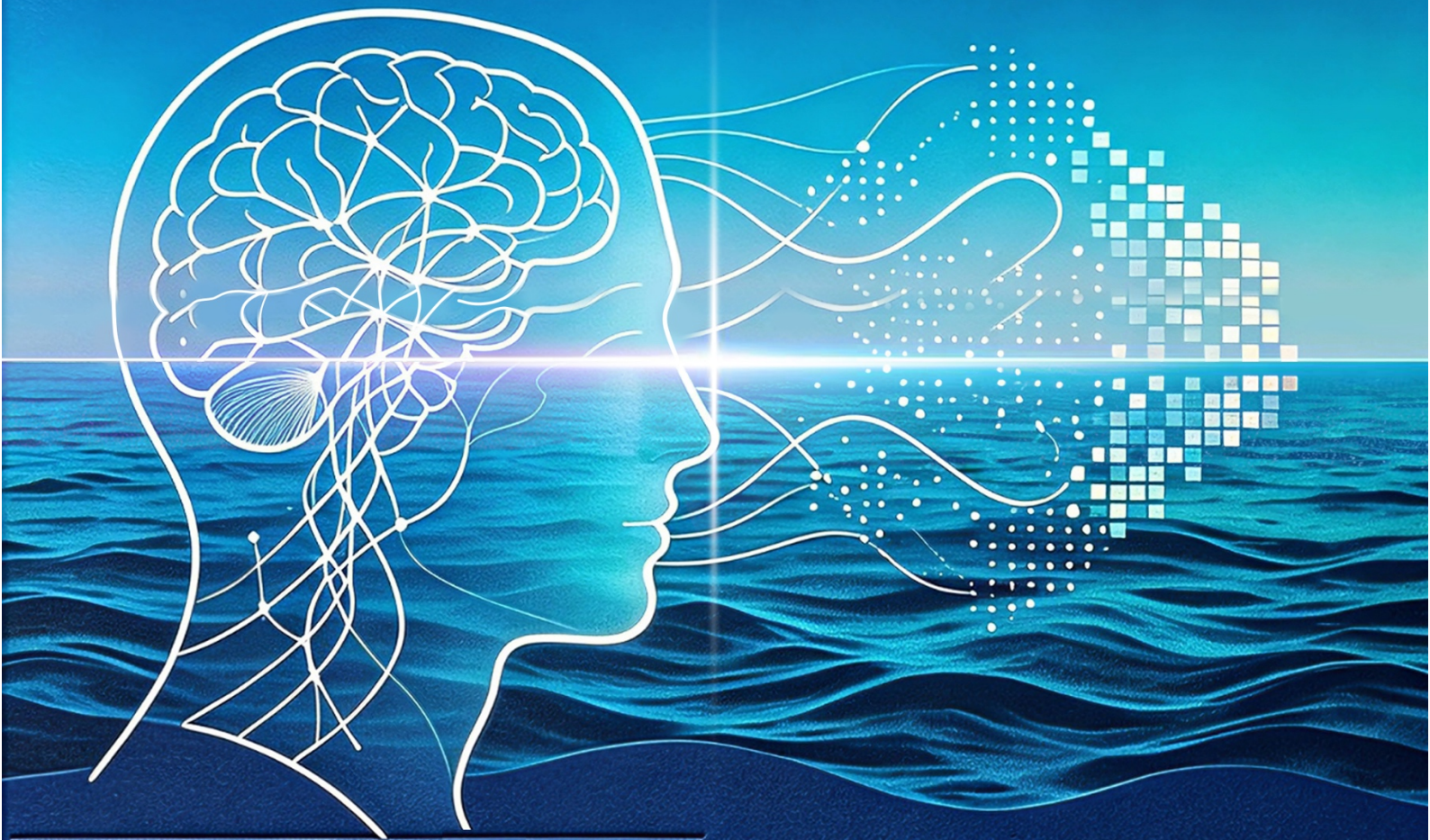
THE HORIZON OF ARTIFICIAL INTELLIGENCE

An Odyssey of Human and Artificial Intelligence



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THE HORIZON OF ARTIFICIAL INTELLIGENCE

By Piero Formica

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To the Innovation Value Institute colleagues, unparalleled leaders in digital transformation.

