# The European Business Review

The Art of Future Design: Part I

Why Many Modern Psychology Test Publishers Fail

Climate Action is in the Hands of the C-Suite

Countdown to Cybersecurity in the Quantum Era

July - August 2023
europeanbusinessreview.com

## HOW PRODUCTIVE IS GENERATIVE AI REALLY?

ISSN: 1754 5501
07
9 771754 550004
USA $22 EU €17.5
CAN $22 UK £15

EBR empowering communication globally

**15&16 NOV 2023**
David H. Koch Theater at Lincoln Center NYC

# World Business Forum NYC

20th

## It's About Business.
## It's About Inspiration.

**Jim Collins**
Management

**Ginni Rometty**
Business Transformation

**Marshall Goldsmith**
Self-Management

**Simon Sinek**
Talent

**Peter Diamandis**
Digital Future

**Will Guidara**
Customer Experience Strategy

**Allyson Felix**
High Performance

**Carla Harris**
Leadership

**Marcus Collins**
Brand Strategy

**Join us for two days of unique ideas shared by the most inspiring and influential business thought leaders and practitioners**

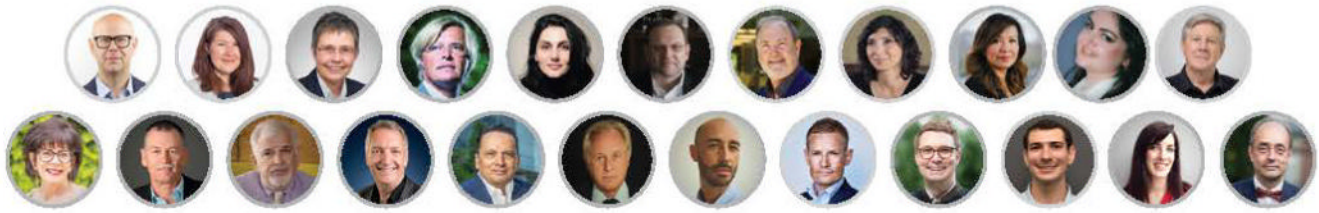
+1 212 317 9110 info.us@wobi.com wobi.com/wbf-nyc

Powered by WOBI

# The European Business Review

empowering communication globally

JULY – AUGUST 2023




**Production Accounts:** Lynn Moses. **Head of Design and Production:** Kimberly Barrera. **Production & Design:** Jenya Shliepova **Editors:** Elenora Elroy, David Lean. **International Media Editors:** Ariane Cornejo, Maria Carmela Matibag. **Editorial and Marketing:** Pamela Martinez, Mary Celu Aratas. **Digital Content:** Angela Lebrino. **Print Strategy:** Stefan Newhart. **Group Managing Editor:** Jane Liu. **Editor in Chief:** The European Business Review Publishing Oscar Daniel. **READERS PLEASE NOTE:** The views expressed in articles are the authors' and not necessarily those of The European Business Review. Authors may have consulting or other business relationships with the companies they discuss. The European Business Review: 3 - 7 Sunnyhill Road, London SW16 2UG, Tel +44 (0)20 3598 5088, Fax +44 (0)20 7000 1252, info@europeanbusinessreview.com, www.europeanbusinessreview.com



ISSN 1754-5501

# **HOW TO THRIVE** IN RADICAL UNCERTAINTY

by Nando Malmelin
& Sofi Kurki

**The term "VUCA" is familiar to most of us as a convenient label to characterise our constantly changing world. But what practical steps can we take to operate effectively in this environment? Perhaps the answer lies in changing how we think about the future?**

It's often said that we live in a radically uncertain world that makes it difficult to foresee future directions of business development. In this kind of VUCA world, corporations operate in an uncertain, volatile, and fast-changing environment, where strategic management is challenging.

The VUCA concept has gained much attention and popularity as a way of describing the general vagueness of the business operating environment. It has become an umbrella term that captures the volatility, uncertainty, complexity, and ambiguity of our ever-changing and hard-to-predict world.

The VUCA acronym dates from the late 1980s when it was coined by the US military to describe the instability of the post-Cold-War world. The term later spread to the business world, where the concept was adopted to refer to the uncertainty of the operational environment. It became a catchphrase and metaphor for the ever-increasing difficulty of managing businesses in strategically uncertain environments.

The world today differs in many respects from the 1980s, when the VUCA concept was originally created. In the 2020s, there's not much point or news value in saying that, from a strategic management point of view, business companies face a challenging and risky operating environment in the VUCA world. In many branches and industries, it's taken for granted that the operating environment is in rapid and unpredictable flux and that it's difficult to navigate.

The VUCA world is often considered as a threat to business and business management because it's hard to understand and predict.

This uncertainty has usually been approached in terms of managing risks and controlling threats. This thinking needs to change. Uncertainties must also be seen as opportunities to go beyond the obvious, as new sources of innovation and growth. When old practices no longer apply and when current structures lose their meaning, uncertainty can pave the way to creating something new and groundbreaking.

One of the most topical questions is: what capabilities and practices do we need to operate and manage in strategic uncertainty? In this article, we will discuss how foresight can contribute to a more in-depth and practical understanding of how to thrive in the VUCA world.

## IS THERE A FUTURE FOR THE VUCA WORLD?

The VUCA world is often discussed as a single, coherent phenomenon. However, there exists no such thing as a VUCA world. Rather, it represents one way of approaching concepts and phenomena related to environmental uncertainty.

To better understand the VUCA world as a whole, we need to understand the specificities of its component parts and to emphasise their differences and interrelations, rather than look at them as one single cluster. In practice, the VUCA world consists of four distinct and different phenomena that require four different organisational responses.

First, ***volatility*** refers to rapid, sudden, and unpredictable changes in the environment. Typically, the problems are unexpected, and it is not known how long they will last. Although they may come about by surprise, the problems are not usually difficult to understand.

The second dimension, ***uncertainty***, describes circumstances where there is a shortage of information about the situation, even though the causes and consequences of events may to some extent be understood. To dispel the uncertainty, it's necessary to take steps to collect and interpret information. For example, information will be needed about change drivers such as technological development, industry and market changes, shifts in consumer behaviour, and changes in politics and values.

***Complexity*** is the third dimension. It refers to the presence of multiple interconnected variables. There is a reasonable amount of information about the complex situation, and it is possible to predict how it is going to unfold, but not with great depth or consistency. It is essential to collect new information to be able to create a new understanding in a seemingly complex environment.

And fourth, ***ambiguity***, means that the situation is open to interpretation and can have multiple meanings. It's also difficult to understand the patterns of interactions within the situation. Collecting new information will not go very far toward solving ambiguity problems, because it's often not known what information is relevant and what is not.

**The VUCA world is a more or less random assembly of concepts describing the uncertainty of the operating environment and related phenomena collated under one umbrella.**

To have a profound understanding of the phenomenon, we examined the research literature on the VUCA world and found that the concept is quite superficial and general. The VUCA acronym is mostly accepted at face value as an easily identifiable catchphrase for the changes happening in the operating environment and the importance of those changes. The VUCA world is a more or less random assembly of concepts describing the uncertainty of the operating environment and related phenomena collated under one umbrella.

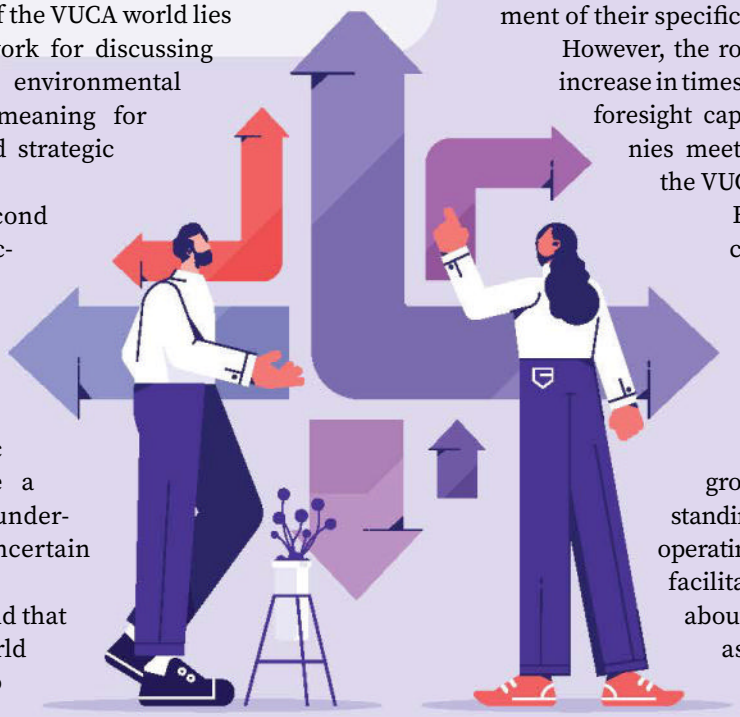
In our study, we understood that there are two ways to approach the state of the VUCA concept. The first option is to concede that the VUCA term and its analyses are outdated and have limited

significance. This would mean that, in the absence of any efforts to develop the concept, VUCA would begin to fade and fall into oblivion.

On the other hand, it is clear that even though the concept offers a quite shallow framework to understand these issues, it addresses an important and current phenomenon about which we need to know more. One of the critical values of the concept of the VUCA world lies in its providing a framework for discussing phenomena related to environmental uncertainties and their meaning for business development and strategic management.

That is why the second option is more constructive. We should take a practical view of how to develop and elaborate VUCA so that the concept would be of actual use to strategic thinking and to achieve a deeper and more diverse understanding of how our uncertain world is changing.

In our analysis, we found that literature on the VUCA world does not have very much to offer for strategic management or management practices. The observations made and conclusions drawn in the research literature had only little practical relevance for the managers and organisations of the future. Thus, we need to develop a more concrete and practical understanding of how to thrive in the VUCA world.



## CRITICAL CAPABILITIES OF THE FUTURE

Developing foresight capabilities provides a significant opportunity for solving practical questions related to strategic uncertainty. It also supports organisations in identifying and seizing new possibilities raised by uncertainty. How to proceed, then?

Businesses and industries differ widely, and therefore it is challenging to offer a single recipe or universal set of guidelines for strategic management in an uncertain world. The approaches and solutions suited to each company depend largely on the future development of their specific operating environment.

However, the role of foresight is bound to increase in times of uncertainty. Developing foresight capabilities will help companies meet the challenges raised by the VUCA world.

Foresight capabilities help companies anticipate future disruptions and recognise opportunities presented by uncertainty, providing crucial support for innovation and business growth. An insightful understanding of future changes in the operating environment will also facilitate ongoing discussion about the company's strategic assumptions, objectives, and direction. In addition, foresight supports innovation and the search for new business opportunities, organisational renewal, and strategic agility.

Foresight capabilities and practices provide valuable tools for understanding and processing uncertainty. Our research identified two separate but interconnected approaches to foresight capabilities, which are especially valuable in the VUCA world: alternative futures and futures literacy. The former emphasises the organisation's systematic approach to foresight, and the latter emphasises future thinking skills.

The alternative futures approach is grounded on the premise that, in the VUCA world, it is not possible to base decision-making and action on prior experiences of similar situations. The more uncertain the operating

environment, the harder it is in the new situation to draw on decision-making models based on previous experience.

The uncertainty of the VUCA world complicates the challenge of defining clear strategic paths, plans, and roadmaps. Companies have less clear information about the operating environment and its driving forces. Therefore, it is important that they integrate foresight of the operating environment more closely as part of their strategy work. At the same time, management must be able to create a shared understanding of how phenomena of the VUCA world impact upon strategy work and what kind of threats and opportunities they entail.

In these circumstances, the key is to ensure that the organisation has the ability to create and simulate future scenarios that it can use in its decision-making and in developing its operations. In a fast-changing world, it's also essential to have the flexibility to change and shift between different future scenarios. This is a critical risk for decision-making in the VUCA world.

Another foresight approach to the VUCA world is to emphasise futures literacy as a meta-skill that can bring a more in-depth consciousness about the content of assumptions about the future and in this way improve the practices of strategic decision-making. As in the case of alternative futures, futures literacy implies that, to succeed in the VUCA world, the organisation should not latch itself on to individual future forecasts but use foresight as an approach to developing its capacity to navigate uncertainty. Futures literacy is first and foremost about reversing the perspective, so that the aim and purpose of foresight is not so much to describe the future but rather to serve as a tool of learning.

**Our research identified two separate but interconnected approaches to foresight capabilities, which are especially valuable in the VUCA world: alternative futures and futures literacy.**

Strategic decision-making is based on shared visions of the future. By analysing and reflecting upon views and assumptions about the future, the organisation can be more open towards alternative ways of thinking about the company's and the operating environment's future. This implies a shift in the organisation's approach towards more active future-shaping.

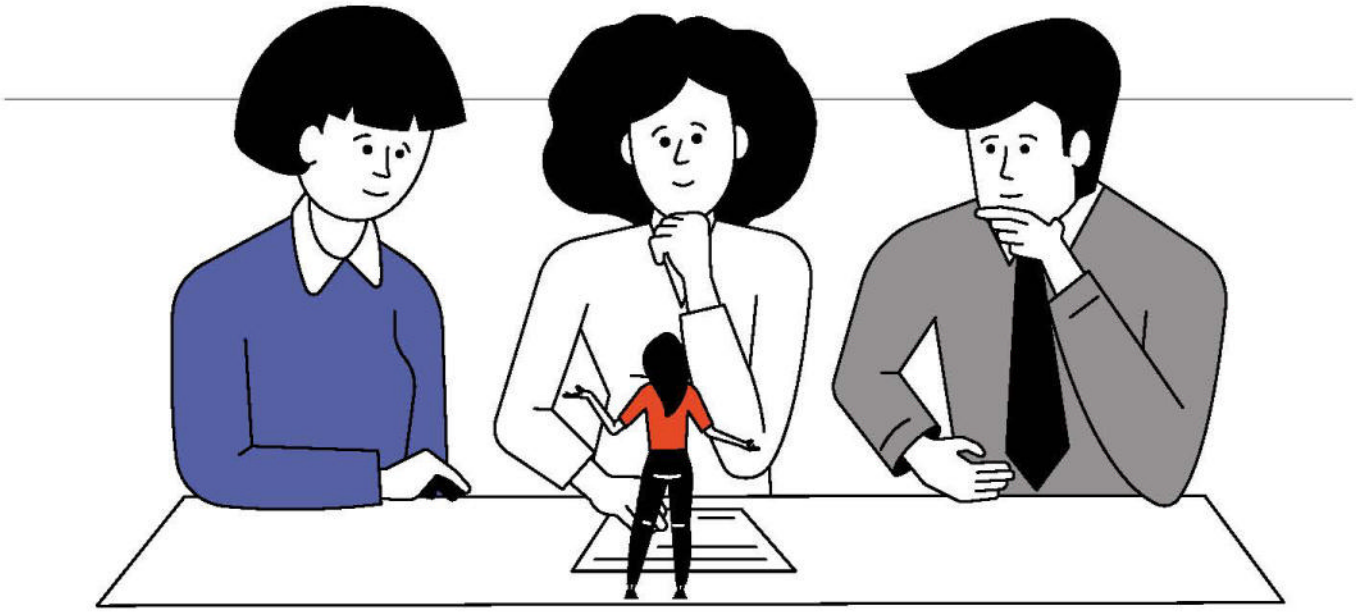
In the VUCA world, organisations need foresight capabilities, such as the ability to picture alternative scenarios and to question their own assumptions about future directions. In addition, organisations need management models and practices that are grounded in futures thinking. They can steer organisations to challenge and question current ways of thinking and break down traditional assumptions. Identifying and utilising new emergent opportunities is crucial for innovation, renewal, and growth.

The article is based on the authors' research project at VTT Technical Research Centre of Finland.

**ABOUT THE AUTHORS**

**Nando Malmelin**, PhD, works at consulting agency Capful as a Head of Renewal. He is also an Associate Professor at the University of Helsinki. Malmelin has published extensively on leadership, creativity, organisational renewal, and strategic thinking.

**Sofi Kurki**, PhD, is a Senior Scientist at VTT Technical Research Centre of Finland. Kurki is an expert in corporate foresight, foresight methods, futures studies, and societal development.



## The art and science of generating insights for creating

# MORE EFFECTIVE BOARDS

by Sabine Dembkowski

**To be effective, a company needs an effective board. Effectiveness reviews are one way to achieve this, but what insights are needed to take full advantage of them? And how can these insights be obtained? Sabine Dembkowski of Better Boards describes the seven hallmarks of effective boards.**

Boards are highly complex constructs and full of ambiguous power relationships. An appointment to an executive or governing board is often perceived as the culmination of a distinguished executive career. It is the ultimate challenge to be effective in these complex environments – be it as a Chair who orchestrates the board, the CEO who has to ensure that the numbers are in line with expectations, or the member of a board or NED aiming to cement their position in the business community.

Increasing risks and scrutiny from investors and the media put boards to the test. They are challenged to continuously learn, evolve, and increase their effectiveness. Fully facilitated external and internal reviews form an integral part of annual board calendars and are there to help members gain insights on how they can become more effective. As pressure increases on boards, so does the pressure of the practice of conducting these reviews. In recent years we have seen some big shifts.

**TABLE 1**

| | | |
|---|---|---|
| • From a compliance focused exercise | → | • To a value creating strategic imperative |
| • From a consultant led, time-consuming process | → | • To an agile, digitally enabled process |
| • From a retrospective assessment of board working processes | → | • To a forward looking process |
| • From one general report to the board | → | • To individualised reports for every member of the board |
| • From a subjective opinion of an expert about the board | → | • To a comprehensive, data-driven comparison |

The questions that arise are what insights do Chairs, CEOs and Directors need in order to become more effective? How can these insights be obtained? What type of data is helpful? In this article we provide insights into our research and practice of working with the boards of industry-leading organisations.

One can ask the board many "interesting questions". And this is exactly what appears to have happened and has contributed to the resistance of boards to engaging with effectiveness reviews. Instead of asking "interesting questions", we focus on those variables where there is evidence that they are linked to effective boards. For this purpose, we looked into the Anglo-Saxon and German-speaking literature and conducted more than 100 interviews with Chairs, members of boards and partners of private equity firms.

The research resulted in the seven hallmarks of effective boards, which provide us with a sound foundation for the questions we ask as part of board effectiveness reviews.

## THE STRENGTH OF THE BOARD

Although conducting fully facilitated external and internal board effectiveness reviews is an integral part of the annual board calendar, they are not loved. It is fair to say that most members of boards dread the reviews.

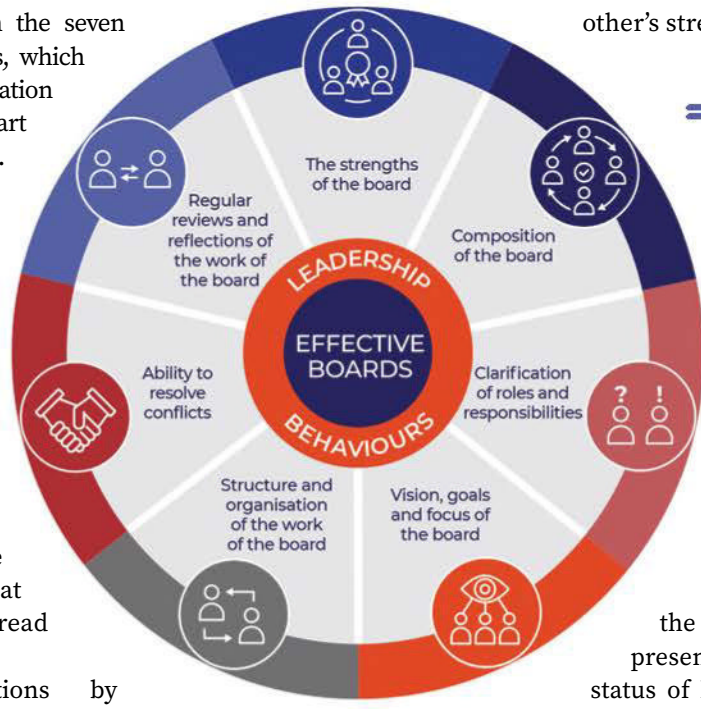
Confrontational questions by reviewers eager to identify what is wrong with the board, and where the gaps are, have conditioned board members to answer politely without engaging in the process.

**Recent research is clear that, rather than looking to identify what is not working, it is far more effective to focus on identifying what is working.**

Recent research is clear that, rather than looking to identify what is not working, it is far more effective to focus on identifying what is working. This is exactly what we are doing in our reviews.

For an effective board, it is vital that members understand what their strengths are in the specific context of the board, and how members can best leverage each other´s strengths.

The recent pandemic years did not help. New members that came on board might not have had a chance to meet, as face-to-face time was not possible or was limited. We see at present that members of boards have become used to the virtual world. It is cost-effective and convenient to participate in board meetings via Zoom or Teams. However, it comes at a price. Members of boards know less about each other and do not understand how they can best leverage each other's strengths.




**The seven hallmarks of effective boards**

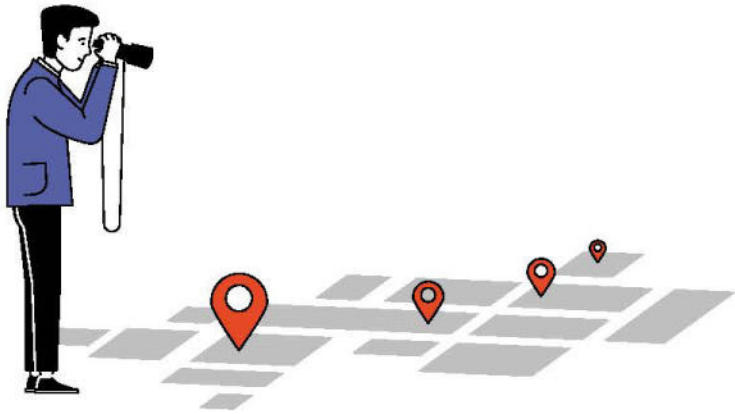
FIGURE 1

## COMPOSITION OF THE BOARD

Talk about gender and women on boards has overshadowed the discussion about board composition in recent years. The questions are more complex and require deeper insights in order to generate truly effective boards.

One has to look beyond the "labels" and understand the presence and the development status of know-how areas and behaviours of individuals in a group setting.

It is crucial to understand how different know-how areas, preferred roles in a group setting, and personality styles complement each



other and fit with the specific situation of the organisation, i.e., the development cycle of the organisation, the strategy, and the value-creation plan.

In our reviews, we see at present that know-how areas related to the "newer" topics like digital, cyber, transformation, climate, and ESG are not as well developed as their importance would suggest.

**Clarification of roles and responsibilities**

The transition from an executive to a non-executive career is not an easy one and, for some, it can take years to fully adjust to their role on a board. We find that the greater the pressure on an organisation and operational performance, the more likely it is that the lines between executives and non-executives get blurred and conflicts arise. Clarity of roles and responsibilities is a vital hallmark of any effective board.

**The transition from an executive to a non-executive career is not an easy one and, for some, it can take years to fully adjust to their role on a board. Clarity of roles and responsibilities is a vital hallmark of any effective board.**

## VISION, GOALS, AND FOCUS OF THE BOARD

The vision for an organisation can become one of the most hotly debated topics on any board. Are all members aligned? Does everyone around the table have the same understanding of the vision? Does everyone interpret the words in the same way?

Once a vision is set, it is vital that all members of the board have the same understanding of the vision, speak with one voice, and agree on the goals and focus of the board.

## THE STRUCTURE AND ORGANISATION OF THE WORK OF THE BOARD

The organisation of the board's work depends critically on the board secretaries and the interplay of the Chair and CEO. Effective boards understand how to organise and run their meetings.

## ABILITY TO RESOLVE CONFLICTS

Effective boards and their members understand how to resolve conflicts amongst themselves on the board and between the board and the next management level. More than that, effective boards understand who in the group is best placed to resolve conflicts and how to leverage those board members.

## REGULAR REVIEWS AND REFLECTIONS ON THE WORK OF THE BOARD

Regular time-outs, where board members can connect, leave the daily work behind, and reflect on how they work together, are the hallmark where there is greatest evidence. There is a strong and clear correlation between time

taken out to reflect on how a board is working together and its effectiveness.

As effectiveness reviews are unloved and the best data can only be obtained when all board members engage in the process, questions have to be asked in a neutral and non-confrontational manner.

The practice of conducting board effectiveness reviews has evolved. As pressure increases on boards to learn, adapt, and become effective, so does the pressure of the practice of conducting these reviews. The seven hallmarks of effective boards provide a sound foundation for effectiveness reviews. The hallmarks are based on research and point towards the areas in which neutral and non-confrontational questions have to be asked to create more effective boards. EBR

**Once a vision is set, it is vital that all members of the board have the same understanding of the vision, speak with one voice, and agree on the goals and focus of the board.**

**ABOUT THE AUTHOR**

**Dr Sabine Dembkowski** is a Founder and Managing Partner of Better Boards. She is a trusted board advisor who has worked with and alongside companies listed on the FTSE and DAX, global organisations and leading Private Equity and Professional Service firms. Her research into board effectiveness has been peer-reviewed and published internationally. With a PhD in business management Dr Sabine has established two successful businesses, The Coaching Centre and Better Boards. Alongside her academic qualifications and business acumen, Sabine is also a trained Executive Coach and certified to perform a wide range of psychometric tests. In her own words she is "Driven by a passion to get down to the nuts and bolts and create real, long-lasting change in organisations."

**Will ChatGPT solve all of your organisation´s problems? Here are points to consider before you implement the seemingly magical AI tool.**

# CHATGPT GOES *(NOT YET)* TO HOLLYWOOD

by Jacques Bughin

Since its official launch at the end of 2022, ChatGPT has demonstrated how artificial intelligence (AI) systems have drastically improved. There is much excitement about the technology—which we definitely share-- but it remains important to get clear on what it does/does not. Here is a list of important considerations an executive should think about before implementing such a tool.

## 1. HOW STRONG IS THE PERFORMANCE CURVE?

While the combination of big data with AI led to major advancements in deep machine learning, it took only a matter of one decade for AI to perform at about human capabilities for image, writing and speech recognition. What ChatGPT further demonstrates is that the next step, reading and language understanding, could match human capabilities only in a matter of a few years. In fact, beyond the anecdotes, recent academic studies such as the one led by Choi and colleagues in late January 2023, blindly rated ChatGPT answers on real exam questions from the University of Minnesota Law School achieving a low C but passing grade in all four courses. And this was GPT 3.5, not the new version GPT4.

That level of conversational quality for Large Language Models (LLMs) such as ChatGPT does not come for free. ChatGPT had been trained on billions of data points, implying very large training costs. But here as well, things are quickly changing, with the training cost of GPT 3 equivalent going down by more than 80% in 2.5 years.

Furthermore, shortcuts are being tested very successfully to democratise the cost of training

a more limited LLM model. For example, a colleague of mine noted to me that Stanford researchers have built a much narrow parameters conversational model, which has been reinforced by a series of prompts asked in parallel to OpenAI's GPT, with surprisingly good results and for a cost of less than one thousand dollars. While this is to be further checked, this implies a cost of 1000 times lower than a typical enterprise model which will use ChatGPT directly.

## 2. ARE ALL USE CASES/ DOMAINS POSSIBLE WITH CHATGPT?

One of the first applications of ChatGPT has been its rival use to search queries. The battle is on between Microsoft and Google.

This is not to say that Google is not ready with LLMs. The danger for Google is disruption—Google´s dominance in search obliges the company to have a new perfect LLM to blend with search queries. But to date, chat queries are costing much more than search and can eat Google´s comfortable margins. Microsoft, on the other hand, can have an inferior (but already fascinating) product like ChatGPT to integrate into its search, Bing. ChatGPT, it is hoped, is a clear way to rebalance the flow of queries to its advantage.

Besides this evident case affecting tech superstars, other cases may abound for ChatGPT and other types of LLMs to be used in enterprises. One case is education and information intelligence, aggregated from digital sources such as the web, and which are typically not yet structured for direct valuable insights (which ChatGPT will then deliver). Another case is virtual assistance for managerial organisational tasks or even creative tasks like developing a marketing tagline or building up IT codes.

**ChatGPT is a predictive model. Its accuracy is not perfect and may fall quickly if it did not get enough training data around it.**

Still, one thing must remain clear. ChatGPT is a predictive model. Its accuracy is not perfect and may fall quickly if it did not get enough training data around it. As a statistical model, it also may not deliver the same answer to the same prompt. The model is as good as the data it has collected, so that it should be constantly retrained to be real-time accurate. Finally, even if it is trained on billions of data, a large part of data remains strictly private- so ChatGPT is blind around enterprise closed doors.

Those are rather critical limitations that should be clearly taken into account when using GPT. For example, in a sector like private equity where I advise (Antler and FortinoCapital), ChatGPT may have a hard time getting a proper deal flow of newbie companies, if not trained on real-time data. Private sources may also limit the capacity of finding interesting bootstrap companies for instance. Likewise, the answers provided may not be fully perfect (so-called hallucination).

## 3. IS ARTIFICIAL INTELLIGENCE REALLY HUMAN INTELLIGENCE?

Finally, artificial intelligence does not mean that AI, under its current zoom of language model, matches all tasks of human intelligence, especially reasoning. The shortcut made by some is a false logic that claims that ChatGPT may have acquired simple reasoning from learning from a massive amount of real-world data. OpenAI itself is aware of many limitations of ChatGPT as posted on its website and as recognised in public by OpenAI's CEO.

**While reinforcement learning techniques would make LLMs better in reasoning, it is not there yet for a large number of reasoning tasks.**

In fact, in line with Open AI cautions, and despite those drumbeat claims, most of the recent works testing ChatGPT reasoning performance demonstrate it remains rather dumb. A recent study by Bang and colleagues shows that ChatGPT is 63.41% accurate on average in 10 different reasoning categories under logical reasoning, non-textual reasoning, and commonsense reasoning. While reinforcement learning techniques would make LLMs better in reasoning, it is not there yet for a large number of reasoning tasks.

Finally, and not least, the question is not that AI has yet to prove strong reasoning capabilities. What can be missing is the prevalence of data bias, unethical use, and more. The genius is there, but this is not yet Artificial General Intelligence. While potentially powerful, though, we are also to understand the conditions, such as jailbreaking, where LLMs can be harmful too.


**REFERENCES**

1. Bang, Y., Cahyawijaya, S., Lee, N., Dai, W., Su, D., Wilie, B., ... & Fung, P. (2023). A Multitask, Multilingual, Multimodal Evaluation of ChatGPT on Reasoning, Hallucination, and Interactivity. arXiv preprint arXiv:2302.04023.
2. Choi, Jonathan H. and Hickman, Kristin E. and Monahan, Amy and Schwarcz, Daniel B., ChatGPT Goes to Law School (January 23, 2023). Minnesota Legal Studies Research Paper №23–03, http://dx.doi.org/10.2139/ssrn.4335905
3. Douwe Kilea et al, 3021, Dynabench: Rethinking Benchmarking in NLP. "Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies
4. Li, Belinda, Implicit Representations of Meaning in Neural Language Models, [http://arxiv:2106.00737/] arXiv:2106.00737, [http://%20https/doi.org/10.48550/arXiv.2106.00737]https://doi.org/10.48550/arXiv.2106.00737
5. Smith, Craig, 2023, Hallucinations Could Blunt ChatGPT's Success, IEEE Spectrum, March 13
6. Wang, James; 2020, Improving at 50x the Speed of Moore's Law: Why It's Still Early Days for AI, Ark Investments.



