individual cultures will thrive. It mimics to a large degree the culture of the United States, where every week, one of the original nations that made the USA, organizes a national parade, celebrating the root culture, which their forefathers brought to America, ensuring that it thrives to this day. This is what has finally started to reshape the culture of the European Federation.

People do not have their clones yet and social life does not look as people have imagined. 20 years ago, many futurists believed the future is digital and we will all be digital clones soon. Well, so far, the trend is going in the opposite direction. The more people learnt about AI, and that includes AI specialists, the less interesting the digital future looked like. The current feeling is that we should persevere to remain in our biological bodies for as long as we can, since a digital life would probably be immensely boring. For people not interested, or not knowledgeable enough in AI, it does not matter at all because they believe intelligent life will continue to remain biological. However, the Twitter and Instagram generation, which is now in their mid-forties, prefer as their companions the AI agents, which have as many as possible of purely human traits, such as love, optimism, friendship or altruism. Therefore, a lighter touch of Transhumanism is in fashion. This trend accepts deep merger with AI, and in the near future with Superintelligence, while retaining all external body parts largely unchanged. The only problem unresolved is how to clone such entities, which are partly human and partly digital.

There has been a deep reflection on how to make human life as much worthwhile as possible. After a period of about 10 years, in mid-2020², just as the most dangerous confrontation with Russia was subsiding, people in the EF, but also in some other developed countries, begun very gradual return to simpler forms of life style. Initially, these were very small steps indeed like limiting the use of plastic bottles or packaging and replacing them with more environmentally friendly solutions. Instead of using video phones, people started to see each other in person, especially when they finally realized how deeply their privacy has been compromised by digital media companies. Today, various digital chatbots are a passé. Back are meeting friends at cafés and even at home. Tourism is booming, although most of these places can be seen and experienced using 5D holographic TV or special augmented reality equipment. Surprisingly, people are becoming somewhat old-fashioned. It seems that the early digital experience was for many people like playing with new toys by children. Once they played enough, they became bored.

Life seems to be running slower than 15 years ago. The EF value system has become one of the major and most important subjects at schools and perhaps that has gradually been changing people's attitude to each other and to life in general. The EF government does not shy away from quite a direct way of teaching people at part-time education courses simply how to get most of people's life and be a good citizen.

People slowly realize that Humanity is going through the most significant change in its history, which may include several options. The first one is that if one of the major existential risks occurs, our species may disappear for ever. The second option is that

the human species in a biological form will gradually disappear as our consciousness and memory becomes fully digitized and embedded inside a chip (if you can call it life). The third option is that we will be partially digitized, mainly through communication channels between huge data centres and the implants in our brains. We may also have some artificial organs such as additional eyes, or an additional heart. But otherwise we will remain biological bodies. Therefore, if most of our needs in the near future are going to be fulfilled almost free of charge, with plenty of free time, what has come out as the top issue is how to live one's life.

Even family life seems to be regenerated, which probably stems from the same reasons as above. Since the average lifespan in the EF has now exceeded 100 years, in many families there are 4 or even 5 generations. Therefore, family reunions around birthday time can now be quite big events.

A high standard of life and plenty of free time has stimulated people's interests in the subjects, which they never thought they would take up. Therefore, art, popular science courses, further education are the main element of their lives, since the working week is only 21 hours, soon to be cut down to 15 hours. Such interests and personal projects, if properly registered, such as genealogy research, painting lessons, or singing in choirs, can count towards the conditions necessary for receiving the conditional Supplementary Basic Income.

Education in the EF

Education at all levels has changed dramatically. In primary schools, traditional education has been almost completely replaced by the AI Assistants (one per classroom of 10). They perform the role of the previous teachers but they have in depth knowledge of every child's progress and each child has an individual educational programme. The human teachers are still there but their main role is to teach children core human values and how they should be applied in life.

At secondary schools, almost the entire teaching programme is run by AI Assistants (1 per 5 students). As in primary education, each student has an individual teaching programme and once they passed the exams from all subjects at least at 80% score level, they can move to the next year's programme. History and social subjects like psychology are in the main taught by human teachers, with robots checking the knowledge and assisting with any problems. There are minimum two hours of history lessons weekly. Additionally, there are two hours a week of EF-Studies of which 1 hour is dedicated to fighting fake media, populism and xenophobia, by discussing current events in the EF. There is a strong emphasis put on bringing up young people in the human values promoted by the EF.

All university studies are absolutely free. Students are assigned their own AI teachers, which teach a subject depending on the student's individual capabilities and aspirations. There are no formal exams, since the certificate on passing the subject depends on the entire work carried out by the students and dozens of ad hoc tests done under the supervision of the AI examiners.

The Erasmus programme is now over 40 years old with more than 36 million people having completed either full or part of their studies in another national region of the EF state. In the last few years, it has been extended significantly, particularly to the member states in all EF subsidiary zones. The EF Erasmus Programme has set up its own Erasmus Universities funded by the EF in many African and Asian countries and that programme will be rolled out to South America in the next few years. Within the EF itself all state funded universities follow a special set of studies called the Erasmus Programme, dedicated mainly to re-enforcing EF values, EF culture and the European history.

The European Federal Police

Since 2030, the European Federation has its own federal police – European Federation Police (EFP). It is a sort of an American FBI. It was gradually converted from the initial Frontex and Europol forces set up in 2020. It deals with federal crimes, such as terrorism, organized crime, human trafficking and federal tax evasion. It controls the external borders of the EF and executes court orders regarding the asylum verdicts. EFP co-operates with local Regional Police (RP).

The EF also has its own European Intelligence Agency (EIA). From this year it includes the former British GCHQ Intelligence Agency and MI5, which cover conventional counterespionage and cybercrime.

The prisoner population is at the lowest level that it has ever been in the old EU. Every former prisoner, as every adult in the EF gets Universal Basic income, worth 20% of the average wage. Re-offending is quite rare. The reason behind that change is the introduction of EF-wide policy 5 years ago, which released over 70% of prisoners to the government funded Social Housing (GFSH). Not every former prisoner chose this option, preferring to get back to totally normal life and trying to work in his profession if it is possible. A former prisoner gets a specialized version of the Personal Artificial Intelligence Mentor, who takes care of all his needs, including arranging any medical or mental help he needs. He is obliged by law to use it for 5 years after leaving a prison. He also arranges any work that the former prisoner is capable of performing, as well as any further education. The Mentor provides basic education itself as well as is the former prisoner's guide and advisor in any aspect of life.

Economy and Finance of the European Federation

The EF aligns its internal fiscal policies. Following the constitutional arrangements, a former member state of the EU contributes now 50% of its budget to the central EF budget, which is managed by the EF Finance Minister. However, on joining the EF, a former member state contributed initially only 10% of the budget in the first year and another 10% for the next 4 years, until half of its budget was fully managed by the EF Ministry of Finance. The current Minister of Finance is German. He controls the entire budget of the EF.

There is an independent European Central Bank (ECB), which has existed since 1998. But today it serves the whole EF, because there is no longer the Eurozone. The EF currency is the Euro, as before, worth now 3 US dollars. The US currency finally gave in to structural faults, on which its economy was based. Capitalism could no longer spread out of control globally. Business has become much more regulated now and restricted. Goods can now be exchanged free of customs duty in almost all countries in the world but there are far more effective controls put on large global corporations, which were threatening most of the states by setting the economic (and quite often political) conditions that were beneficial for corporations but undermined whole national economies.

ECB is responsible among others for setting the interest rate, implementing the monetary policy of the EF, taking care of the foreign reserves, and overseeing the European Banking Union. There is also the European Monetary Fund, which is essentially the Bank of last resort.

The EF has now the largest GDP in the World (when counting all four Zones and including the USA) that amounts to about 70% of the world' GDP.

All corporation and income taxes are collected directly by the EF, while VAT is collected at a regional level. 35% of the EF budget, which is now approaching €60 trillion, is distributed directly to EF regions, mainly through the EF projects and social cohesion programme. The rest of the budget is to finance central EF functions, such as defence, security, home affairs, the EF's Welfare State and health service.

There is one flat corporation tax at 70%. It may seem high but it is the consequence of the decision made in 2032 when the EF decided that there would be no taxes on robots, which were introduced under some pressure from the trade unions in some of the former EU countries. This has worked very well, since the vast majority of companies are now 'employing' robots or AI agents, so such a policy does not stifle innovation. There are now more robots and AI Agents than people on the planet – close to 9 billion. On average there are about 20% of human employees in manufacturing companies in the EF. In distribution and transport companies there are less than 10% of human employees. The biggest number of employees is in the service sectors, such as elderly care, medical care, fashion, leisure and entertainment.

The effect of Technological Unemployment was initially very severe. Yes, over 160 new skills were created by 2030 as Thomas Frey predicted in 2016:

New skills that were predicted to be needed by 2030

Personal Rapid Transit Systems (PRTS)	Atmospheric Water Harvesters	Shared Economy	Personal Assistance	Body Modification	Drone Industry	Sensor Industry	3D Printing	Internet of Things	Big Data Industry	Crypto Currency Industry	New Energy Industry	Contoured Housing Industry	Driverless Vehicle Industry	Bio Industry	Retired People Industry	No-Agriculture	Extreme Innovation-1	Extreme Innovation-2
1. Station Designers & Architects	11. Site Collection Leave Managers	21. Parability Auditors	26. Quantified Self Assessment Auditors	32. Simulation Specialists	40. Drone Classification Gurus	48. Sensor Inventors, Designers, and Engineers	55. Automation Auditors	66. Locationists	72. Data Interface Mavens	78. Crypto Currency Bankers, etc.	90. Micro Grid Strategists	98. Construction Material Designers	104. Delivery Dispatchers	110. Nano-Medics	121. Legalists Managing people's liability	128. Plant-Jackers and Tree-Jackers	145. Extinction Revivalists	151. Space-Based Power System Designers
2. Circulation Engineers	12. System Architects	22. Corporate Sharing Managers	27. Data Contextualists	33. Genetic Modification Designers and Engineers	41. Drone Standards Specialists	49. Data Stream Organizers	58. Material Experts	67. Lifestyle Auditors	73. Opportunity Spotters	79. Currency Adoption Specialists	91. Mass Energy Storage Developers	99. Structural Engineers	105. Traffic Monitoring System Planners and Designers	111. Bio-Factory Doctors, Strategists, and Developers	122. Lifestyle Housing Designers	129. Molecular Gastronomists	146. Robotic Earthworm Drivers	154. Brain Augmenting Specialists
3. Traffic Flow Analyzers	13. Water Supply Transitionists	23. Opportunity Spotters	28. Efficiency Analysts	34. Body Modification Designers and Engineers	42. Drone Docking Designers and Engineers	50. Failure Point Assessors	57. Design Engineers	68. Efficiency Consultants	74. Waste Data Managers -	80. Anonymity Advocates	92. System Transitionists	100. Site Planners	106. Automated Traffic Architects and Engineers	112. DNA Scientists	123. Aging Specialists	130. Bio-Meat Factory Engineers	147. Avatar Designers	157. Nano-Weapons Specialists
4. Command Centre Operators	14. Purification Monitors	24. Impact Assessors	29. Skill Quantifiers	35. Athlete Qualification Analysts	43. Operator Certification Specialists	51. Data Transmission Optimizers	58. Cost Estimators	69. Ownership Network Setup Specialists	75. Computer Personality Designers	81. Theft Recovery Specialists	93. Power Conversion Specialists	101. Setup Teams	107. Diversified "Ride Experience" Designers	113. Gene Sequencers	124. Situational Optimizers	131. Supply Chain Optimizers	148. Gravity Pullers	159. Earthquake Forecasters
5. Traffic Transitionists	15. Impact Assessors	25. Involvement Specialists	30. Bio-Waste Optimizers	36. Graduate to Grave Lifestyle Managers	45. Drone Traffic Optimizers	52. System Anthropologist	59. 3D Printer Specialists	70. Augmented Reality Architects	76. Data Hoarding Specialist	82. Crypto Currency Theorists	94. Efficiency Optimizers	102. Tear-Down Teams	108. Diversified Operating System Engineers	114. Treatment Monitors	125. Life-Stage Attendants	132. Urban Agriculturalists	149. Time Hackers	160. "Heavy Air" Engineers
6. Impact Minimizers	16. Impact Assessors	31. Guardians of Privacy	37. Super Baby Designers	46. Automation Engineers	53. Data Actuaries	60. 3D Printer "ink" Designers	71. Avatar Relationship Managers	77. Smart Contact App Developers	83. Currency Strategists	95. Benefits Translators	103. Cleanup Teams	109. Emergency Crews for when things go wrong.	126. Memorial Designers	128. Treatment Designers	133. Bio-Hacking Injectors and Surgeons	150. Clone Ranchers	161. Amnesia Surgeons	
7. Demand Optimizers	17. Demand Optimizers	38. Super Baby Psychologists	46. Automation Engineers	54. Last Millers	61. 3D Food Printer Chef	72. 3D Printed Clothing, Material Specialists, and Stylists	83. 3D printed organic agents	94. Manufacturing Process Consultants	104. Monetary Exchange Interface Experts	116. Standards Developers	127. Octogen, Service Providers	134. Swarmbot and Drone Operators & Managers	140. Plant Educators	145. Plant Educators	152. Global System Architects	162. Geengineers		
8. Secondary Opportunity Developers	18. Secondary Opportunity Developers	39. Super Baby Advocates	47. Automation Engineers	55. Last Millers	62. 3D Printed organic agents	73. 3D Printed organic agents	84. Manufacturing Process Consultants	95. Maintenance Gurus	105. Monetary Exchange Interface Experts	117. Standards Developers	128. Octogen, Service Providers	135. Swarmbot and Drone Operators & Managers	141. Plant Educators	146. Plant Educators	153. Memory Augmentation Therapists	163. Geengineers		
9. Feedback Loopers	19. Feedback Loopers	40. Super Baby Advocates	48. Automation Engineers	57. Last Millers	64. 3D Printed organic agents	74. 3D Printed organic agents	85. Manufacturing Process Consultants	96. Maintenance Gurus	106. Monetary Exchange Interface Experts	118. Standards Developers	129. Octogen, Service Providers	136. Swarmbot and Drone Operators & Managers	142. Plant Educators	147. Plant Educators	154. Memory Augmentation Therapists	164. Geengineers		
10. Construction Teams - PRTs	20. Construction Teams - PRTs	41. Super Baby Advocates	49. Automation Engineers	61. Last Millers	66. 3D Printed organic agents	76. 3D Printed organic agents	87. Manufacturing Process Consultants	97. Maintenance Gurus	107. Monetary Exchange Interface Experts	119. Standards Developers	130. Octogen, Service Providers	137. Swarmbot and Drone Operators & Managers	143. Plant Educators	148. Plant Educators	155. Memory Augmentation Therapists	165. Geengineers		

Source: Tony Czarnecki: based on Thomas Frey '101 endangered jobs by 2030' (211)

However, within two years of the first signs of the coming Technological Unemployment, it became obvious that there were far fewer new jobs, than the jobs lost and those available required rare skills. Millions of people become unemployed resulting from continuous expansion of robotization and AI in general. The unemployment shot up to over 50% in some countries. The lack of preparation in the old European Union countries for that entirely new type of unemployment was very obvious. That has sparked off serious social unrest in most countries, just as the EU was in the final stages of the ratification process of the EF Constitution. It was a very bumpy ride indeed. Luckily, the unrest was quite quickly pacified by the introduction in almost all EU countries of an unconditional Universal Basic Income. It has initially dented the budgets of some countries, but that was no longer a big issue after the federalization. For the last 5 years **EF has been running a 0% unemployment programme**, as envisaged by Muhammed Yunus, mentioned earlier in this chapter, who called for creating "A world of three zeros: zero poverty, zero unemployment and zero emissions". The EF has now achieved all three of them. Zero unemployment was achieved by these means:

- EF-wide job-sharing programme has been introduced so that most jobs are shared by 2-3 people
- The working week has been reduced to 21 hours
- The flexible retirement age now starts at 45

- The introduction 10 years ago, at the very start of the EF, of the unconditional Universal Basic Income at 20% of average earnings
- The introduction 10 years ago of the conditional Universal Supplementary Income also at 20% of average earnings, which is immediately awarded to people being made redundant, together with offers of voluntary work or educational courses.