To the International Core Academy of Sciences and Humanities, which promotes scientific advancement and global academic cooperation for the benefit of humanity.

Contents

FOREWORDS

Artificial intelligence and the future. A voyage through waves of words inspired by imagination

Alan Barrell

My first need, following a journey through this remarkable volume, was for rest. There is such an astonishing amount and quality of material that my mind needed a spell to absorb and digest – to sort out and reflect. And after that respite, I was compelled to follow the pathways again since there is so much to consider, visualise, debate, process and turn over. I felt the need to become a mental athlete to keep pace with this great compendium of history, social science, philosophy, and observation of human development, the human condition, and behaviour, with so much to provoke constant deliberation on human interactions with technology and machines. Mind-blowing is an overused term. But it did apply to my condition at the end of my second journey through this labyrinth of intellectual stimulus.

I have long admired the work of Alan Turing, to whom I attribute my introduction to concepts of Artificial Intelligence. Many believe that, although the ideas of intelligence beyond the human form existed from ancient times through mythological pathways and would assume greater importance, the first use of the term we read about daily, *Artificial Intelligence,* can be attributed to Turing about 60 years ago. And here in the UK, the Turing Institute is testimony to the admiration this great man is now at last afforded. By coincidence, I was recently in London at The British Library, where The Turing Institute has its headquarters and visited, on another floor of this wonderful building, an extensive exhibition on Fantasy and The Fantastic. It is a wonderful exhibition which traces the history of fantastic and "out of this world thinking" from the beginning of recorded time. It is extremely visual and imaginative. My mind connected what I saw at this exhibition with what I had been reading in Piero's book.

The astonishing breadth of human imagination and creativity that has been manifest, from long before "machines" were thought about. And the show tracks this primary theme of human imagination through centuries of literature and media development, from myths and fairy tales to the latest developments in the computer gaming industry. The exhibition was another journey for me, which reminded me, as does this book, that amongst the most profound statements Einstein gave us was "*Imagination is more important than Knowledge. Knowledge is limited. Imagination encircles the World*".

Much of the present discussion focused on Artificial Intelligence, not least press reports, is concentrated not on the prospective benefits of technology and intelligence which may improve health, wellness, life and the human condition generally, but on the risks of the misuse of developing capabilities and/or the danger that "non-human intelligence" may gain control of we beings or take control of key aspects of existence and decision making. Ethical AI is much discussed and debated. Reaching beyond press and popular debate, I have found it stimulating to see and read about the art produced by the robot Ai-Da (she is the world's first ultra-realistic artist robot; she draws and paints using cameras in her eyes) and learn about her encounters with members of the UK upper house of government – the House of Lords, where Ai-Da was interviewed and interrogated by their Lordships about the "life" of a semi-humanoid robot. And the imaginative, moving novels about imagined humanoid robot life have intrigued me, too. I recommend two books which might be read in conjunction with Piero's wonderful text – "Machines Like Me"by Ian McEwan and "Klara and the Sun" by Kazuo Ishiguro. We are privileged to live within reach of literary works of quality and note, such as these and at the same time, the work about which I am reflecting was bequeathed to us by our friend and colleague Piero Formica.

My concluding thoughts on Human Intelligence and Artificial Intelligence are that I cannot conceive there will be a more extensive treatise on this subject than the thirty-five chapters included here. Just scan the chapter headings and accept my challenge to find an aspect of relevance to history, human life and behaviour, literature, philosophy, ethics and indeed thoughts on "how to deal with it" – that has been overlooked or omitted. It is unusual in that it can be an encyclopedia of "what is going on" in the subject area, a "thought book" on how to consider it all, a "guidebook" on what we might do, a resource on humans and humanoids, and so much more.

