

# Preliminary Remarks

## Preparing for the Future

The date is July 27, 2017. The smell of sulphur is almost unbearable, it's hellishly hot and my feet seem to be on fire. I'm standing on a volcanic hill, gazing across an infinite landscape, shaped by the lava flows that have followed one another over the millennia and that time has transformed into more or less rounded hills. A few hours ago, before climbing this hill, I stopped in awe at the wonder of a lake made turquoise by the sulphur present in its boiling waters. I'm in Iceland. I've dreamt of this journey to a land where nature expresses itself in all its indomitable power since I was a child.

For years I have studied the natural wonders that I could admire, breathe and touch with my own hands. For years I've been imagining what it would be like to be here. I was able to feed my imagination thanks to the pictures, videos, documentaries and stories of those who made the trip before me, and I planned my own journey by reading tourist guides in search of valuable advice.

Was the experience exactly as I expected?

I'd say not. I can't cope with the amount of natural sunshine that floods this mixed land. Improvised detours are among the most surprising things. I was wrong about something, that's for sure. My feet hurt – I should have brought lighter shoes to combat the heat as well as heavier ones for the glaciers – and I realize my suitcase is full of useless items. But each choice was guided by a mental model, well trained over the years, which allowed me to know in advance the rules of the world I was going to explore, and to move with relative confidence, even in the face of unforeseen events.

I stop for a moment to imagine the same journey made without any preparation. What if I woke up without even knowing that Iceland exists and found myself here, at the top of the hill, as a result of magic, after

falling asleep quietly at my house last night? How long would it take me to understand where I am and to assess opportunities and dangers? On what will I base the choices I have to make? What if I suddenly found myself in some kind of trouble?

## Singularity and transhumanism

To be in 2050 without adequate preparation would most probably have just this effect, multiplied a thousand times, since it would be an almost incomprehensible reality for us. But why should we expect such radical changes in little more than thirty years? The concept of *technological singularity* provides a start to finding an answer.

It was in 1993 that the idea was first proposed that sooner or later scientific advances would mean we would find ourselves in a reality beyond human understanding. That very year, Vernor Vinge, an award-winning science fiction writer who had formerly been a mathematics professor at San Diego State University, published a scientific article entitled “The Coming Technological Singularity: How to Survive in the Post-Human Era”.<sup>1</sup>

Singularity in physics refers to a disruptive event that can change everything in an instant. According to this definition, for example, the Big Bang is a moment of singularity. Adding the concept of technology, with particular regard to artificial intelligence, and abstracting from physics, we find ourselves talking about a *radical change* that intimately affects our humanity: a singularity in the cognitive abilities of human beings.

Vinge’s reasoning is highly logical: by 2030 we will be able to create intelligences superior to ourselves. Afterwards, these intelligences will in turn be able to do the same, leading to an unstoppable process that will make reality as incomprehensible to human beings today as our civilization is to a goldfish.<sup>2</sup>

The concept has been taken up by the futurist Ray Kurzweil who, in addition to having written widely on the subject of technological acceptance and the consequent approach of the moment of singularity, has even created, together with the innovator Peter Diamandis, a training centre called Singularity University.<sup>3</sup> Kurzweil, adding about fifteen years to Vinge’s prediction, initially assumed that the moment of singularity would come in 2045, but later indicated a much nearer date: 2029.

So if Vinge and Kurzweil are right, in 2050 we would be in a very different place from today, and without proper guidance we would feel overwhelmed.

The discussion on singularity is split into two main viewpoints: those who argue that it will inevitably be something unique in the history of mankind, and those who believe that the expected changes will not be very different from those that have occurred in the past, with the advent, for example, of the printing press.

According to the former, the only way not to be overwhelmed by the tsunami of change would be to take our evolution into our own hands and intentionally direct it towards *technological, genetic and chemical enhancements* so as to ensure we are superior to the intelligent machines we have created. What does this mean? Enhancing humans, for the supporters of this thesis, means resorting to DNA manipulation, chemistry and neurotechnologies to increase our cognitive abilities through fusing ourselves with technology. After all, don't a little makeup, a pair of glasses, a pen, a calculator or a computer serve the same purpose?

This type of philosophy is called *transhumanism* and according to most of its followers it seems that in the future there will be no room for those who fall behind. In response to the perplexity of those who highlight the dividing power of this vision, James Hughes, in his book *Citizen Cyborg*,<sup>4</sup> explains how the democratic societies of the future will be able to create a world without inequalities even after the advent of new branches of the human species, such as those potentially arising from this approach, which involves intentionally directing our evolution. In 2050, the subject will certainly be very topical, as we shall see in the pages of this book.

Singularity and transhumanism are therefore deeply linked and from the theoretical point of view they reinforce each other: the first provides the basis for showing the necessity of the second.