There is a compulsory job-sharing programme, which has almost immediately reduced unemployment. Every company that wants to make people redundant must immediately create two shared jobs, or pay 50% tax on the salary paid for the position made redundant, for one year. In some cases, e.g. in companies, which operate as nearly fully robot-only production, there may be no possibility of job sharing. In such cases, the company must pay an equivalent of 25% of one annual salary of the redundant employee to the government's re-skilling fund.

The working week has been reduced to 21 hours, mainly as a consequence of Technological Unemployment and there are plans to reduce it further to 15 hours in 2042. People normally work 3 days a week, which they can vary each month, by selecting the days at the beginning of each month for the next month.

Social Cohesion Fund is the continuation of the same fund that existed during the European Union days. It is many times bigger than before, because much more money is transferred to the EF budget from the regions. The objective of this fund is to invest in poorer areas of the EF to help reduce regional economic imbalance. The richer regions pay billions of Euros each year to improve economic and social conditions in poorer regions. This is now working much better than before, because help can be directly allocated to smaller regions, reducing the imbalance faster and more fairly.

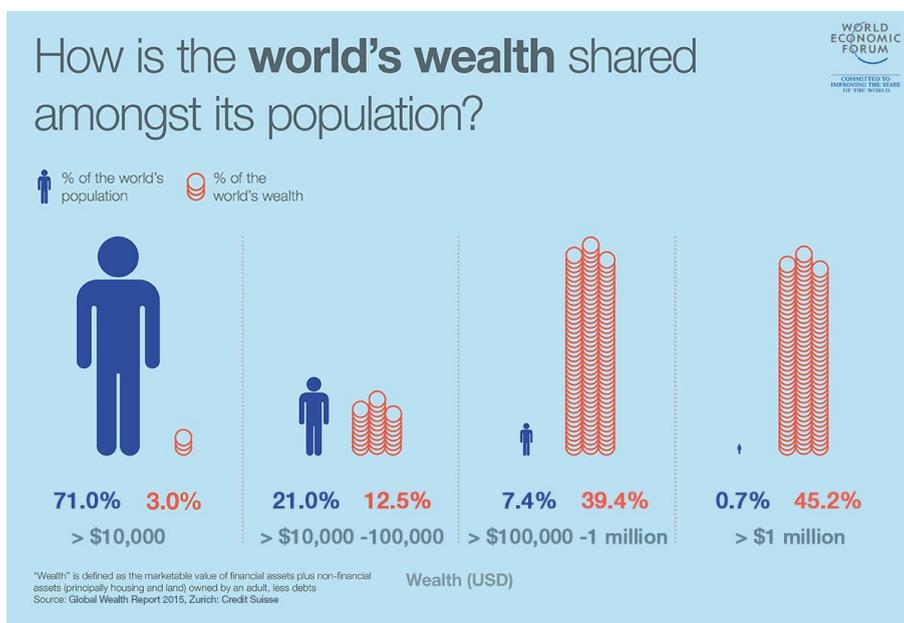
Global Wealth Redistribution Fund (GWRP) is the EF's own very large fund that resembles the old Structural Fund. It is mainly aimed at countries in the European Federation Association Area (Zone 4), such as in Africa, although some funds are also supporting projects in Zone 2 and Zone 3. Its objective is to raise the average personal income in these countries annually through financing the increase in wages, transforming their economies into more competitive ones and financing large green energy projects (*the last chapter is entirely dedicated to this subject*).

The Stability and Growth Pact set at that time of the Euro currency crisis in 2012, has now become the centrepiece policy in all EF Zones. This sets the rules designed to ensure that EF itself and countries in the EF Convergence Zone and the EF Single Market Zone must pursue sound public finances and coordinate their fiscal policies. As before, countries cannot exceed their budget deficit by more than 3% and their national debt cannot exceed more than 60%. There are still penalties for exceeding these thresholds. The same rules apply for the countries in the EF Customs Union and EF Association Area, if they receive funding within the Global Wealth Redistribution Fund, otherwise, the funding is cut down.

Chapter 10 Global Wealth Redistribution Fund (GWRF)

The crisis of global wealth distribution

In the next chapter of this book I propose setting up the Global Welfare State that would be the main driving force for creating a planetary civilisation managed initially by the European Federation, potentially with the UN Development Program and ultimately by the World Government. According to Global Wealth Report 2015, **less than 1% of the world's population owns nearly half of the global wealth** (financial and non-financial assets), whereas $\frac{3}{4}$ of the world's population owns only 3% of global wealth.



In my view, global economic sustainability and world peace will be impossible without a significant redistribution of wealth. I am fully aware of the complexities and difficulties of delivering such a momentous change for humanity in the world that today could not, for example, agree on stopping the genocide in Syria. The odds are heavily against such an optimistic view as I will present here. On the other hand, should we be incapable of resolving most of these issues by around 2030 then the world may face a bigger crisis than for example the WWII. We cannot create islands of sustainability. We cannot enjoy a sustainable life in an unsustainable world.

On 25 September 2015, the United Nations organisation passed the resolution on Post 2015 Development Agenda, officially known as “Transforming our world: the 2030

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Agenda for Sustainable Development”. It is a broad intergovernmental agreement that acts as the successor to the Millennium Development Goals which involved 193 Member States. It contains 17 "Global Goals" with 169 targets.

	UN 17 Sustainable Development Goals
Goal 1	End poverty in all its forms everywhere
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3	Ensure healthy lives and promote well-being for all at all ages
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5	Achieve gender equality and empower all women and girls
Goal 6	Ensure availability and sustainable management of water and sanitation for all
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10	Reduce inequality within and among countries
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12	Ensure sustainable consumption and production patterns
Goal 13	Take urgent action to combat climate change and its impacts*
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development

I believe that the SDG provides an excellent opportunity for the world to use this framework for much wider objectives, which would actually subsume the SDG. These are:

- **Create the wealth redistribution programme**, so that the donor countries (mainly the Northern Hemisphere) transfer over decades some of their wealth to those countries that need it most
- **Control mass economic migration in such a way that there will be no need to migrate**. That may mean not only solve the poverty problem (mainly economic) but also environmental (scarcity of water) and political (civil and ethnic wars).

To achieve that, we need a systemic global shift of wealth from richer to poorer countries. This is necessary for three reasons:

- Make good the incredible suffering and economic robbery that some rich countries did over several centuries in their colonies
- Eliminate mass economic migration
- Control climate change-originated starvation, especially in Africa.

Therefore, in Scenario 5, in chapter 9, I have described an organization that may exist in 2040, called the Global Wealth Redistribution Fund (GWRF). I would now like to put some concrete arguments for setting up such a fund and show how it could be done.

In theory, such a fund could be part of the UN Development Program (UNDP) but seeing the UN's malaise in this area, I doubt it would attract funds on the scale that is needed. It clearly contrasts with the outstanding success of private funds such as Bill and Melinda Gates Foundation, whose vision is: "by giving people the tools to lead healthy, productive lives, we can help them lift themselves out of poverty". This is the key difference between how the UNDP and such a foundation works. For most of its existence, the UN funds were giving the poorer countries the proverbial fish, whereas private foundations gave them a fishing rod. Since 2000 that situation has improved at the UNDP but the other crucial differences remain. These are efficiency, effectiveness of the projects and less corruptive distribution of funds. It looks highly unlikely that the UNDP will change significantly, so that it could become the driver of such a wealth distribution. Therefore, it should be the EF, which would head such a programme, with additional injection of funds from other sources to finance the target GWRF projects, and if possible, co-ordinate wealth distribution.

If it is to work, the scale of this programme should exceed any help or fund distribution the world has ever seen and be from the beginning set up as a decades-long continuous effort. The most natural way for the EF would be to act via the membership of the EF Association Area (Zone 4). The programme itself would be the magnet for countries to join that zone. Looking at the current EU association agreements it is obvious that the EU is already aiming in this direction, as each such agreement includes the development of political, trade, social, cultural and security links. Currently, there are over 30 such agreements plus over 50 trade agreements. Once the EF has been established, around 2030, most of these agreements will be turned into the EF Association Area's agreements. Assuming the rate of new countries joining the EF Zone 4 would be at least as fast as now, the total number of countries in the Federation's four zones could reach 138 by 2040. I include here, in the assumed EF Single Market Zone, the USA, India and Japan, which are currently negotiating the Free Trade Agreement with the EU, similar to the one signed in 2016 with Canada. That means in 2040 the EF with 137 countries in all zones would represent about 70% of the world's GDP and 60% of the global population.

I believe that such a large scale of wealth redistribution is the only realistic long-term solution for maintaining global peace and preparing Humanity for the new period of a planetary civilisation. Wealth distribution, if it is carried out on such scale, and if it follows the principles that I propose further on in this chapter, will achieve three objectives:

- It will virtually stop economic and climate originated global migration
- It will make a more just and equal global society, fully achievable in the second half of this century
- It will become a powerful and pragmatic mechanism for political change and instilling Universal Values of Humanity to all parts of the world.

I will briefly cover all these three objectives in the sections below.

Stopping economic and climate change-originated mass migration

One can imagine two types of migration. The first type is the migration, which originates from natural catastrophes or man-made disasters, such as wars. The second one is an economic migration.

Let's consider the first type of migration. In the future, we may have natural disasters on epic scale – i.e. volcanoes or earthquakes, or several years of draught in Africa that would make large swathes of migrants fleeing to safe havens e.g. in Europe or the USA, from countries such as Africa, South America or South East Asia, which might become utterly uninhabitable. This will force tens or potentially hundreds of millions of people trying to escape their own homeland into the countries that have not been affected by natural disasters or simply less affected, and which would still have some resources untouched. It would be very difficult to propose a different solution for these people other than simply cuddle them and share with them whatever we have until the situation stabilizes and enables them a safe return home.

The second kind of migration is economic. Here we can help a lot. We have two broad options. The first one is to let them in with their families and make workplaces and homes in the host countries. We tried to do that in 2015. Initially, countries like Greece were flooded with migrants. They were supposed, under the EU Treaty, to offer them housing and any support they needed in Greece, since it was the first country that could offer migrants a safe haven. But very soon Greece ran out of resources. It was overwhelmed by the number and determination of the people, who had nothing to lose, perhaps escaping utter famine or civil wars in Syria or Iraq. Then Greece opened the borders to other EU member states, creating a chain reaction, as we all remember what happened in 2015 within the European Union. Over 1 million people entered the EU in just a few months. However, up to 60% of those migrants, as reported by “Independent” in January 2016, were considered economic migrants who took the opportunity and entered the EU with the wave of asylum seekers.

The problem created by that massive, mainly economic migration in a very short space of time, primarily to Germany, is with us till today. That was the key justification for various reforms postulated by populist movements, and which led to Brexit in Britain,

right of centre governments in Austria, Poland, Hungary, and to effectively lost general election in Germany by Angela Merkel.

Now try to extrapolate that small wave of economic migration from the southern to northern hemisphere on a much larger scale involving tens of millions of people. How could it trigger wars and what could cause local wars to become global? As the EU example showed, opening borders to the neighbouring countries would create a chain of events. Very quickly those events would trigger off local wars, which through combinatorial factors that we were talking about before, could trigger off existential risks, such as natural pandemics (lack of basic hygiene, spread of viruses such as Ebola etc.). Probably the only reason why the EU states 'invaded' by migrants in 2015 did not go to war with their neighbours was that they were members of the same European Union. It could have been an entirely different outcome, had the migrants tried to cross, for example, the Russian or the Ukrainian border.

People say 'Democracy only works where there is a broad consensus about the distribution of wealth and power.' According to a number of surveys, only a proportion of the migrants flowing into Europe have fled from the immediate consequences of violence. Most of them came from places where there was no war. They just wanted better lives.

There are dozens of regions on our planet that are potentially a source of such massive migration. First of all, Africa comes to mind, where at the moment (apart from Sudan and Chad) people are driven out of their countries towards Europe in search of a better life. Then there is the entire Middle East, which may enter a new phase of war after the collapse of ISIS, namely the proxy wars between Iran and Saudi Arabia in Yemen, or Lebanon, Syria and Iraq, not to mention Israel. And how about the Kurds spread over Iraq, Syria, Turkey and Iran, who have declared their independence on 27th September 2017? Will they allow their aspirations for their state to be quashed for much longer? It is obvious that the old state borders of most Middle East countries are almost non-existent, and therefore these regions will fragment into stateless areas ruled initially by a local warlord. So, expect continuous bad or even very bad news from that area.

The current attitude of major powers and regional organizations such as EU or ASEAN is only making this risk even more credible. Mass economic migration (not to mention war-related wave of asylum seekers) now poses the most serious threat to Europe's stability since the end of the Cold War, and probably since the end of the Second World War. What can we do about it?

And this is the second option. The EU seems to be finally doing something that may be the beginning of a new policy in this area. In November 2017, French president Emmanuel Macron announced that the European Union and African Union would launch "concrete military and policing action" to rescue African migrants enslaved in Libya and arrest human traffickers. That was the result of the EU-pledged 'Marshall Plan' for Africa of €44 billion at a summit in Paris. The plan could see up to 15,000 people flown out of Libya to their native countries. It is a step in the right direction but

far inadequate to the scale of effort needed to stop massive economic migration at bay. That could only be done by creating Global Wealth Redistribution Fund.

The need to make a more just and equal global society

Stopping massive migration is similar to raising a 7m high wall between Mexico and the United States that Donald Trump has initiated. It will not resolve the long-term problem. We need much more than just sending these economic migrants back home. They, and their countries, need help on site, both economic but also in education, health, infrastructure projects, and in building more just and equal societies there.

But some of today's richest countries, such as Britain, France, Spain, Portugal, Holland or Belgium are also the former colonial powers. I know that from today's morality point of view, it would be very easy to judge people harshly who inflicted such injustice and pain like massive slavery and robbery of resources. We can never excuse that although we can understand how these God-fearing people could at the same time treat their slaves as herds of animals. How was it possible that the death penalty in Britain was only abolished in 1965? Morality changes and that is why we cannot judge our ancestors using today's morality, as the future generations should not do to us. In any case, we cannot fully compensate the victims in these countries in any other way than providing material assistance. They deserve in principle to be helped to achieve by the end of this century, the same life style as we have. The only way we can achieve that is through a programme such as the Global Wealth Redistribution Fund.

Instilling Universal Values of Humanity to all parts of the world

I could easily imagine people reading this title and making a connection with the Spanish Armada's mission to spread Christianity in Americas. I could also see the associations with President Kennedy's Peace Corp programme, and perhaps some others, such as the EU Cohesion Programme, in which countries will get the EU help if they stick to the EU values. Well, I can only confirm that I would indeed wholeheartedly support the Global Wealth Redistribution Fund to be used in an effective way to exert some pressure to eliminate corruption, set up the rule of law and democratic principles based on the Universal Values of Humanity. This is nothing of the kind 'I know better what you need' in this requirement. We must all live in the world of peace, simply to survive as a species. We must all stick to the same principle of co-operation and mutual respect and understanding of what human life is about.