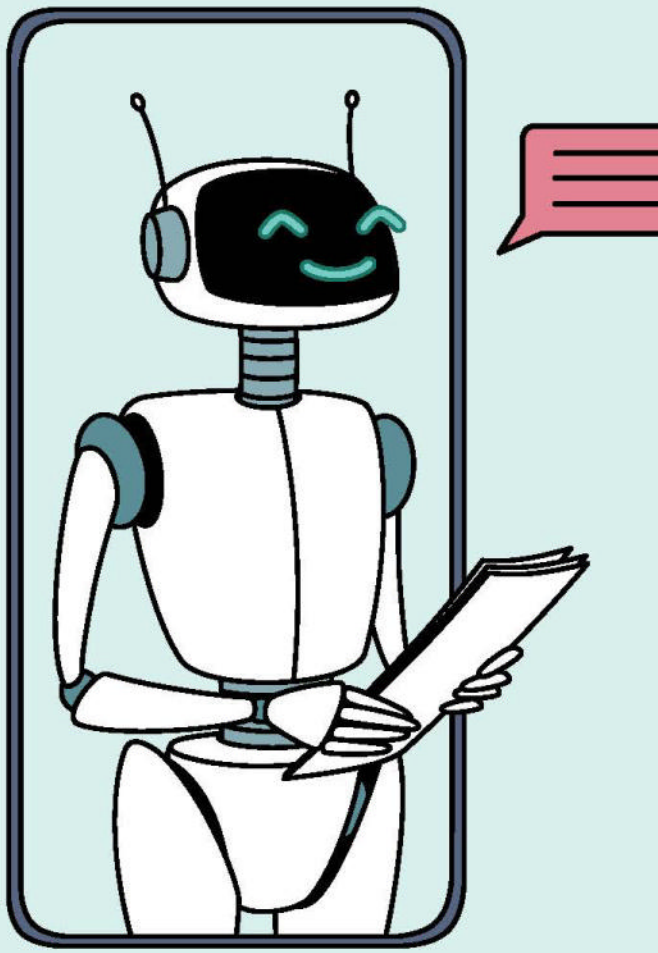
**ABOUT THE AUTHOR**

**Jacques Bughin** is CEO of MachaonAdvisory, and a former professor of Management while retired from McKinsey as senior partner and director of the McKinsey Global Institute. He advises Antler and Fortino Capital, two major VC/PE firms, and serves on the board of multiple companies.

**Emotional intelligence (EQ) is once again a topic. As employees find themselves competing with artificial intelligence, EQ is starting to become more relevant than IQ. But is it inevitable that the recent advances in AI and robotics will result in large-scale redundancies?**

# DOES **ARTIFICIAL** INTELLIGENCE HAVE **EMOTIONAL** INTELLIGENCE?

by Dr. Nina Mohadjer, LL.M.



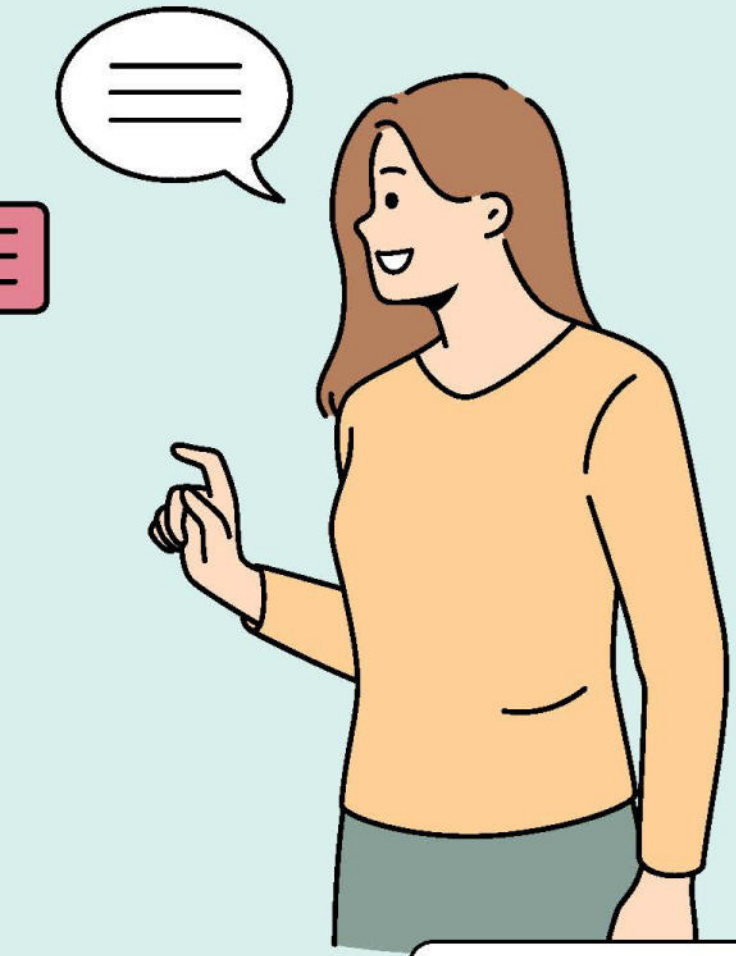
iPhones, laptops, the internet, Siri, Alexa. Who does not know all the devices, applications, and methods to get things faster, remember our choices, play our favourite music, and make our lives easier? What everyone seems to forget is that none of them is actually a human who could remember our favourite music or our favourite store.

While we might have a conversation with Siri, we forget that Siri responds with predetermined responses that are reactions to specific words. We also do not consider the safety of our conversation. Alexa mistakenly dials contacts of phone books who can then record private conversations (Fowler, 2019), or assists in convicting murderers (Burke, 2019).We need to examine whether AI can expedite repetitive tasks only, or whether the fear of emotional AI should alarm us that our world will be overtaken by machines and AI.

## EMOTIONAL INTELLIGENCE

Emotional intelligence, or emotional quotient (EQ), is the ability to read and understand and skilfully integrate your thoughts and emotions.

Based on Daniel Goleman (Goleman, 1995), EQ is catalytic for other abilities and is defined by self-awareness, self-management, internal motivation, empathy, and social skills (Talks at Google, 2007). To get a job, you need intelligence quotient (IQ), but in order to keep a job and move into more senior positions, you need the four components of EQ.



***Self-awareness*** recognises moods and emotions. It gives the ability to evaluate the necessary confidence, but remain realistic about shortcomings.

***Self-management*** controls emotions by regulating them through the prefrontal cortex and "filters" (Brizedine, 2007).

***Internal motivation*** is the inner vision of growing, the aim to reach higher and to learn.

***Empathy*** requires the ability to not only evaluate the audience, but to understand others' state of mind and to connect to their emotions (Big Think, 2012).

## ARTIFICIAL INTELLIGENCE

Jake Frankenfeld defines artificial intelligence (AI) as

> ***The simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.***
>
> (Frankenfeld, 2020).

AI is able to observe its environment and detect problems, but needs to be fed with data and trained to base future decisions on learned patterns (Talks at Google, 2007).

AI is everywhere. It might not look like a robot, but our everyday gadgets are based on machines that are not able to form an independent response based on consciousness. Differentiating between different voice tones and words, they rely on prepared sentences, as they do not possess the main functions of a human brain (Mueller, 2020).

I work in the legal tech business and started in document review, which is one of the specified stages of the Electronic Discovery Reference Model (EDRM, n.d.).

Originally it involved paralegals and first-year law graduates. But soon lawyers with a high aptitude of technology developed new ways to make review easier. They used AI to eliminate the clearly irrelevant documents and focus on "Hot Docs", those documents that did not require a "click" only, but made our legal minds think in a "legal way". Legals shifted into a different direction: discussions with and connections to IT personnel, and subsequently translating IT terminology to our peers. Repetitive work was automated. Human interaction started where more detailed thinking was needed, meaning that AI applications became co-workers of human reviewers and not their

**Human interaction started where more detailed thinking was needed, meaning that AI applications became co-workers of human reviewers and not their replacement, being leveraged for their strength.**

replacement, being leveraged for their strength (Bhandari, 2016).

Legal tech was born.

## EDUCATION AND UPSKILLING

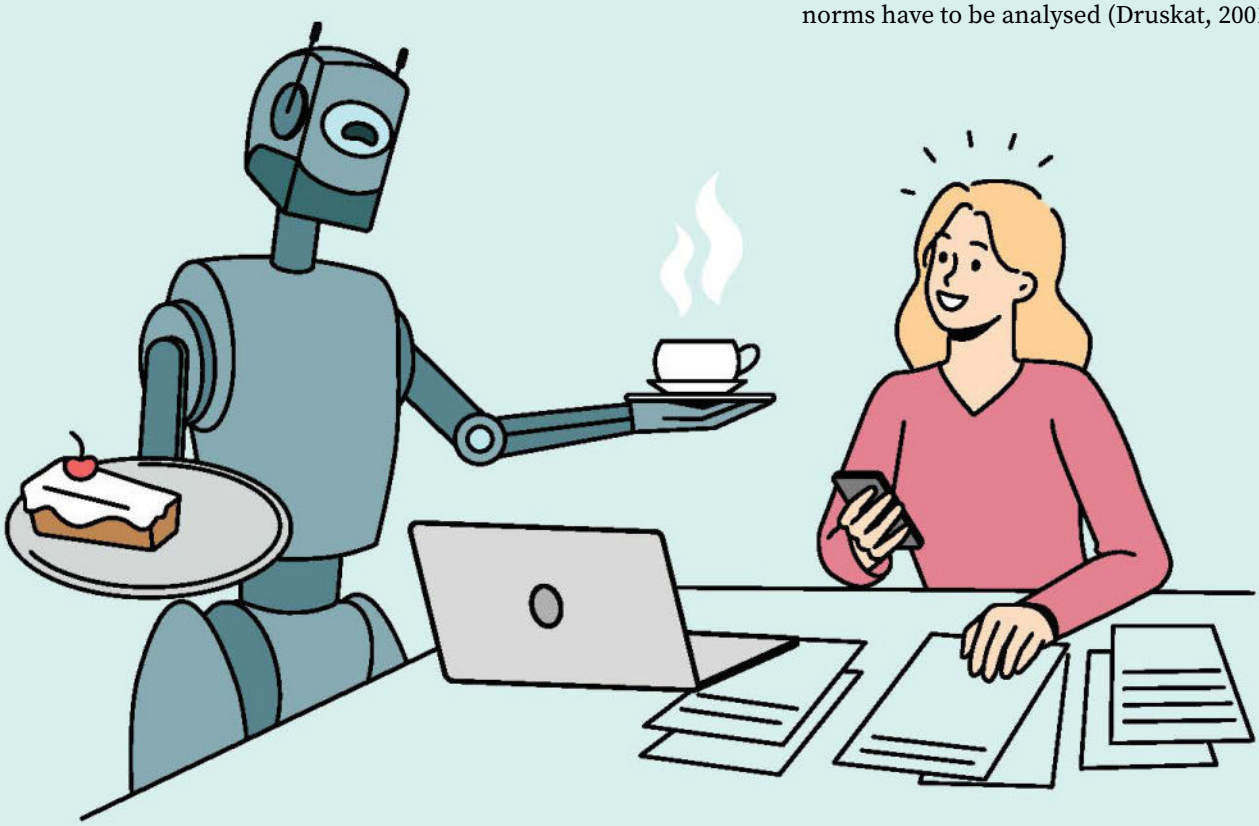
Through the application of technology, the legal world has gained the opportunity to expand its field (Austin, 2016). While job seekers are worried about job losses, instead focus should shift to the opportunities that AI is bringing. Similarly to the last industrial revolution, a new dimension is added to the job market, enabling employees to accept augmentation and make the human work effective and efficient (White, 2017).

Brynjolfsson *et al.* (2018) express that non-routine occupations will be computerised and make human workers redundant. However, this view fails to consider that specific aspects, such as team management, human interaction, EQ, and the general need of humans to interact and be part of a group are not replaceable. Routine tasks of eDiscovery, such as marking system files as irrelevant or redaction of specific words, can be replaced by computerisation (Krovacs, 2016). At this point humans become AI teachers and irreplaceable (Chamorro-Premuzic, 2019).

## GROUP EMOTIONAL INTELLIGENCE

Having group emotional intelligence (GEQ) increases the team's effectiveness by building better relationships, increasing creativity and decision making, which will lead to higher productivity and higher performance, and deliver higher results.

In order to evaluate and develop GEQ, three levels, six dimensions, and subsequently nine norms have to be analysed (Druskat, 2001).



| 3 Levels | 6 Dimensions | 9 Norms |
|---|---|---|
| Individual | Group awareness of members | Interpersonal understanding |
| | Group management of members | Confronting members who break norms |
| | | Caring behavior |
| Group | Group self-awareness | Team self-evaluation |
| | Group self-management | Creating resources for working with emotion |
| | | Creating an affirmative environment |
| | | Proactive problem solving |
| Cross-boundary (External) | Group social awareness | Organizational understanding |
| | Group management of external relationships | Building external relationships |

Source: http://www.eiconsortium.org/pdf/GEI_Technical_Manual.pdf

### Individual

While a thorough SWOT analysis of each group member is essential before allocating positions, it is important to understand that each group member, particularly the group leader, needs the right level of EQ.

Discussions of identity and personal branding, in addition to acceptable internal and external rules regarding respect, become important (Druskat, 2001). Group members need to understand that EQ is not about suppressing emotions, but about learning how to recognise, process, and channel emotions to benefit the group as a whole.

### Group

GEQ develops through group members' commitment to continuous improvement and vision of growth. The team needs self-evaluation as a whole and a thorough SWOT analysis to evaluate the response to emotional threats (Druskat, 2001).

Open communication and affirmative wording are the last two aspects for a functional group with a GEQ. Group members have to feel a strong environment, by feeling the support, and see challenges as less threatening.

**Open communication and affirmative wording are the last two aspects for a functional group with a GEQ. Group members have to feel a strong environment, by feeling the support, and see challenges as less threatening.**

### Cross-Boundary (External)

The last component focuses on the group's emotional position within the entire organisation and how the group's work fits into the big picture of the organisation's growth. The group needs to build external relationships, to evoke cooperation and lead to efficacy (Druskat, 2001), while connections need to be intact between the group and the main decision makers in the organisation.

What does this all mean for document review? Document reviewers can automate repetitive tasks, but need to understand the importance of their work's outcome within the EDRM scope. As the last step of the EDRM cycle, they have to understand how each individual's work, and subsequently the group's work, affects the law firm and the client, which AI cannot do.

### Ethical Impacts

We might be able to communicate with Alexa and Siri, but do they actually have feelings and understand our emotions? Could Alexa soon be someone's best girlfriend? The ethical impact of AI starts when machines and robots know us better than our family and friends (Mueller, 2020), when facial expressions, our shopping habits, our healthcare, and financial abilities are not only recorded, but examined in such a way that we could be reconstructed.

While document review might not need the emotional aspect of AI, other areas need the differentiation of facial expressions and the context for voice recognition. In document review, the brain makes the decision based on pre-dictated

requisites (Gigerenzer, 2008). The reviewer reads the text, and the application of AI eliminates the document count and makes a preselection. Thus, the human does not rely on a decision that they cannot explain (Mueller, 2020).

In financial institutions, AI determines whether a customer is a good investor based on specific documents. This is problematic if the financial condition of a client is different from the machine-learned circumstances. These cases would need human interaction.

In healthcare, AI is applied to robotics that become carers of elderly people. AI also assists in overcoming solitude and loneliness by speaking to Alexa and Siri, but there needs to be an awareness that AI is not an actual person (Tufekci, 2019).

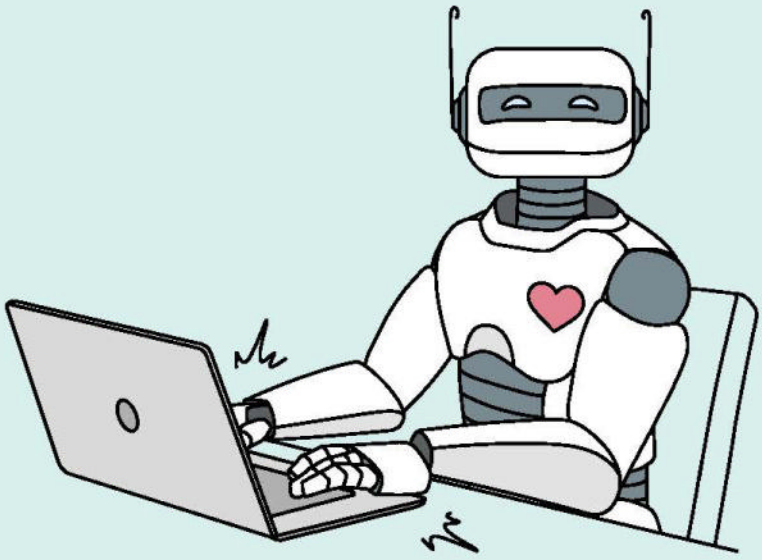
Thus, AI is not a problem, as long as the EQ component is not imitated to become a key tool for social control (Tufekci, 2019; Lee, 2014).

## CONCLUSION

Davenport and Kirby (2016) state that humans need to focus on tasks that are unique and cannot be automated. Only repetitive tasks that do not require additional thinking or emotions could be done by AI (Diekhans, 2020).

As David Caruso mentioned, "It is very important to understand that emotional intelligence is not the opposite of intelligence, it is not the triumph of heart over head – it is the unique intersection of both" (Caruso, 2004).

Implementing the course of action, we can be assured that clients will have questions and need the emotional aspect, which only a human can respond to, as robots do not have feelings.



**REFERENCES**


1. Austin, D. (2016). Evolution of eDiscovery Automation, AECD webinar, https://www.aceds.org/page/certification
2. Bhandari, S. (2016). "Does Pyrrho signal the rise of the robolawyer?", *Lawyer,* 30(16), 16.
3. Big Think. (2012, April 23). "Daniel Goleman Introduces Emotional Intelligence" (Video). YouTube. https://www.youtube.com/watch?v=Y7m9eNoB3NU
4. Brizendine, L. (2007). *Female Brain,* Transworld Publishers
5. Brynjolfsson, E., Meng L., & Westerman, G. (2018), "When Do Computers Reduce the Value of Worker Persistence?", doi:10.2139/ssrn.3286084.
6. Burke, M. (2 November 2019), "Amazon's Alexa may have witnessed alleged Florida murder, authorities say", https://www.nbcnews.com/news/us-news/amazon-s-alexa-may-have-witnessed-alleged-florida-murder-authorities-n1075621
7. Caruso, D.R:, & Salovey, P. (2004). *The Emotionally Intelligent Manager.* Josser-Bass.
8. Chamorro-Premuzic, T. (2019). *Why do so many incompetent men become leaders? (And how to fix it),* Harvard Review Press
9. Davenport, T. & Kirby, J. (2016). *Only Humans Need Apply,* Harper Collins
10. Diekhans, A. (31 May 2020) Robotor helfen in Krankenhausern. Retrieved: 18 November 2020, https://www.tagesschau.de/ausland/roboter-ruanda-101.html
11. Druskat, V.U., & Wolff, S.B. (2001). "Building the Emotional Intelligence of Groups". *Harvard Business Review,* 79(3). 80-90
12. EDRM Model, n.d., https://www.edrm.net/resources/frameworks-and-standards/edrm-model/
13. Fowler, G. (6 May 2019). "Alexa has been eavesdropping you this whole time", https://www.washingtonpost.com
14. Frankenfield, J. (13 March 2020). "Artificial Intelligence". https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp
15. Gigerenzer, G. (2008). *Gut Feelings: The Intelligence of the Unconscious*, Penguin Books
16. Goleman, D. (1995). *Emotional Intelligence.* Bantam Books
17. Kovacs, M.S. (2016). "How Big Data Is Helping Win Cases and Increase Profitability". *Computer & Internet Lawyer.* 33(5). 9-11.
18. Lee, M. (2014). "10 Questions for Machine Intelligence", *Futurist,* 48(5), 64.
19. Mueller, V.C. (2020). "Ethics of Artificial Intelligence and Robotics". *The Stanford Encyclopedia of Philosophy.* https://plato.stanford.edu/archives/win2020/entries/ethics-ai/.
20. Talks at Google. (12 November 2007). "Social Intelligence" (Video). YouTube. https://www.youtube.com/watch?v=hoo_dIOP8k
21. Tufekci, Z. (2019). "'Emotional AI' Sounds Appealing". *Scientific American,* 321(1), 86.
22. White, S.K. (2017). "Why AI will both increase efficiency and create jobs". CIO (13284045).


**ABOUT THE AUTHOR**

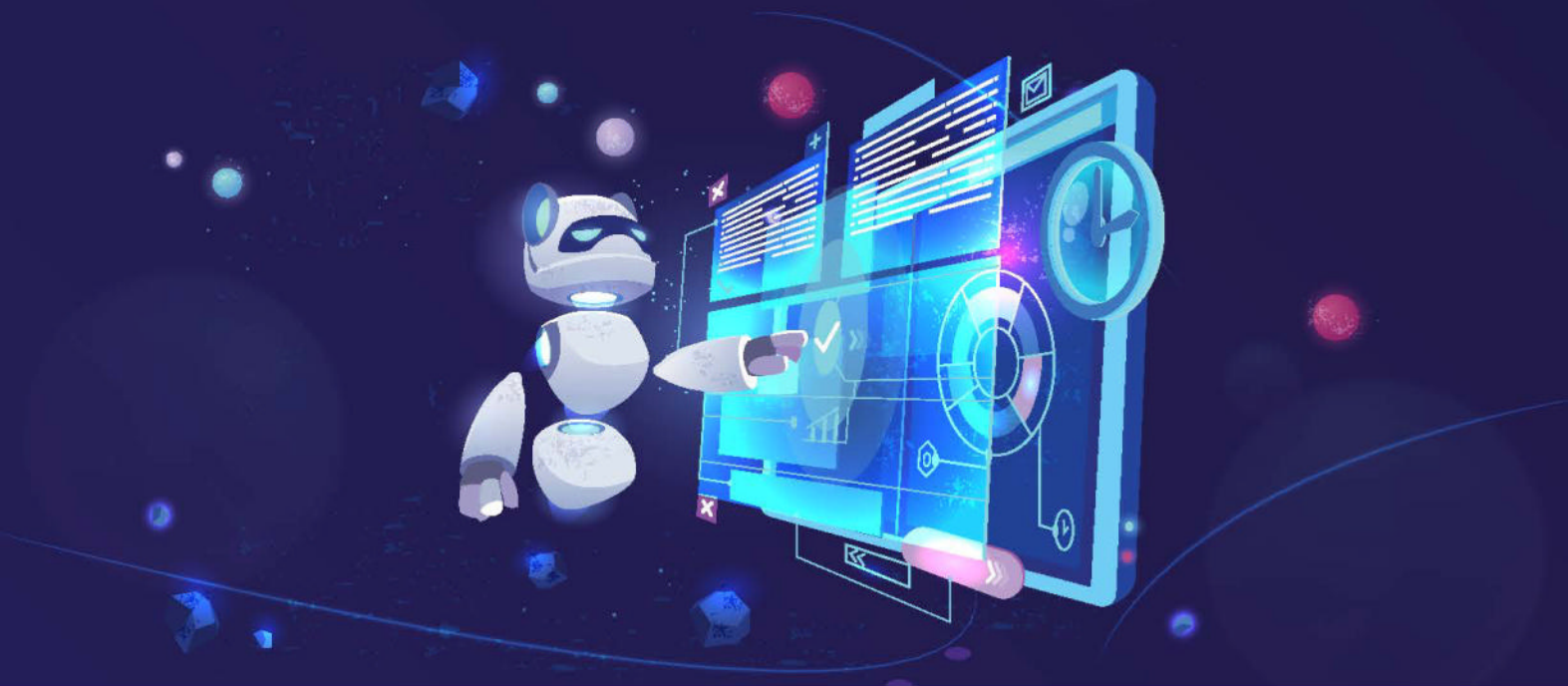
**Dr Nina Mohadjer, LLM** has worked in various jurisdictions where her cross-border experience as well as her multilingual capabilities have helped her with managing reviews. She is a member of the Global Advisory Board of the 2030 UN Agenda as an Honorary Advisor and Thematic Expert for Sustainable Development Goal 5 (Gender Equality) and the co-founder of Women in eDiscovery Germany.

HyperSense

# MAKE AI ACCESSIBLE TO EVERYONE!

**Bring AI closer to business by democratizing AI**

- Broaden data analytics and AI/ML avenues to anyone in the organization with no-code AI
- Accelerate AI adoption across an organization through reference pre-built use cases
- Improve agility, elasticity, and scalability through HyperSense's cloud-native, SaaS-based approach
- Ensure transparency and interpretability with fair usage of AI, to eliminate biases through Explainable AI capabilities
- Foster innovation and growth by operationalizing AI across the enterprise



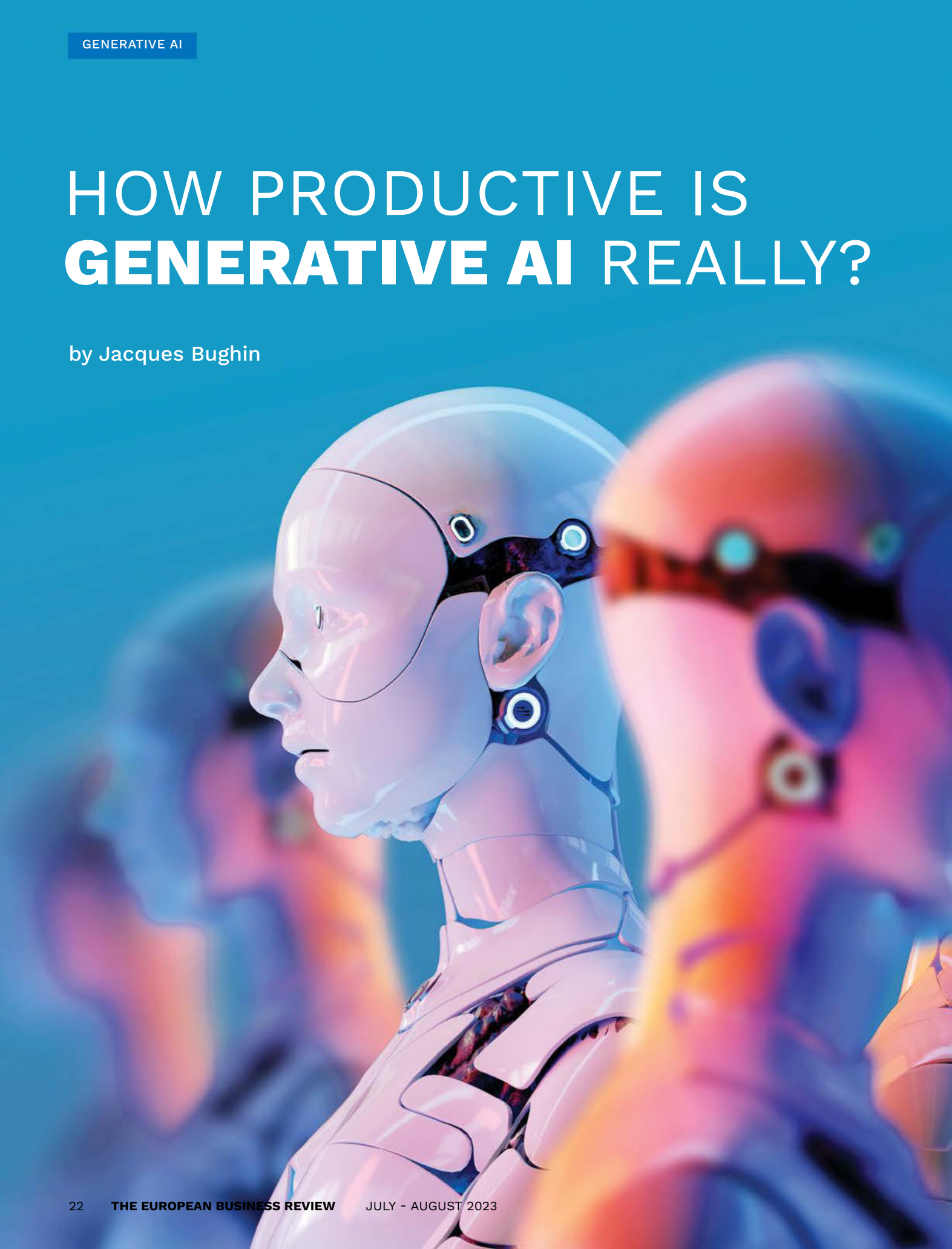
SUBEX

HyperSense Platform is a brainchild of Subex, a pioneer in enabling Digital Trust for businesses across the globe. Subex helps businesses embrace disruptive changes and succeed with confidence in the digital world.

Visit: hypersense.subex.com or write to hypersense@subex.com

# HOW PRODUCTIVE IS **GENERATIVE AI** REALLY?

by Jacques Bughin



**Generative artificial intelligence is invading the corporate suite and boardroom, surrounding the pros and cons of its use in the enterprise. The first fundamental question is whether generative AI is truly a game changer, as evidenced by basic metrics such as productivity gains. We find that it is, but that the benefits vary considerably from case to case, suggesting that managers need to do their homework to define their most favourable position with respect to generative AI.**

For Slidor, a French communication company created a few years ago, 50% of its corporate graphic marketing presentation is already done by MidJourney.[1] This intensive use of generative AI is also visible in the same proportion for the codes written by Copilot within GitHub.[2]

Needless to say, this extensive use of generative AI is invading the enterprise world at a rapid pace. It may also have created its "I-phone moment" in the process: while most digital technologies have focused on "routine" technologies, new generative AI systems such as MidJourney, Stable Diffusion, You, OpenAI's ChatGPT, and DALL-E are automating creative tasks such as content image generation or software coding that were thought to be largely isolated by the first generation of neuronal AI.

In recent scholarly articles in world-renowned journals such as the American Economic Review[3] and the Journal of Human Capital[4] in 2018, star economist Daron Acemoglu had already warned that the traditional assumption that "high-skilled workers are protected from automation because they specialise in more complex tasks requiring human judgement, problem-solving, and analytical skills" might be a dubious narrative. Powerful generative writing tools like ChatGPT could replace certain types of writing (such as press releases and blogs), could easily translate into multiple languages, engage in powerful dialogues with customers, perform medical diagnostics, or debug software code.

**Technology automation is not a zero-sum game. Technology replaces tasks to improve productivity and ultimately generate a bigger pie to enjoy.**

Does this mean the end of work, even for highly skilled workers? We doubt it for a variety of reasons.[5] But the most fundamental reason is that technology automation is not a zero-sum game. Technology replaces tasks to improve productivity and ultimately generate a bigger pie to enjoy. In fact, several studies have concluded that technology often creates more jobs[6] than it eliminates and that companies that adopt technology can end up growing faster

than their competitors.[7] In other words, technology absorption is ultimately a win-win for workers and shareholders.

Despite all the hype around GPT chat, there are few studies[8] today that look at productivity improvements in companies that use these technologies. Here, we report on one such possible study and draw important insights for executives considering whether to invest in generative AI.

## THE EXPERIMENT

The experiment is based on the use of an external tool, e.g. ChatGPT for context-based information/dialogue (nlp) and Dall-E or Stable Diffusion for content generation. By focussing on some of the major tools, we neutralise differences in tool choice as a factor in productivity differences. We also examined three contexts: coding (with sub-activities such as re-coding, debugging, and documentation), content generation (for media and advertising), and customer interactions (social media, blogging, email, and customer service). According to various observations,[9] these activities are the most used ones so far (except for activities such as medical diagnosis, others such as translation, customer research, etc. are not yet common), so we should see some benefits from using generative AI.

**Curiosity drives experimentation and then use, while more conservative workers tend to oppose technology, both because of the learning burden and the fear that technology could negatively impact their work and status.**

We test the productivity gain compared to NOT using generative AI. We also collect data on the level of experience in using these tools, age, occupation, perception of these tools ("enriches work", "impoverishes work", "neutral"), and the reason for use ("curiosity", "peer pressure", "fun", "efficiency").

## THREE MAIN INSIGHTS

Three main results stand out:

**1 USAGE. "Business use is already relatively high and is beginning to take hold."**

Approximately 26% of respondents report using the technology as part of their job, and about 16% already use it routinely, at least once a day. Finally, 3% of respondents report having used and abandoned it.

Let's not forget that these technologies are relatively new and this pace of use, at the enterprise level, is relatively strong — in the range of three to five times faster than the previous wave of so-called Enterprise 2.0.[10] Second, the conversion to an enterprise habit (16% to 26%) is also very strong in a matter of months, which took years for most Enterprise 2.0 technologies, except for messaging and some collaboration tools.[11]

**2 ADOPTION LEADERS. "Curious digital natives are the drivers of adoption."**

We correlated various indicators collected on whether workers used the tool or not. Although we can only explain less than 50% of the adoption rate, we found that the drivers of adoption are (a) age, (b) occupation, (c) curiosity, and (d) efficiency, in order of explanatory power.

