

# Foreword

The idea that the world is changing at an increasingly fast pace has become something of a cliché over the last 10–20 years, but it is now truer than ever.

The good news is that we are living at the most prosperous time in human history. Over the last 50 years, the global population has more than doubled, and world GDP has increased about 15 times in terms of constant dollars. As a whole, we are wealthier than ever and live better, longer, and possibly even more meaningful lives.

Such an optimistic view might seem surprising given the history of the early 2020s. COVID-19, for example, not only killed over 6 million people, but also reduced economic output on a global level by 6–7 percent in 2020. Bouncing back from COVID, the world then faced shortages in microchips as well as many other items. If that was not enough, Russia's invasion of Ukraine in February 2022 then slowed down the economic recovery, further upsetting plans and expectations.

For me, the point is that despite our current problems, the long-term story is one of increasing prosperity which has done damage to our natural environment, as well as made us more vulnerable to risks such as the recent pandemic.

Rising prosperity also fuels political and even geopolitical tensions as globalization has not befitted all people equally and there are still hundreds of millions of people living in dire poverty.

At the same time, potentially transformative digital technologies offer promise and hope for many of the problems facing the world, but can also

cause disruption to industries, companies, and individuals making things more unequal.

The one thing we can be sure of is that the future will be different than today.

What makes things even more complicated is that most writers, pundits, activists, and politicians talk about the future in stark and polarizing terms. We are either living in abundance or at the edge of the precipice.

In most of the Western democracies, politics itself has become deeply polarized, making it extremely difficult to separate reasoned opinions from partisan chatter. The role that Facebook, Twitter, and traditional media outlets have in amplifying different points of view is overwhelming.

Assuming someone did want to try and dig through the noise, most of us do not have the time, or training, to be able to look at the different issues, obtain and triangulate the relevant data, and come to a reasonable conclusion or perhaps a set of scenarios.

One person who has been able to do this is Vincent Petit. Perhaps the most important contribution that Petit makes is to reflect on the amazing increases in productivity and wealth over the last 100 years and assume that human ingenuity will continue to flourish in the next. He goes beyond our current thinking about what is happening in the world and recognizes its dynamic nature, meaning that we need to think about the world as it will be.

By going deeply into what could happen in seven key sectors of the economy, he manages to paint a potentially abundant future which is resilient and in harmony with the natural environment.

At IESE Business School, I lecture on some of the same themes that Petit explores in order to equip our MBA students, and the more Senior Managers who come on our executive programs, for the world that is evolving around us.

## **Human Health and Demographics**

The starting point for a discussion of health and health care trends is that people are living much longer lives today. In 1950, depending on where you were born, you could be expected to live an average of 45.5 years or more than 70 if you were lucky enough to be born in Norway or another very wealthy country (United Nations Department of Economic and Social Affairs, 2019). Today, the world average is

almost 73 and the average is over 80 in the world's richest countries. As discussed by Lynda Gratton and Andrew Scott, millennials in the developed world have a realistic possibility of living to 100.

COVID-19 is much more dangerous for older people than for the rest of the population. Older people also suffer from a range of illness and disease ranging from hearing loss and cataracts to arthritis, respiratory ailments, cancer, dementia, and other maladies.

A separate trend is that women are choosing to have fewer babies around the world due to a number of factors, but essentially linked to higher income levels. In many countries around the world, the number of babies per woman has fallen below 2.1 which appears to be the number needed to keep populations stable.

A third is that around the world, more and more people are living in cities and many of these have grown to house over ten million people!

The combination of these three trends exposes the world to more pandemics as well as a host of other challenges.

The good news is that medical science has been advancing at an amazing pace and by and large, the world can manage infectious diseases. In his book, *Homo Deus*, Yuval Harari wrote about our ability to defeat disease as one of the signs that humanity was entering a new chapter in its existence.

Harari published that book in 2015, before the world would learn of COVID-19. While we may have the science we need, human health is not as good as it could be in general. What makes things even more complicated is that healthcare is managed differently in different parts of the world and many people simply do not have access to it.

As Vincent Petit will point out, demographics drive demand across industries and ultimately also define the form that demand will take. As such, they will have a massive impact on all types of consumption.