Additionally, we need to ensure that all money transferred in various projects will have a maximum positive effect and reach those who really need it. That is also part of fairness and mutual respect covered extensively in the Universal Human Values. Only then will a comprehensive decades-long programme of significant financial assistance in the form of Global Wealth Redistribution Fund make real lasting change in making the world a more peaceful and materially equal.

Setting up Global Wealth Redistribution Fund

For the world to achieve long-term prosperity and peace, wealth distribution is the most obvious and urgent task. The fastest way to do it is to emulate the current European Union cohesion programme, which is in fact a wealth distribution system to which each country donates 1.23% of its GDP. You may be surprised that something like this exists. But that is exactly the grand idea behind the European Project, especially successful, at least in economic terms, for the 10 countries that joined the EU on 1 May 2004. All of these countries had much faster GDP growth since then, even in the recent financial crisis period. All of them also have a national debt level far below the “old EU” countries. Similar projects led earlier to significant economic boost in countries like Ireland, Spain, Portugal, and also in Greece.

This ambitious programme would be administered by the Global Wealth Redistribution Fund (GWRF) and mainly funded by the European Federation. At the moment, UN recommends that each country contributes 0.7% of its GDP to developing countries to deliver its 169 targets of Sustainability Development Goals (SDG) signed by 193 countries. This is a non-binding commitment to the UN. Apart from the UK, only 5 countries (Sweden, Norway, Luxembourg, Denmark and the United Arab Emirates) meet this obligation fully, with Britain being the only G7 country, where this commitment became the UK law in 2015. All the EU countries have pledged to meet that target till 2020.

I would suggest setting up of the GWRF as soon as possible, even before the creation of the European Federation, say by the middle of the next EU Parliament in 2022. That may be needed and used as an emergency fund to control any large-scale migration wave or other unexpected events. It could be considered a kind of an insurance policy on one hand and the ethical thing to do on the other.

The UN SDG goals should be a starting point for funding the GWRF. I propose that until the creation of the European Federation, all EU countries contribute only 0.3% of their GDP to the UN SDG. The remaining 0.4% should go directly to the GWRF Fund, as it is informally being done right now, by channelling part of the money into the projects administered directly by the donor countries. EU Associate Members, such as Turkey or Georgia, should be encouraged to do the same by signing an agreement with GWRF. One of the requirements of the EU cohesion programme is that each recipient state also pays the same contribution to the programme as the donor countries (1.23% now). Additionally, once the projects have been approved by the EU, the recipient country must contribute from 10% to 40% of its own capital. However, because of the specificity of some recipient countries, which may be among the poorest in the world, the GWRF should work on a different basis than the EU cohesion programme. Therefore, I propose GWRF programme to be set up as follows:

- The GWRF should start its operation by 2022
- All donor countries would become members of the GWRF

- Any recipient country that wants to benefit from the fund must first sign an EU Association membership and later on become a member of the European Federation Association Area (Zone 4)
- Additionally, any recipient country that wants to benefit from the fund must also become a member of GWRP
- All members of the GWRP must pay their initial contribution to the GWRP of 0.4% of their GDP in the year of accession to the programme
- All members commit to increase their annual contributions to GWRP by 0.15% each year, until it reaches 2% of their annual GDP in 2030
- The recipient countries would additionally make a flat 15% contribution to the cost of each project carried out in their country

Should the fund be set up in 2022, then in 2030, the predicted year of setting up of the European Federation, the contributions in that year would amount to about 2% of GWRP members' GDP. That would be more than twice the current UN SDG goals. The combined EU's and some Associate members' GDP, will be worth about \$30 trillion in 2030. That would make the EU's 2% contribution worth about \$600 billion. If we consider the contributions from just the African countries, then their predicted GDP in 2030 is estimated at about \$5-6 trillion, which will make their contribution to the GWRP in that year (if they all join) worth about \$100 billion, plus an estimated \$50 billion contribution to the projects. Therefore, the total new capital injected to GWRP in 2030 could amount to at least \$800 billion because countries from other continents may also want to join, which would increase the overall pool of money available for investment.

However, to stop massive migration in its track, the future EF will have to do much more than that. During the first two years of the EF's operation the annual contributions should be frozen because of huge organizational changes and other challenges that the EF may face. However, for the period 2032-2040 EF contribution should gradually double to reach 3.5% in 2040 by continuing the annual contribution increase of 0.15%. When considering the GDP's much faster growth than ever before in that decade, and an increased number of new EF members, the injection of the new capital from the EF alone could reach about \$2.2 trillion plus estimated \$500 billion from the recipient countries in 2040. Thus, the total annual contribution from all GWRP members would be worth about \$2.7 trillion in 2040, equivalent to about 25% of the entire GDP of Africa in that year, although of course the GWRP projects will be spread on all continents, not just in Africa.

All projects would be closely monitored, as would be the expenditure from the current EU social cohesion fund, drastically reducing corruption, ensuring the project complete on time and on budget. It would also boost the world economy, especially in infrastructure projects, transferring not only the capital needed but also a wide range of skills to developing countries. The overall objective should be to raise the GDP per capita in poorer countries much faster than the world's average. For comparison, in 2016 the world's average GDP per capita was about \$10,000. In Africa, the poorest continent, it was \$1,809, i.e. 5.5 times lower than the global average. The projected

growth for 2030 for the world's average GDP per capita is about \$14,000, i.e. 40% growth (212). For the transfer of wealth from the rich countries to poor countries to be meaningful, the GDP growth per capita in the poor countries, should be at least twice that fast (due to external help) as the world's average. Should that happen, then in 2030 the poorest countries' GDP per capita would be about 3.5 times lower than the global average, and about 2.5 time lower in 2040.

Such transfer of wealth should also minimize the risk of mass economic migration, although the effect will really be felt only from around 2030. As I mentioned many times in this book, the period till about 2040 may be quite dangerous for the world in many domains, including socio-economic area. One of the most difficult problems that will become apparent in the second half of the 2020' will be the Technological Unemployment described earlier. However, it will affect the poorer countries significantly less than the more affluent ones. The poorer countries could even play a role of lessening the negative effect of Technological Unemployment, if the funds like GWRF become significantly large. Potentially unemployed people in the richer countries could find work in the developing countries both on large infrastructure projects, and in education and apprenticeship programmes helping to upskill millions of people.

The donor countries' governments will have a formidable task to convince their taxpayers to pay higher taxes to finance such ambitious programmes. To make it easier, such a financial commitment from the governments must be more visible, like it was with climate change 15 years ago. At that time, in many countries the public was informed once or twice a year, using the traffic lights information system on the progress of environmental clean-up and green energy uptake. Similarly, it should be done for the investment in the GWRF fund both for the donor and the recipient countries.

Particularly important could be the information on the effectiveness of the investment in the recipient countries. Although the money invested in any given country would come from many sources, it would still be of interest to general public to know what is happening with the money and how effectively it is being used. With some countries lagging significantly behind in delivery and effectiveness of the projects, public pressure to improve the situation might be quite helpful. In any case, transparency on such a large-scale programme will be a key factor motivating taxpayers to continue paying the country's contribution.

During elections, parties should very clearly explain, avoiding political correctness, why such significant amount of money is being paid to poorer countries. The arguments mentioned earlier such as controlling mass migration by creating decent and safer living conditions in the recipient countries, or just long overdue moral obligation for the former colonial powers to help those countries, should be clearly articulated in party manifestos and the government's annual budgetary statements. Overall, supporting such a transfer of wealth is probably the most effective way of combating quite a few risks linked to Global Social Disorder. It is simply the best insurance policy.

A Global Welfare State for developing countries

Most developed economies have welfare states, which cover many sectors. The most common is of course the health service such as free of charge British National Health Service, free education and extensive social services helping people in need. Welfare state varies across the world in its funding and generosity, but the principle is always the same: people going through periods of ill health or unemployment receive direct support. That support is usually in-kind (e.g. low cost or even free social housing) and additionally in cash, e.g. child support allowance or winter fuel allowance. The assumption is that to address social ills, the government has to give help to the people in need and that costs money.

The picture is very different for international aid, both development aid to economically underdeveloped countries, and emergency assistance after disasters or wars. Donor organisations and countries rarely hand out cash, generally doing so only in emergency situations. Most humanitarian aid comes from a huge and complex network of organisations delivering many different kinds of aid.

Depending on your view on international help, some people would see it as a very positive humanitarian assistance delivered by strongly motivated people, quite often volunteers to deliver expertise and well-targeted interventions to people who need it. Other people on the opposite political spectrum may instead talk about high salaries for international staff, incoherent investment programmes and long and expensive supply chains for delivering goods that could be supplied locally. As always, there is some truth in both views.

Without going too much into detail, I would like to sketch how some percentage of the money delivered to the recipient countries could be best spent helping directly individual people. You can call it a wish list combined with some ideas on how to minimize the suffering of people who are at the absolute rock bottom of the world's personal income table like those with GDP per capita of less than \$1,500 per annum (in International dollars).

Poorest countries in the world in 2016 ⁽²¹³⁾

Rank	Country	2016 International Dollars
1	Central African Republic	656
2	Democratic Republic of the Congo	784
3	Burundi	818
4	Liberia	882
5	Niger	1113
6	Malawi	1139
7	Mozambique	1228
8	Guinea	1271
9	Eritrea	1321
10	Madagascar	1504

Below is my wish list of measures that could be applied for the poorest countries financially supported by the GWRP. Each recipient country would have to be a member of GWRP and the EF Association Area (Zone 4). My assumption is that it would fully work from 2032 (two years after the creation of the EF), although if the GWRP fund is created earlier, some elements of the programme proposed here could be introduced on a pilot basis in some countries.

The cap for this kind of help for qualifying countries would be an annual GDP per capita equal to \$1500 in 2016 (as in the table, although by 2032 the countries and the amounts, including the cap, may change significantly). All numbers are of course examples only. The programme would have to be properly costed before it is introduced on a full scale. Some countries might have already implemented some of these suggestions, such as a minimum living wage, in which case, the money due would be invested in the country's projects. Here is my wish list:

1. Introduce unconditional Universal Basic Income (UBI) for all adult citizens. That income would equal 20% of the average wage but no more than \$500 per annum (valued at 2032 level). It would be funded by GWRP - 70% and the recipient country - 30%.

There was already a similar programme ran in Namibia from January 2008-December 2009 by the Basic Income Grant (BIG) pilot project commenced in the Otjivero-Omitara area, about 100 kilometres east of Windhoek. All residents below the age of 60 received a Basic Income Grant of N\$100 (about US \$9) per person per month (about US \$40 per average household, i.e. about \$500 p.a. per household), without any conditions being attached. It produced some interesting evidence on the impact of UBI in developing countries as the final Report from that pilot project concludes: "The village school reported higher attendance rates. Children were better fed and more attentive. Police statistics showed a 36.5% drop in crime since the introduction of the grants. Poverty rates declined from 86% to 68% (97% to 43% when controlled for migration). Unemployment dropped as well, from 60% to 45%, and there was a 29% increase in average earned income, excluding the basic income grant. These results indicate that basic income grants can not only alleviate poverty in purely economic terms, but may also take the poor out of the poverty cycle, helping them find work, start their own businesses, and attend school" (214).

2. Introduce conditional Universal Supplementary Benefit for those in employment for at least 16 hours a week. It would amount to 20% of country's average wage with a cap of \$500 p.a.
3. Introduce minimum living wage which would be at 60% of the average wage. Unconditional and conditional Income would count towards the living wage
4. In countries with very high unemployment introduce massive job sharing, where for every job shared GWRP would pay extra 30% of the original wage of a full-time job
5. Introduce state pension financed from contributions (employee 30%, employer 30%, the state 40%)

Chapter 11

How to finance the Global Welfare State?

Where to find the sources of finance?

If the EF is to finance its Global Welfare State, as presented in Scenario 5, including the Global Wealth Redistribution Fund, it would need substantial capital. What would be the source of such capital that would support the needs of the EF itself, as well as the programmes envisaged for the members of the subsidiary zones, which by 2040 may include more than half of the World's population?

To answer this question, I will present several sources of capital or significant cost reductions in most sectors that should be available from 2030 and by increasing annual contribution, the total capital should be sufficient to cover the spending target in 2040. These are:

1. **Tax rise.** This is the most typical source of finance for every government, although in this case even more important is the reason for doing that and its ultimate outcome
2. **Significant fall in prices.** This could be a direct fall in prices (low inflation or even deflation) and indirect, through product substitution and product efficiency (much greater value)
3. **Substantially lower cost of government** achieved by highest level of process automation and self-service
4. **Significant redistribution of wealth** from extremely wealthy individuals by limiting the maximum value of assets a person can hold. Any excess would be 100% taxable, although an individual could direct up to 30% of the excess to a nominated charity
5. **Much higher than predicted GDP growth.** This source is rather unusual, since it involves turning a problem (too low GDP growth) into an opportunity (much higher growth than would have been expected)
6. **AI-generated new type of wealth,** most of which would normally not be included in the GDP growth. This is the generator of wealth in every aspect. I immediately admit, that a lot of the savings in this category will impact the fall in prices, or will have already been in some way included in the previous sources. However, there would still be some 'leftovers' which are difficult to quantify and will emerge as new capabilities, never possible before, e.g. humanoid assistants providing elderly care in care homes.

Let me now put some detail on these proposals.

Raising taxes to achieve a higher level of overall life satisfaction

There is little correlation between higher taxes and higher level of happiness, or what I would prefer to call contentedness, as measured for example by the UN's Human

Development Index. Much more important is the government's efficiency, the strength of democratic institutions, which is directly linked to the level of corruption. Taxes should be a means to an end and not the source for an easier ride for the government to fulfil its sometimes entirely ideological commitments. And yet, the 2018 UN World Happiness Report ranks four Scandinavian countries at the top of the list, with Sweden still making it into the first top ten (215).

Top 10 happiest countries, 2018 (2017 ranking in brackets)

1. Finland (5)
2. Norway (1)
3. Denmark (2)
4. Iceland (3)
5. Switzerland (4)
6. Netherlands (6)
7. Canada (7)
8. New Zealand (8)
9. Sweden (10)
10. Australia (9)

Why is Finland at the top of the list of the happiest people in the world, a country of 5.5 million people that only 150 years ago suffered Europe's last naturally caused famine? After all, GDP per capita in Finland is lower than even in its neighbouring Nordic countries and is much lower than that of the US. As all Nordic countries they pay some of the highest taxes in the world (52%). But the Finns are good at converting wealth into wellbeing delivered by efficient and effective government. That's why just paying higher taxes (about 59% in Belgium) does not necessarily correlate with life happiness. In Finland there is wide public support for higher taxes because people see them as investments in a good quality of life for all. The country has also been ranked as the most stable, the safest and best governed country in the world. It is among the least corrupt and the most socially progressive country with its police being the world's most trusted and its banks the soundest.

As you may have noticed, the Scandinavian system of government is for me one of the best overall in the world. Yes, Switzerland is an exception, as it is in many other aspects of government, having much lower taxation level and still being the 5th happiest country in the world. It is the country that did not have a war for 800 years, so its wealth had been accumulated for a very long time. Therefore, it is not a good argument that one can have a high standard of living, while also paying low taxes. If the government is efficient and effective, then higher taxes (at a certain level that would not stifle the economy) would simply mean better economic and just social personal outcome. That means the projects financed by the government, such as in transportation, are delivered on time and on budget.

In summary, the EF will need higher taxes to finance its Welfare State than the average EU tax level now.

