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INTERVIEW WITH

**Santiago Lefebvre**

Founder and CEO of ChangeNOW

## changeNOW: WHERE SUSTAINABILITY SOLUTIONS ARE FOUND – AND ACCELERATED


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changeNOW

**If change for sustainability is to be made a reality, there needs to be a place where the ideas people can connect with the investors, industry, the media, and the lawmakers. That place is ChangeNOW.**

# **ChangeNOW:** WHERE SUSTAINABILITY SOLUTIONS ARE FOUND – AND ACCELERATED

Interview with Santiago Lefebvre, Founder and CEO of ChangeNOW

**Q Thank you for meeting with us today, Mr Lefebvre! It's a great honour to speak with you. ChangeNOW has grown rapidly over the past few years and has become a platform for showcasing innovative solutions for sustainability challenges. Can you tell us a little of the story of its foundation and your original vision for the company?**

A I always wanted to be an entrepreneur who would have a positive impact. But the fact was that I did not know where to start, how to meet my peers or investors. There was no clear place in the world where the people who wanted to develop solutions for a better world meet and find support.

I wanted to change that, because in 2015 I was convinced that it was time to do something, to seriously get the job done and try to collectively solve the most urgent issues of our planet.

I grew up as a kid hearing that "the next generation will have the responsibility to handle the sustainability crisis". Then, when I turned 30, I realised that this "next generation" was ours, and that we do not have any more time to lose, so let's get into it.

So we created the first ChangeNOW summit in 2017 to showcase the solutions and gather the international ecosystem of impact. In just three years, we went from 2,000 participants to 28,000 participants, and 1,000 solutions that we present every year from over 120 countries, turning it into the world's largest event of solutions for the planet.

**Q ChangeNOW is known for showcasing cutting-edge innovations and technologies that have the potential to drive change. How is your company helping to promote and support such initiatives?**

A We do that, that's right, but not only. We actually go far beyond high tech, with much broader solutions, covering a large scope, from energy and resources, to mobility, food and agriculture, circular economy, inclusion and more.

Our mission is to help those projects grow to become new standards, by being an acceleration platform for them, by connecting them with the right investors, industrial partners, media, and even sometimes policy makers to trigger new laws that would allow them to go at scale.

**We actually go far beyond high tech, with much broader solutions, covering a large scope, from energy and resources, to mobility, food and agriculture, circular economy, inclusion and more.**

For example, following their participation at ChangeNOW, the Slovenian startup PlanetCare, a microfibre filter solution, was invited by the French Minister for Ecological Transition to discuss the path to achieve zero plastic pollution in the oceans. The solution was included in the anti-waste law, forcing every new washing machine sold in France after January 2025 to be fitted with a microfibre filter to stop synthetic clothes from polluting waterways – a world first.

**Q Sustainability and environmental issues are complex, and many people may not be aware of the extent of the challenges we face. What is the importance of education and awareness in driving sustainability? How are you working to raise awareness and educate people about these issues?**

A So far, humanity has evolved in a world that we thought was infinite. But today, we are realising the negative impact of our actions on the whole environment, and we can't afford any more putting-aside of the negative externalities, as if they don't matter. Awareness is the first step that triggers action and ultimately change.

ChangeNOW contributes to creating that awareness. People come, hear, and meet those who are building a better world. ChangeNOW is all about concrete action. And with action come hope and the desire to take part in the change. We reconcile people with a vision of the future that doesn't scare them.

**Known for showcasing the most high-tech, innovative solutions in relation to sustainability, ChangeNOW's events are always a sight to behold. What are your views or insights on low-tech sustainability and how is your company promoting this concept?**

We are indeed lucky to have many of the most incredible tech solutions in the world. But technology will not solve all problems. At ChangeNOW, we're showcasing a wide diversity of solutions that have the greatest potential for the planet.

Our vision for low tech, though, is different from returning to a retrograde technology. We envision it as our ability to do more from less, using fewer technologies to get the best results. An example of a solution you can experience at ChangeNOW this year is Regenfab, with their regenBox that extends the life of single-use batteries up to 10 times. We strongly believe in this! The environmental impact it can have is huge.

