

# Utopia or dystopia: potential futures of AI and society

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## Abstract

This article examines the impact of artificial intelligence (AI) on society, presenting both hopeful and cautionary future scenarios within the Fourth Industrial Revolution. It discusses key perspectives on AI's potential to drive economic growth and equality, alongside risks of increased inequality and job loss. A comparative analysis of U.S. and European AI regulations highlights ethical and privacy considerations. Ultimately, the article advocates for responsible innovation to ensure AI enhances human welfare and aligns with societal values.

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## 1. Introduction

The era we are living in is unprecedented. The next generations will look back and realize what an exciting era it must have been—an era of transition from the physical economy to the digital economy.

However, these times demand a radical shift in mindset. We need to appreciate the scale of disruption and the new types of responsibility that the adoption of emerging technologies brings. Appreciating the speed of change will not be enough. New approaches to leadership, governance, and values will be necessary.

## 2. Four industrial revolutions

First of all, let's put things in context. Four major industrial revolutions have occurred so far.

The First Industrial Revolution marked a global transformation in human economies. It witnessed the emergence of more efficient and stable manufacturing processes following the Agricultural Revolution. This groundbreaking shift began in Great Britain, spread to continental Europe and the United States, and unfolded roughly between

1760 and 1820-1840.

The Second Industrial Revolution, also recognized as the Technological Revolution, represented a phase of rapid scientific exploration, standardization, mass production, and industrialization. This era unfolded from the late 19th century through the early 20th century.

The Third Industrial Revolution, commonly known as the Digital Revolution, signified a departure from the mechanical and analog electronic technologies of the earlier Industrial Revolution. It began in the latter part of the 20th century, driven by the widespread adoption of digital computers and digital record-keeping, and has persisted into the present day.

Lastly, the Fourth Industrial Revolution, often abbreviated as “4IR” or termed “Industry 4.0,” describes the blurring of boundaries between the physical, digital, and biological worlds. It’s a fusion of advances in artificial intelligence (AI), robotics, the Internet of Things (IoT), Web3, blockchain, 3D printing, genetic engineering, quantum computing, and other technologies. It’s the collective force behind many products and services that are fast becoming indispensable to modern life, such as GPS systems that suggest the fastest route to a destination, voice-activated virtual assistants like Apple’s Siri, personalized Netflix recommendations, and Facebook’s ability to recognize your face and tag you in a friend’s photo.

The term gained prominence in 2016, attributed to Klaus Schwab, the founder and executive chairman of the World Economic Forum. Below, I report something he wrote.

«The changes are so profound that, from the perspective of human history, there has never been a time of greater promise or potential peril. Like the revolutions that preceded it, the Fourth Industrial Revolution has the potential to raise global income levels and improve the quality of life for populations around the world. This true potential lies not solely within the realm of technology but in our capacity to empower the greatest number of individuals to positively influence their families, organizations, and communities, thereby ushering in a brighter and more interconnected future for all.»<sup>1</sup>

It’s not all good news, however. Schwab also suggested the revolution could lead to greater inequality, particularly in its potential to disrupt labor markets. Furthermore, the job market may become increasingly segregated into “low-skill/low-pay” and “high-skill/high-pay” roles, which could escalate social tension. In the coming decades, we need to establish guardrails that keep the innovations of the Fourth Industrial Revolution on a track to benefit all of humanity. We can all individually have a direct role in shaping our future and creating economic opportunity for millions of people by investing our time and resources in helping others.<sup>2</sup>

In these times of change, the peace of digital penetration into every aspect of our lives leads to an inevitable clash between two worlds. On one hand we have the planet populated and largely still run by those born physically, they see the world as a tangible entity with physical output, they possibly build houses, produce cars, or provide

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<sup>1</sup> K. Schwab, *The 4th Industrial Revolution*, Cologne-Geneva, 2016.

<sup>2</sup> K. Schwab, *The 4th Industrial*, *cit.*

financial services. In this world, despite digital advancements “analog” mindsets dominate aspirations and decision making therefore growth opportunities and business problems are tackled linearly and where technology is an enabler. On the other hand, we have a collision with the inhabitants of “planet digital”, inhabited by individuals and firms who are born digital, they don’t see houses, cars or services but they only see data. They believe that every challenge can be solved thanks to the right software algorithm and appropriate mix of technologies. They bring exponential thinking to business strategy.<sup>3</sup>

What are the technologies driving change?

The easiest way to understand the Fourth Industrial Revolution is to focus on the macro areas driving it. Overall, these include the following: artificial intelligence, blockchain, cybersecurity, faster computer processing, virtual reality and augmented reality, biotechnology, robotics, the internet of things, 3D printing.

All the above implies the necessity to work with a large amount of data, which is the lifeblood of the internet.