Significant fall in prices and a faster growth of real income

By 2040, we will be in the period of continuously falling prices and a faster growth of real income, i.e. demonetization of the cost of living. This would mean that it will be cheaper and cheaper to meet people’s basic needs. It will be driven by exponential growth in technological solutions and innovations in most sectors leading to significant cost reduction in clothing, health care, housing, transportation, food, education, or entertainment. Just think about this: the real value that is delivered to all of us, like Google applications, GPS, and other similar technology-originated services is not included in GDP because it is free! If you were to pay for the facilities and services that you have on your mobile phone in 2011 US dollars then they would be worth about \$900,000 (today, in 2018, they would be worth \$1million, not to mention their vastly superior quality, and unavailability of some services in 1982, like personal weather forecasting). Another example, video conferencing equipment in 1982 cost about \$250,000 (to that one would need to add the actual cost of carrying out the video conferencing), which in 2018 money would be \$600,000. Today, WhatsApp application that anybody can have on a smart phone is entirely free. Perhaps you only now realize that the phone you hold in your hand makes you a millionaire, as this table proves so clearly.

Dematerialization					
>\$900,000 worth of applications in a smart phone today					
Application	\$ (2011)	Original Device Name	Year*	MSRP	2011's \$
1. Video conferencing	<i>free</i>	Compression Labs VC	1982	\$250,000	\$586,904
2. GPS	<i>free</i>	TI NAVASTAR	1982	\$119,900	\$279,366
3. Digital voice recorder	<i>free</i>	SONY PCM	1978	\$2,500	\$8,687
4. Digital watch	<i>free</i>	Seiko 35SQ Astron	1969	\$1,250	\$7,716
5. 5 Mpixel camera	<i>free</i>	Canon RC-701	1986	\$3,000	\$6,201
6. Medical library	<i>free</i>	e.g. CONSULTANT	1987	Up to \$2,000	\$3,988
7. Video player	<i>free</i>	Toshiba V-8000	1981	\$1,245	\$3,103
8. Video camera	<i>free</i>	RCA CC010	1981	\$1,050	\$2,617
9. Music player	<i>free</i>	Sony CDP-101 CD player	1982	\$900	\$2,113
10. Encyclopedia	<i>free</i>	Compton's CD Encyclopedia	1989	\$750	\$1,370
11. Videogame console	<i>free</i>	Atari 2600	1977	\$199	\$744
Total	free				\$902,065

*Year of Launch

Source: Peter Diamandis and Steven Kotler: “Abundance: The Future Is Better Than You Think”, 2015

In 2040 it would be even more spectacular and it is likely that most of the things you appreciate will come free of charge. So, in 20 years’ time we may be living in a world of abundance, at least twice as rich as today in real terms. Objects of desire previously beyond reach of an average consumer will become **affordable**. If we only assume a very conservative doubling of GDP **in real terms** in 2040 that would make today’s EU average personal net income of €20,000 per annum equivalent to what will then be the ‘poverty line income’. That means, as indicated in Scenario 5, **everybody in 2040 would have as a minimum today’s EU average income in real terms, even if he would not work.**

Peter Diamandis in his article 'Why the Cost of Living Is Poised to Plummet in the Next 20 Years' points out that in the U.S, in 2011, 33% of an average American's income was spent on housing, followed by 16% spent on transportation, 12% on food, 6% on healthcare, and 5% on entertainment. In other words, more than 75% of Americans' expenditure covers: Transportation, Food, Healthcare, Housing, Energy, Education and Entertainment (216). Let me use this data as a starting point for identifying the savings in 2040 in each of these sectors, starting with food.

COST SAVINGS IN VARIOUS SECTORS in 2040

Food

The cost of food at home in the US has dropped by more than 50% in 40 years. In 2040 most food will be manufactured from basic organic compounds, including oil and some minerals as feed for specially selected stem cells for a given product such as beef, chicken, fish or venison. That will be agriculture of the future, which will be extremely environmentally friendly with no fertilizers, no pollution and occupying less than 1% of today's farmland in developed countries. Additional gains will be made from significant reduction in cost of transport since most food will be produced locally. Even today, as mentioned earlier, 11 million hamburgers are produced from cultivated stem cells by just one manufacturer (still costs 3 times more – about \$11, but is much healthier and tastier!). The whole process for a single stem cell to produce a hamburger takes about 9 weeks (217).

Healthcare

Healthcare can be split into four major categories:

- **Diagnostics.** AI has already shown that it is able to diagnose cancer patients better than the best doctors, image and diagnose pathology, look at genomics data and draw conclusions, and/or sort through gigabytes of phenotypic data. The real cost will be the cost of electricity and maintenance. The cost of genome sequencing has been falling much faster than exponentially. In 10 years, it has fallen 100,000 times. In the UK by 2020 500,000 people will have their full genome sequenced and analysed (218). So, within the next 10 years all UK population will have their full genome scanned, enabling doctors routinely use a patient's genome data to individualize application of medicines, e.g. avoiding side effects, which are usually genome dependent.
- **Intervention and Surgery.** In the near future, the best surgeons in the world will be robots, and they'll be able to move with precision, and image a surgical field in high magnification. Each robotic surgeon will be able to call upon the data from millions of previous robotic surgeries, outperforming the most experienced human counterpart. Again, at negligible cost. By the way, it has been already happening for the last 17 years, with Da Vinci medical robot. It is only the cost that has prohibited its wider use. That cost fell to \$2M from \$2.5M in 17 years, very slowly

and a typical robotic laparoscopy costs about \$3,500 more than carried out by a surgeon. However, the competition from the British made Versus medical robot, which is to enter operating theatres in 2018, will significantly lower an average cost of surgery, so that it will be at the same level as carried out by a human surgeon.

- **Chronic care and elderly care.** Taking care of the aged and chronically ill patients will again be carried out most efficiently by robots. Humans will still be needed to deliver psychological, mental and palliative care.
- **Medicines and some human parts like kidneys or hearts.** They will be discovered and manufactured more efficiently by AIs, 3D printing machines, which will also do self-assembly.

Housing

- The building process is already being revolutionized by robots who build entire block of flats, and hence the scale will reduce the cost. The second reason is that people will only occasionally drive to work, working mostly from home and therefore will be able to live in areas outside the city centres, which are far less expensive.

Transport (autonomous cars)

- These cars are becoming reality as I write this book. But the same will apply to public transport, which will be completely autonomous, and just more reliable (no strikes), safer, and significantly less expensive. Well before 2040, the commuting time will become the time to read, relax, sleep, watch a movie or have a meeting.

Energy

- Today, the cost of solar energy has dropped to about \$0.03/kWh, which is on par with the cost of electricity from some coal power stations. It will drop even further in the next few years by using almost twice more efficient solar panels.
- Scientists have been recently making significant breakthroughs in nuclear fusion, which is to deliver the first power station driven by its energy by about 2030.
- Most scientists also agree that by 2040-2050, the main energy source that we will use has not been invented yet (e.g. gravitons - think about the consequences of such an exponential change in energy production and use).

Education

- Education has already been demonetized in many respects, as most of the information you'd learn in school is available online for free. Here are some examples of free or nearly free Internet academies: Coursera, Khan Academy, Harvard, MIT and Stanford. Each of them has thousands of hours of high-quality instruction online, available to anyone on the planet with an Internet connection. But this is just the beginning. As I mentioned earlier in Scenario 5, very soon the

best professors in the world will be AI enabled Personal Teachers, which will know the exact abilities, needs, desires and knowledge of a student and teach them exactly what they need, in the best way and at the perfect rate. This is available right now. Think about the vast reduction of direct cost of education and indirect cost, fewer teachers (with entirely new skills) and smaller Universities.

Entertainment

- Entertainment such as video and gaming will cost close to nothing. Most of it will of course be in the form that we cannot even imagine, such as 5D hologram TV with synchronous sensitising, i.e. dispersing various smells, or creating surfaces of different texture that one might touch, etc.

Substantially lower cost of government

This is a significant area of cost savings that will directly impact the EF budget. Potential savings here on the scale we cannot even imagine because a lot of these savings will be generated by the inventions that are not there yet. So, let me give you only some examples of those savings:

- All taxes and benefits will be collected and distributed with almost no human intervention. This will be the continuation of the process started in earnest about 2000 in all EU countries
- Cost of running Health care and Medical care will fall dramatically as indicated above
- The same is true about education, which will make a very intensive use of robots and AI education agents that will co-operate with teachers. There will be far fewer teachers needed with AI assistants. Those most needed will be behavioural and psychology specialists playing a very important part in the overall education
- The cost of the army will also be reduced in relative terms because human soldiers will mainly become the operators of cyber soldiers. Most vehicles and planes will be fully autonomous vehicles. Ship crew will also be significantly reduced. The armour and the equipment costs will be significantly lower because of robotization.

Significant redistribution of wealth

The gap in wealth distribution between the richest and the poorest both in developed countries and world-wide is rising every year even faster than before, as indicated at the beginning of this chapter. That process cannot continue for two reasons. First of all, it is dangerous for the democratic system itself and is ethically unacceptable. This is the consequence of course of the crisis of capitalism and the way in which wealth, or sometimes pseudo wealth (i.e. trading in most derivatives) is generated.

Therefore, there should be a wealth cap put on the maximum value of assets an individual can hold, perhaps \$100M, as I mentioned earlier. That one-off wealth tax

should go back to the state, which should re-distribute it progressively over years to reduce the imbalance in wealth distribution.

Higher than predicted GDP growth

All governments rely on budgets and budgetary forecast, especially for longer-term planning and making decisions on large infrastructure projects. And so, it would be with the EF. Before EF starts its ambitious socio-economic programmes, on the scale not ever seen before, like the ones in Scenario 5, it will have to count its money, it will have to look at its GDP growth projection, say 10 years ahead. If the expected GDP growth falls short of expectations, which has been mostly the case, it usually leads to significant budget deficits and the growth of national debt. However, what happens if the projection of GDP growth erred on the pessimistic side? That would mean that a number of potential projects that could have been included in the long-term national development plan, such as infrastructure projects, may have been totally excluded, as 'unaffordable'. Therefore, reasonably accurate GDP calculation is quite important. In the UK, for the last 10 years, the GDP projection is made by an independent body – Office of Budget Responsibility. In most countries, it is still being done by the government itself.

However, the inaccuracy of GDP calculation today may be a relatively small problem. In calculating GDP growth rate for 2040, we may be several times off the real figure. Let me support this supposition with some examples.

OECD in its long-term forecast assumes 3% annual growth rate for OECD countries between 2015 and 2040 (measured in Purchase Power Parity dollars, reflecting the real purchasing power of a basket of goods) (219). PWC assumes the GDP growth rate in developed economies over that period between 1.5 to 2.5% (220). Most of the long-term projected GDP growth ratio for developed countries oscillates around 2.5%. How credible is such a long-term growth rate? In my view it is not very credible. Who is right - orthodox GDP growth setters, or entrepreneurs and fringe economists? Right, in my view, are quite probably those people who do not have a vested interest in retaining the status quo. We face a similar situation today as regards the actuarial data that support the calculation of pension funds and their long-term liabilities. In most cases the data provided by actuaries is hardly credible. However, since the data is prepared and used by people who have a vested interest in pretending that everything is all right (that pension contributions are adequate to pay future pensions), the contrarians have little chance to win the argument.

In many forecasts, almost everything depends on initial assumptions. One of the keys such assumptions is that change in all domains will broadly happen at the same pace as before. The reason for that is that there is simply no other data that could be the basis for assuming something entirely different as far as the GDP growth rate is concerned, i.e. rising suddenly much faster than linearly (as it must have because of the unprecedented AI-driven technological revolution).

Most economists still assume that the four components of productivity growth: labour, capital, technology (resources) and organization/entrepreneurship will grow largely unchanged as before. They seem not to appreciate how substantially the role of one of the growth factors – technology – has changed over the last decade and that its productivity growth is now reaching the level of Moore's law, i.e. doubling every 18 months. That's why the vast majority of economists still assume that the global GDP growth over the next 20-30 years will rise at about 2.5-3% p.a. That would mean that the world's GDP growth would barely double by 2040. Well, economists, governments and in general orthodox thinkers and planners have been spectacularly wrong on many occasions. Let me give you some examples:

- 2008 financial crisis. Nearly all major economists, Harvard, MIT, have not predicted that catastrophic failure because they believed Milton Friedman's assertion that markets know best and they will re-adjust themselves.
- 2015-2016 migration crisis in Europe. One of Germany's justifications for letting the migrants in was that Germany will need 10 million new employees by 2030. As I have shown earlier, the reverse is almost certain to happen, there may be more than 10 million Germans unemployed in 2030.
- In Technology, Elon Musk with his Space-X Falcon 9 rocket, has within less than 10 years with his team achieved something that NASA or any other governmental organization were not able to do, i.e. to reduce the cost of payload vs. Saturn 5 rocket by about 20 times, among others, by re-using the same rocket (221).

That is why I am saying that the establishment is the least credible body to make correct judgments because of vested interests. The same goes for the GDP growth rate calculations. Take another example. In the most recent USA election, Mr Trump promised to repatriate largely manual jobs from China back to the USA, especially to the automotive industry. That was grossly misleading as it was simply impossible for many reasons. One of them is the fact that the American automotive industry has received since 2008 crisis, billions of dollars in direct or indirect aid, for restructuring their industry. The result is that it is now a significantly different industry with a much higher productivity than before. All thanks to the very latest technology. At Ford or GM, an hour of a robot costs now \$8 against £25 for a blue-collar worker. Even stiff custom duties proposed by president Trump could not change this situation. That kind of increased productivity like the one at Ford or GM, is still not properly being included in GDP model calculations, because it is like trying to hit the moving target, the data change too rapidly and is unstable.

But there are also other factors that point to GDP undervaluation. The global GDP is also undervalued because of purposeful action of some governments e.g. China, which undervalues its currency to boost export. Of course, if GDP is calculated in the same way, its growth rate will not be impacted. However, what will change is the real value (substance) that will be delivered, or how much more purchasing power we will have. What I mean by this is that every year we consume more than would have been expected from the GDP growth alone. The "Economist" magazine has for many years calculated the GDP value by the number of hamburgers that can be purchased in any

given country to reflect the meaning of real value (Purchasing Power Parity). In every country, the actual real value of goods delivered year by year is higher than the GDP growth would have indicated, and which partially forms the black economy (only a small part of it is by default included into GDP and in taxes).

Therefore, GDP growth will not be following the previous path. Instead, fuelled by relentless robotization and innovation, sometimes even exceeding exponential growth, (e.g. previously mentioned cost of artificial hamburger production fell 30,000 times in just three years) (222), GDP growth will be much faster even in developed economies. This perception of more or less the same GDP growth is mainly due to missing the moment when change has passed the tipping point (called “knee of the curve” by economists) and from when change is accelerating exponentially. I believe we are just about that point, which means GDP growth will accelerate faster than orthodox economist envisages. For example, the whole agricultural sector in 20 years’ time will look entirely differently than today, because it will be cheaper to produce most food from basic chemicals, which you may think would be distasteful, but which actually is the other way around.

Similar growth will be achieved in the productivity of various medicines (cutting down the time from a medicine discovery to the time it can be bought at a pharmacy), education, e.g. how quickly and how much more thoroughly, one would be able to educate an average person. We should, therefore, expect the GDP growth in real terms much more than just double by 2040. That will be the additional sizable income, which will allow financing new social arrangements, like Universal Basic Income (UBI) and the Global Wealth Redistribution Fund.

CONCLUSIONS

It is worth reminding ourselves that 99.9% of species that have ever lived are now extinct. There were a dozen humanoid species, such a Neanderthal, which was extinct less than 40,000 years ago. Even our own species was almost extinct about 75,000 years ago because of the Toba super volcanic eruption, whose effects lasted 1000 years and left between 3,000-10,000 humans alive. Yes, apocalypses have been a constant theme in the history of planet Earth. But this book is largely about man-made, anthropogenic apocalypses. There is probably little point in discussing natural catastrophic events such as a large asteroid impact, over which we may have no influence at all, at least not now.