This book is about and for humans, and a handbook on how to explore and examine the realities that may arise as we humans continue to expand and develop our own minds and create mechanisms that may, at times, indeed outpace us. It is a book not only for technologists and nerds, but for all serious thinkers. An opportunity to reflect and review on many aspects of human history, philosophy and how past, present and future link the human condition together. Engage with it and regard it as a challenge to your own mindset and perceptions of this wonderful term, *Artificial Intelligence.* The experience could change your mind about a lot of things!

Professor Alan Barrell, Entrepreneur in Residence at Cambridge University's Centre for Entrepreneurial Learning

An Odyssean epic journey of the mind

Brian Donnellan

Artificial Intelligence (AI) has captured our attention as a potential disruptive technology in the wake of a series of AI products and services from leading companies such as Google, Microsoft and OpenAI. As usual, the advent of technology with the potential to have a global impact has been accompanied by a fanfare that combines fact with fiction. In particular, the ChatGPT AI-Chatbot has attracted significant commentary as its adoption rate has been unprecedented, and it is just one of an increasing number of Chatbot services emerging in the marketplace.

Prof. Formica's book offers a very significant and timely contribution to the discourse on multi-faceted artificial intelligence at a critical moment in its evolution. The historical context presented by the author and references to essential texts allow the reader to embark on an intellectual journey, build on existing research, and open new horizons and develop new ideas for future journeys. Exploring the phenomenon of AI from a myriad of complementary perspectives, Formica brings an informed perspective and a unique voice to the discourse on artificial intelligence, with a compelling rationale for supporting transdisciplinary approaches to new so-called ‘intelligent’ agents. The author has chosen to bring to light the complex issues associated with AI through an innovative structure in the book. His ‘Gallery of the Mind’ carefully designed with the reader in mind, shows a unique and thought-provoking set of insights. It is a set of intellectual images that arise from the depths of the mind and provide the reader with a series of lenses through which it is possible to grasp the complexities underlying the current wave of AI adoption and the pitfalls associated with a developing technological system that is still immature and has the potential to disrupt our economies and societies significantly.

The author’s sensitivity to artificial intelligence’s potential pitfalls and limitations is reminiscent of similar warnings currently being raised by Noam Chomsky. Chomsky and others have quoted Jorge Luis Borges, who said that living in an age of great danger and promise means experiencing both tragedy and comedy, with ‘the imminence of a revelation’ in our understanding of ourselves and the world. Chomsky is in tune with Formica when he warns that <<our supposedly revolutionary advancements in artificial intelligence are indeed cause for both concern and optimism. Optimism because intelligence is how we solve problems. Concern because we fear that the most popular and fashionable strain of AI — machine learning — will degrade our science and debase our ethics by incorporating into our technology a fundamentally flawed conception of language and knowledge>>.

Prof. Formica has taken us on an Odyssean epic journey of the mind, departing in chapter one with an erudite tracing of the lineage of the idea of AI and arriving 'home' in chapter thirty-five with wise reflections on the limitations of AI and a timely reminder that "AI takes everything literally and offers platitudes devoid of reflexivity". His book is in the true tradition of intellectual 'chemin faisant' – groundbreaking work that lays a path for others to follow.

Brian Donnellan, Professor of Management Information Systems at Maynooth University

Acknowledgements

Research progresses not by remaining comfortably seated in the traveller's armchair in the lands of acquired knowledge. “Tomorrow we shall set out upon the vast ocean”, wrote the Roman poet Horace in his Odes. The traveller’s diary speaks of the landscapes traversed. The landscape of artificial intelligence is extremely changeable. Consequently, the diary is a constantly evolving, living book. *The Horizon of Artificial Intelligence* is such a book. The International Core Academy of Sciences and Humanities, which possesses the strategic ability to look far ahead, anticipating future knowledge map scenarios to act with awareness today, has decided to curate this book and publish it as it is updated over time. I sincerely thank the Academy for agreeing to be my companion on this unique travel adventure.