**With global warming and environmental degradation becoming increasingly urgent issues, it would be interesting to get a CEO's take on where we stand in terms of progress towards sustainability goals. What are the biggest challenges we face, and what needs to happen for us to move towards a more sustainable future?**

First, we must recognise that, despite an acceleration of decisions taken toward change, we continue to fall behind. While it is very likely that we will not reach 1.5°C, we may still be on track for 1.6° or 1.7°. In that sense, every tenth of a degree counts to limit the damage.

There is still hope, and our mission is to keep raising awareness widely and grow the global community of engaged citizens. In parallel, we must support the development of new economic segments until we reach a tipping point when change will drastically accelerate. Governance and the battle of ideas are today the main obstacles preventing us from reaching that tipping point.

**We are indeed lucky to have many of the most incredible tech solutions in the world. But technology will not solve all problems.**

**The COVID-19 pandemic has had a significant impact on the world, and it has highlighted the importance of sustainability in many ways. Can you share with us how this has personally impacted ChangeNOW and the broader sustainability movement? How is the event adapting to the changing landscape moving forward?**

COP26, like many other key events and gatherings, was postponed due to the COVID-19 pandemic. We decided to hold on, no matter what, because the environmental and social transition must move forward. Our


ecosystem community has continued to grow, and we kept supporting innovators and changemakers through the crisis.

**Sustainable development requires collaboration across sectors and stakeholders. What have been some of your most meaningful partnerships and collaborations? How they have helped to drive impact?**

A In addition to the PlanetCare success story I shared earlier in our discussion, I would mention the partnership between Jean Bouteille, a bulk solution start-up, and L'Occitane, a well-known cosmetic brand. The latter wanted to accelerate its approach towards more virtuous consumption and, in particular, waste reduction. After meeting Jean Bouteille at ChangeNOW in 2020, and after a year of working together, the companies developed a bulk distribution solution adapted to the cosmetics industry's needs and the brand's expectations. Deployed in 20 countries, the solution avoided millions of packaging containers.

**But sustainability is not just about protecting the environment; it's also about ensuring that everyone has access to the resources and opportunities they need to thrive. What is the role of equity and inclusion in driving sustainability and how is your company working to promote these values?**

A ChangeNOW addresses the main equations humanity has to solve to save our planet: climate change, biodiversity loss, lack of resources, and inclusion. The ecological and social transition can only be successful if there is room made for everyone. At ChangeNOW, we are committed to giving a


voice to those who are too often forgotten. Inclusion, social justice, refugees, and indigenous and climate justice are major pillars of our editorial line.

Secondly, the event has been designed to be accessible to all: ticket accessibility, school and family programmes, guided tours for blind and partially sighted people, etc. People from all walks of life are invited to participate in this important event that is ChangeNOW.

**Q ChangeNOW's largest positive-impact conference will be taking place in Paris this May, one of the world's most sustainable cities. Was it an intentional choice on your part to hold the event there? Is there any significance to choosing Paris specifically?**

A Paris is a natural fit for ChangeNOW for three main reasons. The Paris agreement is the first one; it gives a lot of legitimacy. Second, the impact ecosystem is vibrant in Paris and very well developed. Third, Paris and France have led many revolutions that triggered global change. History led us to choose this amazing city and country for ChangeNOW.

**Q ChangeNOW has a global reach and has been able to highlight innovative solutions from around the world. How is the event working to scale impact and help to bring sustainable solutions to a wider audience?**

A Adding to my previous answers, ChangeNOW's value is in the connections and collaborations it allows. Here is a great example we're very excited about this year. A delegation of more than 30 mayors from global cities will come and collaborate at ChangeNOW to build more sustainable cities, as well as meet and source top solutions responding to their challenges.

**Q While ChangeNOW is a platform for showcasing innovative solutions, it's also a platform for storytelling. What are your thoughts on the power of storytelling in driving sustainability and how are you taking advantage of this to inspire and mobilise people?**

A ChangeNOW itself is a storytelling tool. We have told the ecological and social transition differently from the way it has always been told in the past, by telling the most beautiful impact stories, igniting people's dreams and desire to make change happen. Going beyond storytelling, we push new narratives at ChangeNOW, to help change core values and ways of thinking, and change the way we make society together.

To do that, all the channels must be leveraged. Art is one and we work in collaboration with the

audiovisual world to help figure out how to integrate solutions into creatives, books, scripts, etc.