I started the book by identifying top 10 existential risks, grouping them in three categories. Let me repeat them:

- Risks that may become **existential within days** or even hours:
 1. Global nuclear war
 2. Weaponized AI or cyber soldiers
 3. Engineered pandemics and synthetic biology
 4. Natural pandemic
 5. Nanotechnology and experimental technology accident
- Risks that may become **existential progressively**:
 6. Climate Change over a long time (at least a century)
 7. Superintelligence in a short time (a few decades)
- Risks that may become **existential because of combinatorial effects** (from days to decades), which I call Global Disorder risks:
 8. Global Social Disorder, including global migration as a ‘special’ multi-faceted risk
 9. Global Economic Disorder
 10. Global Political Disorder

We also have Unknown Anthropogenic risks, of which we must be aware because they most likely may become existential, if combined with other less significant risks such as social disorder. But there is one additional risk that we need to consider. **It is the risk that we may do nothing and just sit and hope for the best.** WWI could have probably been avoided because the real reason for starting it was not the assassination of the Austrian Archduke Franz Ferdinand. Neither, was the cause of the WWII, Poland’s refusal to give Hitler the right to create a corridor through the territory of Poland leading from German Reich to the free city of Gdansk (Danzig) and Western Prussia.

The real reasons triggering both wars were combinatorial and included the competing forces of rising nationalism, militarism and **expansionism** (Germany was not a superpower neither before the WWI or WWII – hence Hitler’s motto – Germany needs ‘Lebensraum’ – living space). But what finally led to both wars was to a large extent **the indifference among the politicians and populations of France and Britain**, who did not see that the wars far away from their shores (1912-1913 Balkan wars in WWI, and 1938 annexation of Czechoslovakia/the Munich treaty, in WWII) would soon be fought on their doorsteps. Today, such ‘far away wars’ might be the Russian annexation of Crimea and the invasion of the Ukraine in 2014, contrary to the Budapest Memorandum of 1996, agreed by all superpowers to protect the Ukrainian independence, or the Syrian war. Is this not another sign of indifference to such events that may potentially lead to global catastrophes because they are ‘far away from our shores’?

In this context, perhaps Enrico Fermi, the Italian Nobel laureate in physics was right. His ‘Fermi Paradox’ suggests that the reason there are no civilisations on any of trillions of planets similar to ours, is that “once those civilisations have reached the level of self-destruction, that is precisely what they do – they annihilate themselves”. No wonder then that we have no evidence of their existence. We now have such a capacity. So, why should Humanity be an exception? This is a chilling and unwanted scenario that we all hope will not be fulfilled. But the question is that since we have already reached the level of self-destruction how can we avoid it, and become a civilisation that would escape the Fermi Paradox.

Perhaps humans survived so long as the only humanoid species because we have the ability to think generally in positive terms, an essential ingredient to evolutionary survival. Therefore, it does not have to be a utopian view that we can navigate existential risks and ultimately arrive at a world that is safer and more just, where the wealth is distributed much more fairly and people are generally content. Well, let’s look at some positive signs where the world is very slowly getting its acts together. The Ebola crisis has shown that the world can sometimes act very swiftly by abandoning the rule for the sake of urgently creating a viable solution. In this case it was a vaccine developed in just 6 months, rather than in several years if all the rules had been followed. Similarly, the Paris Agreement on Climate Change is not so important because of potential limitation of climate warming-related dangers, but that it happened at all. The fact that 196 countries and organizations committed themselves legally to fulfil its commitments, which may mean significant potential cost for some of the signatory countries, is very encouraging.

I believe we should now lay down the first paving stone on the road to a new better world that will be more sustainable with enough wealth to lead comfortable lives for everyone on the planet. Superintelligence, like some other discoveries, e.g. nuclear energy, will change our lives beyond recognition either very positively, or it may simply annihilate us all. Positive outcomes relate mainly to the unprecedented technological capabilities that could significantly improve the quality of our lives and give a new meaning to what our civilisation is about and how it may affect humans as

an augmented species. It may also enable the expansion of the human race beyond the solar system.

Today, we are still in charge and some time away from the Technological Singularity event, so we can steer the course to that momentous event, preparing Superintelligence to become our friend rather than foe. Therefore, we should make real effort right now to minimize the risk that Superintelligence takes over a total control over us humans. We must remember that the current generation does not only have the responsibility for its own survival but also for the survival of future generations of humans and other species. Some scientists think that humans as conscious beings could be unique in the whole universe. There could be intelligence somewhere else but it may not be conscious of its own existence. So, we have a huge moral reason to prevent existential threats from becoming reality.

The moment when it will be clear whether Humanity has reached the world of plenty, or has arrived at the edge of its potential extinction, is perhaps 20 years away, just one generation. At the same time, we need to recognize that human nature itself is the biggest risk and unfortunately, it does not change quickly. I do not believe that people can change their behaviour substantially, without any extra help, in just one generation, so that we, as humans, no longer pose the risk to ourselves. However, there could be some help coming from AI, in the shape of a Personal Life Mentor, which I mentioned earlier.

So, how to turn Humanity back from the cliff's edge in such a short time? Where would you start? I offer some answers in Part 2 - we need to start with reforming democracy. Realistically, politics is being made by politicians. But I doubt they would fundamentally change politics and democracy itself (including capitalism and wealth distribution). Just look at the UN, which is largely responsible for the impotence of Humanity to reduce existential risks. Therefore, in my view, counting on politicians alone to deliver such a change is not the best option, which would ensure that substantial change to the way we live can be achieved in such a short time. We must also directly involve millions of people who are acutely aware of what challenges for all humans lie ahead, as well as, what a wonderful world is within our reach, if most of us co-operate in delivering the required change.

My key assumption is that our planet needs to be navigated through a period full of most dangerous, multifaceted existential risks that can potentially annihilate Humanity, and which may last about one generation. By the end of that period we must be ready to be governed as an almost uniform planetary civilization. To minimize existential risks, we need to carry out significant changes in how democracy and capitalism work and how we share our planet's resources.

So, let me summarize the proposals that I have made throughout the book in just 20 steps:

1. To be meaningful, the proposed changes should happen across the globe, in every country and in every nation. However, this is unrealistic for it to be achieved in such a short time
2. Therefore, such changes must be introduced in most countries, leaving behind those that will not be ready to join within the next generation. That may create an additional risk of living next to potential adversary superpowers but the world has no other option.
3. Our Planet needs a navigator that will implement such changes; it needs a global organization, which at some stage will be converted into the World Government. At the moment there is no such an organization, certainly not the UN, which naturally should have undertaken that role.
4. Such a global organization should take charge of the large part of the world's affairs by about 2030 because it would take at least 10 more years for its decisions to have some impact.
5. Additionally, we must complete the task of containing the AI uncontrolled increase of capabilities by about 2030, before it will be smarter than humans, even in just a few domains. That would mean we would have effectively lost control over the shape and speed of AI development.
6. It is impossible to create a new organization in about 10-15 years, seeing that it took over 20 years to come to the legally binding Paris Agreement on climate change, which is far less complex than the scope of the proposed organization.
7. The only other option is to adapt the existing organization to do that. From the analysis carried out it looks that the best candidate would be the European Union, if it becomes a multi-zone Federation and gradually takes over the role of the World Government. The other option could be NATO (with additional functionalities) or... China (a lesser evil than the extinction of all humans).
8. The way the European Union has evolved might lead to a Federation in the long term by default. However, the scope of change that is needed will almost certainly have taken too long. A federation is a necessary means to an end, which is deep reform of democracy, capitalism and the way we coexist with each other, and with other nations.
9. Therefore, to stimulate and accelerate the changes in the EU, there have to be supportive actions in each of the EU countries. The most natural way, would be to start with intellectuals and the people understanding the need for such a paramount change who would do a kind of signposting for the direction of travel.
10. One of the best approaches of how to do that is the Danish party Det Alternativet, which already has some useful approaches practiced in the Danish Parliament and the network of associated organizations in many countries, including in the UK.
11. But the impact created by such organizations has to be deeper and faster. Therefore, there needs to be an additional layer built on such ideas that would engage millions of people prepared to vote in their own countries for parties that would commit to implement, or press for the implementation, of such changes.
12. That is why there needs to be a Europe-wide movement but working at a country level, similar to that, which led to the election of President Macron and a decade earlier – President Obama.

13. Such movement would not achieve fast results if it were to become a Europe-wide party for the EU parliament, as President Macron suggested in February 2018, although it should remain one of the actively pursued options. Faster results would be achieved by electing new MPs and supporting already elected MPs, who would be actively pressing their governments in each of the EU countries, to start the process of EU federalization as the first step to containing existential risks.
14. Once a sufficient number of governments support such a proposed programme of change then the next stage will be to initiate the creation of a new EU Constitution. That should start with the creation of the EU-wide national Sortition Assemblies, similar to the system used in Ireland in 2012, in all EU countries to debate the outline of the new EU Constitution and then send the representatives to the EU Constitutional Assembly to draft the Constitution.
15. The new EU Constitution might incorporate the principles of Consensual Presidential Democracy proposed here (or similar proposals), including the Universal Values of Humanity with the following elements (all key elements are listed for consistency, but of course not all, and not necessarily in the form outlined here, might be implemented):
 - Creation of the European Federation (EF). The scope of the Federation's power is very narrow with most laws and decisions made at the lowest possible level, i.e. where decisions directly affect the people
 - All previous EU member states manage their affairs largely as before, apart from foreign affairs, defence, and key economic policies such as interest rates, or income and corporation tax. They retain their right to leave the European Federation at any time.
 - All states' constitutions must be compliant with the EF's constitution, adjudicated by the EF's Constitutional Court
 - Respecting natural law, large regions have constitutional right, without seeking the permission of their current state, for self-determination and merging with neighbouring regions even if they cross the boundaries of former states
 - The EF has an open-door policy for a continual expansion of the Federation by countries, which fulfil its accession criteria. To fulfil this function EF has four subsidiary Zones:
 - Zone 1 - EF Convergence Area (for countries to join the EF in the next few years), with countries' Constitution compliant with the EF constitution
 - Zone 2 - EF Single Market Area, for countries that are ready to join EF but prefer to have some opt outs of the EF policies. Their constitution must, however, be compliant with the EF constitution
 - Zone 3 - EF Customs Union, which allows countries to have a seamless trade with the EF
 - Zone 4 – EF Association Area, for countries that may join EF in a distant future, by becoming first members of the 'upper zones. This is mainly intended for countries from outside Europe.

- The EF's electoral system combines First Past the Post (min. 50% +1) in the first round, with a system similar to the French, Two Rounds System
 - A weighted voting system not too complex and easy to administer, entitles everybody to the full value of the vote if certain criteria are met (all non-financial).
 - Referenda are substituted by Sortition Assemblies.
 - There are two Houses of Parliament. The Lower House consists of elected MPs and the Upper House (the Senate) consists of two Chambers, each having 50% of the seats: the elected Senators Chamber and the Sortition Senators Chamber, whose term would overlap the term of the elected Senators
 - There is a system of Presidency, with the President having significant powers but who makes most of the decisions in tandem with two vice Presidents (one from the majority party and the other one from a minority party). The President has the right to nominate and recall the Prime Minister.
 - The Government is formed by the Prime Minister who selects 4 key ministerial posts from among the MPs and the rest from an independently selected pool of technocrats. This will significantly increase the separation of legislative and executive powers. The Government must be approved by the Parliament.
 - The interests of electoral minority are always treated with utmost respect by applying the principles of consensual governance, with the Presidency being the ultimate arbiter, if the opposing parties cannot agree on certain decisions
 - There is a continual system of accountability of the President and the Government with simple and fast to administer recall procedures
16. There is a Federal Army, composed of national armies, which is part of NATO.
 17. The government introduces significant changes to protecting the invasion of personal freedom, company law, globalisation, de-monopolization of industries, private property, taxation, etc.
 18. There is a new type of Welfare State, which provides a wide range of benefits possible by a rapid growth of productivity and much faster than predicted GDP growth due to proliferation of AI-based robots. Additionally, there is a higher expectation for personal responsibility for one's well-being.
 19. There is a Global Wealth Redistribution Fund based largely on the EF's social cohesion programme with EF providing up to 3% of its GDP to the Fund in 2040 (projects are funded and monitored by the EF with the benefiting country contributing as well)
 20. Since there is no guarantee that it will be the federated European Union, which will undertake such a role, the proposed processes delivering the required change are largely generic, so that they could be adapted for another organization, such as NATO.

This summary of transformational changes that I propose above has no justification supporting these assertions. You should find them in various chapters of the book. I am aware that I have covered many topics from many subject areas to provide a unified view of the world around us, albeit at times simplified and superficial. Therefore, some errors in interpreting certain facts and drawing conclusions based on incomplete

evidence may have been made, for which I apologise. That is the risk of presenting such a wide range of subjects. Moreover, and I have to make this point again, this book is presenting my view and my solutions to the problems that we all face. I would be very happy if just some of the proposals materialize and another few become an inspiration for others to advance this kind of thinking based on Universal Values of Humanity and a deep-down consensual approach to politics.

Whatever thoughts you may have had while reading this book, I would like to encourage you to work hard for your own and others benefit to bring about the world I painted in Scenario 5. If you are broadly convinced that we need to mobilize all human and material resources to reach a world of abundance in just one generation then get active and start thinking really long-term. Have your own vision of a better world and join those who think similarly because only together, united by similar motives of preserving not just our lives, but also the lives of those that come after us, can we achieve that goal.

You can get engaged right now by visiting the website specially created for such purpose: www.sustensis.co.uk

GLOSSARY

Anthropogenic	Something of man-made origin, or caused by man.
Artificial General Intelligence (AGI)	An intellect that is much smarter than the best human brains in practically every field, including scientific creativity, general wisdom and social skills. I use the term Superintelligence in this book rather than AGI.
Artificial Intelligence	An intelligent agent or a machine that surpasses any human being, usually in just one or a few skills, but not all, e.g. playing chess. Quite often it is combined with self-learning capability.
Brexit	Britain's intended exit from the European Union.
Consciousness	Consciousness is probably one of a very few areas in science where the academics cannot agree on the subject they are studying. For the purpose of this book I took the information published following the proposals made in October 2017 by the academics at Collège de France in Paris and would formulate it in layman's terms as follows: "Consciousness is a structural (functional) organization of a physical system, which operates at two levels: 1. Subconsciousness – accepting, storing and retrieving information using huge range of processes with the required algorithms – this is where most human intelligence and knowledge lies. 2 - Actual consciousness containing information about oneself, which it turns into wide range of 'thoughts' all accessible at once to all parts of the brain, which it is able to have continually monitored and processed, outputting them as perceptions and actions." Animals also have consciousness but that is at a much lower level, mainly in the area of self-awareness, correlated with the brain to body mass ratio and complexity of neural connections.

Consensual Presidential Democracy

Consensual Presidential Democracy is a system of democracy aimed at governing with maximum consensus, where the voice of the ‘losing’ minority is always taken into account. It gives the President exceptionally strong powers against the strongest accountability and recall procedures, to enable him to play a crucial role as a conciliator and moderator between two opposing parties, each represented by one Vice President. This system deepens the separation of legislative and executive powers by having a technocratic government. It also has the widest representation of the electorate, where the representatives to the Parliament are elected using a combined First Past the Post and the Two Rounds System of weighted voting and where a half of the second chamber of the parliament is elected based on a Sortition system.

Constitutional Monarchy

A system, where the monarch is the head of state and a government is elected by conducting free elections.

Direct Democracy

Direct democracy is the type of democracy, in which all eligible citizens can participate in the decision-making process personally, rather than through their representatives.

E-Democracy

The type of democracy, where the voters can exercise their will on the Internet.