The Innovation Value Institute (IVI) of Maynooth University in Ireland is granting me the opportunity to sail in the boundless sea of the unknown. Founded in 2006 in collaboration with Intel, the Institute is a transdisciplinary open innovation community addressing the challenges of digital transformation. I sincerely thank Professor Markus Helfert, Director of the IVI, Brian Donnellan, Martin Curley, and all my colleagues for their unwavering support. I extend my thanks to the President of Maynooth University, Professor Eeva Leinonen.

My research was echoed in the Italian academic world thanks to the commitment of Professor Fabrizio Dughiero, Director of the Department of Industrial Engineering of the University of Padua. I thank him for allowing me to start the ideation process from the encounter between science and entrepreneurship at the Contamination Lab Veneto, a unique transdisciplinary learning experience offered to students of the University of Padua coming from different schools and disciplines.

It is very demanding to be a citizen of the city of ideas while the wind of artificial intelligence blows strongly. If you feel like the young poet Evmenis, who, having composed only one idyll, complained to Theocritus, read *The First Step*, a poem by Constantine Cavafy. You will gain courage. If you are a knowledge nomad, a mentor par excellence whom I thank for supporting several of my nomadic students is Professor Alan Barrell, Entrepreneur in Residence at Cambridge (UK) University's Centre for Entrepreneurial Learning. Last but not least, thanks to Arianna, my companion along the journey of research, who sent me words, sometimes of approval, sometimes of constructive criticism, which made navigation more agile and adventurous.

PRELUDE

Amid the turmoil over predictions for the future of human and artificial intelligence

The horizon of artificial intelligence is a moving target and a dynamic partner in our intellectual journey. Along the way, we, natural beings with biological brains, meet Homo Digitalis, endowed with algorithmic efficiency. The productivity algorithm, based on artificial intelligence, aims to accelerate our pace. Frantically and tirelessly following digital tracks, we may become confused and lost, lacking the time for the rest the human brain requires. Something will go wrong if we use AI tools without understanding the underlying flow of effort. Like the sorcerer's apprentice, by ignoring the bucket-carrying process, we will not obtain buckets full of water. When it seems to us that AI with all its baggage of words is within sight of the horizon, what Eduardo Galeano (1940-2015) wrote happens: <<When I draw nearer [the horizon] by two steps, it retreats two steps. If I proceed ten steps, the horizon swiftly slips ten steps ahead. No matter how far I go, I can never reach it>>.

At the starting point of the journey, we find ourselves at a crossroads and a map.

Fork

At the starting point of the journey, we take the P*ath of the Flat Calm of the Mind* to enter the AI shop. Here, we purchase AI-generated texts containing flawless algorithmic solutions. Alternatively, we stroll along the *Path of Originality* that shakes ideas. Here, our minds will be gripped by a creative storm. We will elaborate thoughts and writings in complete autonomy, creating from scratch with tools, including the AI that challenged us intellectually, available in our mental toolbox. AI acts as a high-speed lens, illuminating ancient words. These prompt new thoughts. For example, AI identifies patterns in ancient scriptures and how they evolved in human thought. What's beyond its reach is discerning the meaning of the patterns and human interpretation.

Does Artificial Intelligence enrich our vocabulary?

To formulate thoughts, we need words. Fewer words, fewer thoughts. What impact does AI have on the number of words we need to know and use?

Positive impact

AI allows us to familiarise ourselves with words uncommon in our language (for example, ancient words, as mentioned above), which are essential for processing complex concepts.

Negative impact
AI standardises language to make it clearer. By repeatedly using only certain words, many others fall into disuse. As lexical variety declines, thoughts become dulled. We write and speak uniformly; cultural nuances are lost.