Media and software professionals are more likely to benefit from the technology, as these industries have a history of disruption through digitisation and are also the most exposed to the threats and benefits of generative AI, in all likelihood. Let's not forget that while low-code has simplified coding, coding is still a complex activity that requires time and effort. AI has been used for many years to try to automate code generation, from Amazon's CodeWhisperer to IBM's Wisdom.

OpenAI is the next evolution for building simple applications from natural language commands.[12]

Age is negatively correlated with usage, as it is with technology in general,[13] while curiosity is a significant driver of usage. The latter two factors are more important than the scope of generative AI and are not without consequences. This means that a digital divide can develop between young, digital natives and other workers — and the psychographic characteristics of workers: curiosity drives experimentation and then use, while more conservative workers tend to oppose technology, both because of the learning burden and the fear that technology could negatively impact their work and status.

## 3 PRODUCTIVITY GAINS. "They are real, but they take time to unfold, both because of learning and incentives."

The productivity impact is the product of (a) the users of the technology, (b) the share of activities where AI is applied, and (c) the productivity gains in those activities.

For (a), our results show that 16% of workers use it daily — and that the momentum for expansion is significant — and faster than for any previous technology. Regarding b), we find that AI generative tools converge to account for about 1/3 of the activities of workers who use the technology every day in their workflow. In particular, this rate ranges from 12% to 44% when it comes to marketing activities (including blogging and social media communication); it is about 23% to 36% when it comes to coding (including documentation, code testing, and debugging; incidentally, the usage rate matches the GitHub report that "46% of coding in Copilot-enabled languages is done by the AICodex wizard").[14] Lastly, we find that the time spent on content production is between 23% and 41% (especially for special effects, branded content, etc.).

Finally, we compile for (c) that the time reduction for AI-assisted tasks is in the range of 30% to 60%, which is consistent with some general experiments,[8] but also with some specific studies around GithubCopilot.[15]

Taking these three elements together, total productivity at the firm level is between 1% and 4% at a minimum in the occupations covered by the survey. This may not sound like much, but again, it depends on how usage develops, and this productivity gain is already higher than the average labour productivity growth in Europe in recent years.[16]

Outside of usage, the difference in productivity found ranges from 1 to 4, and correlation analysis suggests that productivity depends on the nature of the task (e.g., debugging versus writing new code for software, a special background effect for content versus creating full content, etc.). In addition, productivity accumulates over time — it takes an average of 6 to 8 weeks to achieve stable productivity gains using these tools (so-called learning effects), while productivity is higher for workers associated with companies that have been promoting the use of AI for some time, including generative AI today.

## GETTING STARTED WITH GENERATIVE AI

We are in a time of ownership of generative AI in the enterprise. Some leaders are deliberately choosing to limit its use, while other companies believe it should be unleashed and tested among employees (see for example JPMorgan vs. Morgan Stanley).

While this is one of the first (relatively basic) studies reporting on productivity related to generative AI, it confirms early studies of different types of AI[17] that AI can be particularly powerful and adds to the parallel evidence that generative AI can provide significant gains, at least in some industries and for some tasks. As such, these technologies can deliver gains that make the returns on investment attractive enough to be considered part of any company's technology portfolio.

However, as in Gartner's growth cycle, the future may have some setbacks, so companies need to weigh their play. We see at least three unapologetic moves. The first is experimentation, as there is a learning effect to get the right benefit from technology. The second is to study use cases that are not problematic. These technologies can be used to improve the efficiency of internal human resources communication, to better predict customer reactions in commerce, to speed up information retrieval in service contracts, for the virtual representation of an architectural project, an advertising campaign, or for the redesign of a new website, etc. The third is to work on the right framework for using these technologies: they are still not transparent, they are not always accurate, and they may present biases and risks of copyright infringement. All of this suggests that technology should augment human labour but is still far from replacing it — and that the quality and proper use of these technologies must be worked out at the organisational level. Finally, as general-purpose technologies have shown, technologies can disrupt workflow productivity. Companies

**Technology should augment human labour but is still far from replacing it — and that the quality and proper use of these technologies must be worked out at the organisational level.**

must study the disruptions and reinvent themselves accordingly.

This new AI moment may seem a bit chaotic, but the evidence suggests that the companies that are early adopters aren't necessarily taking risks — theyre aware of the technology's limitations, they're working on more explainable AI and source transparency, and they're working internally to comply with the recent AI law in Europe. They are also preparing for new competition and advantages — see how Salesforce launched EinsteinGPT as part of its data cloud, improving the business insights provided to its customers, and reacting to Microsoft's investment in OpenAI.

## REFERENCES


[1] CISO From ChatGPT to Midjourney, Generative Artificial Intelligences Are Taking Holding in Companies. April 25, 2023. *Le Monde*. https://www.lemonde.fr/economie/article/2023/04/25/de-chatgpt-a-midjourney-les-intelligences-artificielles-generatives-s-installent-dans-les-entreprises_6170873_3234.html.

[2] GitHub Copilot X: The AI-powered Developer Experience. March 22, 2023. GitHub. https://github.blog/2023-03-22-github-copilot-x-the-ai-powered-developer-experience/.

[3] Modeling Automation. May 2018. American Economic Association. https://www.aeaweb.org/articles?id=10.1257/pandp.20181020.

[4] Low-Skill and High-Skill Automation. 2018. *The University of Chicago Press Journals*. https://www.journals.uchicago.edu/doi/abs/10.1086/697242.

[5] Generative AI and Future of Work: Estimated Impact Distribution. 2023. https://www.linkedin.com/feed/update/urn:li:activity:7046096413016883201/.

[6] Labour-saving Technologies and Employment Levels. January 14, 2022. Organisation for Economic Co-operation and Development. https://www.oecd.org/publications/labour-saving-technologies-and-employment-levels-9ce86ca5-en.htm.

[7] Why AI Isn't the Death of Jobs. May 24, 2018. *MIT Sloan Management Review*. https://sloanreview.mit.edu/article/why-ai-isnt-the-death-of-jobs/.

[8] Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence. March 6, 2023. Social Science Research Network. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4375283.

[9] Analytics and Data Science Career on LinkedIn. https://www.linkedin.com/groups/6744146/?highlightedUpdateUrn=urn%3Ali%3AgroupPost%3A6744146-7056580542439256064&q=highlightedFeedForGroups.

[10] Enterprise 2.0 Adoption in Italian Companies: Analysis of the Maturity Level. Politecnico Di Milano. https://www.politesi.polimi.it/bitstream/10589/6269/1/Thesina_thomas.PDF.

[11] The Rise of Enterprise 2.0. January 04, 2008. *Journal of Direct, Data and Digital Marketing Practice*. https://link.springer.com/article/10.1057/palgrave.dddmp.4350100.

[12] AI Rewrites Coding. n.d. Communications of the ACM. https://dl.acm.org/doi/fullHtml/10.1145/3583083.

[13] The Drivers of Employees' Active Innovative Behaviour in Chinese High-Tech Enterprises. May 27, 2021. Sustainability 2021. https://www.mdpi.com/2071-1050/13/11/6032.

[14] GitHub Copilot now has a better AI model and new capabilities. February 14, 2023. GitHub. https://github.blog/2023-02-14-github-copilot-now-has-a-better-ai-model-and-new-capabilities/.

[15] Research: Quantifying GitHub Copilot's Impact on Developer Productivity and Happiness. September 7, 2022. GitHub. https://github.blog/2022-09-07-research-quantifying-github-copilots-impact-on-developer-productivity-and-happiness/.

[16] European Union Labour Productivity Growth. n.d. CEIC Data. https://www.ceicdata.com/en/indicator/european-union/labour-productivity-growth.

[17] A Future that Works: AI, Automation, Employment, and Productivity. June 2017. McKinsey Global Institute Research. https://www.jbs.cam.ac.uk/wp-content/uploads/2020/08/170622-slides-manyika.pdf.

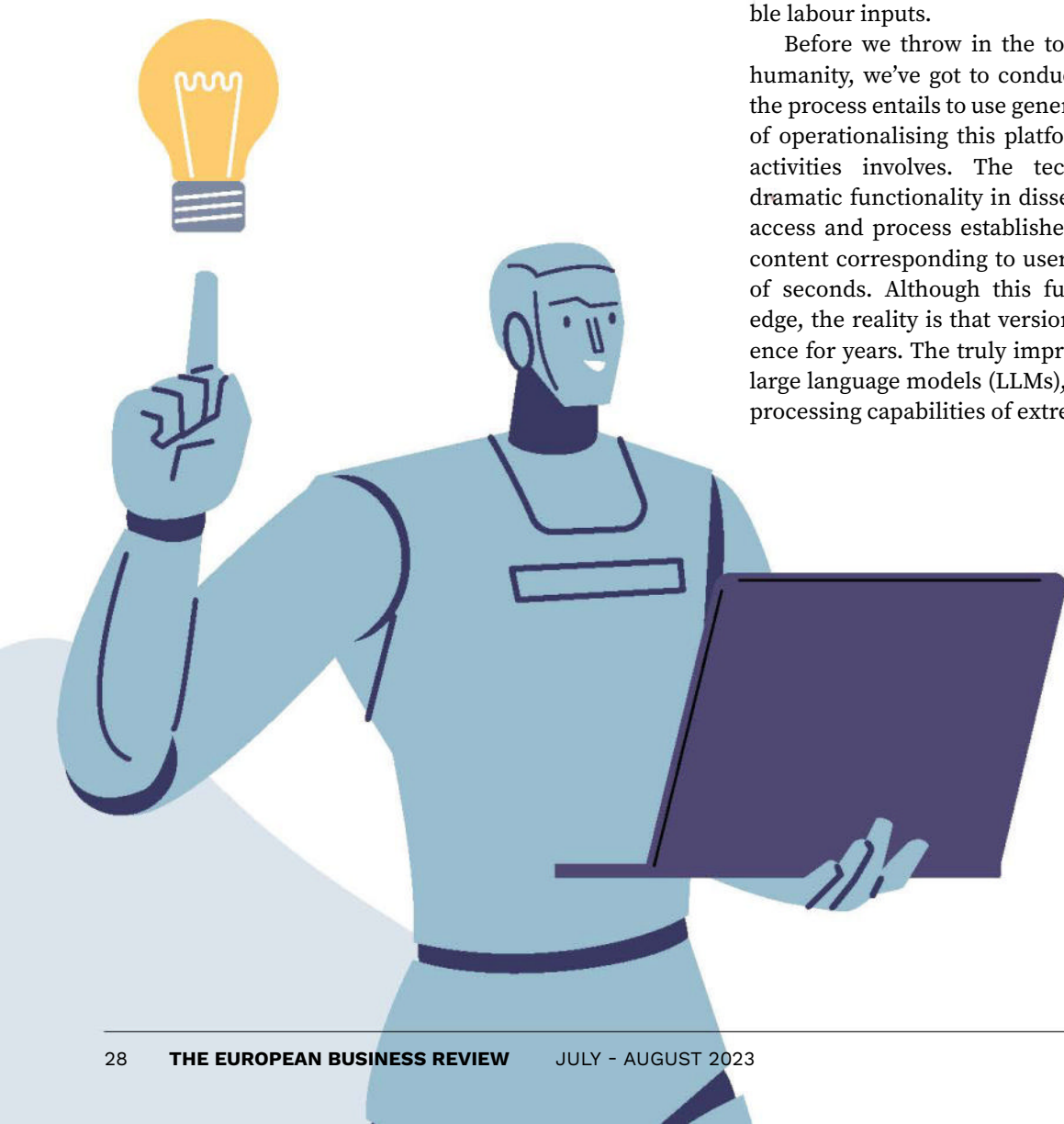

## ABOUT THE AUTHOR


**Jacques Bughin** is the CEO of Machaon Advisory and a former professor of Management. He retired from McKinsey as senior partner and director of the McKinsey Global Institute. He advises Antler and Fortino Capital, two major VC/PE firms, and serves on the board of multiple companies.

# WILL **GENERATIVE AI DISRUPT YOUR COMPANY** AND YOUR NEED FOR WORKERS?

by Stephan Kudyba

**As Stephan Kudyba explains, generative AI affects companies in different ways....it all depends on the data that they rely on.**



As the rollout of generative AI gains momentum, the debate about its effect on the labour force is intensifying. Automated document and code creation and the production of innovative images has industries of all walks on the edge, perplexed about how this technology can be used to enhance operational efficiencies and work productivity through reduction of time, and possible labour inputs.

Before we throw in the towel on the importance of humanity, we've got to conduct a reality check on what the process entails to use generative AI, and what the task of operationalising this platform to be part of everyday activities involves. The technology has introduced dramatic functionality in disseminating user prompts to access and process established data resources, creating content corresponding to user directives, all in a matter of seconds. Although this functionality seems cutting edge, the reality is that versions of it have been in existence for years. The truly impressive elements of current large language models (LLMs), however, is the speed and processing capabilities of extremely large data resources.

## THE DRIVER OF DISRUPTION

The key element to determining how generative AI will impact the viability of a company's strategic focus and the corresponding underlying workforce relies on the data that it utilises to provide value to its customers. Remember, AI gains its value by the data it can access and analyse to produce output. The platforms that have been released to the marketplace so far access available data resources that exist in the digital, open space and those created by data gathering entities as well.

Organisations that largely rely on these data can gain greater value from generative AI, since it can process and produce custom output that addresses worker and consumer needs quickly. Unfortunately this increases a company's exposure to greater disruption from competitive forces. The logic follows that LLMs can produce creative output at a fraction of the time of humans. Jobs that are grounded in leveraging open data resources to produce content for consumers are at risk, given that a general user base can access generative AI and create content themselves.

**Jobs that are grounded in leveraging open data resources to produce content for consumers are at risk, given that a general user base can access generative AI and create content themselves.**

## DISRUPTION ... THE DRIVER OF INNOVATION

This may be the reason behind Chegg Inc. claims that ChatGPT has disrupted its business recently, as the company leverages available online data along with expert input to produce content that aids educational activities for students.[1] Students may now look more to generative AI themselves to create the desired information. The response to this disruption, however, has been a pulse of innovation, as the company seeks to produce its own generative AI-based system and add proprietary data resources and advanced interaction with customers.

The driver of disruption and innovation is also illustrated in CARMAX, who took a proactive initiative to work with generative AI providers to optimise available data resources, adding additional data, to produce valuable web content for their customer base in a fraction of the time it previously would have taken.[2] This proactive approach helps mitigate the potential disruptive force that arises from simply relying on open data resources (data on used cars) which is accessible to general users of generative AI.

Both of these examples describe the exposure to the disruption of organisations that depend on open data resources. These disruptions can cause a reduction in labour inputs for producing custom content for consumers. However, the innovative reactions can cause increases in work in the form of:

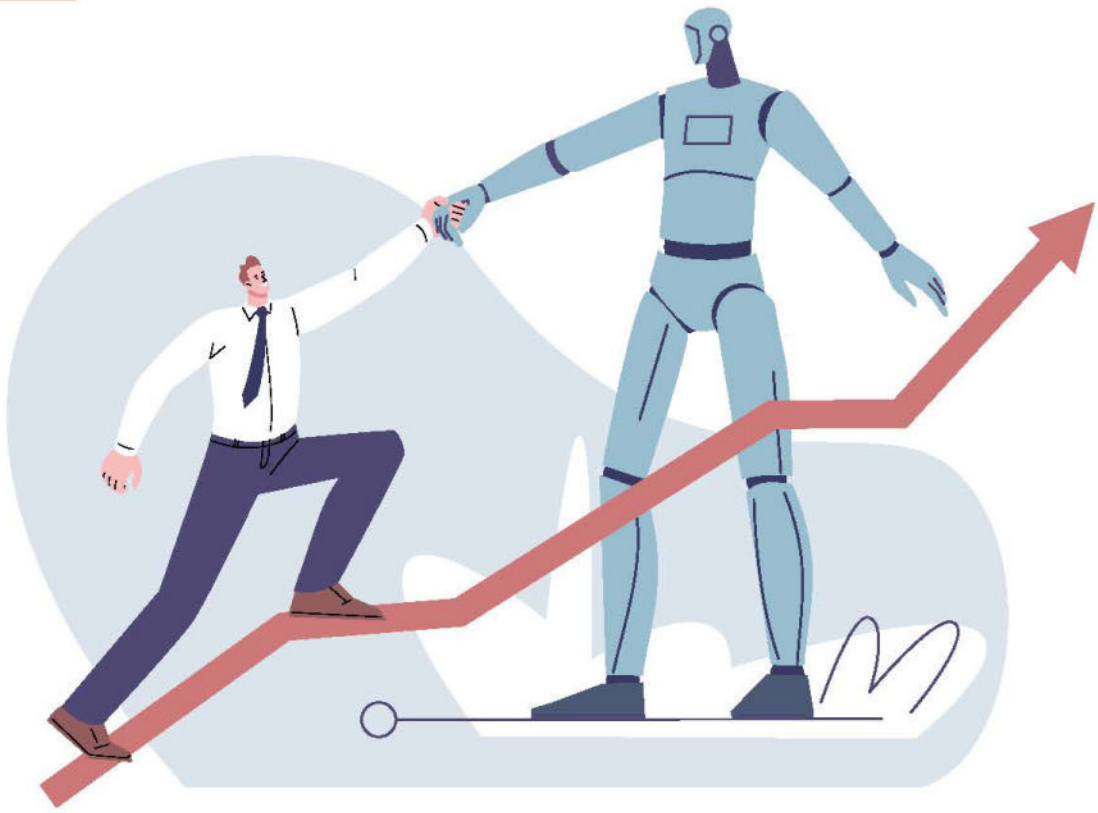
**1** generative AI prompters to create custom output

**2** Editors of output that is created by generative AI

**3** SME work groups that seek to optimize data inputs to enhance information output.

## THE NET CREATION OF WORK IF INTERNAL DATA IS ESSENTIAL

A major task that must be examined at this juncture regarding the effects on displacing jobs



revolves around the operationalisation of LLMs in organisations. LLMs have shown their value in creating limited text- and code-based content, where users need to edit the output generated.

This can no doubt replace more routine-based job functions (e.g., creating blogs, preparing marketing blurbs, producing code for a particular application, creating images). However, the process of operationalising generative AI as an integral part of an organisation's technical infrastructure may actually introduce more work and human input. Two potential tactics that have currently evolved to address this issue include fine-tuning and in-context learning.

The true balance of work creation verses disruption is evident when organisations require not only open/public data resources to produce relevant content, but data that is internal to the organisation. Existing generative AIs have been designed to leverage data that is open to the marketplace, but not the more sensitive internal resources of particular companies. This introduces a significant hurdle to operationalising LLMs, or in other words, using generative AI technology for everyday use to produce value to the company and to the market it serves. These companies need to devote significant work resources to organising existing and real-time data that is integral to creating credible output.

Consider the financial/investment industry (e.g., Morgan Stanley) that is looking to leverage LLMs to create custom information regarding wealth management issues.[3] In order to create credible content, generative AI must access and process a multitude of market data, including data residing on the open market and data produced internally through the work activities of systems and employees, where the currency or timeliness of data is essential. Will generative AI result in significant job reduction in this industry by replacing the ability to produce credible wealth management content? Or will the result be a creation of work and corresponding labour

**The key message to emphasise is that generative AI can no doubt disrupt and reduce the human element in conducting basic tasks. This may render certain jobs obsolete or may augment previous job roles to higher value creating activities.**

inputs to accomplish new and augmented work tasks to operationalise generative AI?

Organisations that intend on using generative AI as an operational platform that requires the access of internal and open/public data may be faced with increased work involving the reorganisation of internal data resources (e.g., categorisation, storage, naming, codification, etc.) to be accessed by generative AIs. This involves data professionals and SMEs or individuals with technical skills and domain knowledge. Other, new work that is required entails prompt engineers or individuals that have the skills to optimise generative AI prompts to create desired output. Additionally, this output has to be verified according to relevance, accuracy, and timeliness, which again requires SME domain knowledge of content produced. These jobs are content editors.

## THE DEGREES OF DISRUPTION AND THE NEW EFFECT ON WORK

The key message to emphasise is that generative AI can no doubt disrupt and reduce the human element in conducting basic tasks. This may render certain jobs obsolete or may augment previous job roles to higher value creating activities.

Organisations that heavily rely on data resources in the open digital market that are re-bundled by generative AI to provide value to their consumer base are at risk of disruption, as generative AI can automate much of this. The response in this case is to innovate and enhance the value of content it produces to consumers. Again, this is disruption balanced against innovation, or the loss of some jobs and the creation of others.

The last example illustrated involves the case of companies who require the input of custom internal data and operationalising LLMs in its workflow. The balance for this sector seems to favour an increase in work and human input in the form of optimising internal data resources, prompt engineers, and content editors to maintain a quality workflow which is measured by the production of relevant, accurate, and timely information.

Will the world experience dramatic reductions in the need for the human element? Don't count out the knowledge and innovation of individuals.

**REFERENCES**


[1] Singh, M."Edtech Chegg tumbles as ChatGPT threat prompts revenue warning", Reuters, May 2, 2023.

[2] Rooney, P. "CarMax drives business value with GPT-3.5", CIO Magazine, May 5, 2023.

[3] Davenport, T. "How Morgan Stanley Is Training GPT To Help Financial Advisors", Forbes Magazine, May 20, 2023.


**ABOUT THE AUTHOR**


**Stephan Kudyba** is a professor of analytics and information systems at the Martin Tuchman School of Business, New Jersey Institute of Technology. He has held senior management positions at prominent organisations and has been a researcher, professor, and practitioner of AI applications in business for over 20 years. Dr Kudyba has written articles for *Harvard Business Review, MIT Sloan Management Review, InformationWeek* and *The Wall Street Journal* to name a few, and has published eight books addressing technology, analytics, and organisational performance. Email: SKudybs@gmx.com

# COUNTDOWN TO **CYBERSECURITY IN THE QUANTUM ERA:** WILL BUSINESSES BE READY IN TIME?


**Leaps in quantum technology and hybrid approaches are shortening the time to Q-Day, when adversaries can use quantum computing to break cryptography and threaten data safety for all organizations. It's hard to predict exactly when this will happen. But given the pace of the development of quantum computing, experts agree that companies need to start implementing a post-quantum defense now.**

by Tom Patterson & Laura Converso

**KEY TAKEAWAYS**

☑ As of today, there are no large-scale quantum computers available that could break cryptographic algorithms, but we know they are coming. Due to the time it takes to implement and promulgate a defense, businesses should act now to counter this threat.

☑ European businesses should start by putting in place a post-quantum security strategy, a migration roadmap, and a course to crypto agility – the ability to easily move from one algorithm to another. The quantum threat makes crypto agility a recommended choice for post-quantum cryptography transition. And, given that we expect these algorithms to continue to evolve, being crypto agile even after that is also important.

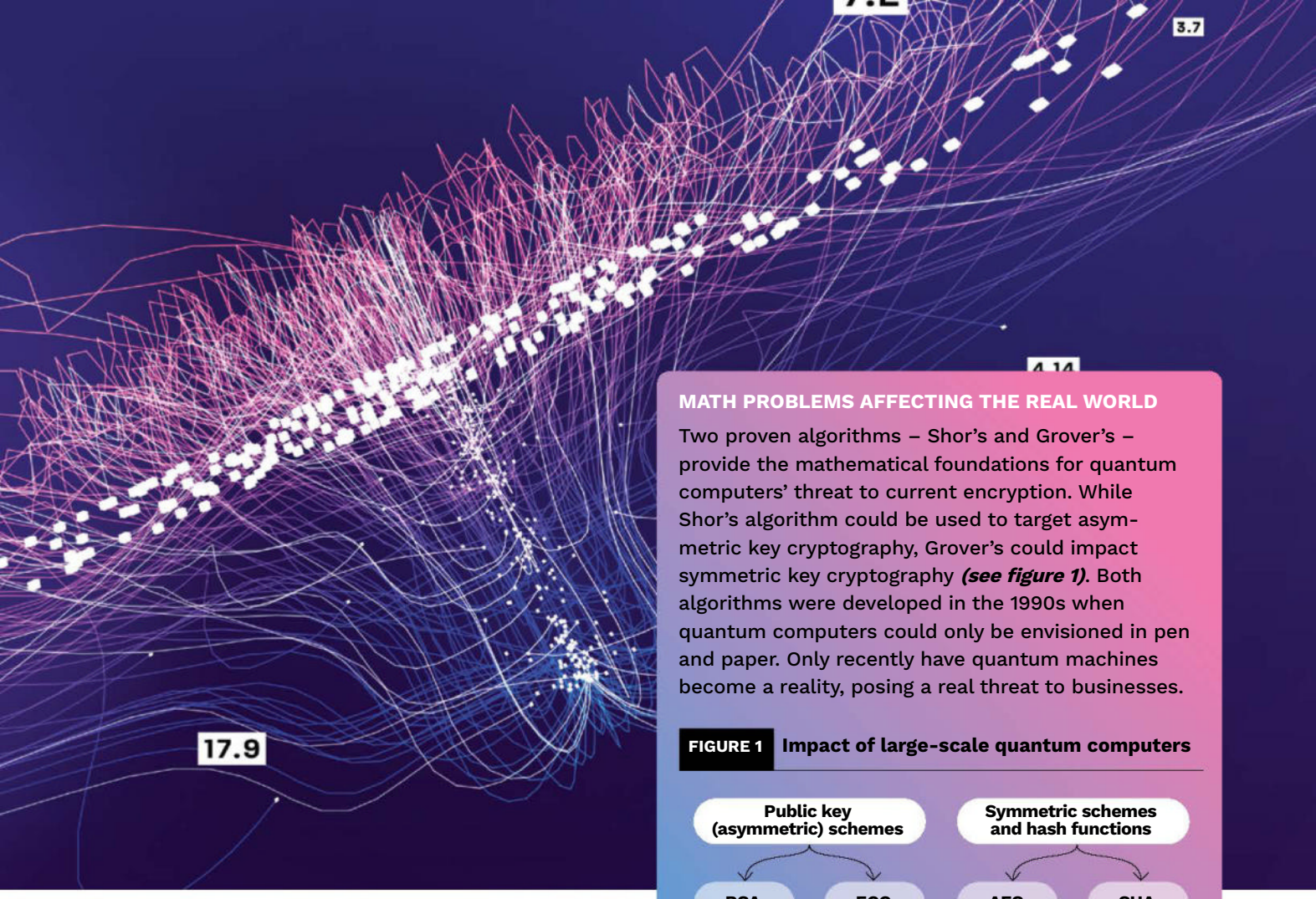
☑ European businesses waiting too long to complete their migration could pay a high cost or even disappear if they are unable to keep data safe and protected.

## QUANTUM COMPUTERS WILL CRACK ENCRYPTION – BUT WHEN?

Today's hyperconnected world of trade and finance stands on the trust that digital information is protected and can be stored and exchanged safely across the globe. However, even as cyber-attacks become more sophisticated and the security landscape more difficult to navigate, a new and more foreboding threat is on the horizon: quantum computers that have the potential to break cryptography.

Quantum computers will bring many benefits but also pose a serious threat to today's digital security due to their ability to factor numbers into primes much faster than classical computers.

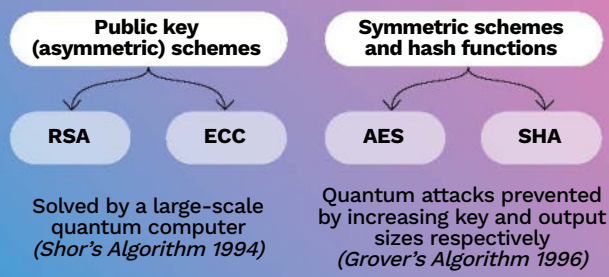
How immediate is this threat? On January 4, 2023, a group of Chinese scientists claimed that RSA encryption (the public-key cryptosystem widely used for secure data transmission – see inset box "Math problems affecting the real




### MATH PROBLEMS AFFECTING THE REAL WORLD

Two proven algorithms – Shor's and Grover's – provide the mathematical foundations for quantum computers' threat to current encryption. While Shor's algorithm could be used to target asymmetric key cryptography, Grover's could impact symmetric key cryptography ***(see figure 1)***. Both algorithms were developed in the 1990s when quantum computers could only be envisioned in pen and paper. Only recently have quantum machines become a reality, posing a real threat to businesses.

**FIGURE 1** **Impact of large-scale quantum computers**




Source: Accenture Research, Dec 2022

### PUBLIC-KEY ENCRYPTION SCHEMES

**RSA-based encryption** makes it possible to exchange data via the cloud, deliver digital products and services and communicate with customers. **ECC-based encryption** serves to secure the communication on the Internet of Things.

world to know more) could be broken using a quantum computer with only 372 qubits[1], a task that experts estimate classical computers would take 300 trillion years. After 48 hours of tension, when companies felt vulnerable and unprotected, other international cryptographers discovered faults in the specifics of the math. Despite the failure of this approach, it highlighted both the international race as well as clever new ways to use early-stage quantum computers for decryption and emphasizes the urgency to get ready.

## YEAR 2030: AN ESTIMATE FOR Q-DAY

The error-prone quantum computers available today do not have the scale to break encryption, but this technology is advancing so fast that things are expected to change soon.

An estimate from experts in post-quantum cryptography (PQC), led by mathematician Professor Michele Mosca, suggested it would take an average of 15 years before quantum computers break the security.[2] The calculation first emerged in 2015, so the estimate hits the calendar in 2030.

In Professor Mosca's[3] useful framework to help organizations determine a plan, the urgency to initiate the migration depends on a company's evaluation of **three simple parameters:**

**A** is shelf-life time: The number of years business data must be protected.

**B** is migration time: The number of years needed to safely migrate a business security system.

**C** is threat timeline: The number of years until large-scale quantum computers become available.

This simple theorem suggests that if **A+B > C, then businesses will be at risk.**

The timeline for **C** is, therefore, not set in stone: 2030 could be too early or too late depending on how fast quantum machines evolve.

Even if the threat seems unpredictable, businesses need to get ready now. Not only because we see quantum getting closer, but also because there is the real danger that someone can store encrypted data today and then decrypt it when such a quantum computer becomes available. In fact, the uncertainty surrounding the precise date makes it hard for businesses to discern the right time to act.

How soon do we need to worry? Not wasting any time, the Cloud Security Alliance[4] took 2030 as a valid date for Q-Day and set a countdown clock. At of the time of publication, businesses in the cloud have six years, 260 days, 16 hours and 30 minutes to migrate to quantum-safe security.

## YEAR 2024: POST-QUANTUM CRYPTOGRAPHIC STANDARDS

In all this ambiguity, only one thing is certain – new crypto algorithms are needed to protect our systems against the quantum threat.

Professor Mosca's theorem published in 2015 formed part of the justification for the US National Institute of Standards and Technology's (NIST) to begin identifying PQC algorithms that could protect data following the advent of quantum computers. After six years of careful consideration and several rounds of competition, the NIST[5] recently announced four candidate algorithms for standardization (see ***figure 2***).

**FIGURE 2** **NIST PQC candidates for standardization**

| | |
|---|---|
| **Public-Key Encryption** | |
| CRYSTALS-Kyber | Lattice-based cryptosystem |
| **Digital Signature** | |
| CRYSTALS-Dilithium | Lattice-based signature |
| FALCON | Lattice-based signature |
| SPHINCS+ | Hash-based signature |

Source: National Institute of Standards and Technology, July 2022

Between now and 2024, NIST will continue to assess technical considerations for the four selected PQC algorithms while identifying alternative options in case advances in cryptanalysis threaten their long-term viability. Lattice-based cryptography is a favorite because no one has developed a quantum algorithm that breaks these crypto primitives – at least not yet.

## WHAT'S THE CASE FOR EUROPEAN STANDARDS?

Although the NIST is setting US standards, its actions are of worldwide concern. In fact, many global institutions are deeply involved in and contributing to NIST standardization work. In the EU, the European Union Agency for Cybersecurity (ENISA) has developed guidelines and recommendations fully aligned with

NIST. Still, the question remains whether the EU will form one block or there might be country-specific differences. For the moment, certain government agencies – e.g., Germany's Federal Office for Information Security (BSI) and the National Cybersecurity Agency of France (ANSSI) – stated they will support NIST-selected schemes but might extend the list of standardized algorithms with certain other algorithms.[6] Outside of the EU, the UK's National Cyber Security Centre (NCSC) is following the NIST's standardization work closely. Its guidance for quantum-safe algorithms will follow the outcome of the NIST process, recommending specific algorithms for representative use cases.[7]

Regulatory compliance against national, supranational and industry-specific security standards will significantly influence the right timeline for each European business. Nevertheless, some organizations may wait (either deliberately or inadvertently) until they are obliged to act. The ETSI Quantum-Safe Cryptography specifications and the EU's Cybersecurity and Cyber Resilience Acts will drive enterprise adoption of post-quantum security.