## Epochal passages

As anticipated, not everyone agrees with this vision. We will certainly see enormous changes due to the development of technologies and innovations such as artificial intelligence, robotics, 3D printing, blockchain technologies, quantum computing, nanotechnology, biotechnology, advances in genetics and space exploration. It is certain that these changes will require

humanity to review the institutions and pillars of society. It is also true, however, that our past is studded with great epochal passages in which our society has been called into question and has undergone radical changes.

For those in favour of the concept of singularity, therefore, the change we are facing is only possible at certain times, such as the advent of our species on the planet, for the others we are faced with something similar to the invention of the printing press and we are in the middle of a passage from one era to another. We could say we're on a *trans-epochal Journey*. In this case understanding at least some of the rules of the game could be helpful.

The passages from one epoch to another are moments in the history of mankind in which we find ourselves between two distinct periods (usually realized a posteriori) in a very clear way, as a result of their unique cultural and social characteristics. These moments are characterized by changes that instead of being linear and continuous – and therefore predictable – are discontinuous and difficult to predict.

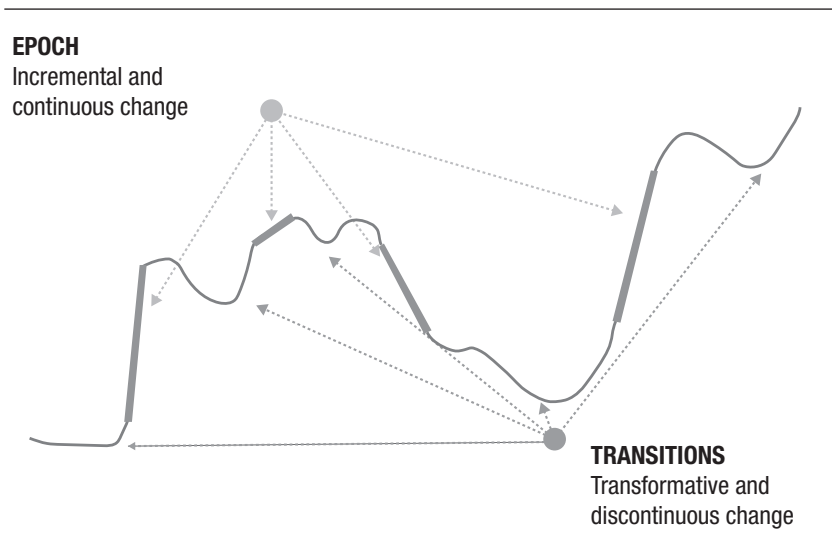
At this point, the typical objection offered by those who support singularity and transhumanism is that the difference today is caused by speed, so-called *technological acceleration*. The fact that the pace of change and changes due to the impacts of technologies are much faster than a few centuries ago, thanks to the Internet revolution and its spread, is beyond dispute. However, this is also an incremental process such as we have seen in the past, with the advent of particularly revolutionary technologies such as printing. Reading some of the works of the time we find ourselves perceiving the same sensations. Here, for example, is what Tommaso Campanella wrote at the turn of the sixteenth century: “There has been more *history* in a hundred years that the world did not have in four thousand; and more books were made in these hundred than in five thousand; and the stupendous inventions of the magnet and prints and arquebuses, great signs of the union of the world.”<sup>5</sup> In the same period Pierre Borel expressed himself as follows: “We would certainly have been incredulous if they had assured us that, through printing, it would have been possible ‘to write an infinity of books in a short time and at a speed infinitely faster than speech ... thus acquiring a sort of immortality.’”<sup>6</sup> Do these statements not remind you of certain phrases made viral by social networks? “Every day we create 2.5 quintiles of data bytes. To put it into context: 90% of the data in the world today has only been created in the last two years. And

with new devices, sensors and emerging technologies, the rate of data growth is likely to accelerate even faster.”<sup>7</sup>

Reports and analyses like the one by IBM from which this quote is taken are very fashionable today and highlight exactly what Campanella and Borel already pointed out: technology and human inventions speed up processes and thus increase the speed of our interactions and activities. Today we are faced with revolutions concerning data and our ability to analyse and use it as a decision-making tool, concerning increasingly large and connected social networks thanks to the Internet and concerning scientific advances that allow us to begin to understand life and our biological body as never before. The convergence of these revolutions will determine our future. But what will be the extent of that change?

Let’s go back to those who believe that we are in the middle of what we have called a trans-epochal journey. If we were at a moment of transition similar to those experienced in history, we could find useful indications to cope with this in the study of the past, present and future, and, consequently, of the change. At times like the present, however, according to the American Futurist Peter C. Bishop, we find it harder to understand the changes and to predict the future, since the changes are discontinuous,<sup>8</sup> as depicted in Figure 1. In this type of context, the tools of analysis

*Figure 1* Epochs and changes



and strategic forecasting that we use to think about linear changes are not valid; however, using the right tools we could also face these transformations with some confidence.