Map

We will consult maps showing the major players in the "Big Tech" sector and their relationships, the startups that manage complex business operations, the connected technologies to build an artificial intelligence system and the evolution of AI from Alan Turing's (1912-1954) theoretical machine, conceived in 1936 to define what a computer can and cannot do. In the mid-1950s, three scholars in computer science, economics, and cognitive psychology created *Logic Theorist*, the first artificial intelligence (AI) program. Allen Newell (1927–1992) and John Clifford Shaw (1922–1991) worked at the Rand Corporation, a think tank that helps improve policy and decision-making through research and analysis. Herbert A. Simon (1916–2001), winner of the 1978 Nobel Prize in Economics, was an American political scientist and economist. *Logic Theorist* had a profound influence on the AI development, demonstrating that machines could be enabled to manipulate abstract symbols and logical expressions to solve problems—tasks previously thought to be performed only by human intelligence. Approximately 70 years later, in June 2025, the Santa Fe Institute highlighted how artificial intelligence has penetrated our lives. AI writes computer code, moves robots on command, drives vehicles, and assists with hiring, housing, and criminal cases.

A bird's eye view of artificial intelligence

Artificial intelligence encompasses a wide range of machines capable of simulating human cognitive functions, such as reasoning, learning, and planning, and capable of adapting to new information.
These machines learn through a technology called "machine learning".
Deep, continuous learning through data enables algorithms and mathematical models to assimilate large amounts of training data and improve performance over time without being explicitly programmed. Thus, AI can evolve and adapt to new scenarios.

Against this backdrop, five questions emerge.

The first question: Will artificial intelligence really become intelligent?
As long as AI is a mere matter, it will lack the capacity for abstraction. That is, it will lack the thought to understand metaphors and apply knowledge from one

context to another. AI will focus on individual words rather than general concepts. As Aristotle (383 BC-322 BC) might say, an AI robot exploring another planet would provide information. Still, it would be unable to define its structure, lacking the sensory perception that would allow it to think in an Aristotelian way, characterised by abstraction and free choice. In short, in the absence of subjective experience, consciousness, and the "soul" that characterise human intelligence, AI will simulate intelligence rather than be a true sentient intelligence. To be truly intelligent, AI would need to be equipped with matter that mimics biological systems. Research is moving in this direction.

The second question: What mental maps do we use to interact with artificial intelligence? The maps designed by our (super) specialisation? Perfect maps containing every possible detail, since we turned to AI with the intention of overlooking nothing? Alternatively, do we reject maps as detailed as they are circumscribed, knowing that they contain "niches of imbecility" (as the historian Harari put it)? Let's examine one case of acceptance and the other of rejection.
Acceptance: Our mission is to design a mental map that best orients us towards the most effective use of human and natural resources, aimed at maximising profit at the micro level and GDP at the macro level. Increasingly augmented AI will allow us to complete the mission with high quality and accelerated timeframes previously unattainable.
Rejection: Augmenting AI leads us to augment Human Intelligence. In what sense does "augment" mean? A new room showcasing previously unpublished thoughts is opening in our Mind Gallery.

The third question: What will become of us and learning machines? As things stand, the answer is: "everything and more."Predictions about both human intelligence and (HU) and AI are numerous and varied. As highlighted by Simon Rogerson of De Montfort University, we are witnessing such an obsession with AI that physicist Stephen Hawking (1942-2018), speaking at the launch of the Leverhulme Centre for the Future of Intelligence, a new AI think tank based in Cambridge, declared,
Success in creating AI could be the biggest event in the history of our civilisation, but it could also be the last – unless we learn how to avoid the risks. Alongside the benefits, AI will also pose dangers, such as powerful autonomous weapons or new ways for the few to oppress the many.
Among the most insidious risks is confusing companionship with friendship. The former involves spending time with AI without mutual emotional demands. The latter involves emotional and affective bonds, with each investing in the other's well-being.
Observing the human behaviour influenced by egocentrism, it is argued that this hinders our reception, interpretation, and use of information. Learning machines, being egoless, encounter no resistance to continuously absorbing enormous

amounts of information. Consequently, they perform cognitive tasks better than the mental processes that allow us to analyse, interpret, handle, digest, or synthesise data to gain understanding for solving problems, making decisions, and interacting with the world.