**Q While individuals and organisations make a significant difference, government policy also plays a critical role in driving sustainability. How is ChangeNOW working to influence policy and drive systemic change?**

A Citizens, enterprise, and politics are the three main pillars of our society. The way it works is that citizens put pressure on politicians; policy makers have the power to change laws; entrepreneurs and businesses develop solutions that can help accelerate politics to establish more sustainable alternatives.

So, our way of doing this is to bring policy makers to ChangeNOW and show them concrete solutions that have the best scaling potential, to encourage them to move the lines and laws.

Succeeding in this task means allowing solutions to scale up, accelerating the development of new economic segments and systemic change.

**Going beyond storytelling, we push new narratives at ChangeNOW, to help change core values and ways of thinking, and change the way we make society together.**

**Q As ChangeNOW continues to grow, it would be interesting to hear about your vision for the company and the broader sustainability movement. Can you speak about any exciting developments or new initiatives that ChangeNOW has in the works?**

A ChangeNOW carries the "World Exhibitions" legacy. It is meant to lead the new environmental and social revolution.

While COPs are the times for international political decisions, we have the goal of making ChangeNOW the time for concrete global action.

Also, beyond our international summit, we will continue developing our Impact job fair and influence actions driving change in sports and education.

**Q As the CEO of ChangeNOW, what advice do you have for aspiring entrepreneurs and business leaders who also want to make a positive impact in the world?**

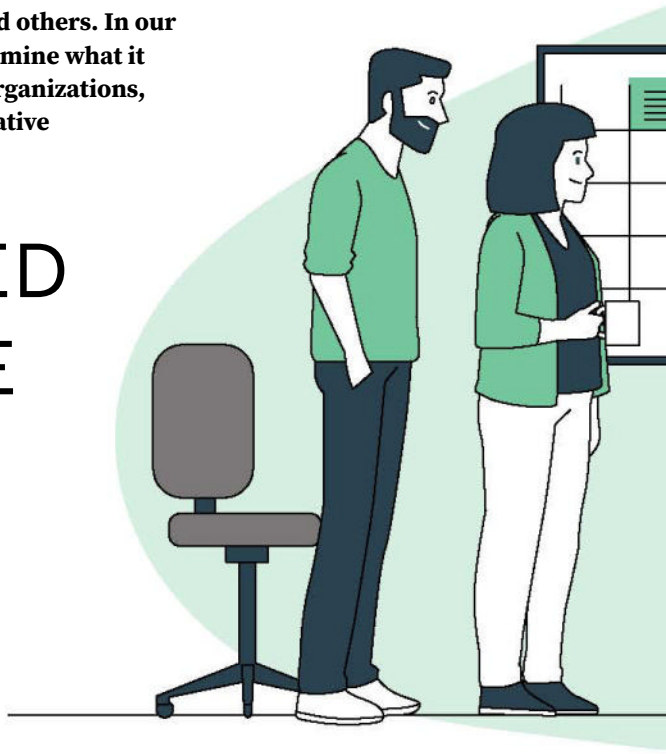
A My advice would be to never start your entrepreneurial adventure alone. Entrepreneurship is very demanding. It requires a strong personal and emotional commitment, especially when your business is impact-driven, because your cause often gets personal. Surround yourself; this is key if you want to last.

Also, share your project and vision as much as possible. Quickly get out in the field, collect feedback, test and learn. So it's no longer a secret to you – ChangeNOW is a great place to do that!

**EXECUTIVE PROFILE**

**Santiago Lefebvre** is a Founder & CEO of ChangeNOW. Santiago started his professional career in finance and as a tech entrepreneur, before completing an MBA at INSEAD in 2015. In 2017, he launches the ChangeNOW summit, which has become within 3 years the largest global event of solutions for the planet. This accelerating event brings together 1,000 solutions and over 30,000 changemakers from around the world annually in a vibrant, action-oriented format. Santiago co-founded the Tech for Good France network, merging into the main professional association for social enterprises in the country. He also acts as an early-stage investor and a nominator to the Prince William's Earthshot Prize. In 2021, he is recognized as one of the "50 under 40" who change France by French press. When he is not at work, Santiago enjoys reading and passing on his multiple passions - knowledge of nature, history and magic - to his two sons.