### Leaving for the trip

But do we really have to select one theory or the other to understand and guide the future? Can't we usefully find common ground, no matter what our vision?

In my opinion, whether we are close to singularity, or a trans-epochal journey, it would be irresponsible to face the future that awaits us without trying to prepare ourselves using the right tools. So if, like me, you want to know at least something about what awaits you before you embark on your journey into the future, you have the right book in your hand.

Too often we let ourselves be carried away by time, without trying to understand what the reality that we are going to experience in the immediate future will be like. We are blind to the wonders and potential dangers on the horizon for one simple reason: we don't know where to look. Then, suddenly, we find ourselves projected into a new prehearsal, we realize how many things have changed and we find ourselves struggling, unnecessarily, to chase the rhythms of a society for which we are not prepared.

The future is the wildest destination we can ever visit. It is a complex place and time, which requires study and the exercise of the imagination before leaving. The tools are few and uncertain: there are more things that we do not know – that we know we do not know and that we do not know we do not know – than that we really know. And even when we start from the few certainties that we have, we make mistakes, inevitably, because it is impossible to predict the future during an trans-epochal passage of this magnitude.

So, how do you do it?

The first thing is to study, to understand the possible futures that loom before us. Then we have to try to explore them, imagine them, question them. Only then will we have a chance to understand which we really want to visit in person and how to prepare for the trip. Sure, it's exhausting. Creativity, resourcefulness, flexibility and the ability to work in a team are needed to enrich our visions with those of others (who will after all be our travelling companions). You need courage, resilience and

a critical spirit. In this way, with imagination, creativity and a critical spirit, we can build speculative scenarios and plausible simulations.

It is with these tools that the book you have in your hands was composed and these are also the things that we will have to put into practice to face the journey towards 2050.

Let us not delude ourselves that it is possible to continue not to think about it: the journey into the future is not a choice. It concerns us all and, in this historical phase of radical change, it is folly to travel unpredictably. The future, with its extraordinary destinations, its unexpected experiences, its extreme complexity, its opportunities and threats, requires profound reflection from everyone before departure, whether they are regular travellers to the future or about to embark on their first journey.

So let's leave together for 2050: a destination far enough away to have experienced great changes in the life of its inhabitants, but also close enough to affect most of us, either personally or through our children or grandchildren.

If you have decided to embark on your journey into the future responsibly, you will find many useful tips on how to leave equipped for a wonderful destination on the following pages. With its multifaceted reality, technological developments and wide range of scenarios to visit, 2050 is a destination that will amaze the most daring travellers, from those who love new things and urban landscapes, to those who are looking for a holiday full of surprises and boundless spaces.

The journey won't be easy. To get used to it, you'll need specific information and tools, a spirit of adventure and a good dose of adaptability. I trust that the contents of this book may suggest an effective strategy to best plan your itinerary, helping you to decide in which direction to go, what future to leave for, what to visit and what to take with you. What do you eat in 2050? How do you dress? Where do young people go to have fun? Where do people live? Which are the biggest cities, which are the experiences not to be missed? How to prepare for the climate? Customs, languages, nutrition, institutions: everything in 2050 will be quite different from the world we are used to. Everything raises questions, fuels hope and increases the weight of our responsibility.

Let us then prepare ourselves to embark on our journey to discover the possible realities of the future. To choose the reality that each one of us would like to see realized, starting from today.

Have a nice trip!

## The structure of the book

*Welcome to 2050* is the result of the explorations I do every day with the Impactscool team.<sup>9</sup> The wealth of stimuli and ideas that arise daily in this context are reflected in the many curiosities and insights that enrich the text.

Each reader can move among the pages as he or she wishes, letting himself or herself be guided by his or her own interests and needs.



= Insights



= Curiosity



= A jump back to the present



The “2050 Today” boxes will host a selection of the most curious news that has appeared in the main magazine of the future.

At the end of the book, for those who do not know the language of tomorrow well, a small “Glossary of the future” provides a guide to the essential words in 2050.

## Acknowledgements

Travelling into the future is serious: it can be dangerous and exciting.

As with all travel, what makes the difference is the company, and I could never have written this book without my fellow travellers, who made every stage of the journey unforgettable.

And thanks to those who, like my family, have always supported me in my most bizarre missions, hiding their concerns behind a “I recommend prudence” (and in the future it takes a lot).

And thanks to all those who have decided to interact with Impactscool, telling us their vision of the future: this book could not exist without them.