**Setting a course for crypto agility will allow businesses to easily change the encryption method in case advances in cryptoanalysis threaten the viability of the adopted system.**

## NOW: BUILD AN ACTION PLAN

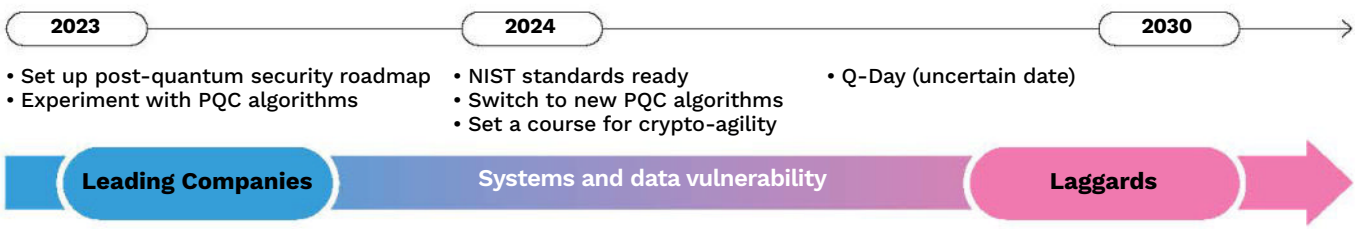
Even if fully published standards will not be available until 2024, companies should not wait until then to start on their PQC roadmap (see ***figure 3***). Now that the initial recommendations have been released, there are common practices for businesses to follow, purchasing decisions to be made, and expertise to be developed to avoid future pain.

What to do then? **First**, build a well-considered strategy that appreciates the specifics of your enterprise, risks and stakeholders. **Second**, pragmatically and efficiently discover each instance of vulnerable encryption to be updated both in your enterprise and all the related ecosystems and supply chains it interacts with. **Third**, decide on a new crypto architecture. **Fourth**, begin the multi-year process of testing, implementing, and promulgating new quantum-resistant security throughout the extended enterprise.

A strong and proven strategy helps businesses find the delicate balance that's needed between moving ahead and taking care to avoid introducing new risks. PQC deployments should initially run in parallel with current encryption methods, using post-quantum technology to add security on top of existing crypto systems (not dismantling them) where timing and resources permit.

In the new paradigm that is urgently needed to address the quantum security challenge, crypto agility presents itself as the best alternative. Setting a course for crypto agility will allow businesses to easily change the encryption method in case advances in cryptoanalysis threaten the viability of the adopted system as stated in Accenture's latest piece, The race to crypto-agility.[8]

**FIGURE 3** **Timelines for risk mitigation**




Source: Accenture Research, December 2022

## LEADING EUROPEAN ORGANIZATIONS ARE NOT WAITING UNTIL 2024

Large European organizations across every industry are working on their post-quantum security agenda, not waiting until the release of 2024 standards to begin implementing solutions.

**Financial institutions** are first in line, since RSA-2048 and higher are standards in the conventional banking system. The Financial Services Information Sharing and Analysis Center's (FS-ISAC) post-quantum cryptography working group is collaborating with global member institutions, including major European banks, to start implementing quantum-resistant measures as soon as possible.[9] According to the World Economic Forum, Spain's largest bank has started implementing cryptographic agility by developing "cryptography-as-a-service" to enable the bank to move services over to post-quantum cryptography.[10]

**National governments** are taking this threat seriously. The US National Security Agency (NSA) has already set itself a deadline of 2035, and has specified guidance and timelines.[11] However, Europe is still behind in setting the deadline for this critical infrastructure's migration. The experimentation phase, however, continues. The French Embassy in the United States, for instance, recently transmitted its first encrypted diplomatic message to Paris using post-quantum cryptography.[12]

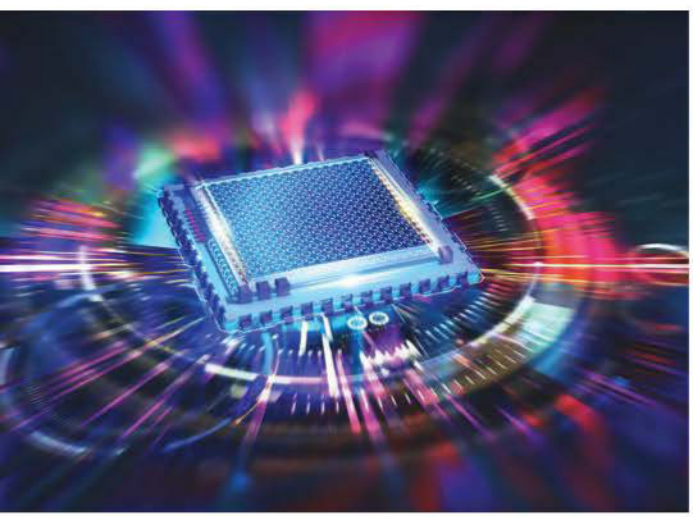
The **high-tech industry** is also moving fast, since some devices that are produced today will potentially still be operating 10 years from now.

The same logic applies to the **automotive industry**. A connected vehicle lifetime of roughly 10 years means that a car developed today will likely still be on the road after 2032. One leading manufacturer of automotive components[12] started revisiting the security of its vehicle component business almost a year ago, experimenting with PQC technology in various fields such as in-vehicle payment service,

vehicle to everything (V2X) and an over-the-air (OTA) wireless solution.

The list of private and public organizations that have begun working with PQC is growing. Some industries such as health, financial services, communications, high-tech, government and automotive are advancing faster, but every single industry needs an action plan. As quantum machines continue to evolve, it is important to understand how they will impact cybersecurity, and when the threat could potentially materialize, based on each industry's risk profile.

**According to the World Economic Forum, Spain's largest bank has started implementing cryptographic agility by developing "cryptography-as-a-service" to enable the bank to move services over to post-quantum cryptography.**



**REFERENCES**


[1] Factoring integers with sublinear resources on a superconducting quantum processor https://arxiv.org/pdf/2212.12372.pdf

[2] M. Mosca, "Cybersecurity in an Era with Quantum Computers: Will We Be Ready?," *IEEE Security & Privacy,* vol. 16, no. 5, pp. 38-41, September/October 2018 https://ieeexplore.ieee.org/document/8490169

[3] Ibid https://ieeexplore.ieee.org/document/8490169

[4] Cloud Security Alliance, Working Group: Quantum-safe Security https://cloudsecurityalliance.org/research/working-groups/quantum-safe-security/

[5] Computer Security Resource Center, PQC Standardization Process: Announcing Four Candidates to be Standardized, Plus Fourth Round Candidates, July 5, 2022 https://csrc.nist.gov/News/2022/pqc-candidates-to-be-standardized-and-round-4

[6] Robert Huntley, Post-Quantum Cryptography: Are You Ready?, EE Times, Europe, April 5, 2023 https://www.eetimes.eu/post-quantum-cryptography-are-you-ready/

[7] National Cyber Security Centre, Preparing for Quantum-Safe Cryptography, November 11, 2020 https://www.ncsc.gov.uk/whitepaper/preparing-for-quantum-safe-cryptography

[8] https://www.accenture.com/_acnmedia/PDF-145/Accenture-Crypto-Agility-POV-v7-0#:~:text=race%20for%20crypto%2Dagility&text=That%20means%20increasing%20flexibility%2C%20acquiring,for%20the%20entire%20supply%20chain.

[9] FS-ISAC, Preparing for a Post-Quantum World by Managing Cryptographic Risk, March 2023 https://www.fsisac.com/hubfs/Knowledge/PQC/PreparingForAPostQuantumWorldByManagingCryptographicRisk.pdf?hsLang=en

[10] World Economic Forum, Transitioning to a Quantum-Secure Economy, September 2022 https://www3.weforum.org/docs/WEF_Transitioning_to_a_Quantum_Secure_Economy_2022.pdf

[11] Dan O'Shea, Quantum security experts are in step with NSA's PQC timeline, Inside Quantum Technology, September 28, 2022 https://www.insidequantumtechnology.com/news-archive/quantum-security-experts-are-in-step-with-nsas-pqc-timeline/

[12] Ministère de l'Europe et des Affaires Étrangère, France transmits its first post-quantum cryptographic diplomatic message, December 1, 2022 https://www.diplomatie.gouv.fr/en/the-ministry-and-its-network/news/2022/article/france-transmits-its-first-post-quantum-cryptographic-diplomatic-message-1-dec

[13] Aju Business Daily, LG Electronics uses post-quantum cryptography technology for vehicle cyber security, October 5, 2022 https://www.ajudaily.com/view/20221005131500397


**ABOUT THE AUTHORS**


**Tom Patterson** is Managing Director for Emerging Technology Security, Accenture, and the global lead for quantum and space security. He oversees the development of quantum security assets and teams that drive proven customized client solutions to defend against the coming quantum threats.



**Laura Converso** is a Thought Leadership Senior Principal for Emerging Technologies at Accenture Research. She focuses on technology incubation and innovation projects and leads the quantum computing research agenda.

**IT and security teams have been at loggerheads with each other for far too long. In the age of digital transformation, it's time the two groups set their differences aside and increase collaboration.**

# BRIDGING THE GAP BETWEEN IT AND SECURITY TEAMS:

## Four Tips for Better Collaboration

by Linh Lam

In today's corporate landscape, the relationship between Information Technology (IT) and security departments often mirrors a tangled web, marked by conflicting objectives and strained interactions.

Yet, as digitalisation accelerates across all sectors, amplified by the lasting effects of the COVID-19 pandemic, it has never been more crucial for Chief Information Officers (CIOs), Chief Information Security Officers (CISOs), and other digital technology leaders to align their strategies for the greater good of their organisation.

As we witness an escalating digital race in every industry, the need to harmonise the divergent missions of IT and security has become paramount. So, what are the conflicting perceptions both teams have against each other? And how can business leaders optimise this divided relationship that has persisted for the last decade?

### THE CONFLICTING VIEWS OF IT AND SECURITY TEAMS

Traditionally, these two departments have functioned as separate entities with distinct roles. IT, under the stewardship of the CIO, has primarily focused on the swift delivery of digital services to maintain a competitive edge and ensure customer satisfaction. Simultaneously, the security team, led by the CISO, has been dedicated to identifying and mitigating potential security and privacy risks inherent in these services.

This dichotomy often results in tension within organisations. IT professionals may perceive security teams as the "Obstruction Bureau," while security professionals may view IT teams as reckless, prioritising speed over safety.

Further complicating this relationship is the evolving role of both the CIO and CISO. Both are transitioning from being mere technology specialists to becoming integral business strategists. CIOs, once tasked with delivering IT services efficiently and cost-effectively, are now expected to spearhead digital transformation efforts and stimulate revenue-generating innovation.

Similarly, CISOs are growing into business leadership roles. According to a Gartner report,[1] CISOs are now "key enablers of digital business", responsible for balancing the associated risks and benefits. They achieve this by assessing, prioritising, and enhancing an organisation's security posture.

Unless organisations carefully devise a strategic plan that recognises and integrates these evolving roles, they risk instigating territorial disputes, budget conflicts, and operational confusion. Here are four key strategies that every business leader should leverage to bridge this gap and eliminate this divide.

**IT professionals may perceive security teams as the "Obstruction Bureau," while security professionals may view IT teams as reckless, prioritising speed over safety.**

## OVERCOME THE "US AND THEM" ATTITUDE

It is vital to nurture a partnership mentality between IT and security teams. Both teams need to understand the importance of each other, in order to get ahead of this “us vs them” mentality. Business leaders must communicate the necessity of each team to one another. For instance, the IT team needs security to ensure that the rapid development and deployment of applications do not compromise the organisation's cyber defences.

Conversely, security teams need to rely on the

IT department as a valuable source of cyber risk information. Working closely with the IT team will allow the security team to gain critical insights into the organisation's cybersecurity and productivity needs.

It's also important to recognise that effective cultural change often emanates from the top. Thus, CIOs and CISOs must pioneer efforts to foster open communication and collaboration.

## LOOK BEYOND ORGANISATIONAL CHARTS

A PwC report[2] revealed that while 40% of CISOs report to a CEO, 24% report to the CIO, and 27% report directly to the board. The reporting structure can vary depending on the company size, industry, and specific organisational needs. While it is commonly believed that having both the CIO and CISO report to the CEO promotes collaboration and reduces friction, there is no universal formula for success.

In some cases, it's more practical to have the CISO report to the CIO, because security requirements should be the first consideration for any IT initiative. Having CISOs report to CIOs complements this consideration, and it also ensures that the IT teams don't miss out on any security-related insights.

On the other hand, if the business is in a highly regulated industry, such as financial firms or retailers, reporting directly to the General Counsel's office makes more sense.

Regardless of which approach you choose, the end goal should be to align risk management with business objectives, and the reporting structure should facilitate this.

## INITIATE EARLY COLLABORATION

Conflicts often emerge due to the perception of security as an afterthought, a final hurdle to be cleared after the IT department has put in significant effort in developing an innovative software or system. This view can lead to the IT team feeling unduly delayed and frustrated by the sudden intervention of the security department, wielding their red pen with what may seem like reckless abandon.

Conversely, the security team might feel as if they are being thrust into a high-stakes situation with little forewarning, forcing them to scramble to secure a vital new piece of architecture just days before its planned launch. Scenarios like these breed resentment on both sides and the resulting conflicts only serve to harm the organisation they're both striving to improve. It's the corporate equivalent of building a house only to discover too late that it's not structurally sound.

The solution to this issue is ensuring that the IT and security departments work in tandem right from the start. This means that from the moment an application is ideated, through the stages of architecture design, up to the final review stages, both teams should be in close collaboration.

By adopting this approach, the necessary due diligence regarding potential vulnerabilities and risk exposure can be completed upfront. As a result, security becomes an inherent part of

the resulting product or project, rather than an afterthought. This process is encapsulated in the DevSecOps approach, where security is intertwined throughout the development lifecycle instead of being a final checkpoint.

Integrating security into the development process at the outset can mitigate risks, prevent late-stage disruptions, and foster a more collaborative culture between the IT and security departments. It can also lead to the creation of more robust and secure digital solutions, enhancing the organisation's resilience and credibility in the long run.

**Integrating security into the development process at the outset can mitigate risks, prevent late-stage disruptions, and foster a more collaborative culture between the IT and security departments.**

## ELEVATING CISOS AS LEADERS IN RISK MANAGEMENT

In today's complex digital landscape, the nature of security demands has drastically shifted. The role of the CISO must transform accordingly to match the evolving demands of the digital age.

Security has transitioned from a purely technical function to a more integrated component of organisational risk management. Given that cyber risk intersects with every facet of an organisation, it is critical to treat it as a strategic business function, rather than a niche technical concern.

Therefore, it's essential to empower CISOs to function as central figures in managing risk across the business. This involves giving them a seat at the strategic decision-making table, allowing them to work collaboratively with their CIO counterparts, rather than in opposition.

With CISOs positioned as leaders in risk management, they can provide vital insights into potential risks and their impact on business operations. This would not only strengthen the organisation's overall security posture but also facilitate better alignment between IT and security objectives.

When CIOs and CISOs operate on the same level and from the same playbook, they can collectively lead their teams to bury past grievances and work together effectively. This collaboration is integral to the successful digital transformation journey of any organisation, enabling them to navigate the complexities of the digital landscape more efficiently and securely.

In conclusion, the integration and alignment of IT and security is a strategic imperative in today's digital business environment. By fostering a collaborative culture, promoting flexible organisational structures, encouraging early and ongoing collaboration, and empowering CISOs as risk management leaders, businesses can bridge the divide between these two crucial departments. This, in turn, can enhance their competitiveness, improve their resilience, and ultimately drive their success in the digital age.

**REFERENCES**

[1] CISO for Digital Business. N.d. Gartner. https://www.gartner.com/en/cybersecurity/role/chief-information-security-officer

[2] A C-suite United on Cyber-ready Futures. N.d. PwC. https://www.pwc.com/us/en/services/consulting/cybersecurity-risk-regulatory/library/global-digital-trust-insights.html

**ABOUT THE AUTHOR**

**Linh Lam** is responsible for leading Jamf's information technology and solutions while continuing to help the company grow. Linh joins Jamf from ICE Mortgage Technology as their SVP & Chief Information Officer. Linh holds a Bachelor of Arts degree from Stanford University.

# THE ART OF **FUTURE DESIGN** — PART I:

## Framing, Assessing, and Identifying Relevant Contexts

by Kristine M. Kawamura, Mario Raich, Simon L. Dolan, Dave Ulrich and Claudio Cisullo

**Our desire to design a better future for those coming behind must be guided by a new framework that considers the complexity of a yet unknown future and the different forces that influence it.**

Throughout human history, people wake up to the fact that we are here for only a short "blip" in time. They may look up to a starry night and ponder the vastness of space, the greatness and smallness of their own lives. This sudden awakening to the preciousness of time inspires many to contemplate the meaning and purpose of their lives; their placement in history; their role in creating or at least influencing the future; or the power of their own choices to change direction, influence others, and contribute to the greater sense of meaning in the course of human history. It leads many to recognise that each one of us is a valuable yet momentary hero or heroine, living our life in a human society on a living, breathing, and changing planet.

Scientists and philosophers, too, explore the meaning of life within their respective disciplines and perspectives. We know from quantum mechanics, for example, that all material objects simultaneously exist as a wave and a particle. This paradoxical mystery also applies to the experience of being human beings. On one hand, we *flow* (sometimes bumping along) through the journey of our lives—growing, learning, changing, and eventually, moving into the great unknown. Simultaneously, at any one moment, *time stands still* and the greater context of our society and world is frozen in meaning and experience. We live each moment embedded in a specific society that is surrounded by a dominating "Zeitgeist" (a term often described as

**EXHIBIT 1** PESTELDG Analysis

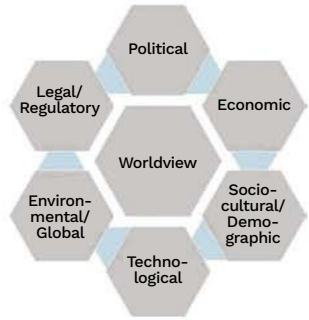



**EXHIBIT 2** Proposed Planning Elements


the spirit of the age, the overarching mood of that specific period that is constantly being created, and recreated, by the overarching ideas, beliefs, and events of that time.)

Life, itself, comprises waves and particles, experiences that are both individual and shared. Our moments in life are the particles; our journey through life, the wave. With life so short in the arc of the universe, our proposal is that one's life should focus on goodness—being our better selves, contributing our strengths and values to create a better world, and taking action to design a healthy, thriving, and "best" future. Given the power that human beings have to envision the future, act, and produce impact, we see the value and responsibility for people of all cultures, disciplines, and walks of life to create meaningfulness, happiness, and even bliss for ourselves and others with whom we walk our journey through life's moments.

This is the first of a two-part article. In part I, we discuss why we need a new framework to guide our efforts to design the future. We describe the Future Design Framework (developed by futurist Mario Raich, coauthor of this paper), and its foundational concepts. The issues discussed hereafter become of utmost relevance, especially in view of the recent developments in artificial intelligence (AI), for which some fear that it can possibly destroy humanity (see: Delbert, 2022).[1]

## THE NEED FOR A FUTURE DESIGN FRAMEWORK

Given that we don't know the future, seeking to design the future is simultaneously stimulating, presumptuous, and terrifying. We can't see it, touch it, or fully anticipate its possibilities and risks. Human beings live within an external, environmental context of forces, paradigms, assumptions, and axioms. We also operate from an internal, inner context that has been shaped over time. In this paper, we describe the positive and negative interpretations of the disruptive forces we face today and propose longer-term possibilities that may arise from these forces. We then present a model that portrays the complex, inner life of human beings and suggest methods to harness the potential capabilities that people may bring to the future design process. We propose that understanding our outer and inner contexts is a necessary process for future design and for creating meaningfulness in our work and lives.

### Environmental Forces for Change

Most business professionals, strategists, and innovators are familiar with the process of analysing environmental forces through the lens of **PESTELDG**, a nomenclature that stands for, political, economic, sociocultural, technological, environmental, legal/regulatory, demographic, and global forces. All of these numerous interconnected forces characterise the present reality, which together formulate the current worldview we hold both as we perceive today and the future.

## THE OTHER FORCES FOR CHANGE

### Technology and Economics as a Force for Change

Several interrelated elements of a PESTELDG analysis attract our attention. First is the advent of the Cyber-Age, which has moved us into a world in which digital systems—operating on their own, interacting with more conventional physical systems, human beings, and the environment—have flattened, quickened, and connected our world. This era is ripe with the potential transformation of business, education, culture, and society. Given the potential of the fourth industrial revolution to revolutionise the speed and scope of the creation and destruction processes, it mandates new regulations and changes in political systems and the role of government. Second is the convergence of advanced technologies—especially virtual reality (VR), alternative reality (AR), and AI—with their potential to alter our life and work, far beyond anything we can envisoin or expect. Advanced technologies also present new avenues for value-creation and new ways of working, living, and building relationships. There are also inherent risks and threats. Leaders and organizations may be unable to gather the full range of benefits or mitigate against the extensive spillover costs associated

with advanced technologies. When technology is used to exacerbate polarisation, drive apart societies, and incent racism, terrorism, and war, it simultaneously increases anxiety and fear about the future threatens the destruction of the very fabric of society we honour and value.

Most powerfully and dramatically, the Cyber-Age facilitates the possibility to change the paradigm of the economy and economics and bring back meaningfulness into politics and the political-socio-cultural-economic systems that gird our world. For at its core, the central question of economics is to determine the most logical and effective use of resources to meet private and social goals by providing products and services that are valuable and meaningful, to individuals, communities, and societies. Our overwhelming drive for profit as a core element of capitalism, however, has motivated many leaders and organisations to exploit the planet and resources, creating spillover costs and negative collateral impacts on society and the environment. (For example, we accept the harmful and damaging impact of $CO_2$ on the environment. We cannot even manage to gain agreement from the multiple stakeholders, in most industries and corporations around the globe, to work towards $CO_2$ neutrality or to reduce their $CO_2$ levels, much less acknowledge that we have a climate change problem!)

**The poor decisions made by parents and adults have burdened young people with a pillaged planet and the responsibility to "fix it." These paradigms have powerfully skewed our perceptions (and thus our decision-making) for hundreds of years.**

The pervasive focus on profits has created profound distortions in the *meaning* of economy. Economics is really "economy in action." The purpose of economics (along with the application of resources and innovation processes) is to provide *meaningful products and services* for individuals and society, *meaningful value creation, meaningful work,* and the *sharing of created value* (through work, education, and economic development activities). Work, in fact, gives meaningfulness to our lives and the opportunity to create relationships—what research has shown to be the most important basis for a healthy and happy life.[2]

### The Western Zeitgeist as a Force for Change

The Western Zeitgeist ("spirit of the ages") has been pervasive in nearly all our systems and primarily, the movement to capitalism.

**The capitalism mindset has been forged from many forces:**

- Hundreds of years of *limitless growth and exploitation* of resources have stressed the planet and people, exacerbating a toxic relationship with productivity and performance and widening inequities and inequalities in our systems.
- Societies of *domination (white power)* along with the subjugation of people of colour, native communities and cultures, and women. The control of human beings through slavery, marriage, and lack of opportunity has led to inequity and inequality across the globe.
- The *fake news* in the social media that spreads like fire, with politicians taking advantage of the tools and content to manipulate us. All this carries the promises of a different future. But it is up to us whether it will increase the quality of life or become a threat to humanity.
- The focus of the media on *bad news*, constantly fueling our worries and fears, as we see crises everywhere: financial crisis, political crisis, social crisis, etc. Whether real or perceived, existing or not, crises and threats are increasing our anxiety about living.
- The *lack of trust* in traditional institutions such as corporations, governments, and religions has left people feeling cheated and betrayed by their leaders.
- The poor decisions made by parents and adults have *burdened young people* with a pillaged planet and the responsibility to "fix it." These paradigms have powerfully skewed our perceptions (and thus our decision-making) for hundreds of years. Thus, our current reality as well as the one we project into the future is based on biases and judgements cemented not only in our own minds but also in our communities, organisations, societies, and institutions.

### The Inner Context as a Force for Change

As human beings, we need to develop the capacity to overcome our limitations to perceive the reality around us as well as transform the layered perceptions we hold that have been "hijacked" by cultural and personal biases. This will empower us to reimagine, redesign, and reinvent our systems and paradigms in our quest to design our "best" future.

**We believe there are three patterns that need transformation:**

1. Our tendency to view the world from the lens of our reality; what we see mirrors our stored memories, experiences, and perceptions influenced by the dominating worldview (Zeitgeist), biases, and even prejudices—all of which are stored within brains and nervous systems. These affect what we consider as possible and impossible, acceptable and unacceptable as well as our likes and dislikes and mental comfort zone.
2. Our human habit to project our past experiences and present status into the future.
3. Our propensity to project our own experiences, views, and preferences onto others, expecting them to feel, think, and behave similarly to ourselves.

How do we address these patterns and develop the capacity to view and hold the future with empathy? By adopting a hope-filled, growth mindset, making a courageous commitment to learn and grow, and undertaking the inner work to free oneself from these entrenched patterns[3]. There are many paths to this journey, depending on the individual. One may study human and social history; choose to travel, study, and/or work locally, regionally, and globally. One may develop relationships with people from a wide variety of backgrounds, mindsets, and cultures—appreciating both similarities and differences. One may also seek to develop a range of intelligence sources, expanding their own capacity to learn, connect with others, and collaborate.

## AN IMPORTANT NOTE: DESIGN THINKING ISN'T ENOUGH

Although design thinking may be incorporated when designing the future, it may not be sufficient to address the complexity of thought process, creativity work, and transformation needed to achieve such a complex goal. In a few words, design thinking is a problem-solving process that focuses on solving the needs of a specific group of people, which is usually an organization's customers.[4] The approach matches customer needs with what is technologically possible and converts this into a business strategy that offers value and market opportunity. Design thinking can be used by all types of businesses as no one can ignore the changing needs and desires of their clients. Citing Grubel: *"Design thinking draws upon logic, imagination, creativity, intuition and reasoning to explore the possibilities of what we could create to enable the desired outcomes for our end users."*[5] The process involves five steps: 1) developing empathy for the end user; 2) identifying the problem; 3) using ideation techniques to create scenarios and solutions; 4) prototyping solutions; and 5) testing solutions with groups of consumers, users, and other stakeholders.

**However, we see three critical weaknesses in attempting to design the future with this methodology:**

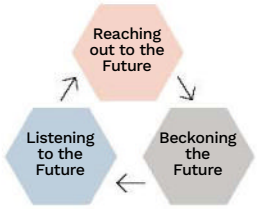
- **Perception and bias:** The team will implement all the steps using the current perceptions and biases of its members (and of the team itself). People's brains and nervous systems are wired to recognise familiar patterns based

on historical experiences and stored biases. The ability to empathise with the future will be based on the current reference frame and perceptions of the future.

- **Change and time:** The design thinking process cannot address the fact that all inputs, outputs, and the process itself will evolve through the time and space involved in moving into the future.
- **Selection and information bias:** The group will also be affected by selection bias and information bias. The members selected to be part of the group will most probably not match the characteristics of future members (who will have evolved given the environmental disruptions we will be facing, such as the human-AI-robot interface). Information bias will most probably occur because key study variables, ideas, and prototypes that will be possible in the future will not be known today—again affected by the lack of ability to perceive the future with "new eyes." Because of defining shared values as part of the design process, it will be difficult to "lift" above the group's individual values and perceptions of the problem, solutions, and future possibilities.

We believe a new framework is needed for desgining the future.

**EXHIBIT 3** Relationship with the Future




## AN OVERVIEW OF THE FRAMEWORK FOR FUTURE DESIGN

The Future Design Framework has been developed to build a relationship with the future in three different ways. 1) To reach out to the future from our current reality; 2) To beckon, or call forth, the future to enter the creative void; and then, 3) To listen to the future when it appears in the design process. (See ***Exhibit 3***)

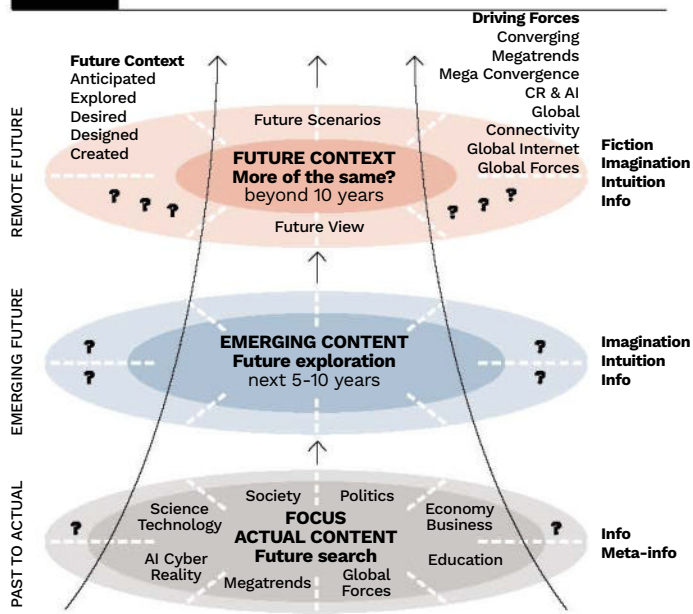
Unlike a traditional lineary framework, the future design framework is a sophisticated and circuitous (nonlinear) methodology that can be used to systematically explore, define, and create the future. It supports designers to utilise skills of imagining, intuiting, and intelligent dreaming along with action research and active planning to dynamically integrate both the direction and action over time and space.

**EXHIBIT 4** Attributes of Traditional and Future Design Methodologies

| Simplistic and Linear Methodology |
|---|
| **Fatalistic**: believing in destiny; wait and see; "what is meant to happen, will happen" |
| **Wishing:** using hope to project; magical thinking |
| **Foretelling**: predicting; a declaration that something will happen |
| **Guessing**: an assumption or assertion (a result or an event) without sufficient information |
| **Extrapolating**: extending the past into the future (most common!) |
| **Developing and Implementing** action plans based on traditional planning processes |

The Future Design Methodology simultaneously comprises three modalities of time and space: **the actual** (and immediate context), **the emerging future,** and the more **remote future**—all three of which are juxtaposed within a world in great transition and a future that is in permanent and dynamic transformation. (See ***Exhibit 5***). The framework thus provides a process that a) focuses on the desired future rather than the (currently) expected one; and b) views the emerging and future stages as dynamic rather than static. Because the framework works multi-dimensionally as well as cyclically, it allows us to cope with an ever-changing future as well as to take meaningful action along the way. In

**EXHIBIT 5** The Future Design Framework



| Sophisticated and Circuitous (Nonlinear) Methodology |
|---|
| **Systemic Exploration:** finding out what may be ahead of us through rigorous research, analysis, integrative thinking, |
| **Future Designing**: defining the desired future and ways to get there; reaching out process |
| **Imagining**: active creation of the future; consciously shaping; beckoning process |
| **Intuiting**: letting the future speak to us; listening process |
| **Intelligent Dreaming**; listening process |
| **Future-based Action Research and Active Planning**: developing and implementing plans |

short, the framework allows us to develop a "future design," which leads to the creation of both, or either, an emerging future view and a remote future view.

## Concept Foundation-I: Management by Traction Framework

At the core of the Future Design Framework is the Managing by Traction (hereafter MbT) Framework.[6] MbT is a simple and effective way to move forward in a dynamic form towards the selected direction. It acts as a simple feedback loop, building a dynamic and interactive relationship between "direction" and "action." MbT incorporates five interdependent elements: 1) the context (an understanding of the world in transition i.e., driving forces, enablers and megatrends); 2) the MbT transformation framework (including three mutual feedback loops between direction and action: the actual, the emerging, and the future); 3) the direction (the guiding star towards which we are pointing); 4) the action (the nonlinear steps taken in quest of the direction within the changing context); and 5) the methodology utilised to discover and "find" creative solutions.