## **Digitalization**

According to Martin Ford (2015), what is special about the digital revolution is the speed of the advancements in a range of technologies such as artificial intelligence, robotics, 3-D printing, autonomous vehicles, and a host of other innovations related to the internet or its real-world incarnation that is normally called the internet of things.

Artificial intelligence is the use of data analysis and complex math to tease out useful insight from enormous amounts of data and to be able

to do things as a result of that insight. Innovations such as natural language recognition and simultaneous translation are also driven by AI technology.

One of the things that is driving the digital revolution is the enormous amount of data now available and the even larger amounts of data which are on their way as more and more devices and activities are connected to each other. The Internet of Things (IOT) is about adding the capability to store and transmit data to most objects through advanced sensors and electronics creating a web of information potentially connecting everything we interact with in our daily lives.

One way of looking at the digital revolution is given by my colleagues Sandra Sieber and Evgeny Kaganer. The term they use is to look at the digital density of a given business or activity. Digital density is a measure of how far the digital revolution has gone in a particular business or field endeavor.

The idea is to imagine what the impact will be when digital density reaches 100 percent—meaning that everything that can be digitized has been, and that the full power of automation, connectivity, and artificial intelligence has come into play.

The music industry, e.g., was one of the first to experience profound transformation due to the digitalization of music and the repercussions of that are still playing out. You might say that its digital density is high.

Digitalization and automation were already transforming the world before the pandemic and the pace of that transformation has accelerated. Robots and algorithms do not get sick and need no protection or healthcare benefits. With the imposition of travel restrictions, many of us learned how to do what we do online and at a distance.

Petit confirms this point and expands it over additional technology developments in the field of bio- and nanotechnologies as well as new energy technologies (which proceed from the significant expansion of digital technologies), to form what he calls a new innovation toolbox. In his view, we are at the start of a new industrial revolution.

As these changes spread across the economy, the impact will be tremendous. In the first place, digital technology has the potential to eliminate millions of jobs and also to change the way many others are carried out.

While there are many voices expressing concern over the impact on people's livelihoods and the social fabric of society as a result of

digitalization, others believe that we need automation to compensate for falling birthrates in the advanced economies.

In his prescient book published in 2001, *The Future of Success*, Robert Reich (2001) believes that the best jobs would go to the people who will build the digital future and the product managers and marketing types who will figure out business models to make the new ideas economically viable.

In *The Technology Trap*, Carl Frey (2019) insists that these changes will be as dramatic as earlier technological improvements were to professions such as gas lighters, elevator operators, and the people who once manned the telephone switchboards. While technological innovation will unlock new professions for people in general, those changes usually come too late for the people who lose their jobs. In a democratic system, they may cast their votes for populist politicians who shamelessly offer simple solutions to very complex problems.

Petit also reflects on these transitional issues and argues that the innovation narrative that ultimately prevails will be one of the ultimate drivers of change in the coming decades.

## Geo-politics

The third issue which I focus on is the geo-political uncertainty around the world which was already an issue before Russia invaded Ukraine in February 2022. This is fundamentally caused by the end of the cold war, the rise of China, and the fact that the United States can no longer be relied upon to guarantee global security.

Peace and prosperity are essential pre-conditions for human development and there may be serious problems in different parts of the world over the course of the next 5–50 years.

Understanding what is going on in the part of the world you live in or do business with is increasingly important as the world becomes more and more complex. The good news is that geo-political conflicts do not happen overnight. They are the result of historical trends, economic and political rivalry, and political movements. As such, they can be studied, analyzed, and in some cases predicted.

The difficulty in doing such analysis is that most people in business did not study history or geo-politics in college and feel that these issues are beyond them. My opinion is that if you spend some time on it, you can

acquire a working knowledge of the issues facing the parts of the world you are most interested in.

The Russian invasion is a case in point. Russia's annexation of Crimea in 2014 and its involvement in the Donbas ever since were clear indications of its geo-strategic concern about Ukraine becoming part of Europe and possibly the North Atlantic Treaty Organisation.