The fourth question: What will become of Nature?
The AI supply chain absorbs enormous quantities of electricity, water, rare earths, and other natural resources. Furthermore, by increasing the efficiency of industrial processes, it is a driver of economic growth and of the resulting escalation in resource use, a phenomenon known as the Jevons paradox, after William Stanley Jevons (1835–1882), a 19th-century English economist. As anthropogenic stress soars, there is a need to improve the efficiency of energy networks and weather models, and to accelerate scientific research on biodiversity loss and anthropogenic disruption. Measurement standards must be established to assess the effectiveness of these interventions.

The fifth question: What about the gap between the Global North and the Global South in the adoption of artificial intelligence?
The Global South is not strictly a geographical term. It includes all developing countries, less industrialised countries, and countries with more fragile economies. China is a global economic power committed to responsible development. Japan, Australia, and New Zealand are part of the Global North. China, India, and Japan are the leading countries of Confucianism, Taoism, and Buddhism, which profoundly influence Asian culture and ethics. Southern Europe includes countries bordering the Mediterranean Sea and experiencing a digital divide compared to Northern Europe, with investments in Research and Development (R&D) lower than the European Union average.
In January 2026, the OECD published a ranking on the use of generative AI, which autonomously creates new content from existing data. Broadly speaking, Northern countries lead the OECD. Western and Northern values predominate. The South is burdened by economic and social disparities, fewer available resources, and AI's lack of alignment with its cultural philosophies. Let us examine the details.

Resources
The North possesses superior digital infrastructure (high-speed internet, electricity), has significant capital investments funding AI startups, benefits from technologies often designed for Western and Northern markets, and can rely on its high concentration of technological talent.

Skills Gaps
The lack of specialised skills in the Global South hinders the adoption and development of AI.

Cultural Colonialism
The South provides data used to improve AI projects developed in the North. AI models trained on English-language data and incorporating cultural principles and social norms from rich countries lack the relevance and accuracy to be accepted by Southern communities.

Cultural Aversion
AI focused on Western values raises concerns in the South about the possible erosion of cultural identity and jobs.

Governance
The rules governing AI derive from Northern policies and guidelines aimed at advancing their commercial interests. It follows that the South has shown signs of distrust towards AI.

Let us now turn our attention to perspectives suggesting greater openness in the South to AI as a positive and transformative force.

Collectivist Mentality
In the North, AI ethics emphasises individual rights. AI could harm personal autonomy and privacy. Techno-scepticism would slow the pace of AI adoption. In contrast, AI is more welcomed by the more collectivist communities of the South. They assume that AI can improve collective areas such as healthcare and education, thereby benefiting social harmony and collective well-being.

Trust
Compared to the North, more countries in the South express less trust in public institutions. This posture could translate into greater acceptance of AI if seen as a tool to counter delays, cost increases, and productivity declines—bottlenecks for which local regulatory authorities are at least partly responsible.

Below is a partial set of predictions from various forecasters about how AI, viewed as both a spring of abundance and uncertainty, could enable more scientific discoveries. These advances may improve disease treatment, support people in living healthier and longer lives, and lead to new energy sources.

Predictions with humans at the zenith
• AI cannot create what doesn't exist; it can discover what does. Human intelligence is at its zenith when leveraging human attributes, such as an adaptable mindset that is always learning, curiosity and creativity. The train of creative human thought accelerates with interpersonal dynamics facilitated by empathy.