The application of action and direction in a design process, by themselves, are not new concepts. What is new, however, is defining and utilizing them in light of our turbulent environment; constantly changing players over time and space; the dynamic regeneration of three mutual feedback loops that are simultaneously changing and interdependent; and, the application of a "pull" strategy, in which the design process is pulling information and inputs from a future that does not yet exist.

It is important to understand the relationship between direction and action in MbT. With this process, the direction becomes an active part of the action, which can, in turn, continually influence and shape the identified direction. Direction and action, therefore, operate in tandem, with direction showing the way for the action, and action shaping the direction based on the outcomes implied in the direction.

Once the direction is established, the actions take the lead. The process continues as an interaction between the direction and action with three mutual feedback loops concurrently running (the actual, the emerging future, and the future). Continual assessment of the alignment between action and direction is required, in case corrections are needed.

## Concept Foundation-II: Seeking the Middle Way between Dystopia and Utopia

What is critical in the journey is that we begin by embracing "flaws," differences, and points of conflict within the design process and team. As we imagine collaborative groups of people partnering with others from different communities and societies working in the design process, we know that we will see a wide variety of degrees of ideas and progress. Such work in the creative void is necessary to the innovation process. The all-encompassing partnership process is based on many principles, including mutual respect, trust, common ground, open communication, complementarity, honesty, acceptance of the unknown, and willingness to

walk through a transformation (and grieving) process.

These principles will be necessary to guide partnerships to navigate the journey through two overarching emotional and creative-destructive forces:

- **Dystopia:** the imagined state or society in which there is great suffering or injustice; typically, one that is totalitarian, post-apocalyptic; the after-effect of environmental disaster, with characteristics such as controlling, oppressive government, anarchy or no government, extreme poverty, and banning of independent thought;
- **Utopia:** the imagined place or state of things in which everything is "perfect;" with characteristics of peaceful governance, equality for all citizens, a safe and healthy environment, and education, healthcare, and employment for all.

As we experience today's disruptive forces, dystopia seems to prevail as we experience fear and anxiety (that is exponentially spread through social media). Utopia, on the other hand, seems more like a wishful dream we hold for the future of society. The utopian-dystopian dilemma creates a vacuum between the two opposing forces. We are pulled between competing values such as love and hate, greed and generosity, good and evil, individual and community, survival and transcendence, and differentiation and collective beingness. Within the void lies potentiality, imagination, and creativity—all sources of power to mitigate the lack of committed action some people call *fate*.

For future design, we seek to travel the middle way between dystopia and utopia. The middle way forms its roots in Buddhist thought, which describes the middle ground between attachment and aversion, between being and non-being, between form and emptiness, and between free will and determinism. The concept can be applied to any dualism or diametrically opposed pair; in between any two opposites lies emptiness.[7] This creative potential is needed to develop and implement solutions that will allow us to preserve and enhance life quality and solve global issues that threaten the future of humanity. Creative energy plus transformational innovation inspiring entrepreneurship can help us shape our world for better or worse—a direction that depends on our guiding purpose.

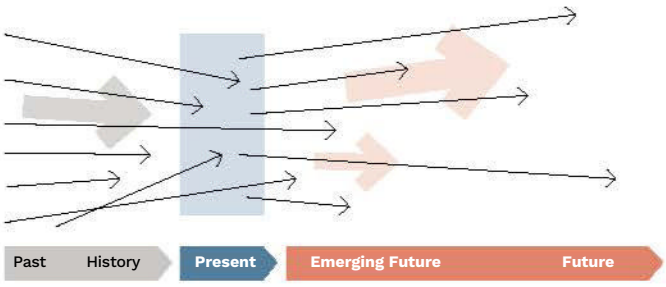
**Creative energy plus transformational innovation inspiring entrepreneurship can help us shape our world for better or worse – a direction that depends on our guiding purpose.**

How can we motivate others to follow the middle way? Though Max Weber said that the sword, money, and words are tools to motivate people, we believe that more powerful inspirations are imagination, dreams, and love. The future begins with the ideas in our heads, the purpose in our hearts, the tools in our hands, the values we share, and the dreams and imaginings of the human spirit.

### Concept Foundation-III: Context Matters

The future design process will be crafted from the complex interplay of past, present, and future contexts (See ***Exhibit 6***). After all, the present moment is not a lone experience. As we stand in the present moment, we are rooted in a greater environmental context that has been built from past experiences, paradigms, and concepts. As we view the future from the present moment, it is a projected one, necessarily affected by the past and the present. Juxtaposed between the time and space of the past and future, the present moment is merely an arbitrary halt within the currents of time, ripples in space, and heartbeats we ride, the moment from which we dynamically project the future.

**EXHIBIT 6** **The Complex Interplay of Past, Present, and Future Contexts**




The context with which we perceive anything is always relevant. It is dense, complex, palpable, ever-changing and ever-being created. It can be continuously reimagined.

To easily understand the impact of context, think about your own life! You are an individual who can be differentiated by many attributes as well as skills, work and life experiences, talents, and interests. You have also been influenced ever since you were born by multiple systems, paradigms, and axioms: the political, economic, and social systems of your country; your cultural roots and values; your family's priorities, rituals, and values; the rules defining good behaviour, rewards, and punishments that are defined by your family and society; and the assumptions that underlie every perception as well as process (including the meaning and application of the future design process!).

Context, too, establishes the foundation for our perceptions, including our individual mindset, worldview, and overarching Zeitgeist. Context provides the container for


Source/Artist: Andela[8]

bias, spawns its development, and nourishes its perpetuation. Unless and until the designer is able to lift out of his or her bias, it serves as a concrete foundation in his or her nervous system. As the firmament for a society's worldview and Zeitgeist, bias can rule and regulate the future design process.

Imagine how the designer's perceptions and bias towards advanced technologies can impact their implementation and use in the present as well as greatly influence and control their role in the future. As we stand on the edge of the virtual frontier, many people are excited over the potential for artificial intelligence, the metaverse, virtual reality, augmented reality, and other Fourth Industrial Revolution technologies. They envision the possibilities for creating immersive experiences across sectors (technology, entertainment, education, and retail) and within business functions (product/service development, customer and employee experience), for providing interactive sensory space for human beings and whole communities in their daily tasks, for creating new and increasing sources of economic value.

On the other hand, this is scary stuff! We are challenging the separation of human beings and technology, somewhat like the separation of church and state. There are huge risks and negative potentials from lack of control as we seek to control human beings, mindsets, emotions, consumer purchasing, decisions and the like. Such fear will impact the range of potentialities born from these advanced technologies. Perhaps positively? Perhaps negatively? Time will tell.

The context set by science and philosophy is always changing as well as we can see in the changing view of the source of illness (arising from imbalance or God?), the perspective of the earth as flat or round, or the relationship

between the greater cosmos and divinity.[9] Designer Johannes Jörg writes that today's cosmos tends to be free of divinity, has no centre at all, and is almost infinitely larger than anything that's even possible to imagine.[10] He also says that our ongoing understanding of ourselves will dramatically expand the boundaries of our *inner cosmos,* emphasising the importance of introspection (beyond the more objective avenues to knowledge such as empirical evidence and logical reasoning) to self-understanding. He writes, "It seems to me that Western culture in the beginning of the 21st century is facing a corresponding cultural situation regarding the inner cosmos. Looking inside the human intellect, one is faced with a similar, stubborn bias of perspective as we look towards the stars five centuries ago." This evolving view challenges us to look at the biases we hold resulting from our greater contextual understanding. If change is to happen, it must start on the inside.

**The future design process challenges us to move beyond our traditional strategic planning processes, intuition patterns, and sources of wisdom. It is designed to "push" (and "invite") people and organisations to work beyond their comfort zone and reframe intuition patterns—a valuable capability in times of permanent change.**

Whether we are talking about the past, the present, or the future, context matters. Our views of the future have developed over time, and its possibilities and risks defined in terms of our current context and perception. Even the very perception of context we hold is built on the systems, paradigms, assumptions, and axioms that have been taken to be true. A system (of thought as well as perceived reality) built this way can be logical and rational; it can be partially true or, in the worst case, totally wrong. We only have to look at the great number of false "truths" about the Covid-19 pandemic posted on the internet or perpetuated by "fake news" channels to see this lived out today.[11]

## SUMMARY OF FRAMEWORK TENETS

**The Future Design Methodology rests on several tenets:**

- When we are moving into the future, the unknown is only continuing to grow bigger in scope while also evolving at ever-increasing speeds. Additionally, we need to start with deeper insights into the actual context of the past, present, and future to both prepare for our journey and extend our understanding of the future.
- Arising from advanced technologies, increased complexity in managing and governing organisations, and structures, processes, tools, and instruments become increasingly incapable of adequate application, we are living in a state of permanent transition. Context (along with contextual changes) is becoming a driving force of transformation. This will most likely lead to growing disruption and transformation in all key aspects of human life: society, economy, business, science, technology, education and politics.[12]
- The future design process challenges us to move beyond our traditional strategic planning processes, intuition patterns, and sources of wisdom. It is designed to "push" (and "invite") people and organisations to work beyond their comfort zone and reframe intuition patterns—a valuable capability in times of permanent change.
- The Future Design Framework supports these needs by taking a complex and systemic view, employing visual models so that insights are more intelligent and communicable, and is developed for collaborative work.
- The end users—and other beneficiaries of the design process—are the many diverse communities and societies that span our globe as well as their individual members who are all seeking to live lives of meaning while walking through transformations we can't fully see or understand.
- Our ideation process must build evolution, transformation, and movement into its core and allow for the constant exploration of an ever-changing context (including both the

environmental/outer context and the personal/inner context).

- Prototypes must include possibilities yet not envisioned, provide meaningful and equitable impact, and integrate with advanced technologies that are continuing to evolve from today to tomorrow. Testing must occur at multiple levels—human, robotic, and AI as well as individual, relational, community, spatial, and all the interconnections between the modalities.

- The definition of the "problem" needs to be examined as it will most assuredly be multi-layered, interdependent, and complex. Should we even be attempting to address the future? And what are our goals? To define it? Control it? Learn from it? Limit it? Or, co-create it?

- Throughout all the design steps, we will need to access the greatest aspects of our imagination, intuition, and intelligence—surpassing the sole application of mind-based processes. Our quest is to design the future and to do so in a way that empowers and encourages us to see our current paradigms and assumptions that control our current views of the past, present, and future. This process must allow us to see (and cocreate) a future that does not yet exist—one that cannot be built by simply reorganizing past data and analysis processes. This process must also empower us to simultaneously engage today's current reality, tomorrow's emerging opportunities, and the future's constantly-changing possibilities.

This article is a reduced version of a forth coming chapter that will be published digitally in a book entitled: The Future of Work – An Anthology. My Educator (www.myEducator.com)

## ABOUT THE AUTHORS

**Dr Kristine Marin Kawamura** is currently a Clinical Full Professor of Management at the Drucker School of Management, Claremont Graduate University (California, USA). She is also the CEO and founder of Yoomi Consulting Group, Inc., a leadership success and organisational transformation company. Her research, as well as her overall purpose, is focused on transforming leadership, organisations, societies, and individual lives with Care—a core resource for creating extraordinary connection, authenticity, resilience, and engagement in organisations and unlocking new levels of human, technological, and societal impact. www.cgu.edu/people/kristine-kawamura/ or https://yoomiconsulting.com/yoomiq/

**Dr Mario Raich** is a Swiss futurist, book author, and global management consultant. He has been a senior executive in several global financial organisations and an invited professor to leading business schools, including ESADE (Barcelona). He is the co-founder and Chairman of e-Merit Academy (www.emeritacademy.com) and Managing Director for the Innovation Services at *"Raich Futures Studies"* in Zurich. In addition, he is a member of the advisory board of the *Global Future of Work Foundation* in Barcelona. Currently, he is researching the impact of cyber-reality and artificial intelligence on society, education, business, and work.

**Dr Simon L. Dolan** is currently a senior professor and researcher at *Advantere School of Management* (Madrid) and the President of the *Global Future of Work Foundation*. He was formerly the Future of Work Chair at ESADE Business School in Barcelona. He taught in many North American business schools, such as Montreal, McGill, Boston, and Colorado. He is a prolific author, with over 80 books on themes connected to managing people, culture reengineering, values, coaching, and stress and resilience enhancement. He has also published over 150 papers in scientific journals. He is an internationally sought speaker. His full CV is at: www.simondolan.com

**Dr. Dave Ulrich** is the Rensis Likert Professor at *Ross School of Business,* the *University of Michigan*, and Partner at the *RBL Group* (www.rbl.net), a consulting firm focused on helping organisations and leaders deliver value. He studies how organisations build capabilities of leadership, speed, learning, accountability, and talent through leveraging human resources. He has written over 30 books and 200 articles on talent, leadership, organisations, and human resources.

**Claudio Cisullo** is a Swiss entrepreneur. During his entrepreneurial career, he founded and established over 26 companies in different business segments globally. He is a Board member of several internationally renowned companies. He is the founder and owner of the family office, CC Trust Group AG, and also the founder and Executive Chairman of Chain IQ Group AG with headquarters in Zurich. Chain IQ is an independent, global service and consulting company.

## REFERENCES


[1] Delbert C., (2022). There's a Damn Good Chance AI Will Destroy Humanity, Researchers Say in a New Study. https://www.popularmechanics.com/technology/security/a41507433/stop-ai-from-taking-over/

[2] See: The Good Life: Lessons from the World's Longest Scientific Study of Happiness by Robert Waldinger, MD, and Marc Schulz, PhD, Simon & Schuster (January 10, 2023) and The Good Life, An Interview with Robert Waldinger, https://hms.harvard.edu/magazine/sleep/good-life

[3] See www.yoomiconsulting.com for practices and guidance to develop this capacity.

[4] For an overview of the history of design thinking, see https://www.interaction-design.org/literature/article/design-thinking-get-a-quick-overview-of-the-history#:~:text=Cognitive%20scientist%20and%20Nobel%20Prize,as%20principles%20of%20design%20thinking

[5] Sundy Grubel, Design Thinking in Real Life, May 9, 2019, https://www.accenture.com/us-en/blogs/software-engineering-blog/sundy-grubel-design-thinking

[6] A full description can be found in a paper we published in The European Business Review in November 2020: Raich et al: Managing By Traction (MbT) Reinventing Management in the Cyber-Age, https://www.europeanbusinessreview.com/managing-by-traction-mbt-reinventing-management-in-the-cyber-age/

[7] For more, read the work of the philosopher-monk Nagarjuna (c. 2nd-3rd centuries, CE) from the Madhyamaka school. Madhyamaka - Encyclopedia of Buddhism https://encyclopediaofbuddhism.org/wiki/Madhyamaka

[8] See https://www.deviantart.com/andela1998/art/look-at-life-through-red-tinted-glasses-377908230

[9] Our study of science, philosophy—and all the systems and knowledge that underlay our thinking and decision-making —are all rooted in context. There are many examples of how new knowledge caused an evolution or even a revolution in thinking about our world. In medicine, shamans believe that illness comes from imbalance, soul loss, entanglement (taking on the energy of others), lineage patterns, or disconnection from the natural world. In the Middle Ages, people believe that "god" controlled everything, thus, god must also send disease and illness. Infectious disease doctors study how the pathogen and host interplay in the infectious disease process. With regards to the Earth and its relationship with the solar system, people used to believe that the centre of the Universe was the spherical, stationary Earth, around which rotated the Sun, Moon, stars, and planets. This view, established by Ptolemy (4th century BC) was only overturned when scientific findings from Copernicus, a mathematician and astronomer, proposed that the sun was stationary in the centre of the Universe and the Earth rotated around it. This controversial perspective also became seen as the start of the Scientific Revolution, which brought ground-breaking shifts to the human conception of the cosmos and humanness itself. The Copernican revolution launched a fundamental cultural transformation away from religious paradigms and towards scientific paradigms.

[10] See Jörg, Johannes. The Copernican Revolution of the human mind, October 31, 2021. (The Copernican Revolution of the Human Mind | Essentia Foundation) https://www.essentiafoundation.org/the-copernican-revolution-of-the-human-mind/reading/

[11] For example, once a statement such as, "This is not a pandemic," is repeated (and by people with high levels of reputation capital or marketplace power) and is reinforced by people's supporting beliefs and values, a conspiracy theory can transpire. Soon, the speaker and listener hear only this statement, and they seek out information that perpetuates it, blinding them from anything that refutes its core message. Reinforced and dogmatic repetition of any assumption, paradigm, or axiom can build into a false context, believed by many but without a foundation in reason, facts, or the truth.

[12] Raich M., Eisler R., and Dolan, S.L. (2014) Cyberness: The Future Reinvented, Amazon. https://www.amazon.es/Cyberness-Future-Reinvented-Mario-Raich/dp/1500673382; Raich M., Dolan S.L., (2008) Beyond: Business and Society in Transformation, Palgrave Macmillan.

ESMT BERLIN

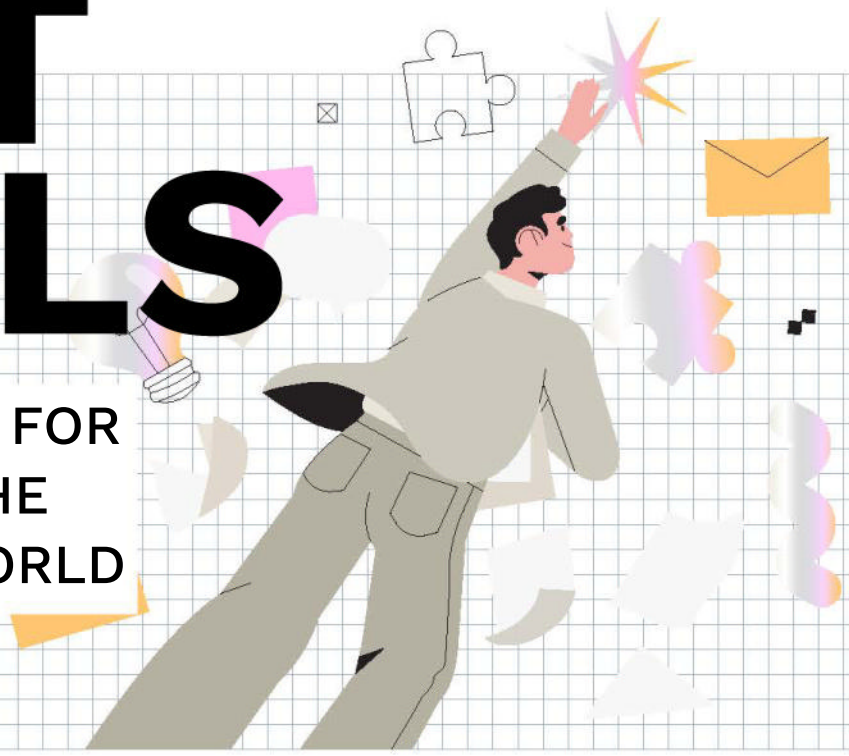
# BE MORE MUSHROOM.

Become part of a network that stretches across the world. Nature may have beaten us to it with the mycelium network, but our Global Online MBA gives our truly global cohort of students the same nurturing and dynamic structure. You will develop your career and approach to business, in order to tackle some of the world's biggest challenges.

**Join us at degrees.esmt.berlin/gomba**

# SOFT SKILLS

## AS A PREREQUISITE FOR ACHIEVEMENT IN THE CONTEMPORARY WORLD



by Dr Anna Maria Rostomyan

**Succeeding in today´s world requires a combination of functional, self-management, special knowledge, and technology skills. How relevant is emotional intelligence to this mix?**

We are living in very challenging and uncertain times, where people have to be equipped with a strong arsenal of diversified solid psychological tools and skills to be able to navigate through the current unexpected changes of the modern world, especially during the pandemic and all of its consequences in our world.

While speaking about skills, nowadays we not only speak about the vitality of hard skills, such as digital literacy, knowledge in your domain, and tool skills learnt through vocational training designed for tackling job-specific duties but also some "soft" skills like communication and interpersonal skills, emotion management and emotional intelligence skills, which have the utmost power of making you benefit from your relationships, both at work and in your private lives.[1]

Emotional Intelligence (EQ) is believed to have a number of positive features that have the potential of changing our lives for the better and equipping you with some major soft skills to handle life successfully alongside handling your very own emotions, as well as the emotions of others. These EQ soft skills, in fact, will undoubtedly help you succeed not only in your personal relationships in your private life but also both in academia and in the business sphere.

The term *"Emotional Intelligence"* (EQ/EI) is very often nowadays used as one of the prerequisites for success.

The term "Emotional Intelligence" has been defined, by Peter Salovey and John Mayer (1990, 1993),[2,3] as the ability to monitor one's own emotions, as well as other people's emotions, to differentiate between different emotions and label them appropriately, and to use emotional information to guide thinking and behaviour, as well as manage their external outward manifestations in interpersonal communicative interaction.

This definition was later broken down and refined into four proposed abilities of emotional

**"Emotional intelligence is the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and action."**

**Salovey and Mayer, 1990**

intelligence (EI) by the American psychologist Daniel Goleman in his book "Emotional Intelligence" (1995): ***perceiving, using, understanding,*** and ***managing emotions*** accordingly.[4]

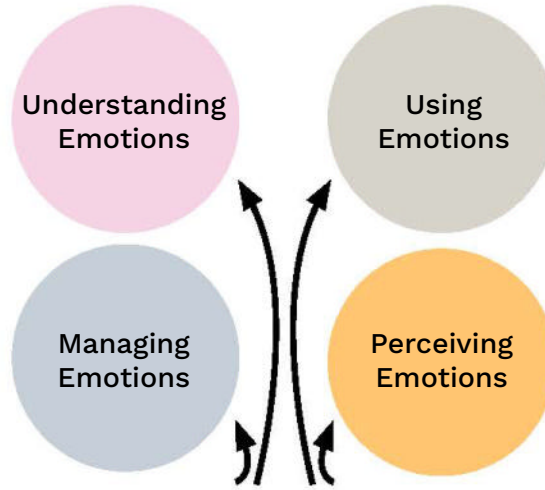
Now let us have a closer look at these different but correlated processes, one by one:

**1. PERCEIVING EMOTIONS:**
the ability to get emotional messages from the outward world and to detect emotions in faces, pictures, voices, and cultural artifacts. This includes not only perceiving the emotions in others but also the ability to identify one's very own emotions. Perceiving emotions represents a basic and grounding aspect of emotional intelligence, as it makes all other processing of emotional information possible. This is the ability to realise how you feel at this or that very moment of interaction.

**2. USING EMOTIONS:**
the ability to deploy emotions to facilitate various cognitive activities, such as thinking, feeling, communicating, decision-making, and problem-solving activities. The emotionally intelligent person can capitalise fully upon his or her changing moods in order to best fit this or that task at hand. Besides, one can also use his or her very own emotions to have an emotional impact on others through gestures, facial expressions, voice fluctuations, mimics, eye contact, bodily movements, posture, as well as such emotive words and phrases as positive and/or negative intensifiers, etc. that have the power of gaining an emotional influence on the listeners (Rostomyan, 2022).[5]

**3. UNDERSTANDING EMOTIONS:**
the ability to comprehend emotive language and to understand the emotions in others to be able to preserve healthy relationships, which also presupposes emotions and feelings. For example, in the process of communication, trying to understand the viewpoint of the other person, his or her intentions, internal motivations, feelings, beliefs, desires, preferences, etc. (Rostomyan, 2020).[6] It also involves understanding the slight variations between positive and negative emotions, and the ability to recognise and describe how emotions evolve in interpersonal interaction. This has the potential of helping you build stronger interpersonal relations based on thoughtful appreciation, solid empathy, and genuine trust.

**4. MANAGING EMOTIONS:**
the ability to regulate emotions in both us and in others. Here, the emotionally intelligent person can tune in with the emotions, even negative ones, and manage them to achieve the intended goals in a particular manner. This also includes managing the expressions of emotions on the verbal and non-verbal levels for harmonious cooperation and communicative conflict reduction while undergoing very strong negative and positive emotions, since they have the greatest potential of influencing our relationship (Rostomyan, 2013).[7] At this stage, you can figure out different strategies on how to deploy your emotions to help you achieve a certain goal.

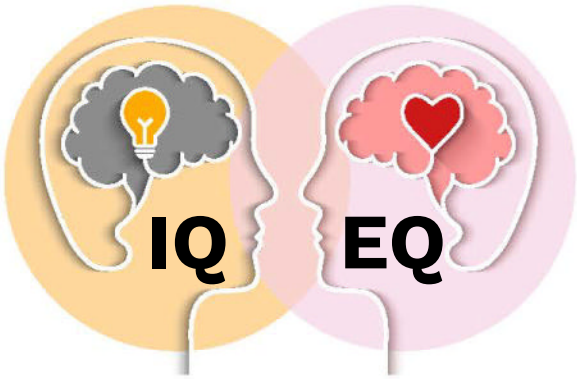


**EMOTIONAL INTELLIGENCE**

As we can see from the discussion above, all of these aforementioned EI processes are tightly intertwined and interlinked; they do not exist in separation, so in our everyday life while interacting with one another we are continually experiencing and practicing them, which are the groundings of our emotional experiences

that help us understand ourselves, as well as our surrounding world much better, which helps us adjust accordingly.

Nowadays, many scientists and practitioners often speak about the significance of the interrelation of our EQ and IQ, building up our intelligence through our higher cognitive processes, as well as of the benefits of the harmonious flow between therein, as well as the relevance of the concept of WeQ in collective decision making, which also involves the participation of emotions (Rostomyan, Rostomyan, and Ternès 2021).[8] As the term "Emotional Intelligence" itself denotes, it includes the notion "intelligence", which once again comes to prove that emotions can sometimes also be of a rational character and that these two continually interact with one another, providing us with very important pieces of information (Rostomyan 2013, 2022).[5,7]




As for the different components of Emotional Intelligence, according to Daniel Goleman (1995), they are as follows:[4]

## SELF-AWARENESS:

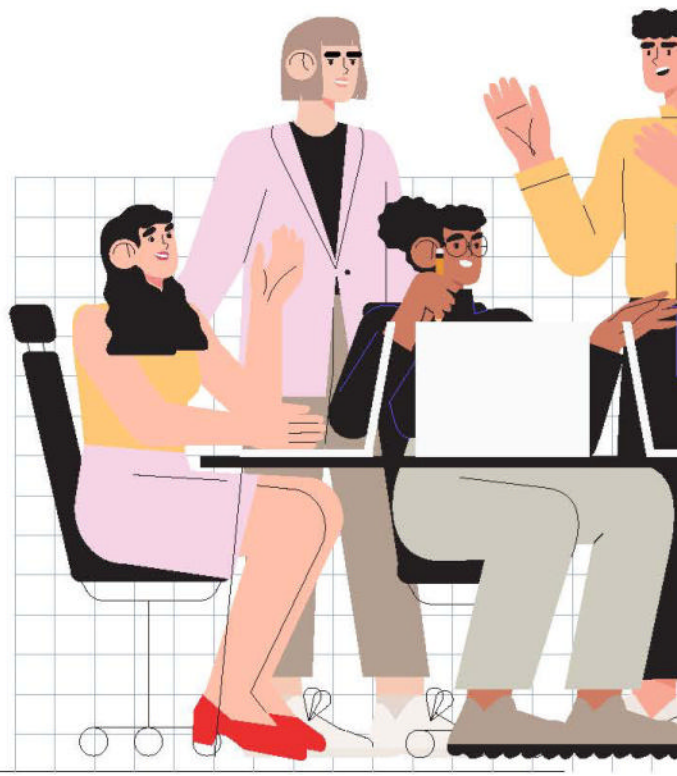
*Self-awareness* is the ability to recognise one's very own emotions, emotional triggers, strengths, weaknesses, motivations, values, desires, and goals and to understand how these affect one's thoughts and behaviour. Being self-aware will also help you in understanding others better and acting accordingly. To raise your emotional self-awareness, it is recommended to reflect on your behaviour and your feelings from aside to understand why you are feeling or acting in this or that way, because when you understand the cause, half of the problem will be solved. Truly, if you are self-aware, you can be more at peace with yourself and your surroundings.

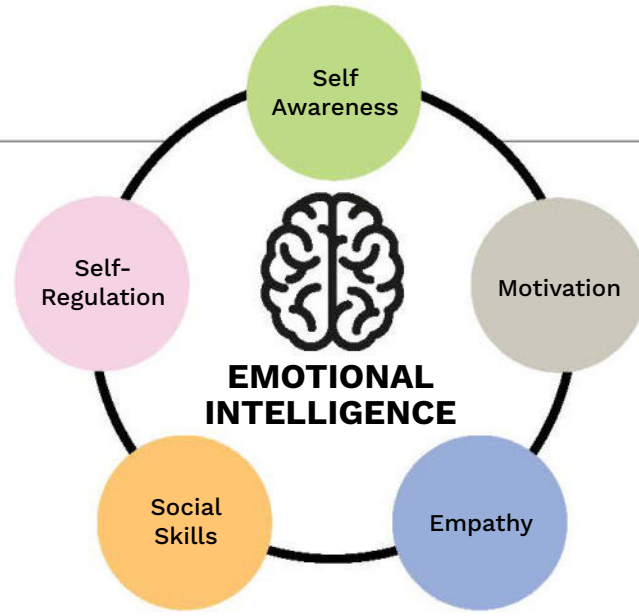
## SELF-REGULATION:

*Self-regulation* is the ability to regulate and manage the internal and external manifestations of one's own emotions. Everyone — including those with a high EQ — sometimes experience bad moods and negative emotions like anger, sadness, and stress, but self-management is the ability to gain cognitive control over these emotions rather than having them control you. Self-management involves mental, psychological, as well as verbal and non-verbal levels of managing the expressions of emotions in your interactions. When experiencing very strong negative emotions, one piece of advice can be to calm down before responding to that negative emotional trigger e.g. by counting to ten before reacting. Yet this does not mean that you always must inhibit or suppress your negative emotions. Sometimes you have to let them flow and build relationships accordingly not to harm your internal psychological state by always suppressing them, since they can also be constructive in establishing and building strong relationships with your partners, both in business and in private.

## MOTIVATION:

*Motivation* is essentially what moves us towards taking action in this situation or another. When






we face setbacks and obstacles, checking in with our motives is what inspires us to keep pushing forward and not stop. Sometimes outward impulses may motivate us, e.g. seeing someone succeed, and sometimes our internal emotional impulses, e.g. aspiration, inspiration, will, longing, and desire to succeed, etc. can also motivate us towards achievement and success. To keep you motivated, you can remember all the successes and achievements that you have had so far or have a role model whom you'd wish to take after. Motivation is the driving force of ours towards accomplishments and we should not get demotivated by failures, since, as they say, "Failure is a step towards success" both in our personal and professional lives.

## EMPATHY:

*Empathy* is the ability to connect emotionally with others and take into consideration their emotions, feelings, concerns, doubts, aspirations and points of view. Empathy is the highest form of emotional intelligence, where you tune in with the other's emotions, "feel yourself in the other's shoes" and build your actions upon those experiences. Empathy is also essential for team harmony. Noticing and responding to the emotional needs of the people you work with makes up for a happy and satisfied work culture. To raise your empathetic skills, you can try to feel in the skin of the other when trying to understand their behaviour and actions. This can also result in compassion towards others through feeling and understanding their emotions, where you not only understand their emotions but also take action towards lending them a helping hand.

**All the aforementioned EQ skills are, in fact, very important "soft skills" vitally crucial in handling life, as well as promoting us towards achievement and eventual success, closely interrelated to and intertwined with one another, ensuring and giving value to our peaceful and enjoyable success in our lives both in private and professionally.**

## SOCIAL SKILLS:

Under the EQ skill component of social skills, we understand how we manage our relations in our lives. *Relationship management* is all about interpersonal skills, that is, one's ability to build genuine trust, rapport, connection, and respect with your peers, relatives, friends, neighbours, partners, and colleagues. Truly, when interacting with one another, we have to be skillful emotions readers to be able to build long-lasting and harmonious interpersonal relations, which will strengthen our relationship management skills. Therefore, while trying to build a long-lasting trustworthy relationship, it is highly recommended to pay attention to others' emotions and feelings as well. This will resultantly also be a groundbreaking milestone towards success and achievement both in personal and professional life (Rostomyan, 2022a).[1]

**We need some soft skills to handle life efficiently and to succeed in it by achieving our goals accordingly.**

All the aforementioned EQ skills are, in fact, very important ***"soft skills"*** vitally crucial in handling life, as well as promoting us towards achievement and eventual success, closely interrelated to and intertwined with one another, ensuring and giving value to our peaceful and enjoyable success in our lives both in private and professionally (Rostomyan, 2022a).[5]

Thence, in case we are aware of these aforementioned processes, we will be more apt in reading emotions and dealing with them accordingly.