How do we ensure the 4th industrial Revolution is good for everyone?

To thrive in the Fourth Industrial Revolution, companies must ensure that their workers are properly equipped through upskilling and reskilling<sup>4</sup>. Upskilling means that employees learn new skills to help them in their current positions as the skills they need evolve. Reskilling is the real challenge: workers are retrained with new skills that will enable them to fill different positions within their companies.

This is increasingly vital as disruptive technologies transform job requirements.

The end-to-end skill transformation has three phases:

1. scout—analyze the skills required to achieve a company’s ambitions;
2. shape—identify talent gaps that must be addressed and design the program infrastructure to address them;
3. shift—develop and implement content and delivery mechanisms to train workers at scale<sup>5</sup>.

Marc Beinoff, CEO of Salesforce in Davos during the World Economic Forum a few years ago said in an interview: « As data becomes the currency of our digital lives, companies must ensure the privacy and security of customer information. A trust revolution is needed if businesses are to fully embrace the potential of the Fourth Industrial Revolution. Every business leader can have a direct role in creating economic opportunity for millions of people by investing in education and training programs for existing and potential talent. »<sup>6</sup>

With the Fourth Industrial Revolution presenting both immense opportunities and challenges, it’s up to all of us to work together to ensure that it benefits everyone.

Bernard Marr, a world-renowned futurist, influencer and thought leader in the fields

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<sup>3</sup> R. Talwar, *The Future of Business Critical insights into a rapidly changing world from 60 future thinkers*, LittleHampton, 2015.

<sup>4</sup> K. Ellingrud-R. Gupta-J. Salguero, *Building the vital skills for the future of work in operations*, in *McKinsey & Company*, 7 August 2020.

<sup>5</sup> *What are Industry 4.0, the Fourth Industrial Revolution, and 4IR?*, in *McKinsey & Company*, 17 August 2022.

<sup>6</sup> D. McGinnis, *What Is the Fourth Industrial Revolution?*, in *Salesforce*, 18 March 2020.

of business and technology writes that, «humans must be proactive in shaping this technology and disruption. This requires global cooperation and a shared view of how technology is reshaping our economic, social, cultural, and individual lives. With businesses at the forefront of the Fourth Industrial Revolution, driving both innovation and social disruption, they must also play a pivotal role in ensuring that the needs of all stakeholders are met, and not just those of shareholders»<sup>7</sup>

The World Economic Forum, in collaboration with McKinsey, launched the Global Lighthouse Network (GLN)<sup>8</sup> in 2018 to identify organizations and technologies in the vanguard of the Fourth Industrial Revolution. A lighthouse (in this context) is a manufacturing site that has successfully implemented 4IR technologies at scale, with a significant operational impact.

### **3. Future scenarios in face of AI**

*«Technology is giving life the potential to flourish like never before – or to self destruct.»<sup>9</sup>*

In 2020 American AI start-ups raised almost 38 BN in funding. Their Asian counterpart raised 25 BN in funding. And their European counterpart raised 8 BN. Three Governments, US, China and EU have all convened high level commissions to study AI and report their findings. Now Political and Corporate leaders regularly announce their goals to “win” in AI or adopt AI and tailor to meet their objectives.

Being the future of business affected by many technology innovations but mainly I believe it will be affected by AI, let’s try to understand what the potential scenarios of humanity evolution in the presence of an always more present AI are.

If we want to understand how humans will organize their businesses in the future we need to understand where we come from and where we are going in face of advanced technologies. The AI conversation is important in terms of both urgency and impact. In comparison with climate change which might wreak havoc in fifty or two hundred years, many experts expect AI to have greater impact within decades and to potentially give us technology for mitigating climate change. In comparison with wars, terrorism, unemployment, poverty, migration and social justice issues, the rise of AI will have greater overall impact.

I think useful to imagine potential scenarios of AI impact. The following table is a product of MIT artificial intelligence Professor Max Tegmark.<sup>10</sup>

Libertarian Utopia	Humans, cyborgs and superintelligences coexist
Benevolent dictator	AI runs society and most people view this as a good thing

<sup>7</sup> B. Marr, *The 4th Industrial Revolution Is Here – Are You Ready?*, in *Bernard Marr & Co.*

<sup>8</sup> *The Global Lighthouse Network*, in *McKinsey & Company*, 17 August 2022

<sup>9</sup> A. Conn, *AI Aftermath Scenarios*, in *Future of Life Institute*, 28 August 2017.

<sup>10</sup> M. Tegmark, *Life 3.0: Being Human in the Age of Artificial Intelligence*, Milano, 2017.