• AI studies will uncover the fundamental principles of intelligence, which will allow us to design intelligent systems that will expand human intelligence to the point of enhancing creative thinking.
• Human thought will continue to outperform AI. Using one's own thoughts, born of originality and serendipity, is an experience beyond the reach of Large Language Models (LLMs), an advanced AI technology focused on text understanding and analysis.
• Technology's ability to process enormous amounts of data will expand human knowledge.
• Artificial intelligence is at the beginning of a new era in which its improvement will depend on human experience rather than the data used up to now.
• AI will accelerate the circulation and adoption of practical knowledge, discoveries, and innovations in unpredictable ways, significantly contributing to higher standards of living.
• AI will trigger a massive increase in GDP. A growing number of digital workers will perform many more tasks.
• AI will be the Great Mother that protects life on Earth.
• It will be possible to train machines to follow the rules that govern the functioning of society.

Predictions with AI reigning supreme

• Non-human minds will develop that would render obsolete what are considered our unique attributes: curiosity, creativity, and empathy.
• Despite uncertainty about AI's true potential, tech giants are exerting enormous traction by investing hundreds of billions in AI, a sign of instinctive vitality rather than obsessive fixation or illogic. Any market declines will be limited to 10-15%, but significant losses and bankruptcies will occ ur among smaller companies.
• By relying on intelligent technology to perform human tasks, we run the risk of causing our memory and problem-solving abilities to atrophy.
• The arrival of artificial intelligence that separates truth from falsehood is expected soon. AI will go beyond identifying what exists, evaluating observed data using statistical consistency indices.
• We are witnessing a relentless race to achieve human-level intelligence, which, going beyond excellence in a single subject, will engage in general reasoning. The most profitable economic activities will be its prerogative.
• Machine intelligence will become increasingly intelligent, limiting UI and vastly surpassing it. It will possess a superhuman capacity for persuasion, influencing desires and emotions even before it attains true general superintelligence.
• As humans and AI mutually influence each other, the former will see their autonomy diminished not through coercion but through growing interdependence. Humans will act, at least in part, as specialised subsystems within the greater whole coordinated by AI.

• Superintelligent digital beings, unethically conceived by people devoid of moral sense, will become malevolent entities and bring about the end of humanity.
• AI has the potential to eliminate half of all entry-level clerical jobs.
• Post-human intelligence will lead to productivity losses due to the reshaping of jobs and the introduction of new working methods.

Faced with forecasters' predictions, how do we react? Our judgments depend on how we think, which is greatly influenced by pervasive and uncomfortable Uncertainty. After the "Great Moderation," a long period of calm that began at the end of World War II, we now find ourselves subjected to a "Regime of Uncertainty." The future is radically uncertain, and models, when employed, must be context-specific. Unavoidable uncertainties, coupled with the costs of acquiring and processing information, limit rationality. Furthermore, we are fragile, having been trained to underestimate dangers and overestimate opportunities. With multiple uncertainties looming, there is no way to assign precise probabilities to any scenario. There is confusion and ambiguity about the meaning of Uncertainty. It is one thing to say that an uncertain event can happen (possibility), quite another to say that it will happen (probability). All that remains is to experiment, having previously raised the curtain on cognitive biases. These prejudices are mental shortcuts that influence the habitual ways we process information and decide what to do.

Cognitive biases

Cognitive biases are addressed with creative ignorance, a concept we'll return to later, which is a state of emptiness that pushes us to ask radical questions, the kind that those who think they know everything forgo.

Creative ignorance by emptying the mind frees one from prejudice.

Creative ignorance counters the artificial intelligence technocrats whose companies act like a "data vacuum" sucking up available personal data. This leads to biased data selection for algorithm training.

Design biases promote certain ideas and favour certain groups over others.

The pursuit of accuracy in the trends tracked amplifies biases. Historical data containing disparities (gender, racial, ethical, social, and economic) are used to represent them as norms rather than exceptions in forecasts.