## CONCLUSION

In life, we almost always experience some sort of emotion or feeling. Moreover, our emotional state may vary throughout the whole day. Therefore, we need some soft skills to handle life efficiently and to succeed in it by achieving our goals accordingly.

The discussed EQ skills above are the main pillars in one's emotional intelligence, which is sometimes even considered to be much more important and helpful in achievements than one's IQ is in handling stressful life situations.

In today's digitalised and globalised world, there is a need for soft skills to be able to deal with the challenges that the world imposes on us, especially in terms of artificial intelligence (AI). Even AI machines are getting equipped with EQ skills to better cooperate and interact with humans, making human-machine interactions much more enjoyable.

To sum up, although emotional intelligence seems to come naturally to some of us, our brain's plasticity means we ***can*** indeed increase our emotional intelligence with the discussed soft skills, through training, with the help of which we will be able to become more skillful and proficient communicators, as well as successful interactants and achievers in life.

**REFERENCES**


1. Rostomyan, Anna (2022a). *Emotional Intelligence as an Essential Soft Skill for Success*. Proceedings of the First International Scientific and Practical Internet Conference called "Importance of Soft Skills for Life and Scientific Success", Dnipro, Ukraine.
2. Salovey, P. & Mayer, J. (1990). Emotional Intelligence. *Imagination, Cognition and Personality*, 9(3), pp. 185–211.
3. Salovey, P. & Mayer, J. (1993). The Intelligence of Emotional Intelligence. *Intelligence*, 17 (4), pp. 433–442.
4. Goleman, Daniel (1995). *Emotional Intelligence*. New York, Toronto, London, Sydney, Auckland: Bantam Books.
5. Rostomyan, Anna (2022b). *The Ultimate Force of Emotions in Communication: A Linguo-cognitive Analysis of Verbal and Non-verbal Expressions of Emotions (on the material of English)*. Dissertation, Yerevan State University, 2013, D□ren: Shaker Verlag.
6. Rostomyan, Anna (2020). *Business Communication Management: The Key to Emotional Experience*. Hamburg: Tredition Publications.
7. Rostomyan, Anna (2013) Management Techniques of Emotions in Communicative Conflict Reduction, in part 3: *Communication and Management, Communication: Breakdowns and Breakthroughs*, Probing the Boundaries, eds. Anabel Ternès, Inter-disciplinary Press, UK: Oxford, pp. 141-151.
8. Rostomyan, A.A., Rostomyan, A.M. and A. Ternès von Hattburg (2021). *The Significance of Emotional Intelligence in Business*. International Business and Economics Studies Journal, 3(3), LA: Scholink Publications, Available at: http://www.scholink.org/ojs/index.php/ibes.


**ABOUT THE AUTHOR**

**Dr Anna Rostomyan** is a Professor, EQ Coach, international Author, and Lecturer at the Berlin School of Business and Innovation (BSBI). She defended her PhD excellently in collaboration with the University of Fribourg (Switzerland) and Yerevan State University (Armenia). She is the author of five books and 30 publications worldwide with readers from around 100 nationalities.


# Ridiculously Extraordinary

## Redefine Outsourcing with Us

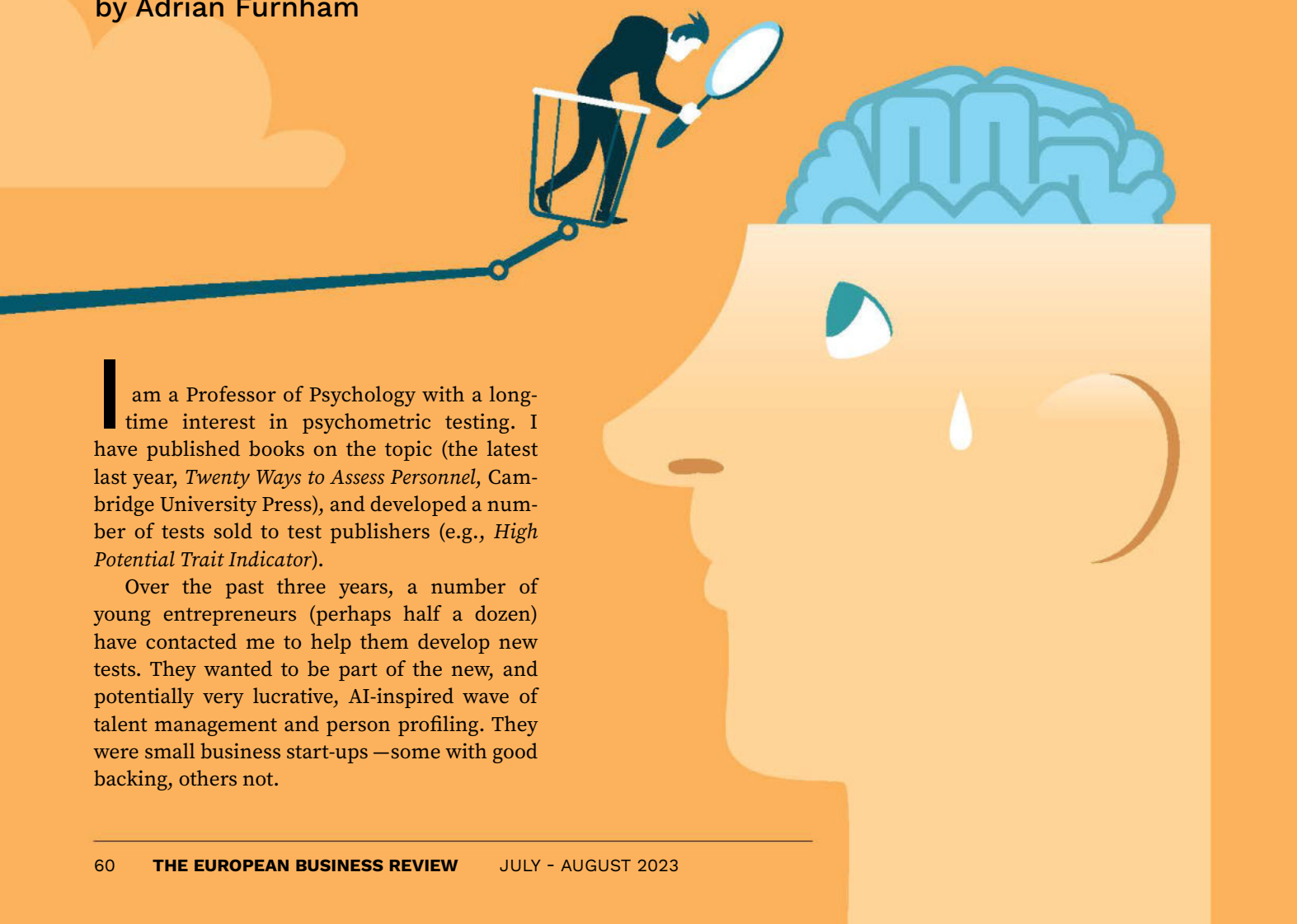
Digital CX | AI Services | Trust and Safety | Consulting

For more information: www.taskus.com | info@taskus.com (888) 4000-TASK

**In the midst of the razzmatazz surrounding AI, we hear a lot about its potential for the recruitment process. But is it really the silver bullet that recruitment-tech start-ups claim? Adrian Furnham advises caution.**

# WHY MANY MODERN **PSYCHOLOGY TEST PUBLISHERS** FAIL

by Adrian Furnham



I am a Professor of Psychology with a long-time interest in psychometric testing. I have published books on the topic (the latest last year, *Twenty Ways to Assess Personnel*, Cambridge University Press), and developed a number of tests sold to test publishers (e.g., *High Potential Trait Indicator*).

Over the past three years, a number of young entrepreneurs (perhaps half a dozen) have contacted me to help them develop new tests. They wanted to be part of the new, and potentially very lucrative, AI-inspired wave of talent management and person profiling. They were small business start-ups —some with good backing, others not.

They had a lot in common and, as far as I can tell, they all failed financially, like so many other testing-tech start-ups. One main issue was that they competed with the traditional tests on scalability, candidate experience, and time and cost, but neglected both evidence of validity, surely the most central feature, and clients' willingness to invest in training the algorithms to suit the business needs.

## DISRUPTION

For well over 50 years, the test-publishing "model" went something like this. Authors and academics with ideas and theories devised tests (usually of personality, motivation, and values). Think of the famous MBTI, which apparently is taken by somebody every 10 seconds somewhere in the world. They then sold these tests to the few test publishers that existed. These publishers, who might or might not be very sophisticated or technologically inclined, sold the published tests to institutions and consultants, who used them in various ways, often in the process of selection. Paper-based tests started to be replaced by electronic tests about 20 years ago, but the model persisted.

It was a "nice little earner" for a few, and the test-publishing world was a small, quiet oligopoly, happy to potter on. There were rises and falls in the enthusiasm for tests but social media often made them more popular. Big American publishing firms dominated the world. Many still exist after 50 to 70 years.

Then the AI revolution sprang into action with its ready-made solution for this field, as well as numerous others. AI comes in two formats: a simple scoring engine to dynamically improve the algorithm (as opposed to a fixed syntax), and also the more experimental approaches that don't rely on self-report assessment, but rather scrape internal or external big data, mine interview voice and video, use natural language processing, etc.

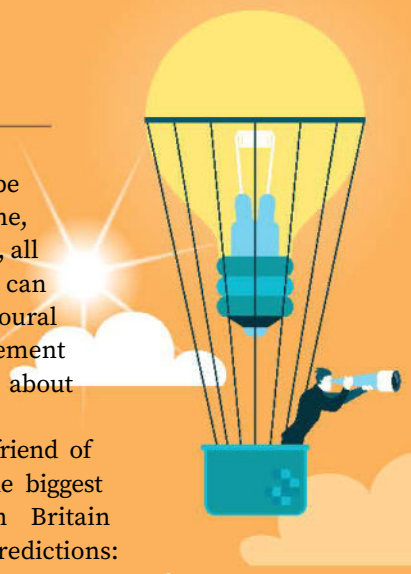
Companies are attracted to using AI resumé-scraping tools to "search and match" candidates based on their hard skills, just parsing CVs and looking at similarities with past candidates or job vacancies.

**The aim is to give people a test online, and the results are fed into a smart algorithm which spits out an accurate, reliable, unbiased, and valid score which can easily and very simply be used in the accept / reject or rank-ordering of candidates.**

## SMALL BUSINESS START-UPS

Young entrepreneurs, in particular, were excited by the potential. There were three aspects to this. The first was the still-prevalent belief and hope that selection could be much more efficient and "scientific" with the application of AI. So, the aim is to give people a test online, and the results are fed into a smart algorithm which spits out an accurate, reliable, unbiased, and valid score which can easily and very simply be used in the accept/reject or rank-ordering of candidates. The "white heat" of the new digital world!

The second was that one could "cut out the middle men". You don't need test publishers taking a big cut and controlling access to their products (e.g., for the "necessary" training). Consultants can now devise tests and sell them to other consultants or to clients directly (B2B, B2C). All sorts of people may want to assess themselves and their friends—a potentially huge new market.



The third was that tests could be done on a mobile device, phone, or even a smart watch. Indeed, all have the advantage that they can also be used to gather behavioural data, which could supplement what the testee has to say about themselves.

Indeed, five years ago, a friend of mine who started and ran the biggest test-publishing company in Britain sagely made the following predictions: ***Smartphones will replace computers for employee assessment. High-quality psychometric testing services will be sold direct to consumers. Advances in the neuroscience of personality will reveal which are the most valid individual differences to measure and how best to measure them. The digital badging movement, coupled to the use of big data and new forms of digital CV, will render many of the current applications for high-stakes testing redundant. The basis for employee development will in the near future be derived from the data yielded by wearable devices and not from psychometric tests.*** The Brave New World was just around the corner.

AI-based methods have expanded the market for "assessment", and traditional methods remain a very niche market. Things are still a bit better for traditional assessments when it comes to feedback for development, self-awareness, coaching, and leader selection, but this could change very quickly. AI-based scraping of Zoom coaching sessions could produce a dynamic bright-and-dark-side profile that feeds into the coaching session, and you could replace the 360 with simulations.

Various smart young entrepreneurs suddenly became aware of a very big opportunity to create value and to make money. The testing world seemed absolutely ripe for disruption and digitalisation. And it seemed so easy.

**The basis for employee development will in the near future be derived from the data yielded by wearable devices and not from psychometric tests.**

## MY EXPERIENCE

The various groups who approached me, from four different countries, had many features in common. All were groups of three or four young, hungry, and very clever mainly (but not always) men. They had met in business school or consultancy businesses. They were smart, super tech-savvy, hungry, and not risk-averse. For most, it was not their first venture or success. Indeed, they knew a lot about venture capitalists and they shared a very similar goal. Start-up to billionaire in a few years, because the total addressable market ("TAM", in the VC world) is "huge".

Some had done their homework more than others, but all were shocked by the expensive, lazy, and inefficient world of HR and recruitment – something they had seen themselves along their professional careers in large organisations. They found that there were a surprisingly limited number of tests that had been around for 30 to 50 years and that people wanted some new ones, as well as to know which of the more established tests was the most accurate.

What they wanted to say (and often did, without much evidence) was that their new tests had better psychometrics, particularly predictive validity, because the research sample size would be significantly larger, allowing for some iterations while being used to change the weighting of questions, correlate answers between tests, and add data that was never collected before. They argued that their tests reduced or avoided "older method" artefacts or problems like impression management (i.e., lying) because of the way the tests were administered, often over time.

They said that testees like them; there was a good reaction from them, which meant a better candidate experience. They tried to persuade HR buyers that sexy new tests were good PR for

the tester, being up to date and fairer, in a society where discrimination bias had become more widely acknowledged and challenged. And, of course, they argued that there were many savings in terms of time, effort, and cost. What more could the HR world ask for?

They were certainly all clear about the "schtick". You hear (without any evidence) claims like "next-generation technology", "twenty-first-century generation", "digs deeper", "powered by neuroscience", "state-of-the-art", "has less adverse effect", "leads to more diverse choices", "authentic" and, not to be left out, "disruptive".

They all came to me for the same reason: they had come across my name because of academic papers, popular articles, conference talks, and workshops that I had run. They wanted to know if I could develop tests for them or advise on how existing ones could be applied in business for the specific purpose of selecting the people who "fit" the organisation, in terms of both predispositions and preferences.

**The concept of on-boarding a new technology in businesses that have developed over decades to achieve a structured recruiting process today is not easy to accept, when the risk of breaking what they have is so high – regardless of how many benefits it might possibly have.**

## WHAT THEY GOT WRONG

They all failed as far as I know, one spending $2 million of their investor's money without generating sufficient traction to continue their journey. And they did so for all the classic reasons.

**First,** they were not that clear about the true cost of getting their potential clients to start using a solution. The concept of on-boarding a new technology in businesses that have developed over decades to achieve a structured recruiting process today is not easy to accept, when the risk of breaking what they have is so high – regardless of how many benefits it might possibly bring.

**Second**, most seemed to know very little about the multiplicity of decision makers in the process of selection and none had any real idea of how the market for HR solutions functions. They became obsessed by their PR and what their super-designers could do, but they "forgot" to find out what "their clients" wanted.

**Third**, and most important, in their rush to get sexy-looking feedback, they forgot the hardest bit: collecting real evidence that the test works, namely by predicting behaviour. Asserting validity is not enough. Collecting anecdotes from old professors and happy clients is not enough. Clients want proof-as-you-go as much as hype. The candidates deserve it, and the courts may demand it.

When I told them about validity and how you achieve it, some seemed surprised. I explained that of the two tests I have sold to a

**Asserting validity is not enough. Collecting anecdotes from old professors and happy clients is not enough. Clients want proof-as-you-go as much as hype. The candidates deserve it, and the courts may demand it.**

customer, it was easy enough to devise the tests, but it took three to five years to collect enough "real-world" data to get the evidence to make the claims that clients wanted, and needed, to hear. It's called "the criterion problem" and it involves looking at the relationship between test scores and actual job performance over time. As much as the validation process of such relationships can be done across all potential clients of such a start-up, for the client the validity for their employees is all that matters.

All were blinded by their own propaganda – how the AI revolution has, could, and will change testing. They all thought that testing was a sleepy backwater where "swashbuckling" disruptive experts could bring some sexy science and "make a killing".

So, the lesson is not "Don't try to disrupt or don't try to innovate." The real problem is that entrepreneurs often don't try to learn from others' experiences. They thought that the reason for not using the tests was only the channel to reaching the testees and they often failed at the same point. In the development of their businesses, they did not use the so-called AI that would have learnt over time from the many other entrepreneurs who faced the same challenges and failed.

I would like to thank a number of entrepreneurial friends for their insights, comments, and critique: Simmy Grover, Robert McHenry, and Alexandre Gruca.

**ABOUT THE AUTHOR**

**Adrian Furnham** is a Professor at the Norwegian Business School in Oslo.

# Empathic Minds

a way of being

**Tailored Consultancy for Personal, Professional, Team, and Organisational Development**

## Research-Based Solutions to Enhance Wellbeing, Productivity, Relationships, and Innovation

**Helping you with:**

Preventing Burnout
Reducing Climate Toxicity
Improving Employee Retention
Recruitment Strategy
Understanding Customers/Clients
Leadership Influence and Reputation
Communication Clarity
Team Cohesion
Realising Potential
Managing Emotions
and
Self Empathy

## Contact us for one-to-one appointments, workshops, courses, and more:

**info@empathicminds.org**

Member of the British Psychological Society

# COVID

## AS AN ECONOMIC OPPORTUNITY: LESSONS FROM THE SUBPRIME CRISIS ON RESILIENT BUSINESSES

by Jorge Sá

**Most businesses were taken completely off-guard when the COVID crisis hit. The absence of historical data on such an event meant that the epidemic represented uncharted waters for everyone. But what if we look for similarities in a similar event for which we do, indeed, have data?**

The European economy declined by 6.1 per cent in 2020[1] and, while recovery is on the way, many economists and institutions do not expect a full recovery before the end of 2023, and that is without taking into consideration the possibility of the appearance of virus variants.[2,3,4,5,6,7,8]

Machiavelli, however, recommended never to waste the opportunities created by a good crisis[I].

But where can we find opportunities amid the present (COVID) and any future crisis? The answer requires us to address three questions.

1 **First:** since the only new is the past that one ignores (H. Truman), were there resilient businesses during the last major (subprime) crisis?[9,10,11]

2 **Second:** if so, can one find general explanations for those booming activities unrelated and thus independent of the specific cause of a given crisis (be it massive loan defaults or a pandemic)?

3 **Third:** and finally, does the existent data for the 2020 COVID year confirm the same opportunities of the subprime crisis period (the years 2008 to 2014)?

If so, that would be another example showing that (as Peter Drucker, founder of modern management, said) behind any risk there is an opportunity – activities which grow, not just in spite of, but even because of recessions.

## TYPES OF RESILIENT BUSINESSES

During the subprime crisis (the years 2008-2014) there were indeed two types of resilient businesses. Some kept on growing, while others even accelerated their growth compared to the pre-crisis period (the years 2000 to 2007[II]).

And that applies to industries whether they were consumer goods, industrial products or services (and there are 88 industries in the economy[III]), or to segments, that is industry subdivisions (and they total 615 in the economy[III].

## RESILIENT INDUSTRIES

Indeed, during the subprime crisis (2008 to 2014), some industries kept on growing, while others even accelerated their growth.

An example of the former is Eurostat industry 32, which grew yearly by 1.8 per cent and covers **1)** the manufacture of sports goods (for outdoor and indoor), **2)** imitation jewellery (rings, bracelets, and necklaces), **3)** games and toys (including electronic games), and **4)** musical instruments (string or keyboards).

And an example of an industry which accelerated its growth is publishing activities (code 58), which changed from zero growth in the pre-crisis years (2000-2007) to +1.2 per cent during the subprime (2008-2014): books, magazines, and newspapers, as well as other publishing activities, such as photos, engravings, greetings cards, posters, and computer games.

***Figure 1*** indicates the sectors where most of the resilient industries can be found, because they grew and / or intensified their growth.

When an industry has only one type of resilience, it is underneath a single column. When it has both it is in the middle of the two columns. And within brackets are some examples of the products contained within each industry.

As per figure 1, some industries grew, but did not accelerate, e.g., forage plants (maize,

**FIGURE 1** **Main resilient industries across the economy (subprime crisis: 2008-2014)**

Note: Brackets contain product examples, not the complete list.
Source: Eurostat database.

| Sector | | Resilience type: **First:** high growth crisis | Resilience type: **Second:** acceleration |
|---|---|---|---|
| Food in general (including agriculture and related) | | Olive oil; Industrial crops (soya, hops, sunflower, fibre plants); Cereals (wheat, rice); Potatoes (and seeds); Animal products (milk, eggs); Fruits (pears, peaches, tropical fruits); Forage plants (maize, root crops); Food products (poultry, fish); Food and beverage services (restaurants, catering); Veterinary services | |
| Basic needs | Consumers | Pharmaceuticals; Information services (web portals, news agencies activities) | |
| | Firms | Logistics: Transport equipment (railway locomotives, ships); Warehousing (cargo handling); Computer activities (programming and consultancy) | |
| Outsourcing | | Subcontracting in mining (an investment-intensive industry) | |
| Leisure | | Publishing (books, magazines, computer games); Manufacturing of sport goods, toys, games, musical, instruments, imitation jewellery | Motion pictures, videos, music |
| Pleasure | | | Leather (handbags, shoes); Wearing apparel (leather clothes, outwear, fur articles) |

root crops, etc.): 1.2 per cent growth during the subprime and 1.4 per cent before.

Others accelerated, but did not grow, such as leather products (handbags, footwear): from -6.2 per cent before to -3.1 per cent during the subprime.

And still other industries both grew and accelerated, such as olive oil: from zero to nearly 7 per cent growth; or fruit, from 1 per cent to 1.6 per cent.

In general, resilient industries can be found first of all in "Food in general" (including agriculture and related activities); **1)** they are a basic need, **2)** in crisis people have more free time, and **3)** they are a source of comfort.

**In general, resilient industries can be found first of all in "Food in general" (including agriculture and related activities)**

Then there are other essential needs which cannot be postponed, either for consumers, such as pharmaceuticals (3.2 per cent growth during the subprime, representing a -1.5 per cent slowdown relative to the pre-crisis period), or for companies: everything related to logistics (transport equipment with 0.3 per cent growth, and warehousing with 0.2 per cent growth) and computer programming and consultancy (1.2 per cent growth). Further, there are still fundamental needs for both consumers and companies; e.g., information services (web portals, news agencies), with almost 6 per cent growth in spite of a -2.3 per cent slowdown relative to the pre-crisis period.

Then, in times of uncertainty, firms opt for outsourcing as a source of flexibility instead of performing tasks internally, especially in investment-intense industries such as mining. Hence the acceleration from -0.2 per cent to +2.8 per cent.

More leisure time explains why publishing (from books to computer games) accelerated from zero to 1.2 per cent growth. And the need for pleasure is the reason that goods such as handbags or shoes, in leather as well as imitations, and wearing apparel (from fur skins to, again, leather), is translated into superior performance with acceleration of 3.1 per cent and 2.4 per cent, respectively.

In short: **1)** essentials, for consumers, firms, or both (information); **2)** flexibility; **3)** free time; **4)** comfort; and **5)** pleasure. Those are the dominant reasons for resilient industries.

But, while figure 1 indicates resilience in terms of industries (in growth and acceleration),

there is still another type of resilience, namely within each industry, in terms of its subdivisions and segments, and regardless of whether or not the industry itself is in general resilient. That is, independently of how the industry performed overall during subprime, one can find within its industries segments which excelled, in consumer goods, industrial products, or services.

Food products exemplify segments within an industry which was resilient and is a consumer good.

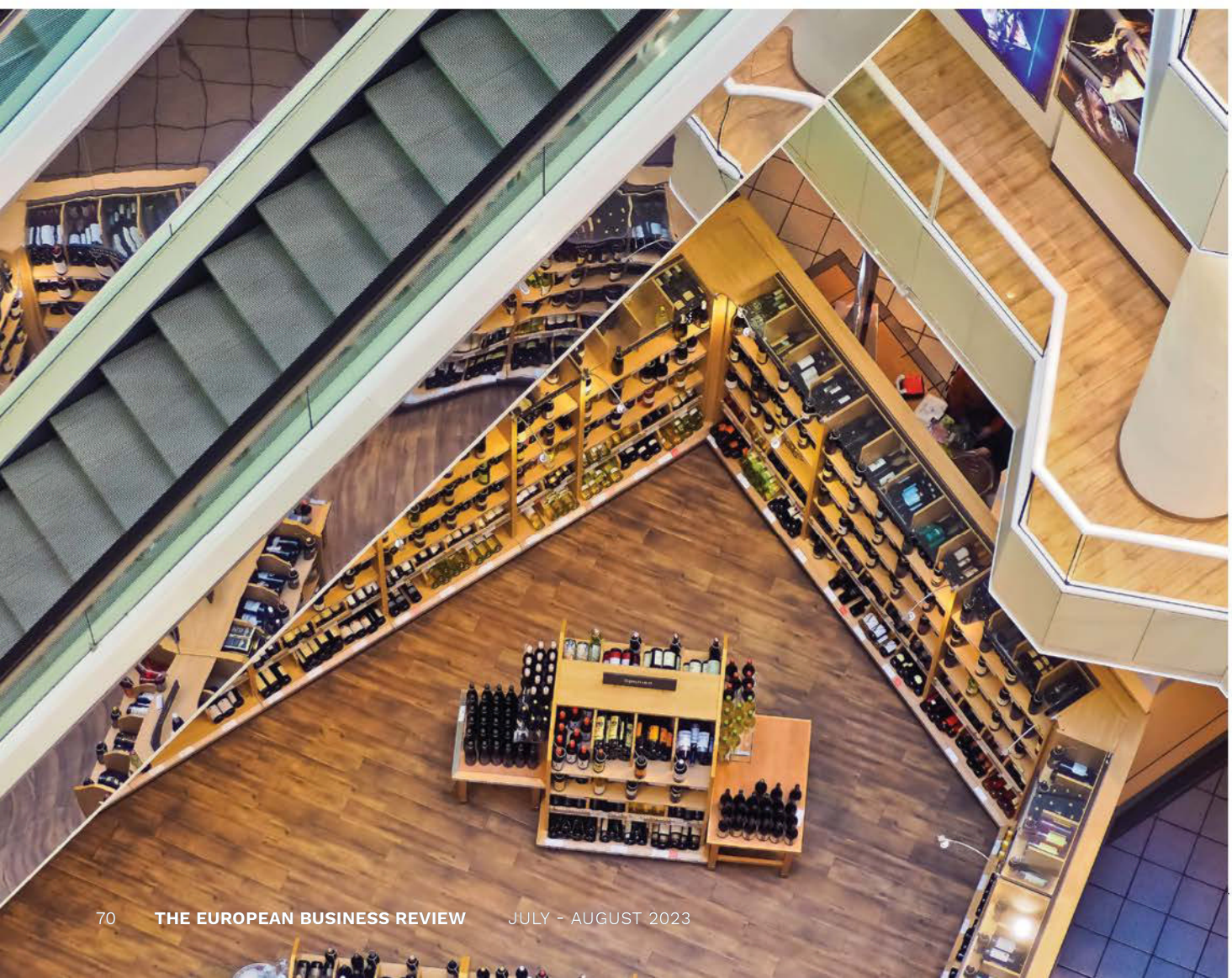
Chemicals and equipment repairs as industrial products and services illustrate segments within industries which on average were non-resilient.

## RESILIENT SEGMENTS: EXCELLENCE WITHIN INDUSTRIES

The food products industry (meat, fish, bread, fruit) grew on average during the subprime crisis of 2008-2014 at 0.4 per cent annually (1.7 per cent in the pre-crisis years of 2000-2007), but the industry average value hides considerable variance.

Poultry meat, together with soups, sandwiches, and uncooked pizzas, all increased by 1.1 per cent during the subprime years, and fruit and vegetables by 0.8 per cent.

But prepared meals and dishes, as well as all types of juice (of fruit and vegetables) and ice creams decreased by -1.4 per cent, -2.9 per cent and -5 per cent, respectively (ice cream before



the crisis was increasing at 3 per cent).

Summarising, it can be said that within food products, four main patterns emerged during the subprime.

Three categories were "abandoned": convenience items (prepared meals and dishes), expensive pleasure products (seafood, smoked fish), and specialities (patés and salami). Within each category, cheaper substitutes were sought: processed vegetables instead of dietetics; poultry instead of beef and lamb; and so on.

Essentials, such as grain mill products (wheat and rice) held their ground, growing at a rate of 0.8 per cent, as well as dairy products (milk, cheese) at 0.7 per cent.

And low pleasure-inducing products accelerated their growth: macaroni, noodles, couscous, etc. from 0.1 per cent (pre-crisis) to 0.4 per cent (during the crisis).

Chemicals is an example of a non- resilient industry (it declined overall at 0.7 per cent per year during the subprime), with some segments such as glues (plus adhesives) and explosives (mostly used in construction and mining) diving by -4 per cent and -6.2 per cent, respectively.

However, within chemicals, the food-related segment of agrochemicals increased by 3.8 per cent, extracts and aromatic products for perfumes and food grew by 2.6 per cent and perfumes and toilet preparations (make-up preparations, shampoos, toilet water, cosmetic soaps) grew by 1.6 per cent.

Equipment repairs and installation is an example of a non-resilient service, as its average declined from the pre-crisis to the crisis from +3.1 per cent to -0.4 per cent. But there is a single exception in a segment whose growth accelerated (from 0.8 per cent pre-crisis to 4.5 per cent during the crisis), namely repairs which could not be postponed at all: metal tanks, pipelines, steam generators, and central heating boilers.

**FIGURE 2** **Beverages industry**

| Year rate of growth | Pre-crisis period (2000 – 2007) | Crisis period (2008 – 2014) |
|---|---|---|
| **Industry average** | **+1.5%** | **-1%** |
| Vermouths | +2.9% | +13.4% |
| Soft drinks and bottled water | +0.8% | +0.4% |
| Spirits (whisky, etc.) | +2.4% | -0.2% |
| Wine from grape | +1% | -1% |

Source: Eurostat database

**One can always find exceptional segments with an industry, regardless of whether it is a consumer product, an industrial good, or a service, and independently of whether the industry as a whole was, on average, resilient or non-resilient during the subprime years (2008-2014).**

In short, one can always find exceptional segments with an industry, regardless of whether it is a consumer product, an industrial good, or a service, and independently of whether the industry as a whole was, on average, resilient or non-resilient during the subprime years (2008-2014).

So the question is: how can a firm use this information?

## HOW TO FIND RESILIENT BUSINESSES AND WHAT TO DO WITH THEM

***Figure 2*** presents a very simple description of the beverages industry, with four segments: **1)** vermouths, **2)** soft drinks and bottled water, **3)** spirits such as whisky, and **4)** wine from grapes, all with data taken from the Eurostat database.

The industry has other segments such as beer, cider, fruit wines, etc., but to simplify let's focus on the four above.

As can be seen, vermouths is by far the most resilient segment: its growth rate accelerated from +2.9 per cent (pre-crisis) to +13.4 per cent (crisis), although the industry declined on average from +1.5 per cent to -1 per cent.

And so a firm working in the beverages industry has four basic options: **1)** concentration; **2)** entry; **3)** becoming a supplier; or **4)** holding its ground.

If the company is operating in several segments such as vermouths, spirits, and soft drinks and bottled water, the sensible decision is to concentrate on the first option, as it not only benefits from the highest growth (+13.4 per cent) but also exhibits the greatest acceleration (+10.5 per cent). Thus the company's strategy should be focus.