## Cronache

Egalitarian utopia	Humans and cyborgs coexist, property concept is abolished and there is a guaranteed income for everyone
Gatekeeper	A superintelligent AI is created to prevent the creation of another superintelligence. Helper robots with subhuman intelligence abound but technological progress is stymied
Protector god	An omniscient and omnipotent AI maximizes human happiness by intervening only in ways that preserve our feelings of control of our destinies but hides so well that humans doubt AI's existence
Enslaved god	A superintelligent AI is confined by Humans who use it to produce advanced technology and wealth that can be used for good or bad depending on the human controllers
Conquerors	AI decides that humans are a threat and get rid of us in a way we don't even understand
Descendants	Humans are replaced by AI but with a graceful exit. Humans will be happy to have created an AI smarter than them. Like parents with children.
Zookeeper	Humans are treated like animals in a zoo and only few exemplars are maintained
1984	AI research for superintelligence is permanently curtailed, certain kinds of AI research are banned
Reversion	Technological advancement is blocked by reverting to a pre-technological society, Amish style.
Self destruction	Superintelligence is never created because humanity drive itself extinct by other reasons like climate crisis, biotech or nuclear.

AI researchers range from confident optimists to serious concerned. Accordingly to Max there are 3 categories of them:

- 1) Digital utopians. The ones who think that digital life is the natural and desirable next step in the cosmic evolution and that if we let digital minds be free rather than trying to stop or enslave them the outcome is almost certain to be good.
- 2) Techno skeptics, they think that building super human AGI is so hard that it won't happen for hundreds of years. They think it is silly to worry about it now.
- 3) Members of the beneficial AI movement who think that technology is giving life the power either to flourish like never before or to self-destruct. The FLI institute is part of this third category.

We need to be humble in face of AI, perhaps I can list some useful questions that we could ask ourselves.

1. What career advice would you give to today's children?
2. Do you prefer the idea of new jobs replacing the old ones or envision a job-less society where everyone enjoys a life of leisure and machine-produced

wealth?

3. Would you like to see the concept of Life 3.0 become widespread?
4. Will intelligent machines replace us, coexist with us, or merge with us?
5. What will it mean to be human in the age of AI?
6. How can our decisions today contribute to creating a better future for our children and future generations?
7. Does AI perceive aspects of reality that humans do not?
8. To what extent are we aware of how much our daily decisions are influenced by algorithms? How much do we recognize our tunnel vision?
9. When AI becomes involved in assessing and shaping human actions, how will humans change?
10. What, then, will it mean to be human?
11. What is the fundamental difference between natural and artificial intelligence? Is it perhaps consciousness?
12. How do we define consciousness?

The unknown can be a daunting prospect. Ethical considerations, norms, and values must be woven into the fabric of technology's integration into business practices—a complex task indeed. Countless efforts and treaties are already underway, attempting to navigate this intricate terrain.

AI, among a plethora of other cutting-edge technologies, has seamlessly permeated our daily lives, often without our conscious acknowledgment. From communication to employment and even matters of the heart, these innovations have become indispensable. Yet, in this modern age, decisions affecting our very existence are frequently made by unseen forces, as algorithms subtly reshape our interactions with the world around us. The future promises a landscape where humans possess “superpowers”, where choices are influenced, and our environment grows ever more interconnected. Consider, then, which of these potential futures we ought to steer clear of. Dialogue and education are paramount, equipping us with the necessary savvy to navigate the technological tide with intentionality. Blindly forging ahead without a clear vision would be folly.

Indeed, we find ourselves amidst a captivating era, where the power to shape our destiny still resides within our grasp.

The management of AI presents a challenge of global proportions, necessitating collaborative efforts on an international scale. Should AI progress to rival human capabilities, our foremost concern must be to ensure its application serves the betterment of society, potentially paving the way for a utopia where leisure flourishes even in a jobless society.

I have one more question pressing question: in a society devoid of traditional employment, how might business look like?

We should contemplate the very essence of economic interaction in a world shaped by the inexorable technological innovation.

But which are the major challenges to be afraid of? Certainly we can consider Bias and Discrimination, Privacy and Data Protection, Job Displacement and Economic Inequality,

Ethical and Moral Decision-Making, Security Risks and Weaponization.

On the flip side tremendous opportunities are Healthcare Advancements, Enhanced Productivity and Efficiency, Improved Environmental Sustainability, Innovation in Education, Breakthroughs in Scientific Research.

#### **4. Legislative frameworks and Generative AI: A comparative overview of Europe and the US**

The legal landscape around AI, particularly Gen AI, remains fragmented across regions, with lawmakers still playing catch-up to regulate its pervasive influence. In the European Union, regulatory efforts are significantly shaped by the Artificial Intelligence Act<sup>11</sup>, which is expected to serve as a global precedent for AI regulation. The act categorizes AI applications based on risk levels, including stringent obligations for systems like Gen AI that are considered high-risk. These systems, which can generate complex creative outputs, are subject to transparency obligations, requiring developers to disclose the nature of the data sets used and ensure accountability in the AI's decision-making processes.