European Federation

A proposed name for the federated European Union, proposed to be achieved by 2030.

European Federation Association Area (EFAA)

European Federation Association Area - Zone 4 of the European Federation for members that have individual trade agreements with the European Federation.

European Federation Convergence Area (EFCA)

European Federation Convergence Area - Zone 1 of the European Federation for member states that within a few years will join the European Federation.

European Federation Customs Union (EFCU)

European Federation Customs Union - Zone 3 of the European Federation for countries that are in Customs Union but not in the Single Market.

European Federation Single Market (EFSM)	European Federation Single Market - Zone 2 of the European Federation for countries that are in the Single Market and Customs Union but are not expected to join the European Federation.
Exponential change	This type of change is called exponential, because at each new moment in time (say every year), the value of what we measure (e.g. speed or growth) would double.
GWRF	Global Wealth Redistribution Fund - a fund proposed to be run by the European Federation to lower the wealth inequality world-wide.
Linear change	This type of change is called linear because the growth of, e.g. number of cars sold, will be the same as in the previous period. So, the value of growth is the same in every period.
Nanotechnology	Nanotechnology ("nanotech") is manipulation of matter on an atomic, molecular, and supramolecular scale.
Non-anthropogenic	Something that is not originated by man or not caused by man.
Parliamentary Democracy	A parliamentary system of democratic governance of a state where the government derives its democratic legitimacy through the election of the representatives to the parliament, which in turn selects from its members the Prime Minister and indirectly, the ministers.
Presidential Democracy	A system of governance where the President is the head of state and selects the Prime Minister and sometimes a few key ministers, who are then voted in by the parliament.
Quantum Encryption	Quantum encryption exploits quantum mechanical properties to perform cryptographic tasks in such a way that is impossible to break the key (password) because it would violate the laws of physics.
Quantum Mechanics	Quantum mechanics a fundamental theory in physics, which describes nature at the smallest

	scales of energy levels of atoms and subatomic particles.
Referendum	A direct voting system, in which an entire electorate is invited to vote on a particular proposal. This may result in the adoption of a new law. In some countries, it is synonymous with a plebiscite or a vote on a ballot question.
Republican Democracy	A Republican system of governance is a version of the Presidential system. The President is the head of state but the government may fall within a given electoral term and new elections must be called, whereas in the presidential system the same head of state can elect another government (like in France).
Singularity	In the context of Artificial Intelligence, it means Technological Singularity - see below.
Sortition	In governance, sortition means selecting political officials by a random sample from a larger pool of candidates, usually adult who have the right to vote in elections.
Sortition Assembly	This is a one-off Assembly of sortition members selected at random from among the voters to make important political decisions, e.g. to decide on the articles of a constitution.
Sortition Chamber	This is a chamber in the parliament of sortition members selected at random from among the voters to perform the duties identical to Members of Parliament elected through elections.
Superintelligence	An intellect that is much smarter than the best human brains in practically every field, including scientific creativity, general wisdom and social skills. In this book it is used instead of the term 'Artificial General Intelligence'.
Technological Singularity	It means the point in time when Superintelligence being an intelligent agent smarter than any human being in every aspect of human knowledge, skills and capabilities, starts re-inventing itself exponentially, through the process of self-learning.

Transpartisan Democracy	A programme of the Danish Party Det Alternativet that focuses on HOW to govern rather than what policies to put in its Manifesto. The WHAT element is a kind of a vague programme, crowd sourced by the party members and aimed at Transition to a sustainable society, supporting entrepreneurship, social entrepreneurship and changing the culture of political dialogue.
Universal Basic Income conditional	A periodic cash payment conditionally delivered by the government to all on an individual basis for those that meet certain criteria.
Universal Basic Income unconditional	A periodic cash payment unconditionally delivered by the government to all on an individual basis, without means-testing or work requirement.
Universal Values of Humanity	These are top values of Humanity that apply to humans, animals and the environment.
Weaponized AI	Artificial Intelligence that can be used as a weapon either in a soft sense - breaking passwords and infiltrating computer systems or in hardware - i.e. AI soldiers.
Weighted Voting System	A system of voting where everybody has a vote, but its weight or value may depend on the knowledge or voter's contributions
World Government	The future organization that would rule Humanity

BIBLIOGRAPHY

1. **Boström, Nick.** *Existential Risks*. 2002.
2. **Boström, Nick.** *Superintelligence: Paths, Dangers, Strategies*. 2014.
3. **Wikipedia.** Technological singularity. [Online] Wikipedia, 01 03 2018.
https://en.wikipedia.org/wiki/Technological_singularity#cite_note-Carvalko.2C_Joseph_2012
4. **Wikipedia** Humanity (virtue). [Online] Wikipedia. [https://en.wikipedia.org/wiki/Humanity_\(virtue\)](https://en.wikipedia.org/wiki/Humanity_(virtue)).
5. **Wikipedia** Human evolution. [Online] Wikipedia, 28 02 2018.
https://en.wikipedia.org/wiki/Human_evolution.
6. **Chu, Ted.** *Human Purpose and Transhuman Potential: A Cosmic Vision of Our Future Evolution*. s.l. : Amazon, 1/3/2014.
7. **Marder, Lisa.** What makes us human? [Online] Thought.Co, 04 01 2018.
<https://www.thoughtco.com/what-makes-us-human-4150529>.
8. *10 Mysteries of you: Blushing.* **Williams, Caroline.** 5/8/2009, New Scientist.
9. **Bidshahri, Raya.** What Is It That Makes Humans Unique? [Online] 28 12 2017.
<https://singularityhub.com/2017/12/28/what-is-it-that-makes-humans-unique/#sm.0000ho5xd6udzf33sh11d0prbs54l>.
10. **Wikipedia.** Civilization. [Online] Wikipedia. <https://en.wikipedia.org/wiki/Civilization>.
11. **Wikipedia** Kardashev scale. [Online] 2016. https://en.wikipedia.org/wiki/Kardashev_scale.
12. **Kaku, Michio.** 3 Civilization types. [Online] 25 9 2013.
<http://www.abovetopsecret.com/forum/thread972919/pg1>.
13. **Maslow, Abraham.** *A theory of human motivation*. 1943, Psychological Review, pp. 50, 370.
14. **Nauert, Rick.** Maslow's Pyramid of Human Needs Put to the Test. [Online] 2015.
https://psychcentral.com/news/2011/06/30/maslows-pyramid-of-human-needs-put-to-the-test/27390.html?li_source=LI&li_medium=popular17.
15. **Wikipedia.** Updated Maslow's Pyramid of Needs. [Online] 30 06 2011.
<https://psychcentral.com/news/2010/08/23/updated-maslows-pyramid-of-needs/17144.html>.
16. **Kurzweil, Ray.** *Singularity is Near*. s.l. : Gerald Duckworth & Co Ltd, 9/03/2006.
17. **Kurzweil Ray,** *The Singularity Is Near: When Humans Transcend Biology*. 2006.
18. **Urban, Tim.** The AI Revolution - The road to Superintelligence. [Online] 22 01 2015.
<https://waitbutwhy.com/2015/01/artificial-intelligence-revolution-1.html>.
19. **Teller, Seth.** *Ciężkie roboty*. 2013/4, Niezbędnik Inteligenta, p. 94.
20. **Coulom, Remi.** *The Mystery of Go, the Ancient Game That Computers Still Can't Win*. 2014, Wired.
21. **Russel Stuart, and Allan Dafoe.** *Yes, We Are Worried About the Existential Risk of Artificial Intelligence*. November, 2016, Technology Review, p. 15.
22. **Foster, Richard.** Innosight study of the S&P 500 Index. [Online] 2012.
<https://www.innosight.com/insight/creative-destruction-whips-through-corporate-america-an-innosight-executive-briefing-on-corporate-strategy/>.
23. **Fichardt, Michael.** Singularity University and the future of exponential change. [Online] 20 10 2015.
<https://memeburn.com/2015/10/singularity-university-and-the-future-of-exponential-change/>.
24. **Boström, Nick** *Existential Risk Prevention as Global Priority*. s.l. : Future of Humanity Institute, 2013, pp. 15–3.
25. **Owen Cotton-Barrat, Sebastian Farquha, John Halstead, Stefan Schubert, Andrew Snyder-Beattie.** *Global Catastrophic Risks 2016*. s.l. : Oxford Univeristy Press, 2016.
26. **Torres, Phil.** *Climate Change Is the Most Urgent Existential Risk*. 22/7/2016.
27. **Torres, Phil.** *Existential Risks Are More Likely to Kill You Than Terrorism*. 29/6/2016.
28. **Future of Humanity Institute.** Global Catastrophic Risks Survey. [Online] 2008.
<https://www.fhi.ox.ac.uk/reports/2008-1.pdf>.
29. **Stern, Nicholas.** *The Economics of Climate Change*. 30/10/2006.
30. **Rees, Martin.** *Our Final Hour: A Scientist Warning*. 2004.

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

31. **Bostrom, Nick.** *Existential Risks - Analyzing Human Extinction Scenarios and Related Hazards.* 2002, Journal of Evolution and Technology, Vol. 9, No. 1.
32. **Bostrom, Nick.** *Global Catastrophic Risks.* 29/11/2011.
33. **World Economic Forum.** *The Global Risks Report 2016.* 2016.
34. *Catastrophe: Risk and Response.* **Posner, Richard.** s.l. : Oxford University Press, 2004.
35. **Wikipedia.** 1918 flu pandemic. [Online] https://en.wikipedia.org/wiki/1918_flu_pandemic.
36. **Global Challenges Foundation.** *Global Challenges Report.* 2016.
37. *Ethical Issues in Advanced Artificial Intelligence.* **Bostrom, Nick.** 2002.
38. **Wikipedia.** Geomagnetic reversal. [Online] 10 10 2017. https://en.wikipedia.org/wiki/Geomagnetic_reversal.
39. **Torres, Phil.** *How likely is an existential catastrophe?* 7/9/2016.
40. **Australian National University.** *The Aliens Are Silent Because They Are Extinct.* s.l. : Australian National University, 21/1/2016.
41. **Frank, Adam.** Is a Climate Disaster Inevitable? . *The New York Times.* 17/1/2015.
42. **Sloan, Rafael Alves Batista and David.** The Conversation. [Online] 14 07 2017. <https://theconversation.com/we-worked-out-what-it-would-take-to-wipe-out-all-life-on-a-planet-and-its-good-news-for-alien-hunters-81006>.
43. **Forum, World Economic.** The Global Risks 2017. [Online] http://www3.weforum.org/docs/GRR17_Report_web.pdf.
44. **Cohen, Hsin-Yi.** What is Intelligence and How is it Measured? [Online] 10 02 2016. <http://www.aboutintelligence.co.uk/what-intelligence.html>.
45. **Rouse, Margaret.** Singularity. [Online] 02 2016. <http://whatis.techtarget.com/definition/Singularity-the>.
46. **Urban, Tim.** The AI Revolution: The road to Superintelligence. [Online] 25 01 2015. <https://waitbutwhy.com/2015/01/artificial-intelligence-revolution-1.html>.
47. **Devlin, Hannah.** Human-robot interactions take step forward with 'emotional' chatbot. [Online] 5 05 2017. <https://www.theguardian.com/technology/2017/may/05/human-robot-interactions-take-step-forward-with-emotional-chatting-machine-chatbot>.
48. **Hoel, Erik.** Superintelligence is a free lunch, and there are no free lunches. [Online] 07 05 2017. <http://www.erikphoel.com/blog/superintelligence-is-a-free-lunch-and-there-are-no-free-lunches>.
49. **Wikipedia.** Intelligence Quotient. [Online] https://en.wikipedia.org/wiki/Intelligence_quotient.
50. **Feng Liu, Yong Shi, and Ying Liu.** Google AI vs Siri vs Bing - IQ tests show one is smartest by a mile. [Online] 03 10 2017. <http://techgroundnews.com/apple/google-ai-vs-siri-vs-bing-iq-tests-show-one-is-smartest-by-a-mile/>.
51. **Katja Grace, John Salvatier, Allan Dafoe, Baobao Zhang and Owain Evans.** *When Will AI Exceed Human Performance? Evidence from AI Experts.* Oxford : Future of Humanity Institute, 30/05/2017.
52. **Reedy, Dom Galeon and Christianna.** Kurzweil Claims That the Singularity Will Happen by 2045. [Online] 05 10 2017. <https://futurism.com/kurzweil-claims-that-the-singularity-will-happen-by-2045/>.
53. **Green, Tristan.** Google's AI can create better machine-learning code than the researchers who made it. [Online] 17 10 2017. <https://thenextweb.com/artificial-intelligence/2017/10/16/googles-ai-can-create-better-machine-learning-code-than-the-researchers-who-made-it/>.
54. **Rejcek, Peter.** AI Uses Titan Supercomputer to Create Deep Neural Nets in Less Than a Day. [Online] Singularity Hub, 03 01 2018. https://singularityhub.com/2018/01/03/ai-uses-titan-supercomputer-to-create-deep-neural-nets-in-less-than-a-day/?utm_source=Singularity+Hub+Newsletter&utm_campaign=e481a6ee4d-Hub_Weekly_Newsletter&utm_medium=email&utm_term=0_f0cf60cdae-e481a6ee4d-58229305.
55. **Kurywczak, Eugene.** The Dynamic Eternal Universe. [Online] 15 05 2014. <https://books.google.co.uk/books?id=b96ZAwAAQBAJ&pg=PA15&lpg=PA15&dq=nothingness+is+eternal&source=bl&ots=Dv7a7BvQja&sig=xoi7wIbTNY5y4Z5WsVvCPYbKO5I&hl=en&sa=X&ved=0ahUK Ewjn7MzOvubZAhUMCsAKHcxqDPM4ChDoAQhAMAQ#v=onepage&q=nothingness%20is%20eternal&f=false>.