However, if the organisation is specialised in spirits, whose rate of growth during the crisis is -0.2 per cent (a 2.6 per cent decline from pre-crisis), it may consider the option of entering the vermouth segment, since of all the products, it is the most similar (and thus synergetic) segment to spirits (whisky, etc.).

Still, a wine producer can become a supplier to the vermouth segment and thus minimise the 2 per cent deceleration effect while benefiting from supplying a segment (vermouth) growing at +13.4 per cent.

Finally, a soft drinks and bottled water manufacturer will not have great synergy with vermouths, so it would be difficult to move into that segment, but neither would there be a great need. The best strategy for a specialised soft drinks and bottled water supplier would be to hold its ground and maintain its operations in that segment.

There are two reasons for this. First, the segment grew during the crisis, although less than pre-crisis (a slowdown from +0.8 per cent to +0.4 per cent). And second, except eventually in marketing (some distribution channels, for example), there might not be important synergies with the other industry segments, and certainly not in operations and manufacturing.

All these four options – focus, entry, become a supplier or hold its ground – correspond to moves within the boundaries of a company's industry, since here synergy is greatest in marketing (channels of distribution, image, sales force, etc.) and / or technological (manufacturing).

However what if, exceptionally, no resilient segment exists within a firm's industry, or the company lacks synergy to move into it?

Then the option is to analyse figure 1 before, search there for the most similar and thus synergetic industry or industries and perform in it the same analysis done here regarding figure 2.

A final point is that data regarding the years of the subprime period (2008-2014) should always be confirmed with that of the COVID year, 2020, just as was done for all the statistics in this article.

**The problem with crises is not the lack of opportunities, but failing first to recognise that they exist – and then the absence of a methodology to find them.**

**ABOUT THE AUTHOR**

**Jorge Sá** is a senior research fellow at Drucker University (Peter F. Drucker and Masatoshi-Ito Graduate School of Management) in Los Angeles, and a professor at ISG Business School. He is an expert on Peter Drucker and Philip Kotler, founders of modern management and modern marketing, respectively, with whom he studied and who offered letters of recommendation for his books and endorsements for his work. He has a master's degree from the Peter F. Drucker Graduate School of Management in California and a doctorate (PhD) in Business Administration, from Columbia University, where he was a student, researcher, and teaching assistant. He was awarded the Jean Monnet Chair by the Jean Monnet Foundation in Brussels and has published books in 12 languages.

## CONCLUSION: CHRONOS AND KAIRÓS, THE GODS OF TIME

Ancient Greeks revered two gods of time.

Chronos was the god of the everlasting, of repetition, of the chronological sequence of seasons and years, measured quantitatively.

And Kairós was the god of opportune timing, of the specific moment where something special happens, so this is measured qualitatively, not quantitatively.

Thus the latter is the god of the ability to adapt to and take advantage of changing, contingent circumstances, of that special instant when an opening appears which, if driven through, leads to success.

But time is indeed composed of both gods. There are the regular, "normal" times, with incremental changes and evolution, which corresponds to the growth periods in the economy.

And then there are crises, recessions, when, rather than alterations, great disruptions occur. Some activities keep on growing; others accelerate their growth. And consequently, the whole structure of the economy changes, with great opportunities appearing.

Tropical fruit? Reversed their yearly growth rate, from -1.2 per cent in the pre-crisis period (2000-2007) to +1.2 per cent during the subprime years (2008-2014), in contrast to dessert grapes, which went downhill by -3.1 per cent (from basically stable in pre-crisis to -3.1 per cent during the crisis).

Sports goods? These improved their performance by nearly 5 percentage points, while kitchen furniture dived by -7.3 per cent (from 2 per cent growth pre-crisis to -5.3 per cent during the crisis). And so on.

Thus, the problem with crises is not the lack of opportunities, but failing first to recognise that they exist – and then the absence of a methodology to find them.

In either case, blame should not be directed outwards, but inwards, since in the struggle for survival, not to be competitive is almost to be guilty[IV].

**REFERENCES**


[1] AMECO (2021, May 13). https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/

[2] Fernandes N., "Economic effects of coronavirus outbreak (COVID-19) on the world", IESE Business School Working Paper No. WP-1240-E, 22 March 2020

[3] Mukut S., Wenzheng Z., Ujjal A., "Consequential impact of the COVID-19 pandemic on global emerging economy", *American Journal of Economics*, 10(6): 325-331; 2020

[4] Ozili P. K., Arun T., "Spillover of COVID-19: impact on the global economy", 27 March 2020

[5] Roy S., "Economic impact of COVID-19 pandemic", 27 July 2020

[6] Lorenzo M., Lean A., "The economic impact of COVID-19", IDOSR *Journal of Banking, Economics and Social Sciences*, 5(1): 45-50; 2020

[7] Sapir A., "Why has COVID-19 hit different European Union economies so differently?", Policy Contribution 2020/18, Bruegel; 2020

[8] Ehnts D., Paetz M., "COVID-19 and its economic consequences for the Euro Area", *Eurasian Economic Review*, 11: 227–49; 2021

[9] Moore T., Mirzaei A., "The impact of the global financial crisis on industry growth", *The Manchester School*, Vol. 84, No. 2: 159-80; 2016

[10] Setar L., MacFarland M., "Top 10 fastest-growing industries", IbisWorld, Special report; April 2012

[11] Khudyakova T., Shmidt A., "Impact of the global recession in financial and economic sustainability of industrial companies", *European Research Studies Journal*, Volume XXII, Issue 1: 143-57; 2019


[I] In his work *The Prince*, dedicated to Lorenzo de Medici.
[II] For reasons of homogeneity, one defines the pre-crisis period as starting with the millennium.
[III] Eurostat generally defines industries with two digits and segments with four digits. Five Eurostat databases were used:
- Production in industry;
- Economic accounts for agriculture;
- Annual detailed enterprise statistics for construction;
- Annual detailed enterprise statistics for trade; and
- Annual detailed enterprise statistics for services.

[IV] Charles Darwin

**As companies face rising pressures from consumers, investors, and sustainability reporting regulations, it is essential that the entire C-Suite assumes responsibility for climate action. Whether it's the Chief Communication Officer ensuring that decarbonisation plans are communicated transparently, or the Chief Procurement Officer taking action on the carbon footprint of the supply chain, the leader of each business function plays a crucial role in helping a company meet its climate objectives.**

# CLIMATE ACTION IS IN THE HANDS OF THE C-SUITE

by Renaud Bettin

**A C-suite fully engaged in green initiatives sends a strong message to stakeholders that a company is taking climate action seriously.**

Gone are the days of Chief Sustainability Officers (CSO) as the sole guardians of a company's climate strategy. As COP28 approaches, businesses that maintain this outdated mindset will struggle to implement an actionable and robust climate strategy. Instead, a company's full leadership team must take the initiative and claim individual ownership of driving climate action within their specific business functions.

Mobilising the collective intelligence and power of the entire C-Suite gives companies a much better chance of overcoming the enormous challenge of achieving net zero targets. A C-suite fully engaged in green initiatives sends a strong message to stakeholders that a company is taking climate action seriously, helping to galvanise the whole company in achieving climate objectives.

## CEOS AND CSOS: SPEARHEADING CLIMATE STRATEGY

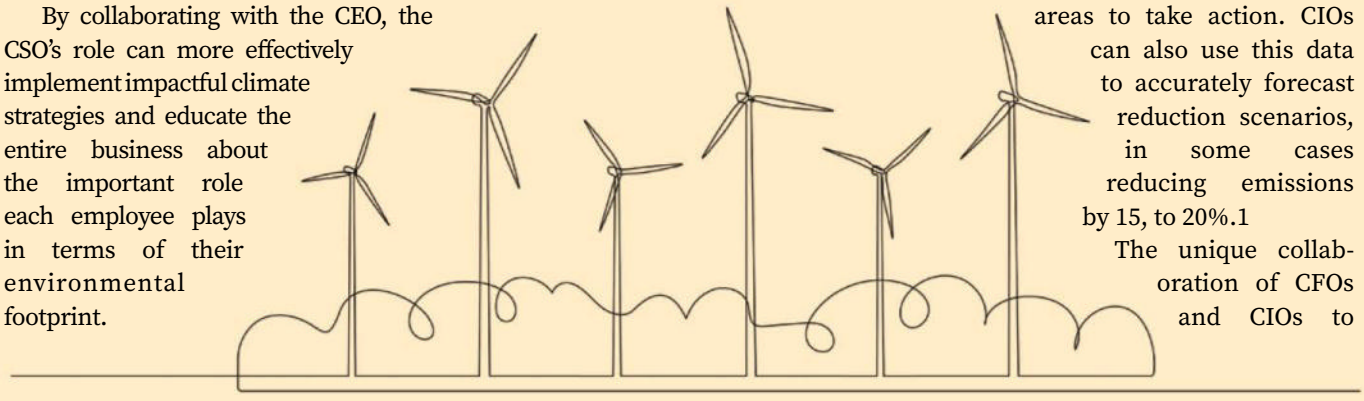
For any company, change can have the most impact when it is supported by leadership teams. CEOs have the power to establish direction when it comes to taking action on climate change. Exemplifying a strong commitment to reducing emissions and prioritising sustainable business strategies will filter down across the whole organisation, inspiring employees to follow suit. This collaborative ethos between employees and leadership promotes green initiatives and impactful climate action.

**CEOs are also responsible for making sure that the company's climate strategy complements overall business strategy. This is key to minimise pushback from stakeholders, reduce potential distractions for the CEO and their leadership team and nurture a trustworthy brand to internal and external stakeholders.**

CEOs are also responsible for making sure that the company's climate strategy complements its overall business strategy. This is key to minimising pushback from stakeholders, reducing potential distractions for the CEO and their leadership team, and nurturing a trustworthy brand to internal and external stakeholders.

This is where Chief Sustainability Officers have a vital role in helping to build a climate strategy – tracking industry developments and adapting Environmental, Social, and Governance (ESG) strategy accordingly. They work on identifying areas for environmental improvements throughout the business, measuring carbon emissions and other metrics, and communicating with stakeholders about company priorities.

By collaborating with the CEO, the CSO's role can more effectively implement impactful climate strategies and educate the entire business about the important role each employee plays in terms of their environmental footprint.



## CFOS AND CIOS: GETTING A GRIP ON CLIMATE DATA

Chief Financial Officers (CFOs) are becoming increasingly instrumental in helping companies stay ahead of major global climate regulations. In the same way they manage financial data, CFOs have the requisite skills and knowledge to lead on extra financial reporting.

This includes the Corporate Sustainability Reporting Directive (CSRD) in the EU, the Taskforce on Climate-related Financial Disclosures (TCFD) framework in the UK and the Securities and Exchange Commission´s (SEC) proposed rules on climate disclosures in the US. Tracking and auditing climate data is vital to avoid reputational damage and non-compliance penalty charges.

CFOs are also key decision makers when it comes to investing in decarbonisation strategies and allocating the necessary resources to do so effectively. They, therefore, have an important role in building a strategy to pursue long-term economic and environmental benefits of investing in low-carbon initiatives while alleviating potential short-term costs.

Whilst the Chief Information Officer (CIO) and IT team might not be the first port of call when thinking about emission reductions, they play a key role in implementing a company's climate strategy. Well-managed data systems, in particular those that track carbon emissions, are an essential ingredient of successful decarbonisation. For example, strong visibility over carbon emission data can help companies identify emission hotspots and prioritise areas to take action. CIOs can also use this data to accurately forecast reduction scenarios, in some cases reducing emissions by 15, to 20%.1

The unique collaboration of CFOs and CIOs to

measure and report on extra-financial data, such as carbon emissions, brings with it meaningful insights which can source new opportunities for both financial gains and impactful climate action.

## CPOS AND CCOS: EXECUTING A CREDIBLE DECARBONISATION PLAN

To this day, companies have made more noise about their net-zero pledges than climate action, leaving them open to accusations of greenwashing and scrutiny from their stakeholders.

Reducing a company's emissions means acting on the emissions across the company's supply chain. This is where the Chief Procurement Officer (CPO) carries a high level of responsibility for a company's carbon footprint. By carefully considering emissions criteria when choosing new suppliers, CPOs can help companies work with their existing suppliers to pursue carbon reduction initiatives, such as improving energy efficiency or designing eco-friendly products.

Avoiding greenwashing claims is particularly important now that investors and consumers are becoming increasingly sustainably conscious, in particular surrounding new regulations such as the EU Green Claims Directive, which proposes that businesses must substantiate environmental labels and claims. The Chief Communication Officer (CCO) has the key role of making sure that companies are transparently communicating their progress and building trust with well-informed customers. They are therefore also instrumental in shaping a company's climate strategy, helping to communicate climate action accurately and avoid accusations of greenwashing.

It is clear that utilising climate data is needed across all major business functions, whether this is minimising the environmental footprint of supply chain operations or allocating the necessary budget to implement decarbonisation.

The rising pressure of new sustainability regulations and increased public scrutiny means that businesses will have to transform their business models in order to survive in the long term. This green transformation must start from within and requires strong leadership and joint responsibility across the C-Suite.

**Reducing a company's emissions means acting on the emissions across the company's supply chain. This is where the Chief Procurement Officer (CPOs) carries a high level of responsibility for a company's carbon footprint.**

**REFERENCE**

1. Why Data is Key to Enabling Emissions Reductions. July 28, 2021. CIO. https://www.cio.com/article/189038/why-data-is-key-to-enabling-emissions-reductions.html.

**ABOUT THE AUTHOR**

**Renaud Bettin** is Sweep's VP of Climate of Action and has over 15 years of experience in the field of corporate climate strategy. Committed to helping businesses be a driving force to reach global net zero, he launched the Net Zero initiative reference framework for corporate carbon neutrality and Info Compensation Carbone, a carbon finance website. His thought leadership has been featured in Carbon Pulse and the World Bank's Carbon Pricing Leadership Coalition.

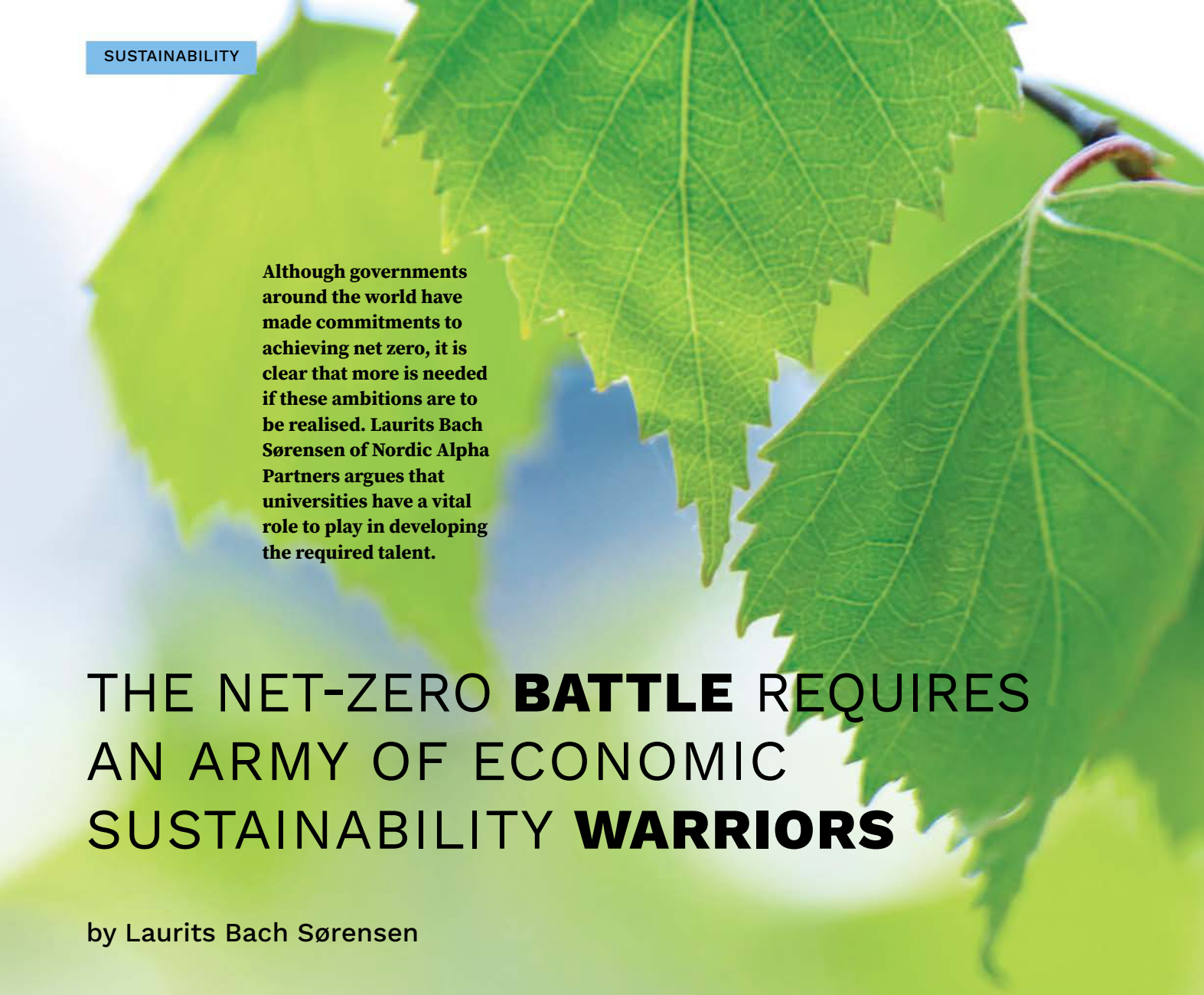
Admincontrol

# Digital collaboration & document sharing

## Board work and due diligence

Through our cloud-based solution, users can efficiently access, share, discuss and act on business-critical information.

**admincontrol.com**



**Although governments around the world have made commitments to achieving net zero, it is clear that more is needed if these ambitions are to be realised. Laurits Bach Sørensen of Nordic Alpha Partners argues that universities have a vital role to play in developing the required talent.**

# THE NET-ZERO **BATTLE** REQUIRES AN ARMY OF ECONOMIC SUSTAINABILITY **WARRIORS**

by Laurits Bach Sørensen

This article is a follow-up on "Economic Sustainability in a Time of Impact and Regulation". In the previous article, I argued that there were three overall principles within the economic sustainability logic:

**1 The world is not rich enough to rely only on government and regulation to lead the world to net zero.**

**2 Heavy regulatory measures can create ineffective solutions and an artificial market environment.**

**3 The most efficient way to net zero is Identifying and scaling the technologies and companies that will drive the green transformation, not because it is green or subsidised, but because it is better, cheaper, simpler to adopt and more available (BCSA).**

Having created the foundation for the battleground and presented the mission towards net zero in my previous article, I will now redirect the focus and showcase how visionary economic sustainability experts or warriors, equipped with the right competencies and toolbox, are able to drive and harness the power of free market hyper-growth and rapid technology transformation.

By now, it is well documented that the world will not reach net zero through government regulation or green impact funding alone[1].

Neither will we become $CO_2$-neutral by going paperless, by not eating meat, or by committing capital to various early-stage ESG funds. The impact is simply not high enough, relative to the capital deployed.

We can also factor in that, over the next three decades, we will welcome three billion people to the middle-class income bracket, people who will request middle-class goods such as ribeyes, iPhones, and Teslas and, as a result emit, between 600 per cent and 2,400 per cent more $CO_2$ than the lower-income bracket[2].

I have spent the last 10 years working as both an entrepreneur in green technology businesses and as a fund manager, spotting and hyper-scaling the transformative solutions that are accelerating the green transformation based on the principals of economic sustainability

Along the way, I learned that the world is in no way lacking the innovations needed to deliver net zero. Neither does the world lack seed or early-stage investment capital. The problem is a lack of competences able to manage the complexity and intense capital requirements in the difficult scaling phase for transformative greentech companies, resulting in a greentech Valley of Death that unfortunately kills great greentech companies on their journey to becoming real global successful companies making a real impact.

**The main factor is that the green transformation is based on hardware and hard technology, which requires factories, complex supply chains, high levels of working capital.**

The main factor is that the green transformation is based on hardware and hard technology, which requires factories, complex supply chains, and high levels of working capital. This is very unlike what most unicorns and transformative companies have needed or relied on over the last decades, and so it has left many executives and boardrooms without a proper understanding of the new dynamics.

Rapidly scaling hard tech vs software is a completely different and substantially more complex process. It takes longer and is a far more expensive mission, requiring a different toolbox from conventional growth, along with much more advanced skills and capabilities at a much earlier stage on the growth journey , compared to software for example.

The complexity of this toolbox is essentially why, over the last 30 years, I have worked on developing and crystallising a methodical approach and a set of models that could work on a large scale which will all soon be available in a book titled "Changing The Math".

My proposition is that the same methods can now enable others to spot early, and rapidly develop, the technologies and solutions that can lead hyper-growth. In a transformative market, following this approach ensures that one makes investment and strategic decisions based on the principles of economic sustainability that hence have impact while being financially viable and independent from subsidies.

The toolbox is today the core DNA of private equity firm Nordic Alpha Partners' value creation model and investment approach. It is also why we are one of the very few SFDR Article 9 growth funds in Europe.

Via our approach, we will have reduced global $CO_2e$ emissions by 1 million tons through our investments in 2023[3].

We have also successfully managed to gear our own direct investment capital with a factor of $3 per $1 invested[4].

In Denmark alone, we accounted for one-third of all publicly raised capital in the last two years, illustrating how much appetite there is for our management strategies and for economic sustainability[5].

However, before one can create the volumes of traction needed for the tech solutions to compete and become a viable option compared to regulatory and policy-based approaches, one needs a critical component—and that is *talent*.

I don't just mean experienced business leaders, I mean "economic sustainability warriors" with a dedication and mentality towards leading market-driven transformations equipped with the *weapons* of logic from Nordic Alpha Partners' effective and methodical value-creation arsenal.

## THE POWERFUL MATHEMATICS OF AN ES WARRIOR

The general language and logic of both corporate thinking and the youth today is, unfortunately, mostly based on offsetting or reducing individual $CO_2e$ footprints, meaning that the solutions look inward rather than outward.

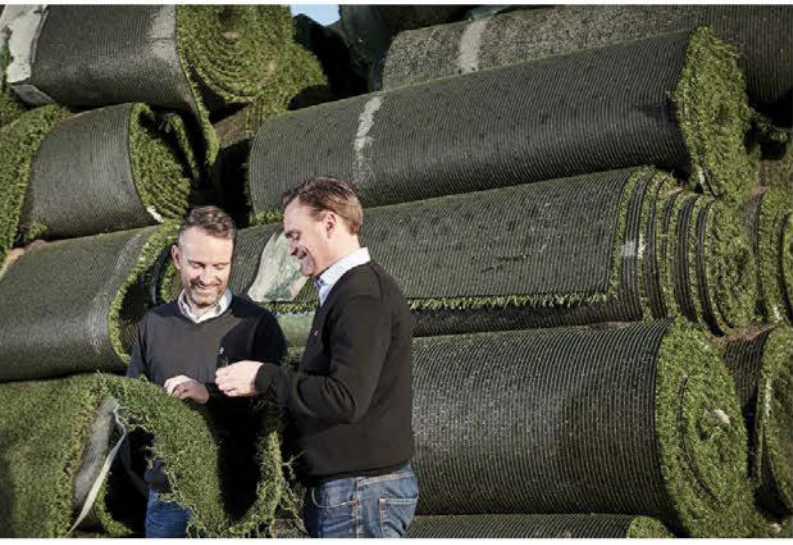
It is great that $CO_2$ is on the conscience, but the problem is that it is far from sufficient. Remember the three billion middle-class people that I mentioned earlier?

Even if every Danish teenager decided to go vegan, it would not move the needle on Denmark's overshoot[6] day (the day Denmark uses up its resources), which is the end of March, putting Denmark in the top five countries on the planet in terms of resources spent.

The data from the overshoot day proclaims that if European and Nordic teens want to try and save the world via behaviour, they only need to adopt the lifestyles of Jamaica, whose overshoot day is 20 December, making it the most sustainable country in the world in terms of living within their means and the resources that their country provides.

For all countries to adopt the consumption levels of Jamaica is obviously unrealistic and, luckily, also unnecessary, if you look at the maths behind the ES-warrior logic. Let's exemplify the powerful logic based on the maths of the five investments that I personally have made in the last four years: Re-Match, DyeMansion, Wiferion, AquaGreen, and Spirii.

**My point is not that we should stop considering our footprint, but that the massive effort and focus we are dedicating to this type of relatively ineffective reduction has only little effect on the world's actually reaching net zero.**



These five assets are all highly transformative technology companies, all of them today positioned as the global leaders within their space and on track to either eradicate polluting alternatives or to technologically accelerate large-scale transformations within electrification, e-mobility, sustainable manufacturing, and recycling.

They are performing this well, not because they are simply green or sustainable, but because their solutions are "BCSA", i.e., better, cheaper, simpler to adopt, and available to support large-scale adoption.

**Re-Match:** Global technology and market leader within recycling of artificial sports turf, an industry that generates more than 15 million tons of waste annually.

**DyeMansion:** Global leader within 3D print processing, enabling large-scale industrialisation of 3D print, and the sustainability transformation of the $330bn plastic moulding industry.

**Wiferion:** (Recently acquired by Tesla) Global leader within industrial wireless charging of robots and forklifts, enabling the fast-paced adoption of industrial electrification and, eventually, EV charging which was recently acquired by Tesla.

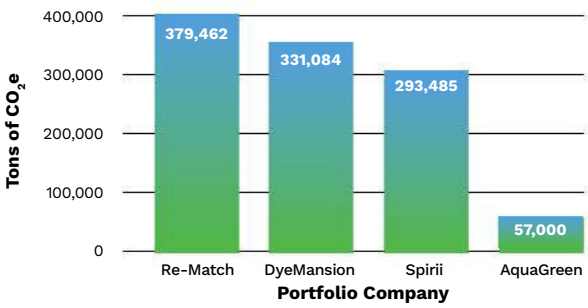
**Spirii:** Spearheading the global e-mobility transformation by offering a new standard of highly flexible end-to-end charge infrastructure platform. Spirii has just been named world's best greentech startup.

**AquaGreen:** Technologically pioneering wet biomass circulation (sludge / manure), enabling scarce phosphorus recovery, reduction of $CO_2$ emissions and energy production.

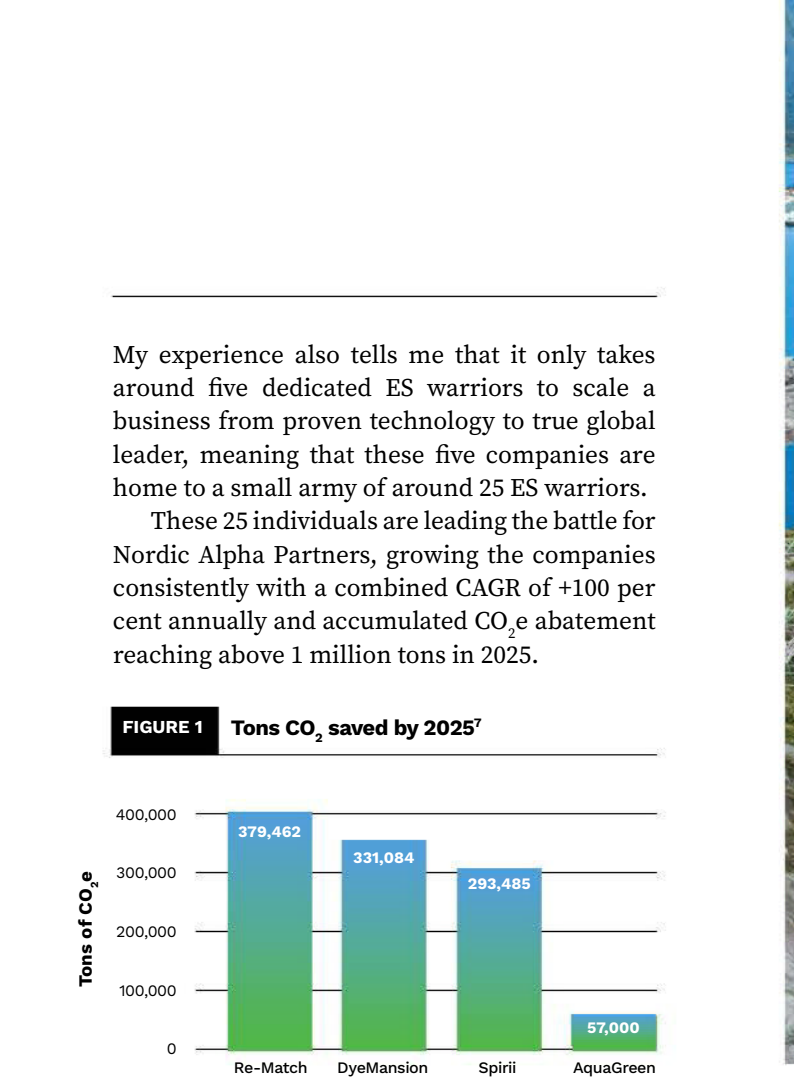
My experience also tells me that it only takes around five dedicated ES warriors to scale a business from proven technology to true global leader, meaning that these five companies are home to a small army of around 25 ES warriors.

These 25 individuals are leading the battle for Nordic Alpha Partners, growing the companies consistently with a combined CAGR of +100 per cent annually and accumulated $CO_2$e abatement reaching above 1 million tons in 2025.

**FIGURE 1** **Tons $CO_2$ saved by 2025[7]**




To put this into perspective, the total $CO_2$e footprint of a Danish person is 5 tons per year[8], and the average individual impact of an ES warrior within these five companies is 13,676 tons of $CO_2$e abatement, meaning that NAP's 25 executives are offsetting the footprint of 68,380 Danish people in 2023. The abatement effect of each NAP warrior within the above companies will abate 42,000 tons annually by 2025, meaning that it will offset the footprint of 207,500 Danes by 2025.



My point is not that we should stop considering our footprint, but that the massive effort and focus we are dedicating to this type of relatively ineffective reduction has only little effect on the world's actually reaching net zero.

Looking at Denmark as a whole, its 5.8 million citizens emit 30 million tons of $CO_2$ annually. Using the figures from above and projecting it forward, it should only require 700 ES warriors by 2025 to offset the entire footprint of the country.

https://www.facebook.com/ReMatchDK/photos

## WORKING WITH THE UNIVERSITIES TO ESTABLISH AN ARMY OF ES WARRIORS

In Denmark, roughly 40.000 students are admitted to a business academy degree or professional bachelor degree programme per year[9], with the largest capacity being the Copenhagen Business School.

Institutions like this are the most important nesting and talent development platform for future ES warriors.

Looking at the average impact maths of the five NAP investments that I run, the solution to offsetting Denmark is actually not that difficult, as we only need to educate and convert 700, or 2 per cent, of one single year of the 40,000 new business students in Denmark to enlist and engage in the economic sustainability battle.

Even if we only generate 100 new ES warriors annually from CBS or Aarhus School of Business, it will only take seven years to build the "army" that will deliver the impact that will comfortably offset Denmark and lead to net zero.

**We at Nordic Alpha Partners fundamentally believe that our advanced methods of scaling should not only be the source of NAP's success and the benefit of NAP investors, but that the sharp weapons and tactics should benefit everyone.**

However, the skill set to manage and harness the power of greentech hyper-growth scaling and transformation stands in great contrast to the conventional and corporate business theory that is being taught at Danish business institutions.

This is why Nordic Alpha Partners has initiated and set up a cooperation with Copenhagen Business School, CBS Climate Club, and also the Technical University of Denmark, to ensure that the theories, models, and methodologies that we have developed and crystallised over the last three decades are rooted into the next generation of leaders and entrepreneurs coming out of these institutions.

Why? Because we at Nordic Alpha Partners fundamentally believe that our advanced methods of scaling should not only be the source of

NAP's success and the benefit of NAP investors, but that the sharp weapons and tactics should benefit everyone.

## DANISH ES WARRIORS MIGHT BE A LARGER EXPORT RESOURCE FOR DENMARK THAN TECHNOLOGY

While Denmark has played a pioneering and visionary role in green transition globally, and despite DTU being one of the leading technology institutions, forefronting Denmark's export of patented green solutions, Denmark has not been able to replicate the success of the wind turbine.