Further complicating the legal narrative, the General Data Protection Regulation (GDPR)<sup>12</sup> adds a layer of complexity to AI developers, particularly in data collection and processing. Gen AI systems, relying heavily on large datasets, face challenges in maintaining compliance with the GDPR's strict consent and privacy mandates. This legal tension exemplifies the EU's commitment to human-centric AI regulation that seeks to mitigate the risks posed by technologies like Gen AI while fostering innovation within ethical boundaries.

On the other side of the Atlantic, the United States adopts a more sector-specific and fragmented approach. Rather than a comprehensive federal AI law, the U.S. regulates Gen AI through a patchwork of existing frameworks that span privacy laws, antitrust regulations, and industry-specific standards. The Federal Trade Commission (FTC), for instance, has issued guidance aimed at preventing AI systems from engaging in deceptive or unfair practices. Moreover, the Algorithmic Accountability Act has been introduced, pushing for transparency in automated decision-making systems. However, its relatively broad scope and voluntary nature suggest that the U.S. remains hesitant to embrace rigid regulatory structures for AI.

This difference in regulatory philosophy reflects the EU's cautionary approach to Gen AI governance versus the U.S.'s innovation-first stance. European regulators, recogniz-

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<sup>11</sup> Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), OJ L, 2024/1689, 12.7.2024.

<sup>12</sup> Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), OJ L 119, 4.5.2016, p. 1–88.

ing the high societal stakes of Gen AI, aim to implement a legislative infrastructure that ensures safety and fairness, even at the cost of slowing down innovation. Conversely, in the U.S., the belief that over-regulation could stifle creativity and competitiveness drives a more laissez-faire approach.

As AI technologies become further embedded in global industries, including finance, healthcare, and even legal services, it is evident that harmonization between these legislative frameworks will be crucial. The global economy, heavily reliant on AI's capabilities, necessitates coherent, international collaboration to ensure that AI developments—especially generative AI—contribute to societal welfare without compromising individual rights or exacerbating existing inequalities.

Thus, as generative AI advances, we stand at a critical juncture where the choices made by policymakers in Europe and the United States will shape the contours of global AI governance. How these regions balance innovation with ethical considerations could well determine the trajectory of AI and its impact on the future of humanity.

## **5. The virtual self**

Since the advent of the internet, humanity has created a parallel virtual reality where an increasing number of interests and assets have been transferred over the years.<sup>13</sup>

As of 2021, teenagers (aged 13 to 18) spend around 8 hours and 39 minutes per day on screens, while adults typically spend about 6 to 8 hours daily on digital devices. Over an 85-year lifespan, this can equate to about 22 to 25 years spent in front of screens, depending on lifestyle and screen habits.<sup>14</sup>

These estimates reflect the combined use of various screens, including smartphones, computers, and televisions, and have risen sharply in recent years due to increased access to digital devices and changes in work and entertainment habits.<sup>15</sup>

It is no coincidence that intangible assets, essentially data, have now surpassed tangible ones in value. These assets, whether they are IP, financial instruments like stocks, or even personal identities curated through social networks, reside in this virtual world. Many individuals today invest more effort in maintaining and preserving their digital assets and digital identities than in nurturing their real-world presence especially millennials and generation Z. We will see for generation alpha.<sup>16</sup>

This shift has permeated various aspects of life.

However, this growing digital immersion introduces a profound conflict. As biological beings with physical needs—such as eating, sleeping, or socializing, we find ourselves increasingly torn between these two realities. The tension between the demands of our digital existence and the necessity of our physical one lies at the heart of many modern mental health issues.<sup>17</sup> The pressing question, then, is whether artificial intelligence can

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<sup>13</sup> N. Young, *The Virtual Self: How Our Digital Lives Are Altering the World Around Us*, Toronto, 2012.

<sup>14</sup> Data retrieved from [BOND Internet Trends \(2019\)](#) and online sources.

<sup>15</sup> D. B. Ruder, *Screen Time and the Brain*, in *Harvard Medical School*, 19 June 2019.

<sup>16</sup> N. Young, *The Virtual Self*, cit.

<sup>17</sup> D. B. Ruder, *Screen Time and the Brain*, cit.



help us better manage this duality. Will AI, with its immense capabilities, enable us to spend less time in the digital realm, freeing us to attend more fully to our biological real lives? Or, conversely, will it exacerbate the issue, requiring even more of our attention and supervision? This dilemma poses a critical challenge for comprehension and regulation since our future will be permeated by AI.<sup>18</sup>

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<sup>18</sup> D. J. Solove, *The Digital Person: Technology and Privacy in the Information Age*, New York, 2004.