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

56. **Diamandis, Peter.** *Ray Kurzweil's Mind-Boggling Predictions for the Next 25 Years.* s.l. : Singularity University, 26/1/2016.
57. **Wikipedia.** Consciousness. [Online] 2017. <https://en.wikipedia.org/wiki/Consciousness>.
58. **Rose, Steven.** From Bacteria to Bach and Back by Daniel C Dennett review – consciousness explained? . [Online] 02 02 2017. <https://www.theguardian.com/books/2017/feb/02/from-bacteria-to-bach-and-back-by-daniel-c-dennett-review>.
59. **O'Grady, Jane.** Aping Mankind: Neuromania, Darwinitis and the Misrepresentation of Humanity by Raymond Tallis – review. [Online] 07 08 2011. <https://www.theguardian.com/books/2011/aug/07/aping-mankind-raymond-tallis-review>.
60. **Paulson, Steve.** Roger Penrose on WHY Consciousness does not compute. [Online] 04 05 2017. <HTTP://NAUTIL.US/ISSUE/47/CONSCIOUSNESS/ROGER-PENROSE-ON-WHY-CONSCIOUSNESS-DOES-NOT-COMPUTE> .
61. **Wikipedia.** Quantum superposition. *Quantum superposition.* [Online] Wikipedia, 19 09 2017. https://en.wikipedia.org/wiki/Quantum_superposition.
62. **Wikipedia** Panpsychism. [Online] Wikipedia, 22 07 2017. <https://en.wikipedia.org/wiki/Panpsychism>.
63. **Dvorsky, George** *9 Ways Humanity Could Bring About Its Own Destruction.* . 12 12 2012, We come from the future.
64. **Wikipedia.** Srinivasa Ramanujan. [Online] 08 01 2018. https://en.wikipedia.org/wiki/Srinivasa_Ramanujan.
65. **Pleasance, Lucy Thackray and Chris.** Meet the boy geniuses who developed a math theorem that calculates problems faster than a COMPUTER . [Online] Daily May, 05 11 2015. <http://www.dailymail.co.uk/news/article-3304802/Meet-boy-geniuses-developed-math-theorem-calculates-problems-faster-computer-despite-high-school.html>.
66. **Stanislas Dehaene, Hakwan Lau, Sid Kouider.** What is consciousness, and could machines have it? [Online] 27 10 2017. <http://science.sciencemag.org/content/358/6362/486>.
67. **Yampolskiy, Roman V.** Fighting malevolent AI: artificial intelligence, meet cybersecurity. [Online] 13 06 2016. <http://theconversation.com/fighting-malevolent-ai-artificial-intelligence-meet-cybersecurity-60361>.
68. **Torres, Phil.** Top three strategies for avoiding existential risks. [Online] Institute for Ethics and Emerging Technologies, 13 01 2016. <https://ieet.org/index.php/IEET2/more/torres20120213>.
69. **Müller, Vincent C. and Bostrom, Nick.** *Future Progress in Artificial Intelligence: A Survey of expert Opinion.* 2014.
70. **Wikipedia** *Global catastrophic risk.* . 2016.
71. **BBC.** Massive ransomware infection hits computers in 99 countries. [Online] 13 05 2017. <http://www.bbc.co.uk/news/technology-39901382>.
72. **Mali, Malhar.** *How the World Will End; Nuclear Armageddon, A.I., Climate Change - Interview with Phil Thores of X-Risks.* 12 10 2016.
73. **Response, Symantec Security.** Dragonfly: Western energy sector targeted by sophisticated attack group. [Online] 06 09 2017. <https://www.symantec.com/connect/blogs/dragonfly-western-energy-sector-targeted-sophisticated-attack-group> .
74. **Muehlhauser, Luke.** How Big is the Field of Artificial Intelligence? . [Online] 24 1 2014. <https://intelligence.org/2014/01/28/how-big-is-ai/>.
75. **Russell, Allan Dafoe and Stuart.** Yes, We Are Worried About the Existential Risk of Artificial Intelligence. [Online] 26 November 2016. <https://www.technologyreview.com/s/602776/yes-we-are-worried-about-the-existential-risk-of-artificial-intelligence/>.
76. **Domonoske, Camila.** Elon Musk Warns Governors: Artificial Intelligence Poses 'Existential Risk'. [Online] 17 July 2017. <https://www.npr.org/sections/thetwo-way/2017/07/17/537686649/elon-musk-warns-governors-artificial-intelligence-poses-existential-risk>.
77. **Assimov, Isaac.** *I, Robot.* 1950.
78. **Danaher, John.** Bostrom on Superintelligence (5): Limiting an AI's Capabilities . [Online] 09 08 2014. <http://philosophicaldisquisitions.blogspot.co.uk/2014/08/bostrom-on-superintelligence-5-limiting.html>.

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

79. **Rawls, John.** *A Theory of Justice*. New York : Belknap, 2005.
80. **Tegmark, Max.** *Life 3.0: Being Human in the Age of Artificial Intelligence*. s.l. : Amazon, 2017.
81. **Cookson, Clive.** Superintelligence: a space odyssey. [Online] 30 08 2017. <https://www.ft.com/content/31176c28-8bea-11e7-9084-d0c17942ba93>.
82. **Global_Challenges_Foundation.** *Global Challenges Foundation Report p.20*. Stockholm : s.n., 2017.
83. **Rees, Martin.** *The world in 2050 and beyond*. 2014, New Statesman.
84. **Chiarelli, B.** *Overpopulation and the Threat of Ecological Disaster: the Need for Global Bioethics* . 1998, Mankind Quarterly. 39 (2): 225–230.
85. **Lovgren, Stefan.** *Mystery Bee Disappearances Sweeping U.S.* 2007, National Geographic News .
86. **EC_Climate_Change.** Paris Agreement. [Online] 20 12 2015. https://ec.europa.eu/clima/policies/international/negotiations/paris_en.
87. **Lackner, Klaus.** *Why CO2 'Air Capture' Could Be Key to Slowing Global Warming*. 2016, Yale Environment 360.
88. **Norcera, Daniel G.** *Harvard Scientist Engineers Bacterium That Inhales CO2, Produces Energy -- A 'Bionic Leaf'*. 29/5/2016, Financial Times.
89. **Avner Cohen, Steven Lee.** *Nuclear Weapons and the Future of Humanity: The Fundamental Questions*. p. 237.
90. **Federation_of_American_Scientists.** *Status of World Nuclear Forces*. s.l. : Federation of American Scientists, 28 April 2015.
91. **Shulman, Carl.** *Nuclear winter and human extinction: Q&A with Luke Oman. Overcoming Bias*. . 5 Nov 2012.
92. **Martin, Brian.** *Critique of nuclear extinction* . 19 (4): 287–300. s.l. : Journal of Peace Research, 1982.
93. **Physics.** *Atmospheric effects and societal consequences of regional scale nuclear conflicts and acts of individual nuclear terrorism*. Atmospheric Chemistry and Physics.
94. **Webber, Philip.** This Is What Earth Could Look Like After A Nuclear Attack. [Online] Huffington Post, 23 01 2018. http://www.huffingtonpost.co.uk/entry/this-is-what-earth-could-look-like-after-a-nuclear-attack_uk_5a660e34e4b0022830050df1.
95. **Keck, Zachary.** Billions Could Die If India and Pakistan Start a Nuclear War. [Online] 21 07 2017. <http://nationalinterest.org/blog/the-buzz/billions-could-die-if-india-pakistan-start-nuclear-war-21623> .
96. **Institute_for_Science_and_International_Security.** Did Stuxnet Take Out 1,000 Centrifuges at the Natanz Enrichment Plant? [Online] 22 12 2010. http://isis-online.org/uploads/isis-reports/documents/stuxnet_FEP_22Dec2010.pdf.
97. **Kalman, Aaron.** Only 'the nuclear option' can work against Iran, former IDF chief says. [Online] 10 11 2012. <https://www.timesofisrael.com/only-the-nuclear-option-can-work-against-iran-former-idf-chief-says/>.
98. **Revesz, Rachael.** North Korea EMP attack could 'shut down US power grid and kill 90% of Americans'. [Online] Independent, 17 10 2017. <http://www.independent.co.uk/news/world/americas/north-korea-us-attack-emp-power-grid-kill-90-per-cent-american-population-electromagnetic-pulse-a8002756.html>.
99. **Isabel Reynolds, Enda Curran.** What nuclear war between the US and North Korea might look like. [Online] Independent, 09 08 2017. <http://www.independent.co.uk/news/world/americas/us-north-korea-donald-trump-kim-jong-un-nuclear-missiles-military-war-explainer-pyongyang-guam-a7883581.html>.
100. **Williams, Martin.** FactCheck Q&A: Could there be a nuclear Armageddon? [Online] 04 07 2017. <https://www.channel4.com/news/factcheck/factcheck-qa-will-there-be-a-nuclear-armageddon>.
101. **Hoover_Institution.** Next Steps in Reducing Nuclear Risks. [Online] Hoover Institution, 06 03 2013. <https://www.hoover.org/research/next-steps-reducing-nuclear-risks>.
102. **Union_of_Concerned_Scientists.** Reducing the Risk of Nuclear War. [Online] Union of Concerned Scientists. https://www.ucsusa.org/nuclear-weapons/us-nuclear-weapons-policy/reducing-the-risk#.Wo_eA6hl-M8.
103. **Frey, Thomas.** Weaponized A.I. – 36 Early Examples. [Online] Futurist Speaker, 08 08 2017. <http://www.futuristspeaker.com/business-trends/weaponized-a-i-36-early-examples/>.

104. **Santos, Paulo E.** Autonomous weapons and the curse of history. [Online] 23 11 2015. <https://thebulletin.org/autonomous-weapons-civilian-safety-and-regulation-versus-prohibition/banning-and-regulating-autonomous-weapons>.
105. **Drexler, Eric.** Productive Nanosystem: From molecules to superproducts. [Online] 14/3/2006. <https://www.youtube.com/watch?v=vEYN18d7gHg>.
106. **Phoenix, Chris and Treder, Mike.** *Chapter 21: Nanotechnology as global catastrophic risk. In Bostrom, Nick; Cirkovic, Milan M. Global catastrophic risks.* s.l. : Oxford University Press, 2008.
107. **Centre_for_Responsible_Nanotechnology** *Dangers of Molecular Manufacturing.* s.l. : Centre for Responsible Nanotechnology, 19 July 2014.
108. **SA, Frank.** *Models of parasite virulence Q Rev Biol.* 71. March 1996, Q Rev Biol. 71 .
109. **Noun, Ali and Chyba, Christopher F** *Chapter 20: Biotechnology and biosecurity, in Bostrom, Nick; Cirkovic, Milan M. Global Catastrophic Risks.* s.l. : Oxford University Press, 2008.
110. **Harack, Ben.** How likely is human extinction due to a natural pandemic? [Online] 21 03 2016. <https://www.visionofearth.org/future-of-humanity/existential-risks/human-extinction-by-natural-pandemic/>.
111. **Carlos Castillo-Chavez, Roy Curtiss, Peter Daszak, Simon A Levin, Oscar Patterson-Lomba, Charles Perrings, George Poste, Sherry Towers.** Beyond Ebola: lessons to mitigate future pandemics. [Online] The Lancet, 07 2015. [http://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(15\)00068-6/fulltext](http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(15)00068-6/fulltext).
112. **Stout, Martha.** *The Sociopath Next Door.* 8/2/2005.
113. **Georgescu-Roegen, Nicholas.** *The Entropy Law and the Economic Process* . s.l. : Cambridge, Massachusetts: Harvard University Press ISBN 0674257804, 1971.
114. **Leonhard, Gerd.** KNOWLEDGE DOUBLING EVERY 12 MONTHS, SOON TO BE EVERY 12 HOURS. [Online] Gerd Leonhard, 16 07 2014. <http://www.futuristgerd.com/2014/07/16/knowledge-doubling-every-12-months-soon-to-be-every-12-hours-via-industry-tap/>.
115. **International Federation of Robotics.** Executive Summary World Robotics 2017 Industrial Robots. [Online] International Federation of Robotics, 2017. https://ifr.org/downloads/press/Executive_Summary_WR_2017_Industrial_Robots.pdf.
116. **Wood, David.** *Transcending Politics.* s.l. : Amazon, 2018.
117. **BIEN.** Basic Income Earth Network. [Online] 2015. <http://basicincome.org/basic-income/>.
118. **Research, Dahlia.** 31% OF EUROPEANS WANT BASIC INCOME AS SOON AS POSSIBLE. [Online] 03 05 2017. <https://daliaresearch.com/blog-31-of-europeans-want-basic-income-as-soon-as-possible/>.
119. **Pencavel, John.** *The Productivity of Working Hours.* 2014.
120. **Murray, Charles.** *In Our Hands: A Plan to Replace the Welfare State.* s.l. : Aei Press; Revised, Updated ed. edition, 2016.
121. **Sean healy, Michelle Murphy, Sean Ward and Brigit Reynolds.** Why and How in Difficult Economic Times: Financing a BI in Ireland. [Online] 2012. http://www.bien2012.de/sites/default/files/paper_253_en.pdf.
122. **Bostrom, Nick.** *Existential Risk Prevention as Global Priority.* s.l. : Future of Humanity Institute, 2013.
123. **Trust, Prison Reform.** Prison: the facts. [Online] Prison Reform Trust, 2017. <http://www.prisonreformtrust.org.uk/Portals/0/Documents/Bromley%20Briefings/Summer%202017%20factfile.pdf>.
124. **Grierson, Jamie.** More inmates to be released early under home curfew rules . [Online] The Gurdian , 16 02 2018. <https://www.theguardian.com/society/2018/feb/16/more-inmates-to-be-released-early-under-home-curfew-rules>.
125. **Eurofond.** Statutory minimum wages in the EU 2017. [Online] Eurofond, 27 02 2017. <https://www.eurofound.europa.eu/observatories/eurwork/articles/statutory-minimum-wages-in-the-eu-2017>.

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

126. **Wikipedia.** Wikipedia. [Online] Anthropological Quarterly, 10 12 2017.
https://en.wikipedia.org/wiki/Anthropological_Quarterly.
127. **Dolan, Kerry A.** Forbes 2017 Billionaires List: Meet The Richest People On The Planet. [Online] Forbes, 20 03 2017. <https://www.forbes.com/sites/kerryadolan/2017/03/20/forbes-2017-billionaires-list-meet-the-richest-people-on-the-planet/#3aa7df7662ff>.
128. **McMinn, David.** PLANNED OBSOLESCENCE: THE ULTIMATE ECONOMIC INEFFICIENCY. [Online] David McMinn, 2017. <http://www.davidmcminn.com/ngc/pages/obsol.htm>.
129. **Third World Network.** Why tax havens must go! [Online] Third World Network.
http://www.cadtm.org/spip.php?page=imprimer&id_article=13847.
130. **Trompenaaras, Charles Hampden-Turner and Fons.** *Nine Visions of Capitalisms - Chapter 7.* 2015.
131. **Schumacher, Ernst Friedrich.** *Small is beautiful.* s.l. : Amazon , 1973.
132. **Vikram Bhalla, Susanne Dyrchs , and Rainer Strack.** Twelve forces that will radically change how the organizations work. [Online] Boston Consulting Group, 27 03 2017. https://www.bcg.com/en-us/publications/2017/people-organization-strategy-twelve-forces-radically-change-organizations-work.aspx?utm_source=201704Q1TOP&utm_medium=Email&utm_campaign=otr.
133. **Bidshahri, Raya.** *Critical 7 SKills for the Jobs of the Future.* s.l. : World Economic Forum, 04-07-2017.
134. **Wagner, Tony.** Tony Wagner's Seven Survival Skills. [Online] Tony Wagner, 2014.
<http://www.tonywagner.com/7-survival-skills/>.
135. **Wikipedia.** Transnationalism. [Online] Wikipedia, 30 01 2018.
<https://en.wikipedia.org/wiki/Transnationalism>.
136. **Moody, Tom Whipple and Oliver.** Stephen Hawking on humanity . [Online] The Times, 07 03 2017. <https://www.thetimes.co.uk/edition/news/hawking-on-humanity-and-corbyn-jk88zx0w2>.
137. **Rees, Martin.** Martin Rees: The world in 2050 and beyond. [Online] 26 11 2014.
<https://www.newstatesman.com/sci-tech/2014/11/martin-rees-world-2050-and-beyond>.
138. **Policy, Institute for Global.** World Federalist Movement. [Online] 2016. <http://www.wfm-igp.org/>.
139. **Politico.** Europeans are more positive about future of the EU — except the Brits. [Online] Politico.
<https://www.politico.eu/article/europeans-are-more-positive-about-future-of-the-eu-except-the-brits/>.
140. **Stone, Jon.** More Europeans than ever say they feel like citizens of the EU. [Online] The Independent, 02 08 2017. <http://www.independent.co.uk/news/uk/politics/eu-brexiteuropean-union-citizens-feel-like-eurobarometer-survey-results-a7872916.html>.
141. **Wikipedia.** Value (ethics). [Online] Wikipedia, 25 11 2017.
[https://en.wikipedia.org/wiki/Value_\(ethics\)](https://en.wikipedia.org/wiki/Value_(ethics)).
142. **Thores, Phil.** Why superintelligence is a threat that should be taken seriously? [Online] 24 10 2017.
<https://thebulletin.org/why-superintelligence-threat-should-be-taken-seriously11219>.
143. **Trump, President Donald.** The White House - Office of the Press Secretary. [Online] 06 07 2017.
<https://www.whitehouse.gov/the-press-office/2017/07/06/remarks-president-trump-people-poland-july-6-2017>.
144. **Merkel, Angela.** GOVERNMENT STATEMENT ON EU AND G2. [Online] 29 06 2017.
https://www.bundesregierung.de/Content/EN/Artikel/2017/06_en/2017-06-29-regierungserklaerung-merkel_en.html?nn=393830.
145. **Juncker, Jean-Claude.** PRESIDENT JEAN-CLAUDE JUNCKER'S State of the Union Address 2017. [Online] European Commission, 13 09 2017. http://europa.eu/rapid/press-release_SPEECH-17-3165_en.htm.
146. **Wikipedia.** World Values Survey. [Online] Wikipedia, 13 11 2017.
https://en.wikipedia.org/wiki/World_Values_Survey.
147. **Wikimedia Commons.** File:Inglehart Values Map.svg. [Online] Wikimedia Commons, 29 08 2017.
https://commons.wikimedia.org/wiki/File:Inglehart_Values_Map.svg.
148. **Changing Minds.** Schwartz's Universal Values. [Online] Changing Minds.
http://changingminds.org/explanations/needs/schwartz_values.htm.