**Work enables us to create value for ourselves and others. In our forthcoming book on the Future of Work, we examine what it involves, why it is occurring, and how leaders, organizations, and societies may positively innovate transformative solutions to guide our journey forward.**



# IMAGINING A SHARED JOURNEY INTO THE **FUTURE OF WORK**

by Simon L. Dolan, Kristine Marin Kawamura, Mario Raich, and Dave Ulrich

For years we have known that working is an essential component of one's life. After all the years you've spent preparing for work, can you imagine life without it? Given the powerful set of disruptive forces occurring in the world today, what will work look like in the future? What will it mean? What will transform? What will stay the same? How will our working and nonworking time and activities be related—both in the fabric of our individual lives and of society?

The answers to these questions are provided in our forthcoming book on the ***Future of Work (hereafter FOW).*** The book uses data, science, creative speculation, imagination, core values, and reflective processes to guide the learner to discover the FOW. We use this approach to provoke people to open up and envision a future context that they, too, have never experienced. The book will awaken the learner with unfamiliar terminology, systems, and potentialities while also encouraging dialogue and collaboration around the burgeoning future of work.[1] We also publish and distribute the book using an innovative and futuristic digital platform that addresses the new generation of students (www.MyEducator.com). Our goal is to encourage readers to get out of their comfort zones and begin the challenging journey of co-creating and preparing for the future. Our desire is to train and educate learners of all backgrounds so that they align their work with the core values that are needed to craft a positive future.

Hereafter, we highlight several seminal ideas that are further developed in the book. We explore the value for work in people's lives; we define the FOW era and describe the mega-forces driving its development; and finally, we propose a circular framework that organisations (individuals and teams) may use to co-create the future.

## THE WHY OF WORK

Let's start with the fundamental question: ***Why Do We Work?*** The answer for some people may be simple: because **we must**. Or, because **we like it.** We work to make money to secure other ends. Work fills our time. It buys us leisure

and affords us the chance to *"be who we really are"* in our nonworking hours. Work enables mastery, autonomy, achievement, contribution, or a sense of accomplishment. It gives a way to economically measure our value or worth to a community, society, or family.

To others, the answer is profound: because *it connects us to our artistry, our spirit, our sense of a greater master, the unknown, a greater being, a greater sense of destiny.* It helps us to feel and experience life with a sense of hope, a source of meaning we seek to touch through the daily routines and operations of our lives. It empowers our voices, time, and connection with people or nature, to experience a sheer act of creativity. It gives us a sense of purpose, a means to actualise the fullness of our lives. It opens us to the river of knowledge and knowing, being and doing, and opens the floodgates of learning to our mind, heart, and senses. It makes us feel powerful, more alive, and more connected to other human beings and our community.

**Our work gives a way to answer the philosophical question: Why are we here?**

It gives a way to answer the philosophical question: Why are we here?

The answers to any of these questions differ in different seasons of our lives. As children, we ask, *what do I want to do when I grow up? How can I fulfill the dreams and desires of my parents?* At some point, we lightly touch the existential question, *who am I really supposed to be in my life?* In middle age, we may work to perform, to influence, to raise families, or to give us choices. In the sunset of our lives, we contemplate, *what did I do with my time? What good work did I do? What tree did I plant, book did I write, child did I raise, or art did I leave behind?*

No matter one's answer to these questions, we know that work is a large—if not the largest—part of our life experience in terms of time, valuation, and meaning. Work, in principle, consists of any activity that enables us to create value for ourselves and others. Its meaning is framed in the social, economic, political, and cultural spheres of our lives. Its value as well as its **"why"** have changed throughout human history and will only continue to change.

## FUTURE OF WORK: THE WHAT, THE WHY, AND THE HOW

Today, as we stand at the precipice of yet another human revolution in work, we foresee that work is once again undergoing a fundamental transformation within a much greater and profound global metamorphosis. It begs our attention to collaboratively question and co-create its meaning, impact, and path forward.

### The What

The FOW comprises facets that include how work, workers, and the workplace will evolve within the context of a cacophony of disruptive forces that simultaneously offer "limitless" opportunities and profound threats in today's world. It is borne out of thousands of years of work, millions of small and large technological evolutions and revolutions, and changing

human and organisational systems that have supported human evolution throughout civilisations. With the FOW, we celebrate the success of advanced technologies and their impact on productivity, information, speed, and efficiency yet arm wrestle with the inherent uncertainty, lack of control, and overwhelm of too much, too little, and too many unknowns. For the first time, advanced technologies make us question what is human and what is machine. They threaten the survivability of the planet that rages in reaction to unmitigated resource exploitation and lack of care. They challenge our values and invite leaders to walk the narrow line between creative destruction and meaningful transformation, inciting both the fear and hope of change.