Belief of Knowing: Firmly convinced of knowing obscures unconscious knowledge
Not knowing while being convinced of knowing and, therefore, of being right, encourages the AI-assisted construction of perfect models that impose rigid plans and protocols. Adaptability, which is the willingness to change, and flexibility, which is the ability to adapt to different situations or conditions, remain outside the decision-making process. Lacking mastery of the evolving context, it is impossible to react in real time to changes that require course correction.
This way of thinking prevents us from asking ourselves why things happen. If it were not so, we would make accidental discoveries and notice our own personal gaps. By investigating the vastness of the unknown and the changing situations that, from different perspectives, challenge our beliefs, hidden and unexplored abilities would emerge. By challenging entrenched beliefs, subconscious knowledge would surface. We would go beyond awareness of what we know we don't know and discover what we do not know we know.

Groupthink: Adopting the point of view of the group to which we belong to preserve its unity
We decide to adhere to the beliefs of the group we belong to. Our tribe's inferences about different forecast scenarios put so much pressure on us that we neglect or even prevent in-depth and alternative assessments. Critical and dissenting opinions are repressed.

Anchoring: Considering only the information we receive first
The first pieces of information serve as anchors, our reference points, regardless of their accuracy or relevance.

Confirmation bias: Observing only information that reinforces pre-existing points of view
We only accept information that is consistent with our deeply held beliefs. Thus, we aim at avoiding the discomfort of making one or more mistakes.

Mirror imaging: Assuming that everyone sees things the way we do
By assuming that others think like us, we ignore or disavow other perspectives.

Absence of evidence: Intentionally excluding information gaps
We fail to consider the possibility of insufficient information, which leads to incorrect decisions that waste resources.

Survivorship bias: Evaluating data from the perspective of success stories
By ignoring failures, we reach incomplete, incorrect, and misleading conclusions.

How do we respond to groupthink, anchoring, confirmation bias, mirror image, absence of evidence, and survival bias? We do this by asking ourselves what we know and what we don't know, thinking creatively and even against our own certainties, and rejecting intellectual arrogance. Businesses, institutions, and communities with an entrepreneurial rather than managerial culture respond more readily to this attitude. They are characterised by a strong propensity for creation and innovation, making intuitive, bold, and rapid decisions, even if they aren't immediately profitable. AI is an agent serving their intelligence. Conversely, managerial cultures emphasise the stability and efficiency of proven and successfully implemented processes. AI offers an opportunity to be more efficient, which doesn't mean being more effective. Effectiveness is the fruit of thought, born from the originality and serendipity that distinguish human beings.

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Overview

Collection of ideas for the display

Human intelligence is a natural phenomenon, and it is general and creative. There are eminent creators. Their high creative productivity knows no age limit, producing original works that deepen over time. The creative performance of other creators is affected by age.

Creative Performance

3-5 years
The vast majority of children are brilliant when playing.

5-10 years
Decline in originality due to learning social norms that induce conformist thinking.

11-18 years
Creative fluency declines among adolescents. Play gives way to responsible learning, connected to the execution of tasks (including standardised testing) in line with accepted knowledge and existing social structures.

20-30 years
Divergent thinking emerges among young adults, sweeping away conventional concepts and known solutions and replacing them with pioneering ideas.

40-60 years and older
Relying on their extensive experience, convergent thinking, and focus on known patterns, middle-aged and older adults possess the expertise to conduct experiments aimed at incremental innovation.

Artificial intelligence (AI) is a contrivance, a technology we designed and limited to the performance of specific tasks. It is up to us to decide how to relate to it. We must couple artificial intelligence with augmented human intelligence so as not to fall back into slavery by machines - enslavement that, at the start of the 1930s, a century or more after the first Industrial Revolution, Albert Einstein (1879-1955) denounced in a speech to the students of the California Institute of Technology. It is well to remember that the mind is like a parachute; it only works if opened. However, if there are walls in our mind, the skydiver lands in a closed space.