As is discussed later in this book, water, and access to other resources are often at the heart of geopolitical tensions although politics, religion, and national sentiment of one kind or another are often overlaid in such tensions.

The geopolitical situation affects patterns of international trade even when things are relatively calm. When war does break out, it not only causes death and destruction but also has a devastating impact on the economy wiping out savings, ruining careers, etc.

Far short of war, however, there are a number of geopolitical issues which can affect our daily life. Tensions between countries, the introduction of new tariffs or economic sanctions, and even terrorist acts all make life more difficult.

Petit's scenarios take some of this uncertainty into account although his base case is that the world will flourish thanks to innovation and increased resilience. Once again, he argues human ingenuity will ultimately prevail, although the way it materializes is likely to considerably differ from one scenario to another. Different worlds, for different problems.

## **The Natural Environment**

Air and water pollution have become critical issues for people in many parts of the world and especially in the mega cities of Asia, Latin America, and Africa. Despite regulations in most countries around the world that should limit these problems, the World Health Organization estimates that much of humanity lives in places with toxic air and contaminated water.

To a large degree, these problems, and the potentially larger issue of climate change, are the direct result of the increase in wealth and prosperity discussed earlier.

Climate change is a complex issue and is mainly related to the amount and type of energy we use, and more importantly, the way we use energy. The good news is that wind and solar are now cheaper than fossil fuels in providing electricity and there is a broad-based movement of industry,

cities and a number of countries around the world to move to a low carbon energy mix.

A gradually warming earth will also impact other places changing land use patterns, crops, and other aspects of life.

Environmental issues will also drive some business areas to rise and others to fall. In the first place, whole classes of industries are being targeted by governments and civil society for the local and global harm they are thought to do to the environment and jobs in these sectors, may be at risk. An example of this is the coal business. Coal currently accounts for approximately 27 percent of the global energy mix but produces about 40 percent of carbon emissions.

Other industries including consumer products and automotive are making bold announcements to cut emissions by some future date such as 2035 or 2040. While some call such efforts greenwashing, they are often motivated by a real concern to protect a company's social license to operate, appeal to certain segments of consumers, and also attract talented people who look for firms which have a public concern about such issues.

There are also tremendous opportunities connected to cleaning up the environment and making the transition to a low-carbon economy. Christiana Figueres, who led the United Nations in its efforts to broker the Paris agreement on climate change back in 2015, sees the transition as the biggest business opportunity of all time, that will generate 65 million new jobs. Ms. Figueres and others have no doubt that the transition is coming although the timing is not certain. Either the world will act in the next 10 years to address its ecological problems, or it will be forced to do so by mother nature herself some years later.

Petit's view is that our environmental challenges will be the bedrock of innovation and differentiated positioning for businesses. In his earlier book, *The Age of Fire Is Over* (Petit, 2021), he argues effectively that the transition to a lower carbon economy will happen faster than anticipated, not because of governmental regulation but because of the new innovation toolbox he discusses in this book, and particularly a more distributed, renewable, energy system will simply be better than our current model.

## **Responsibility**

I have involved myself with these issues because I believe that each of us has the ability to understand what is going on around us, rather than simply react to what happens and hope for the best.

Like Vincent Petit, I am a firm believer in thinking about the future using scenarios. Despite our best analysis, there are aspects of the future which are not possible to see. For this reason, my advice is to think about 2–3 different scenarios for the industrial sectors and part of the world which is most important to you.

Going even further, such reflection is needed to make responsible choices at three different levels.

At the most basic level, we need to pay attention to issues such as these to be able to provide for ourselves and our families. Beyond that, many of us have an obligation to help the organizations we work for become future fit or in other words be able to survive and prosper in the future.

Finally, the essential premise of The Next Industrial Revolution is that innovation will enable a future that is more efficient, resilient, and in harmony with our natural environment. Only by thinking about the future will all of us take the necessary steps to make such innovation possible.

Petit’s view is that there is enormous potential not only for innovation but also for large-scale systemic changes. For this, he encourages each one of us to envision scenarios in order to highlight what we have to do to build what he calls a “narrative of change” to create a world where we would want our children to live in.

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