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

149. **Wikipedia.** Universal value. [Online] 17 10 2017. https://en.wikipedia.org/wiki/Universal_value.
150. **China Daily.** The mainland shares and respects the universal values we all cherish. [Online] China Daily, 10 05 2016. http://www.chinadaily.com.cn/hkedition/2016-05/10/content_25175412.htm.
151. **Tharoor.** Are Human Rights Universal? [Online] World Policy Institute, 1999/2000. <http://www.worldpolicy.org/tharoor.html>.
152. **Anan, Kofi.** UNIVERSAL VALUES - PEACE, FREEDOM, SOCIAL PROGRESS, EQUAL RIGHTS, HUMAN DIGNITY – ACUTELY NEEDED, SECRETARY-GENERAL SAYS AT TUBINGEN UNIVERSITY, GERMANY. [Online] United Nations, 12 12 2003. <https://www.un.org/press/en/2003/sgsm9076.doc.htm>.
153. **Lower Matthew.** Can and Should Human Rights Be Universal? [Online] 1 12 2003. <http://www.e-ir.info/2013/12/01/can-and-should-human-rights-be-universal/>.
154. **Lisbon Treaty.** The Lisbon Treaty. [Online] Lisbon Treaty, 2008. <http://www.lisbon-treaty.org/wcm/the-lisbon-treaty/treaty-on-european-union-and-comments/title-1-common-provisions/2-article-2.html>.
155. **Leonhard, Gerd.** *Technology vs. Humanity*. Zurich : Fast Futurers Publishing, 2016-08-01.
156. **Hilrich, O.** Universal Human Values. [Online] 01 10 2014. http://www.humanbasics.org/Basic_human_values/basic_human_values.html.
157. **Wright, Daniel.** 5 million adults lack basic literacy and numeracy skills. [Online] Joseph Rowntree Foundation, 29 8 2016. <https://www.jrf.org.uk/press/5-million-adults-lack-basic-literacy-and-numeracy-skills>.
158. **United Nations.** *United Nations Millennium Declaration*. New York : s.n., 2000.
159. **Stone, Jon.** French president Emmanuel Macron to bring back compulsory military service for young people. [Online] 16 02 2018. <http://www.independent.co.uk/news/world/europe/france-national-service-emmanuel-macron-french-president-military-a8209681.html>.
160. **Watson, Leon.** Illiterate Britain: One in five adults struggling to read and write and some can't even use a chequebook. [Online] Daily Mail, 29 03 2012. <http://www.dailymail.co.uk/news/article-2122007/Illiterate-Britain-One-adults-struggling-read-write-t-use-chequebook.html>.
161. **Theodore, Steve.** How did the Roman republic differ from Athenian democracy? [Online] 16 10 2016. <https://www.quora.com/How-did-the-Roman-republic-differ-from-Athenian-democracy/answer/Steve-Theodore>.
162. **International Institute for Democracy and Electoral Assistance.** About. [Online] International Institute for Democracy and Electoral Assistance, 2017. <https://www.idea.int/gsd-indices/about>.
163. **Institute of Fiscal Studies.** Is our tax system fair? It depends... [Online] 03 11 2017. <https://www.ifs.org.uk/publications/10038>.
164. **Reybrouck, David van.** Why elections are bad for democracy? [Online] 29 06 2017. <https://www.theguardian.com/politics/2016/jun/29/why-elections-are-bad-for-democracy>.
165. **Wikipedia.** Elite Theory. [Online] Wikipedia, 03 02 2018. https://en.wikipedia.org/wiki/Elite_theory.
166. **Lusk, Sean.** *Rethinking Public Strategy*. s.l. : Palgrave Macmillan, 2014.
167. **Poll Station.** Should the House of Lords Be Fully Elected? [Online] 2012. https://www.pollstation.uk/should_the_house_of_lords_be_fully_elected.
168. **Transparency International.** Russia. [Online] 2016. <https://www.transparency.org/country/RUS>.
169. **McDonald, Karl.** Sick of EU referendum? Switzerland has had 180 referendums in the last 20 years. [Online] 23 06 2016. <https://inews.co.uk/news/long-reads/switzerland-held-9-referendums-already-2016/>.
170. **OECD.** Public Governance: A matter of trust. [Online] 2017. <http://www.oecd.org/governance/public-governance-a-matter-of-trust.htm>.
171. **Monbiot, George.** Referendums get a bad press – but to fix Britain, we need more of them. [Online] The Guardian, 18 10 2017. <https://www.theguardian.com/commentisfree/2017/oct/18/referendums-bad-press-fix-britain-more-of-them-participatory-democracy>.
172. **Wikipedia.** Democracy. [Online] Wikipedia, 01 12 2017. <https://en.wikipedia.org/wiki/Democracy>.
173. **Barnett, Taylor Donovan.** China demonstrates quantum encryption by hosting a video call. [Online] 22 01 2018. China's Intercontinental Quantum Communication Network Is Now Online.

174. **The Alternative UK.** THE VALUES WE USE . [Online] The Alternative UK, 2017. <https://www.thealternative.org.uk/the-values-we-use/>.
175. **Freinacht, Hanzi.** The Danish Alternative, a Party about Nothing . [Online] Metamoderna, 12 05 2017. <http://metamoderna.org/the-danish-alternative-a-party-about-nothing?lang=en>.
176. **Henning, Brett.** End of Politicians. [Online] 2018. <https://unbound.com/books/the-end-of-politicians/>.
177. **Wikipedia.** Sortition. *Sortition*. [Online] Wikipedia, 26 1 2018. This all below quoted from Wikipedia: <https://en.wikipedia.org/wiki/Sortition>.
178. **Wikipedia.** Juries in England and Wales. [Online] 28 12 2017. https://en.wikipedia.org/wiki/Juries_in_England_and_Wales.
179. **BBC.** How is a jury selected? . [Online] BBC. <http://news.bbc.co.uk/1/hi/magazine/7180764.stm>.
180. **Malleson, Tom.** Should Democracy Work Through Elections or Sortition? [Online] 01 2018. <https://ssc.wisc.edu/~wright/929-utopias-2018/wp-content/uploads/2018/01/Malleson-PS-special-issue-on-sortition.pdf>.
181. **Öcalan, Abdullah.** Democratic confederalism. [Online] 217. http://ocalan-books.com/downloads/EN-brochure_democratic-confederalism_2017.pdf.
182. **Dowlen, Gil Delannoï and Oliver.** *Sortition: Theory and Practice*. s.l. : Amazon books, 2010.
183. **Smith, David Owen and Graham.** The circumstances of sortition. [Online] 2017. <https://ssc.wisc.edu/~wright/929-utopias-2018/wp-content/uploads/2018/01/Owen-and-Smith-PS-special-issue-on-Sortition.pdf#page=1&zoom=auto,-169,368>.
184. **Xenophon.** Xenophon - Meomorabilia. [Online] Wikipedia, 10 08 2017. [https://en.wikipedia.org/wiki/Memorabilia_\(Xenophon\)](https://en.wikipedia.org/wiki/Memorabilia_(Xenophon)).
185. **Variou.** What if everyone had voted in the EU referendum? [Online] The UK in the chnaging Europe, 28 06 2016. <http://ukandeu.ac.uk/what-if-everyone-had-voted-in-the-eu-referendum/>.
186. **Electoral Knowledge Network.** Electoral Systems. [Online] <http://aceproject.org/ace-en/topics/es/esd/esd02/esd02d/esd02d01>.
187. **International Institute for Democracy and Electoral Assistance.** Data set and Resources. [Online] International Institute for Democracy and Electoral Assistance, 2010. <https://www.idea.int/gsod-indices/dataset-resources>.
188. **Electoral Reform Society.** Alternative Vote. [Online] Electoral Reform Society, 2017. <https://www.electoral-reform.org.uk/voting-systems/types-of-voting-system/alternative-vote/>.
189. **IDEA.** Electoral Systems in the EU and OECD Countries. *Electoral Systems in the EU and OECD Countries*. [Online] <http://www.idea.int/esd/world.cfm>, International Institute for Democracy and Electoral Assistance (International IDEA),, 2010.
190. **Wikipedia.** Recall of MPs Act 2015. [Online] Wikipedia. https://en.wikipedia.org/wiki/Recall_of_MPs_Act_2015.
191. **Mills, Pete.** Real Recall: A Blueprint for recall in the UK. [Online] Unlock Democracy , 2015. <https://static1.squarespace.com/static/5525bbf5e4b026f75314c09b/t/559d3eede4b0e849e26a35bd/1436368621070/242408349-Real-Recall-a-blueprint-for-recall-in-the-UK.pdf>.
192. **Hansen, Stephan.** DEMOCRACY OF THE FUTURE – NOTHING LESS. [Online] Scenario Magazine, 19 05 2011. <http://www.scenariomagazine.com/byline/stefan-hansen/>.
193. **iSideWith.** iSideWith.com. [Online] 08 06 2017. <https://uk.isidewith.com/about/>.
194. **Sikorski, Radek.** Sikorski: German inaction scarier than Germans in action. [Online] The Economist, 29 11 2011. <https://www.economist.com/blogs/easternapproaches/2011/11/polands-appeal-germany>.
195. **Economics.** Disadvantages of EU Membership. [Online] Economics, 2016. <https://www.economicshelp.org/europe/disadvantages-eu/>.
196. **Diffen.** Confederation vs. Federation. [Online] Diffen. https://www.diffen.com/difference/Confederation_vs_Federation.
197. **Quora.** Which countries are least ethnically diverse in Europe? [Online] Quora, 2017. <https://www.quora.com/Which-countries-are-least-ethnically-diverse-in-Europe>.

198. **Wikipedia.** Flight and expulsion of Germans from Poland during and after World War II. [Online] Wikipedia, 04 02 2018. https://en.wikipedia.org/wiki/Flight_and_expulsion_of_Germans_from_Poland_during_and_after_World_War_II.
199. **Wikipedia** History of the Jews in Poland. [Online] Wikipedia, 02 02 2018. https://en.wikipedia.org/wiki/History_of_the_Jews_in_Poland.
200. **J.Badcock, J Rothwell, J. Crisp.** *EU warns 'more cracks' in bloc as Spain dissolves Catalonia's parliament after it declares independence.* 28/10/2017, The Telegraph.
201. **Baczynska, Gabriela.** EU's Juncker tells Britain he doesn't want 'European super-state. [Online] Reuters. <https://af.reuters.com/article/worldNews/idAFKCN1FY1O9>.
202. **Democracy_building.** Different Systems of Democracy. [Online] Democracy building, 2004. <http://www.democracy-building.info/systems-democracy.html>.
203. **Venice_Commission.** Venice Commission. [Online] Council of Europe, 2017. http://www.venice.coe.int/WebForms/pages/?p=01_Presentation.
204. **Wikipedia.** Natural law. [Online] https://en.m.wikipedia.org/wiki/Natural_law.
205. **OECD.** Public Governance: A matter of trust. [Online] 2015. <http://www.oecd.org/governance/public-governance-a-matter-of-trust.htm>.
206. **Union, European.** EU Treaties. [Online] European Union, 21 11 2017. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2007.306.01.0001.01.ENG&toc=OJ:C:2007:306:TOC.
207. **European_Union.** Agencies and other EU bodies. [Online] Europa, 21 11 2017. https://europa.eu/european-union/about-eu/agencies_en.
208. **European_Commission.** Global Europe in 2050. [Online] 2012. https://ec.europa.eu/research/social-sciences/pdf/policy_reviews/global-europe-2050-report_en.pdf.
209. **Voros, Joseph.** How Leaders Dream Boldly to Bring New Futures to Life. [Online] Singularity University, 2003. <https://singularityhub.com/2017/02/23/how-leaders-dream-boldly-to-bring-new-futures-to-life/>.
210. **World_Economic_Forum.** How will Africa change by 2030? [Online] World Economic Forum, 25 06 2015. <https://www.weforum.org/agenda/2015/06/how-will-africa-change-by-2030/>.
211. **Frey, Thomas.** 101 Endangered Jobs by 2030. [Online] Futurist Speaker, 07 09 2016. <https://www.futuristspeaker.com/business-trends/101-endangered-jobs-by-2030/>.
212. **World_Atlas.** The Continents Of The World Per Capita GDP. [Online] World Atlas, 01 08 2017. <https://www.worldatlas.com/articles/the-continents-of-the-world-by-gdp-per-capita.html>.
213. **World_Atlas.** The Poorest Countries In The World. [Online] World Atlas, 06 12 2017. <https://www.worldatlas.com/articles/the-poorest-countries-in-the-world.html>.
214. **Forum, Namibia NGO.** *Basic Income Grant Coalition.* 2008.
215. **Collinson, Patrick.** Finland is the happiest country in the world, says UN report. [Online] The Guardian, 14 03 2018. <https://www.theguardian.com/world/2018/mar/14/finland-happiest-country-world-un-report>.
216. **Diamandis, Peter.** Why the Cost of Living Is Poised to Plummet in the Next 20 Years. [Online] Singularity Hub, 18 07 2016. <https://singularityhub.com/2016/07/18/why-the-cost-of-living-is-poised-to-plummet-in-the-next-20-years/>.
217. **Hawks, Charlotte.** How close are we to a hamburger grown in a lab? *CNN.* [Online] CNN, 08 03 2018. <https://edition.cnn.com/2018/03/01/health/clean-in-vitro-meat-food/index.html>.
218. **Institute, Wellcome Sanger.** Whole genome sequencing will 'transform the research landscape for a wide range of diseases'. *Wellcome Sanger Institute.* [Online] Wellcome Sanger Institute, 08 04 2018. <http://www.sanger.ac.uk/news/view/whole-genome-sequencing-will-transform-research-landscape-wide-range-diseases>.
219. **OECD.** GDP long-term forecast. [Online] OECD, 2015. <https://data.oecd.org/gdp/gdp-long-term-forecast.htm>.
220. **PWC.** The World in 2050. [Online] PWC, 15 02 2015. <https://www.pwc.com/gx/en/issues/the-economy/assets/world-in-2050-february-2015.pdf>.

Tony Czarnecki *Who Could Save Humanity from Superintelligence?*

221. **Williams, Matt.** FALCON HEAVY VS. SATURN V. [Online] Universe Today, 16 01 2018.
<https://www.universetoday.com/129989/saturn-v-vs-falcon-heavy/>.

222. **Wang, Brian.** Lab grown meat prices have dropped 30,000 times in less than four years and are about 3-4 times more expensive than regular ground beef. [Online] Next Big Future, 19 02 2017.
<https://www.nextbigfuture.com/2017/02/lab-grown-meat-prices-have-dropped.html>.