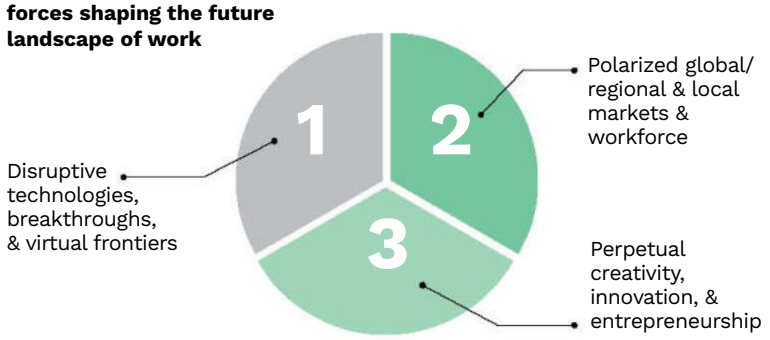
**New virtual work environments will evolve, integrating new forms of intelligence, new physical-social-emotional-cultural workforce distribution methods, and hybrid workforce models. Workers, both individually and collaboratively, must learn how to learn and to unlearn knowledge, skills, and competencies in order to successfully perform.**

### The Why

There are three principal forces already set into motion that will impact workforces, workplaces, and the nature of work. ***(See Exhibit 1)***

**EXHIBIT 1**

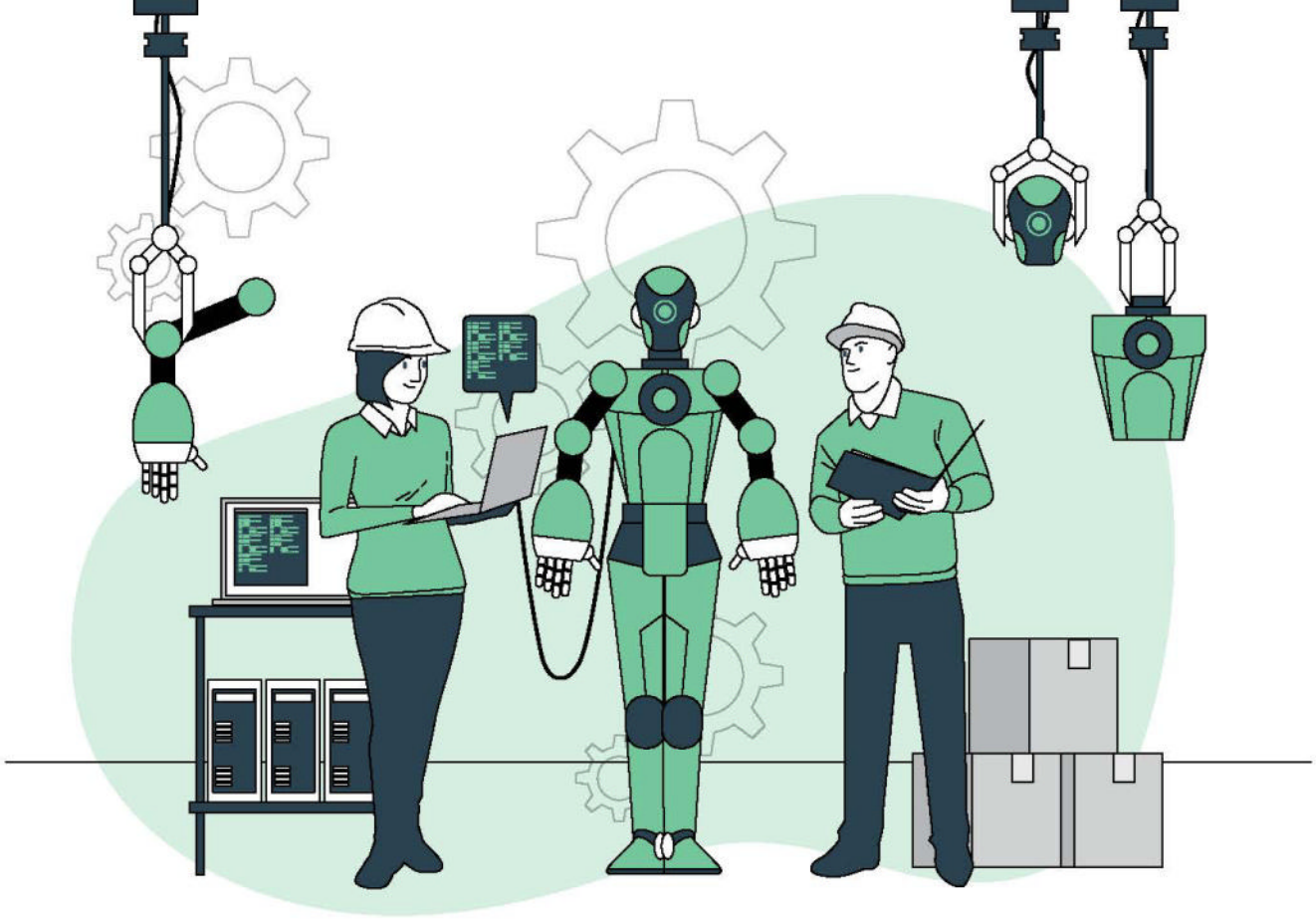
**The three principal forces shaping the future landscape of work**