Of course the Danish universities, the strong early-investor environment, and Nordic Alpha Partners will continue to create many new greentech exports, but overall I believe that Denmark could be exporting something that is far more valuable and hundreds of times more impactful than the next Vestas — and that is the export of ES warriors.

Denmark is the perfect training ground for such a global army. It has the tradition, the capital, the leading incumbents, and fantastic technology and education institutions and a great early-investment environment.

I believe every country can exceed the impact currently generated through technology if that country starts to see itself as a nesting place that creates the leaders of tomorrow based on the ES warrior mindset and toolbox.

It does not necessarily have to focus on leading the country to net zero, but instead focus on furthering the green transition across the world via a new export of intellectual capital.

Nordic Alpha Partners is looking forward to supporting the Danish universities with the talent development programmes discussed, enabling talents from all over the world to deliver real impact and create global change. I am also looking forward to soon release a book titled "Changing The Math" focused on how to create, de-risk and manage the complex dynamics of technology transformations, effectively creating a new language and toolbox around hardtech hypergrowth.

**REFERENCES**


[1] https://about.bankofamerica.com/en/making-an-impact/finance-for-transition-net-zero

[2] https://www.brookings.edu/blog/future-development/2022/10/21/the-forgotten-3-billion/

[3] Klinkby Enge-provided figures.

[4] NAP internal calculations.

[5] According to Nasdaq Denmark data.

[6] https://www.overshootday.org/newsroom/country-overshoot-days/

[7] Based on third-party calculations by certified environmental consultancy firm Klinkby Enge and NAP's own data.

[8] https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=DK

[9] https://ufm.dk/uddannelse/statistik-og-analyser/sogning-og-optag-pa-videregaende-uddannelser


**ABOUT THE AUTHOR**


**Laurits Bach Sørensen** https://www.linkedin.com/in/lauritsbs/?originalSubdomain=dk is the co-founder and senior partner of private equity fund *Nordic Alpha Partners* https://napartners.dk/. He previously held executive positions at HP EMEA, as well as being CEO of Aastra Telecom Denmark and CEO and chairman of greentech business MicroShade. He has led exits from Wiferion, Ipvision and Optiware. He currently sits on the board of four cleantech companies: Re-Match, AquaGreen, DyeMansion, and Spirii. Overall, he has over 20 years of experience spearheading venture businesses, value creation, exits, and IPOs. He holds an MSc in Management of Innovation & Business Development from Copenhagen Business School.

# HEAVY (CARBON) FOOTPRINTS:

## Can subscription shoes create a sustainable footwear industry?

by Patrick Reichert and Oscar Vosshage

**Sneakers (or "trainers", as they are known in the UK) are big business – and leave a heavy environmental footprint. But new business models are looking to disrupt the footwear industry and bring sustainable change through the combination of material innovation and product-as-a-service subscriptions.**

In 2022, global footwear market revenue reached $381 billion, with estimates that it will eclipse $450 billion by 2027.[1] But of the 23 billion pairs of shoes manufactured every year, 90 per cent are believed to end up in landfill.[2] And once in a landfill, it takes between 30 and 40 years for just one pair to decompose, and a common sneaker midsole made from ethylene vinyl acetate (EVA) can last up to 1,000 years.[3]

Wedged between rapid industry growth and mounting concern over the industry's environmental impact, bids for sustainability riff on the basics: material innovation, clean-tech-enabled manufacturing, transparent supply chains, and circular design models.

Looking to crack the code of sustainable footwear, Swiss running brand On[4] is the latest athletic apparel company to enter the race – with one notable difference: its Cyclon product line will feature fully recyclable shoes, made chiefly from castor beans, and is only available via a monthly subscription. Through the combination of material and business model innovation, On believes it could be on the verge of a closed-loop product life cycle, ushering in a truly circular and sustainable footwear market.

## THE SHOE YOU WILL NEVER OWN

For $29.99 a month, On's subscription model allows consumers to send back their worn-out shoes and receive new ones. The Cloudneo[5], On's first footwear under the Cyclon product line, is engineered for approximately 600 km, the average distance a dedicated runner covers in about six months, translating to roughly two pairs per year.

**It takes between 30 and 40 years for just one pair to decompose, and a common sneaker midsole made from ethylene vinyl acetate (EVA) can last up to 1,000 years.**

## DRIVING SUSTAINABILITY THROUGH MATERIAL INNOVATION

Most footwear is made from problematic materials like nylon, synthetic rubber, and plastic. They are shaped by energy-intensive processes such as injection moulding, foaming, and heating, and then bound together with environmentally damaging chemicals.

On's Cloudneo uses an innovative material called Pebax Rnew from Arkema SA (a French speciality materials company), which is derived from castor beans. Pebax Rnew can be modified during processing to provide bounce in the sole, as well as comfort and support in the upper. In other words, it is the only material used in the Cloudneo, thus reducing complexity in recycling.

In addition to using this new material, On has an internal life cycle assessment (LCA) team working to quantify the environmental impacts of the new programme. The On company estimates that a pair of Cloudneos generates 20 to 30 per cent less carbon dioxide than the 18 kilograms emitted by a typical pair of its shoes, but the benefit could increase if the proportion of recycled material rises over time.[6]

Photo source: https://www.facebook.com/onrunning/photos

Redesigning the way consumers "purchase" shoes could be the key to closing the circularity loop. According to François-Xavier Dosne, On's head of innovation business strategy, "The hurdle to circularity [that's] facing the industry is that people are not sending shoes back to recycle them... The subscription automates that process."[9]

By selling kilometres used rather than shoes, On shifts its sales incentive from selling as many shoes as possible to making shoes last as long as possible. This transformation can be likened to Michelin tyres' performance-based model, where the company focuses on maximising the tyres' lifespan and efficiency rather than the quantity of tyres sold.[10]

The subscription model offers customers convenience and potential savings. With less decision-making and hassle, customers can focus on enjoying their shoes, knowing they will be replaced when worn out.

## CLOSING THE LOOP THROUGH BUSINESS MODEL INNOVATION

Ultimately, On wants to achieve full circularity, so that discarded clothing items are completely reused to create new ones. Potentially by the end of the decade, On executives aim to bring back 90 per cent of its products for recycling.[7] But, as other brands have explored this vision, they've hit roadblocks. For example, in 2018, Adidas released the Futurecraft.Loop, a "100 per cent recyclable" performance running shoe. Yet soon after its launch, Adidas publicly shared that its Futurecraft.Loop pilot struggled (reaching only a 10 per cent recycle rate), because consumers wouldn't send the shoes back in time for Adidas to generate the next batch and keep the circle in motion.[8]

**By selling kilometres used rather than shoes, On shifts its sales incentive from selling as many shoes as possible to making shoes last as long as possible.**

## CIRCULAR ECONOMY OR SUBSCRIPTION FATIGUE?

The unique combination of material and business model innovation could give On a leg up in the sustainable-footwear wars. However, competition is fierce, with industry frontrunners like Adidas and emerging startups like Allbirds, who are also developing more sustainable shoes. In addition to its Futurecraft.Loop programme, Adidas teamed up with the NGO Parley for the Oceans in 2015 to release the first performance shoe with an upper made from marine plastic waste and illegal deep-sea gillnets (fishing nets that are hung vertically so that fish get trapped by their gills).[11] In terms of pure carbon footprint, Allbirds recently unveiled M0.0nshot, a sneaker with a net footprint of 0.0 kg of CO2 emissions. Rather than achieving this

feat through controversial carbon offsetting, the shoe relies on three materials that Allbirds says are carbon-negative: regeneratively farmed merino wool, a sugarcane-based EVA foam, and a bioplastic made from methane by US startup Mango Materials.[12]

Faced with several sustainable-footwear options, On's subscription model risks only appealing to power users or consumers willing to pay a premium. Keep in mind that On's assertion of "wearing the shoes out" involves running an ambitious 25km per week – a significant commitment for many casual runners. At 25 km per week, On's Cloudneo would retail at $180, translating to an economical $0.30 per kilometre, well in the range of their closest (non-sustainable) competitors, the Nike Infinity at $0.23/km[13] and Adidas Fresh Foam at $0.26/km.[14] However, any delay in reaching the 600km lifecycle can turn into a costly affair. Each additional month drives up the cost by $0.05 per km, with customers footing the bill.

| | Price per km to reach 600km | | | | | | |
|---|---|---|---|---|---|---|---|
| **Month** | 1 to 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| **$/km** | 0.3 | 0.35 | 0.4 | 0.45 | 0.5 | 0.55 | 0.6 |

Despite the initial hype, it's important to recognise that circular subscription models are still in the early stages of experimentation. Nevertheless, circular subscriptions are rapidly becoming commonplace across several consumer goods categories. Mud Jeans has launched its "Lease A Jeans" programme[15], Swapfiets identifies as a "bicycle as a service" company[16], and Fernish offers rentable, maintained furniture. But given the rise of subscription fatigue, it remains to be seen how many subscriptions consumers are willing to spring for. Nevertheless, the race for sustainable consumer products is on and may well be shaped by transforming consumption habits towards circular subscriptions.

## REFERENCES


[1] https://www.statista.com/forecasts/976367/footwear-market-size-worldwide#:~:text=In%202022 per cent2C%20the%20global%20footwear,billion%20U.S.%20dollars%20by%202027

[2] https://www.theguardian.com/fashion/2020/mar/21/some-soles-last-1000-years-in-landfill-the-truth-about-the-sneaker-mountain

[3] https://www.theguardian.com/environment/2009/aug/23/repair-trainers-ethical-living

[4] https://www.on-running.com/en-us/

[5] https://www.on-running.com/en-us/products/cloudneo-42cloudneo/mens/undyed-shoes-42.98711?query-ID=ff59d7717fd3e5649f3eea3135a7d080

[6] https://www.wsj.com/articles/the-100-recyclable-running-shoe-thats-only-available-by-subscription-11657188000

[7] https://www.wsj.com/articles/the-100-recyclable-running-shoe-thats-only-available-by-subscription-11657188000

[8] https://qz.com/quartzy/1747230/adidas-says-it-successfully-recycled-its-first-batch-of-futurecraft-loop-sneakers

[9] https://www.fastcompany.com/90850232/on-creates-circular-system-to-recycle-running-shoes

[10] https://www.iotworldtoday.com/iiot/a-look-at-michelin-s-product-as-a-service-strategy

[11] https://news.adidas.com/running/adidas-and-parley-for-the-oceans-unite-sporting-communities-across-the-globe-to-run-for-the-oceans/s/0621eb8e-fe22-426f-8bf3-4980347c184f

[12] https://www.voguebusiness.com/sustainability/allbirds-says-its-net-zero-carbon-shoe-is-here

[13] https://www.solereview.com/nike-react-infinity-run-flyknit-3-review/

[14] https://www.solereview.com/new-balance-fresh-foam-1080-v12-review/

[15] https://mudjeans.eu/pages/lease-a-jeans

[16] https://swapfiets.com/

[17] https://fernish.com/


## ABOUT THE AUTHORS


**Patrick Reichert,** Associate Director and Research Fellow at the elea Chair for Social Innovation, IMD. Patrick conducts research at the intersection of entrepreneurship, finance, and social impact, with a particular focus on the mechanisms and practices that investors use to seed investment in social organisations. He is the associate director at the elea Chair for Social Innovation.

**Oscar Vosshage,** Research Associate Intern at the elea Center for Social Innovation, Masters Student E4S. Oscar is a Master of Science in Sustainable Management and Technology candidate at E4S, a joint master programme of IMD, EPFL and UNIL. He is also project lead for a Lausanne Global Shaper project aiming to raise awareness of the heart attack gender gap.

**"The system" doesn't necessarily reward companies for their initiatives towards sustainability. In fact, they may find themselves at a commercial disadvantage for their pains. The phrase "a level playing field" may be just a sporting metaphor, but could the world of sports actually yield valuable insights for sustainable commerce?**

# DOPING SUSTAINABILITY

by Maude Lavanchy & Karl Schmedders

Society's growing concern over climate change has led to a surge in corporate climate pledges. Thousands of companies have joined the United Nations Framework Convention on Climate Change's Race to Zero campaign, committing to take rigorous actions to limit their environmental impact. IKEA has pledged to be climate-positive by 2030, the BMW Group to be carbon-neutral by 2050, and Unilever to reach net zero by 2030. The logic behind these pledges is straightforward:

1 Long-term pledges lead to concrete investment in more sustainable practices.

2 Investors and consumers reward companies that contribute to the green transition and penalise those that don't.

Over time, pledges should create a virtuous cycle, firms with strong sustainability performance dominating the market. Yet recent analysis of 25 major companies' pledges[1] shows that they are falling well short of their promises, their ambitious-sounding commitments often lacking real substance.

## ARE BUSINESS-LED ENVIRONMENTAL INITIATIVES SET UP TO FAIL?

Voluntary measures to reduce environmental impact can often be explained in terms of economic self-interest. Reducing compliance costs, mitigating adverse stakeholder reactions, or improving public image are among the

reasons for going green. Unfortunately, these reasons are countered by two strong economic forces: the "tragedy of the commons" and the "tragedy of the horizon".

## Tragedy of the Commons

Earth's atmosphere is a common-pool resource: no one owns it; everyone has access to it. If sustainably managed, it can provide for many; a lack of sustainable management can be very harmful to everyone. Put differently, when company A emits less greenhouse gases (GHGs), it contributes to the sustainable management of the "common" (i.e., Earth's atmosphere), which benefits everyone. But because only company A is paying for this measure, it ends up competitively disadvantaged vis-à-vis its competitors that opt for less environmentally responsible (and thus cheaper) practices. As this trade-off between profitability and sustainability could put company A out of business, it has no incentive to bear the cost of reducing its emissions. Since the same argument applies to all firms, the "common" is no longer sustainably managed. Which is the tragedy.

## Tragedy of the Horizon

Popularised by former governor of the Bank of England Mark Carney, the tragedy of the horizon describes the conflict between companies' tendency to focus on the short term and the long-term vision required to follow through on climate targets. As the effects of climate change will be felt well beyond the typical investment cycle horizon or that of top-management team tenure (the average CEO serves for 7 years), current business and political leaders have little reason to deal with climate risk now. The temptation to pledge for the future but leave the tough decisions to one's successor is high.

The forces underlying these two tragedies help explain why:

**As the effects of climate change will be felt well beyond the typical investment cycle horizon or that of top-management team tenure (the average CEO serves for 7 years), current business and political leaders have little reason to deal with climate risk now.**

**1** Green initiatives are often **a second-tier priority**[2], behind business imperatives such as financial performance and talent management. A 2022 IMD Executive Opinion Survey of 4,097 C-level and mid-level managers across 63 countries shows that inflationary pressures, geopolitical conflict, supply chain bottlenecks, COVID-19, hybrid work, and technology and customer interaction are all prioritised over environmental concerns. For instance, Cargill made important commitments on deforestation and supply chain GHG emissions. Yet Jill Kolling, Cargill's vice president for global sustainability, warned that meeting them ultimately "depends on how our business grows".[3]

**2** **Greenwashing** and the **tendency to change environmental targets** if they are not met are ubiquitous. A recent study using data from Japanese organisations shows that whenever a company fails to hit its GHG emissions target it tends to change how that target is defined (e.g., replacing a target regarding

an absolute reduction in total GHG *emissions* with one regarding reducing GHG *intensity*)[4]. Likewise, when Cargill fell short of its objective to be "net-zero" vis-à-vis deforestation by 2020, it simply extended that target to 2030.

**3** Organisations struggle to align **financial incentives with climate pledges.** A 2022 analysis of environmental, social and governance-linked compensation at S&P 100 companies shows that these components tend to be vague, opaque, and easy to manipulate, and warns that such compensation could be "exploited by self-interested CEOs to inflate their payoffs, with little or no accountability for actual performance".[5]

Although not all voluntary green initiatives are doomed to fail, it helps to understand why these two economic forces are hard to overcome. Our interactions with hundreds of corporate leaders reveal that many companies still struggle to compensate for the additional cost often associated with green production[6] (compared to "browner" production). They tell us they are ready to "get greener", but that everyone has to play by the same rules. More and more executives believe that regulation is needed to ensure that level playing field. Lucas Joppa, Microsoft's chief environmental officer, agrees: "If we are going to achieve a net-zero carbon economy for real, we will need everyone to act ... and that means action can't be voluntary. We need requirements and standards that everyone is expected to meet[7].

The question is how. Forces similar to those described above are at play elsewhere, and while climate change is arguably more complex,[7] the case of doping in sport offers an interesting lens with which to explore the problem.

## The Anti-Doping Movement as an Inspirational Case

Consider the case of figure skater Kamila Valieva in 2022 at Beijing. The first female skater to complete a quadruple jump at the Olympics, she helped her team to gold in the women's event. But clouds gathered when it emerged she had tested positive for a banned substance just days before the games. Although reducing doping is socially desirable, the case raises key questions. Will fans and sponsors favour fair (and clean) competition over spectacular (but "unclean") performances? If I, as an athlete, do not dope, am I at a competitive disadvantage? Performance-enhancing drugs can significantly tip the odds of winning, and can "create a market" where the only options are to lose or to dope – just like in the tragedy of the commons.[8]

**Performance-enhancing drugs can significantly tip the odds of winning, and can "create a market" where the only options are to lose or to dope – just like in the tragedy of the commons.**

## From Threat to Business to Threat to Survival

Although using substances to improve performance has a long history (stimulants were used to combat fatigue in China 5,000 years ago), doping became controversial only in the 19th century. The first modern doping regulation was introduced in 1928. When controls came to the world's most famous cycling race, the Tour de France, in 1966, riders interpreted them as an "attack on their right to self-determination". Organisers also initially feared that anti-doping controls would lead to less "superhuman" performances, making the Tour less spectacular and less economically viable.

The turning point for the business case for anti-doping was the public backlash that followed the "Festina affair". In 1998, French authorities decided to crack down on the Tour and found hundreds of doses of doping products, revealing large-scale, systematic, organised doping in professional cycling. The result: a media furore and public outrage. Anti-doping measures were no longer a threat to the business of the Tour, but a prerequisite for its survival.

While other doping scandals had comparatively less impact on the business of some sports (e.g., track and field), the risk of stakeholder withdrawal and its potential financial impact, as well as the risk to athletes' health, were now taken seriously by organisers. The Festina affair, along with other highly publicised doping scandals, led to the creation of the World Anti-Doping Agency (WADA) in 1999. This sudden acceleration of the anti-doping movement provides interesting insights into the fight against climate change. In particular, the following three lessons on how to "level the playing field" appear crucial:

### Lesson 1

## Harmonise the Rules of the Game

The development and adoption of the World Anti-Doping Code (WADC)[9] is one of the greatest-ever examples of successful international cooperation. Before 1999, anti-doping policy was fragmented and ineffective. Every sport and country had its rules, and athletes could be banned from one country or sport but able to compete in others. Rapidly, WADA created the Code, harmonising and coordinating anti-doping policy across all sports and countries. The Code and its list of banned substances and methods have a "universal status". More than 180 countries have ratified a UNESCO Convention against doping in sport[10], enabling national governments to align their domestic policies with the WADC. WADA quickly became a global standard-setter, developing "soft law", including recommendations and best practice.

The speed at which sporting authorities harmonised and coordinated anti-doping policies worldwide is remarkable and suggests key lessons. Like an athlete who, pre-WADA, was banned in one country but could compete in another, companies nowadays can relocate their activities to countries whose environmental policies are less strict. For instance, the introduction of carbon pricing in some countries has led certain firms to transfer production to countries with laxer emission constraints, thereby increasing carbon emissions in the latter and creating "carbon leakages" (i.e., additional carbon emissions associated with transporting goods back to the home market, or with the use of less efficient production plants).

**Like an athlete who, pre-WADA, was banned in one country but could compete in another, companies nowadays can relocate their activities to countries whose environmental policies are less strict.**

The current proliferation of environmental, social and governance (ESG) ratings and reporting standards adds a further complication. There is little consensus between them, and research has shown that agencies rate different items, use different scales, apply different weights, and have their own "rater-specific" bias.[11] Firms trying to improve their ranking on one rating may thus not necessarily see similar improvements in another. This diversity of ratings has also led to "selective reporting" and cherry-picking.[12]

Harmonising the rules of the game is crucial to ensuring a "level playing field" for organisations. The news that the International Sustainability Standards Board (ISSB)[13] was developing a "global baseline" standard for ESG reporting raised hopes that it could unify these fragmented standards and combat greenwashing. Although it remains unclear whether that baseline will be universally adopted and enable a "just transition", organisations should take an active role in its development and implementation.[14] Forward-looking organisations could review the current draft of ISSB's climate-related disclosures and evaluate how they currently fare. Managers could then use this information to mobilise resources proactively, and to align, incentivise, and promote change.

A further demonstration of organisations' willingness to take meaningful climate action would be the setting of local (e.g., industry-level) standards. Conceptual work by the Nobel laureate

Elinor Ostrom provides a useful, cross-contextual template. Her eight "design principles"[15] offer guidance on the successful, long-term management of a common. See sidebar 1 for how these principles were implemented by WADA for the Code.

## Lesson 2

## Join Forces with Public Authorities

WADA's hybrid public-private structure is both unusual and interesting. To ensure autonomy and impartiality, WADA is structured like a typical foundation, but with equal decision-making power for sporting organisations and national governments. This has ensured the engagement of both, which has helped restore the credibility of international sporting competition with global audiences. This hybrid structure leads to "greater internal and external pressures to be impartial, transparent and accountable than [for] private international sports organisations"[16]. It also limits the geopolitical and sector-specific conflicts of interest that could undermine the agency's impartiality and independence, and thus its role as a "referee".

National governments have notoriously struggled to rally together to collectively fight climate change. If the dial is to be moved significantly in the right direction, the public and private sectors must join forces. Public-private collaboration can mean the coming together of private

**SIDEBAR 1** **The WADC, and Ostrom's eight principles for managing commons**

| | Principle | The case of anti-doping policy |
|---|---|---|
| 1 | **Define clear group boundaries** | The World Anti-Doping Code (WADC) applies to all sports organisations that sign it (and to the competitions they organise). More than 700 organisations are signatories. |
| 2 | **Match rules governing use of common goods to local needs and conditions** | • The same rules apply to all sports, despite big potential differences in career lengths, income generated, professionalism, etc. A key reason for this is the importance of harmonisation across sports.<br>• The Code is supplemented with additional regulations, including options for exemptions in the case of illness or of a particular medical condition. |
| 3 | **Ensure that those affected by rules can participate in modifying them** | • The Code is revised periodically, and stakeholders have multiple opportunities to contribute and make recommendations.<br>• Athletes have the right to appeal decisions, at the Court of Arbitration for Sport (CAS). |
| 4 | **Make sure the rule-making rights of community members are respected by outside authorities** | Although the WADC is a nongovernmental code, it has been implemented by governments via the ratification of the UNESCO International Convention against Doping in Sport. |
| 5 | **Develop a system, carried out by community members, for monitoring members' behaviour** | WADA has a hybrid public-private structure, with equal power relations between sports organisations and national governments (and an alternating presidency). Decisions taken by its Foundation Board require an absolute majority of the votes of the members present. |
| 6 | **Use graduated sanctions for rule violators** | The WADC's sanctions system is circumstance-dependent (e.g., aggravating circumstances, "no fault of negligence", multiple violations). |
| 7 | **Provide accessible, low-cost means of dispute resolution** | Decisions can be appealed at the CAS (there is no limitation to the scope of review – art. 13.1.1). |
| 8 | **Build responsibility for governing the common resource in nested tiers from the lowest level up to the entire interconnected system** | To ensure the reliable implementation of the Code, National Anti-Doping Organisations (NADOs) were created. NADOs are the primary authority, at the national level, for anti-doping programmes. |

capital and expertise with public resources (e.g., for infrastructure investments). It can also ensure regulatory frameworks and incentives that spur innovation. Organisations such as the International Finance Corporation, the World Bank, the UN, the World Economic Forum, and the World Business Council for Sustainable Development are already attempting to do this at the global level. Yet local public-private partnerships also offer fruitful opportunities. Swiss Re, for instance, teamed up with the Nature Conservancy and Mexican regional governments, developing a "nature-based insurance solution"[17] to protect Mesoamerican coral reefs. In the Melbourne Metro Tunnel project[18] a private consortium worked with the State of Victoria to minimise the environmental impacts of the new tunnel and help build the city's climate change resilience.

A 2020 review of more than 70 empirical studies on how environmental regulations affect organisations highlights the importance of combining mandatory and voluntary rules.[19] Voluntary programmes give firms flexibility, but are often unlikely to drive significantly improved environmental outcomes because short-term profits tend to trump environmental targets. Compulsory regulations, meanwhile, provide structure and have a strong and positive influence on firms' environmental performance. When, in 1975, the US Congress debated raising automobile fuel-economy standards[20], many predicted it would lead to disaster. Yet when those standards were raised, all car manufacturers fell into line. None had wanted to move first, but the change spurred technological innovation, leading to them producing powerful, comfortable, efficient cars at a reasonable cost. Firms that actively support environmental regulation can make a real, positive difference.

**As companies transition to sustainable business models, systematic checks and balances are needed. We have financial audits, and there is a case and a demand for sustainability audits, which would ensure transparency and thus boost credibility.**

**Lesson 3**

## Embrace Transparency

WADA has been extremely quick and successful in developing a coordinated approach to doping, but that approach isn't foolproof. In 2016, WADA's then president, Sir Craig Reedie, declared that revelations of Russia's state-sponsored doping programme implied the "worst case of system failure … in the entire history of the anti-doping movement". That failure revealed the scale of the challenge. But it also offers additional insights into potential stumbling blocks on our road to sustainability. Although the threat of severe punishment disincentivises athletes from doping, it is less clear whether competition organisers and national associations have much incentive to test them. One research study shows that the risk of customers and sponsors withdrawing

their support in response to a doping scandal encourages organisers to avoid testing athletes, as this reduces the risk of uncovering doping cases in the first place.[21] The study does, however, show that a "doping-free equilibrium" is achievable if testing is publicly observed (even if those tests turn out negative).

Could such increased transparency in turn increase accountability regarding corporate climate pledges? As companies transition to sustainable business models, systematic checks and balances are needed. We have financial audits, and there is a case and a demand for sustainability audits, which would ensure transparency and thus boost credibility. Data and technology can be leveraged to improve regulatory oversight and monitoring. For instance, Amazon Conservation is using drones to monitor, almost in real time, deforestation and illegal logging.[22] Data from satellites and sensors could be combined to detect air pollution, and smart contracts could be used to enforce sanctions in cases of environmental damage.

## STANDING ON THE SHOULDERS OF GIANTS

Despite the successes of the anti-doping movement, some critical voices ask whether the cure is worse than the disease, and question whether the Code goes too far.[23] In a similar vein, a 2022 report by *The Economist* on the rise of ESG investing[24] reveals that dropping dirty equity shares is not the best way of influencing polluters, because of the abundance of private cash willing to buy those shares.

Yet harmonising the rules of the game, joining forces with public authorities, and embracing transparency have unquestionably been shown to counter the tragedies of the commons and of the horizon in the world of sport. And organisations can draw on these lessons. BP's Lord Browne played an influential role in mobilising support for the European Emissions Trading Scheme[25], and all organisations have a role to play in supporting and encouraging governments to act. According

to a 2022 report from the Intergovernmental Panel on Climate Change[26], carbon emissions need to shrink by 43 per cent by the end of 2030 if the threshold of the most dangerous levels of warming is not to be breached. The lesson from the development of anti-doping policy is that improvements can happen fast if there is the will.

**REFERENCES**


[1] https://www.newclimate.org/resources/publications/corporate-climate-responsibility-monitor-2022

[2] https://www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF-5/Accenture-Sustainability-Consensus-Gap-Report2.pdf

[3] https://www.nytimes.com/2021/02/22/business/energy-environment/corporations-climate-change.html

[4] J. Malen, "Moving the Goalposts: Aspiration Reoperationalisation in Response to Failure to Achieve Environmental Performance Targets", *Academy of Management Discoveries* 8, no. 3 (2022): 357-83.

[5] L. A. Bebchuk and R. Tallarito, "The Perils and Questionable Promise of ESG-Based Compensation", *Journal of Corporation Law,* forthcoming.

[6] https://sloanreview.mit.edu/article/can-we-afford-sustainable-business/

[7] For instance, the impact of doping on athletes' health has been demonstrated in a number of studies, while certain impacts of climate change (e.g., on the economy or the planet) are still filled with uncertainty.

[8] Likewise, the relatively short career of athletes (e.g., 73 per cent of Olympians participate in only one games), the lag between doping and its adverse health consequences can, combined, enhance the temptation to dope, echoing the tragedy of the horizon.

[9] https://www.wada-ama.org/en/resources/world-anti-doping-program/world-anti-doping-code

[10] https://en.unesco.org/themes/sport-and-anti-doping/convention

[11] F. Berg, J. F. Kölbel, and R. Rigobon, "Aggregate Confusion: The Divergence of ESG Ratings", *Review of Finance,* forthcoming.

[12] R. Slager and J.-P. Gond, "The Politics of Reactivity: Ambivalence in corporate responses to corporate social responsibility ratings", Organizational Studies 43, no. 1 (January 2022): 59-80.

[13] https://www.ifrs.org/projects/work-plan/climate-related-disclosures/

[14] According to the International Labour Organisation, a just transition means "greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind."

[15] E. Ostrom, "Beyond Markets and States: Polycentric Governance of Complex Economic Systems", *American Economic Review* 100, no. 3 (June 2010): 641-72.

[16] "Guardians of Public Value. How Public Organisations Become and Remain Institutions", eds. A. Boin, L. Fahy and P. Hart (Palgrave Macmillan, 2020).

[17] https://www.swissre.com/our-business/public-sector-solutions/thought-leadership/new-type-of-insurance-to-protect-coral-reefs-economies.html

[18] https://bigbuild.vic.gov.au/__data/assets/pdf_file/0012/320007/MT-Sustainability-Strategy.PDF

[19] J. Alberto Aragòn-Correa, A. A. Marcus, and D. Vogel, "The Effects of Mandatory and Voluntary Regulatory Pressures on Firms' Environmental Strategies: A Review and Recommendations for Future Research", *Academy of Management Annals* 14, no. 1 (2020): 339-65.

[20] https://www.newyorker.com/magazine/2007/07/23/fuel-for-thought

[21] B. Buechel, E. Emrich, and S. Pohlkamp, "Nobody's Innocent: The Role of Customers in the Doping Dilemma", *Journal of Sports Economics* 17, no.8 (2016): 767-89.

[22] http://www.amazonconservation.org/maap-90-using-drones-to-monitor-deforestation-and-illegal-logging/

[23] B. Kayser, "Ethical Aspects of Doping and Anti-Doping In Search of an Alternative Policy", PDF file (dissertation, KU Leuven Faculty of Movement and Rehabilitation Sciences, 2018), https://www.grea.ch/sites/default/files/print.pdf.

[24] https://www.economist.com/leaders/2022/02/12/the-truth-about-dirty-assets

[25] See J. Meckling, "Oppose, Support, or Hedge? Distributional Effects, Regulatory Pressure, and Business Strategy in Environmental Politics", *Global Environmental Politics* 15, 2 (May 2015): 19-37, https://doi.org/10.1162/GLEP_a_00296.

[26] https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/


**ABOUT THE AUTHORS**


**Maude Lavanchy** is a project manager in corporate strategy at Transports publics de la région lausannoise SA. She was previously a Research Fellow at IMD Business School in Lausanne, Switzerland, and a semi-professional volleyball player. Passionate about sports, economics, and new technologies, her research is part of the field of economics and organisational behaviour. maude.lavanchy@gmail.com



**Karl Schmedders** is a Professor of Finance at IMD Business School in Lausanne, Switzerland. His research and teaching focus on sustainability and the economics of climate change. He has published a range of research articles in international academic journals and received numerous teaching awards throughout his career. karl.schmedders@imd.org

WORLD BATTERY INDUSTRY EXPO
世界电池产业博览会

# WBE 2023 World Battery & Energy Storage Industry Expo

## China's Biggest Trade Show for Battery and Energy Storage!

August 8th-10th,2023 | Guangzhou, China

**WBE is currently looking for reliable partners to represent our show in the worldwide markets!**



TEL:
+86-13416251017

Visiting for free: http://en.battery-expo.com

bitwarden

# Secure password management for business

## with end-to-end encryption