The biggest thanks, however, go to Andrea Dusi: I met you at the start of my journey and you have contributed more than anyone to make it stimulating, fun, challenging. You pushed the boundaries of my curiosity and, above all, you always expressed to me your true opinion, even when you knew I wouldn't like it.

## Notes

<sup>1</sup> V. Vinge, "The coming technological singularity: How to survive in the post-human era", conference paper, Department of Mathematical Sciences San Diego State University, 1993 (for the curious, the text can be found on the net).

<sup>2</sup> In an interview published in the transhumanist magazine *H+*, Vinge described the singularity as follows: "I think the term Singularity is appropriate, because unlike other technological changes, it seems to me pretty evident that this change would be unintelligible to us afterwards in the same way that our present civilization is unintelligible to a goldfish" (D. Wolens, "Singularity 101 with Vernor Vinge", *H+ Magazine*, 22 April 2009).

<sup>3</sup> In particular, we can cite R. Kurzweil, *The Singularity is Near: When Humans Transcend Biology*, New York, Viking, 2005.

<sup>4</sup> J. Hughes, *Citizen Cyborg: Why Democratic Societies Must Respond to the Redesigned Human of the Future*, Cambridge (MA), Westview Press, 2004.

<sup>5</sup> T. Campanella, *La città del sole* (1602), edited by N. Bobbio, Turin, Einaudi, 1941, 109.

<sup>6</sup> P. Borel, *Discours nouveau prouvant la pluralité des mondes* (1657), ed. A. Del Prete, Lecce, Conte Editore, 1998.

<sup>7</sup> IBM Marketing Cloud, "10 Key Marketing Trends for 2017 and Ideas for Exceeding Customer Expectations", [comsenseconsulting.com](http://comsenseconsulting.com), 2017.

<sup>8</sup> P. Bishop, "Framework forecasting. Managing uncertainty and influencing the future", paper presented at Second Prague Workshop on Futures Studies Methodology, October 2005.

<sup>9</sup> Impactscool ([www.impactscool.com](http://www.impactscool.com)) is a dedicated organization thinking about the future and discussing the impact of technologies on society.

## **TEN THINGS NOT TO BE MISSED**

### **① Creatures of 2050**

How have the species that inhabit our planet changed and what new creatures can be found? Robots, cyborgs, animal species that were believed to be extinct forever and new hybrids are at the order of the day.

*To get there prepared* see sections “The inhabitants” in Chapter 1 and “Animals and nature” in Chapter 2.

### **② Space excursions**

One of the most popular destinations for visitors in 2050 is space. There are many agencies offering excursions and panoramic trips and the type of trip depends on the time available and the costs.

*To choose the most suitable to satisfy your desires* see subsections “Astro-tourism” and “Romantic tours”, both in Chapter 2.

### **③ Designed babies**

Among the things not to be missed is a visit to one of the laboratories that allow you to choose all DNA details of an unborn child. These are few and far between and not many allow tourists to visit.

*For guidance on such a sensitive topic* see subsection “‘Designed’ babies and the outsourcing of reproduction” in Chapter 1.

### **④ Synthetic–biological marriages**

You can’t say you were in 2050 without witnessing this curious new custom. Many humans now decide to marry humanoid (human-like) robots.

*For basic information* see the subsection “Robots in love” in Chapter 1.

### **⑤ Functional food**

Tastes, shapes and colours are not lacking in the diet of 2050.

*To discover foods with curative, preventive and cosmetic functions*, see “Nutrition”.

### **⑥ Urban farm**

The experience of a tour in one of the many city workshops where algae, vegetables and fruit are harvested using innovative methods is a must on a journey to a future that respects the Earth.

*For a taste of tomorrow’s kilometre zero dishes* see subsection “2050 supermarkets” and following in Chapter 2.

**⑦ Augmented sports**

Attending a sporting event of the future, which includes robots, cyborgs, e-sport and augmented and virtual realities, certainly does not leave one disappointed.

*To obtain a ticket*, please refer to the section on “Sport and leisure time” in Chapter 2.

**⑧ Souvenirs and shopping**

Bags, shoes, notebooks and belts are not the same anymore. The material used to create them is produced in the laboratory from cells of the most varied animals on the planet. The most expensive are made from genuine synthetic human skin.

*To get an idea of the new range of products on offer*, see section “Seven deals not to be missed”.

**⑨ Tailor-made medicines**

It is not surprising that, if necessary, before those in 2050 are prescribed any medication, they are subjected to a thorough DNA test and analysis of their personal parameters: there are almost no more general medicines.

*To understand why tailor-made drugs are more effective* see the section “Health” in Chapter 2.

**⑩ Virtual dating**

Between artificial intelligence-based matching systems and special virtual reality sets, distances no longer matter when it comes to finding your soulmate.

*To experience a first date without leaving the house* see subsection “Love, reproduction and relationships” in Chapter 1.