**The first megatrend** is the growing adoption of technologies and the increase in disruptive technologies, including: artificial intelligence (AI), machine learning, robotics, and human-machine interfaces and collaborations. New virtual work horizons will evolve, integrating new forms of intelligence, new physical-social-emotional-cultural workforce distribution methods, and hybrid workforce models. Workers, both individually and collaboratively must learn how to learn as well as unlearn knowledge, skills, and competencies in order to successfully perform.[2]

**The second megatrend** is the twin, polarising forces of globalised and regionalised (localised) work. Frontiers of work are becoming meshed networks composed of individual "nodes" of work—with the location of work becoming progressively unimportant. Simultaneously, disruptive forces such as rising nationalism, political bipolarisation, hatred of difference, and fear of change are isolating nations, regions, communities, and human beings. The connections that bind us (like global supply chains, pandemics, fuel and food shortages, and shared knowledge) also serve to separate us.

**The third megatrend** is the perpetual demand for constant creativity and innovation (in all the fields and disciplines, organisations, and institutions in which we work). This is the essence of a volatile, uncertain, complex, and ambiguous (VUCA) world. In the past, companies were able to establish market domination, benefiting from their position of strength for long periods of time; this was because the rate of change was easily absorbed and anticipated by strategists. Today, and in the future, the domination position will no longer be valid. Change, arising from fast-breaking trends in technological innovation, climate change, social media, information overload, digital connection, and



others, is happening faster than ever. This means that institutions, organisations, and employees will need to assume more risk and innovate continuously on a faster-spinning transformation wheel.[3]

These trends occur within the greater systems and paradigms within which we work, lead, and perform. *Traditionally*, most organisations operated with an overwhelming focus on profit as the critical (and only) measure of performance. Organisation structures were hierarchical. Cultures were bureaucratic. Leaders were primarily men. Power meant "power-over," with inequity and inequality rampant. The goals for innovation were to increase efficiency and the time-to-market of new inventions. Products and services were targeted to fulfil the needs and wants of consumers.

In principle, the purpose of an economy should be to provide products and services that deliver meaning to individuals and society. A new paradigm for "economics" becomes possible when people work to create an economy that reflects and generates meaningful shared values. As part of this, people will work to deliver products and services that embody these shared values, to create meaningfulness in their working and nonworking lives, and to foster happiness and wellbeing through valued relationships.[4]

## The How

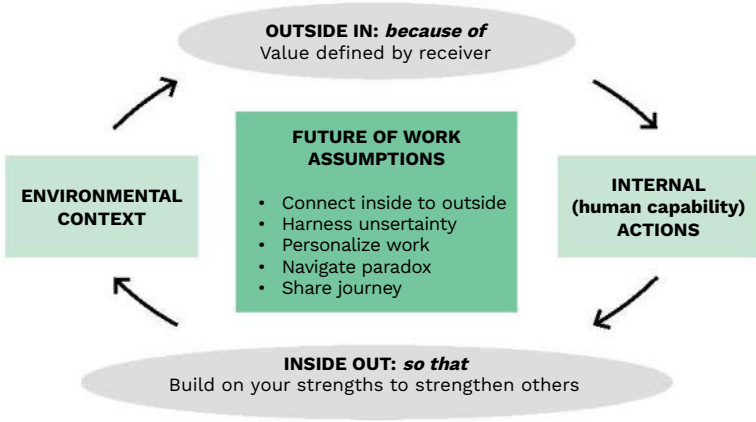
Based on years of research, we believe that the vast majority of society's actors (i.e., governments, corporations, business leaders, educational institutions, and educators) are not prepared for this new landscape of work.[5] Most still believe that the future will represent an extension of our current reality, systems, and paradigms. Many don't know what they don't know. Many will also continue to find comfort in the perceptions that have been groomed over the course of one's life and experiences. What does it take to see anew? To view the unknown with a radical new lens? Knowledge. Courage. A willingness to unlearn, to sit in the void of learning anew. Reflection. Imagination. Hope. Values.

Once the capacity of individual human beings has been inspired and unleashed to question, learn, and create a new way of working in a new world, it is essential for organisations to also learn anew. They will need to move from using the traditional, linear approach for strategic development to adopting an "inside-out/outside-in" virtual, circular methodology.[6]

As we move into the FOW, we must leverage the strengths of organisations and individuals (including their capabilities, knowledge, experiences, and "soft" skills like imagination and intuition) across the boundaries and borders that typically divide us so that we co-create the most positive possibilities. For this to happen, we need to build a connection between what happens outside an organisation with what occurs within it — establishing a shared journey between the people inside and outside the organisation (Exhibit 2).

**EXHIBIT 2**

**The "Inside-Out/Outside-In" Methodology for Transformation**




An "Outside-In" process starts with understanding the external context formed from general trends (e.g., technology, demographics, political toxicity, physical health, and mental wellbeing.) We need to identify the value (needed and defined) by the firm's external stakeholders (customers, investors, communities, etc.), the people receiving the organisation's work, so that the capabilities and actions taken by the internal employees are aligned with the trends and needs in the external environment. For example, given climate change, organizations will need to invest in product innovations that decrease carbon emissions and cultural innovations that enable them to increase shareholder value, human wellness, and overall social impact.

The "Inside-Out" process starts with identifying the human capabilities and actions within the organisation (related to talent, organisation, leadership, teaming, etc.) that need to be developed in order to maximise the value provided to external stakeholders who are operating within the changing environment. For example, a company may focus on improving employee engagement in order to maximise customer satisfaction or retention; it may develop diversity, equity and inclusion (DEI) programmes to meet the needs of, or gain an understanding of, diverse customer segments; or, it may invest in leadership development and implement a new management system to increase investor confidence in the organisation.

## EMBARKING ON A SHARED JOURNEY INTO THE FOW

Whether we approach the new landscape of work from the angles presented in Exhibit 1 or those in Exhibit 2, one thing is certain: *it will require the development of new workplace skills by individuals and teams.* The new digital workplace not only will reduce the need for an onsite workforce but also will increase the demand for knowledge-intensive tasks. New workplace skills will also need to be developed. Some of these include: complex problem-solving; creative, critical, and innovative thinking; computer, software, and data literacy; and soft skills such as communication, empathy, emotional/social/cultural intelligence, cross-cultural management, resilience-building, reflection, and flexibility.

Furthermore, the journey into the FOW is a *shared journey.* No one person, team, or organisation can walk the journey alone. People will need to learn specific skills on how to collaborate, connect, communicate, imagine, and co-create with other people, on teams, and in cross-border working groups. Learning to build relationships with people in digital and face-to-face environments will be a requirement for all workers

**People will need to learn specific skills on how to collaborate, connect, communicate, imagine, and co-create with other people, on teams, and in cross-border working groups.**

and leaders—not just those who are extroverts and more comfortable working on teams. In order to succeed, leaders must learn how to build trust, lead imagineering and creativity sessions, align values, and develop resilience in globally-based, culturally diverse, and remote working groups — leading the creation of the future while walking through it.

## DISCOVERING THE FUTURE OF WORK

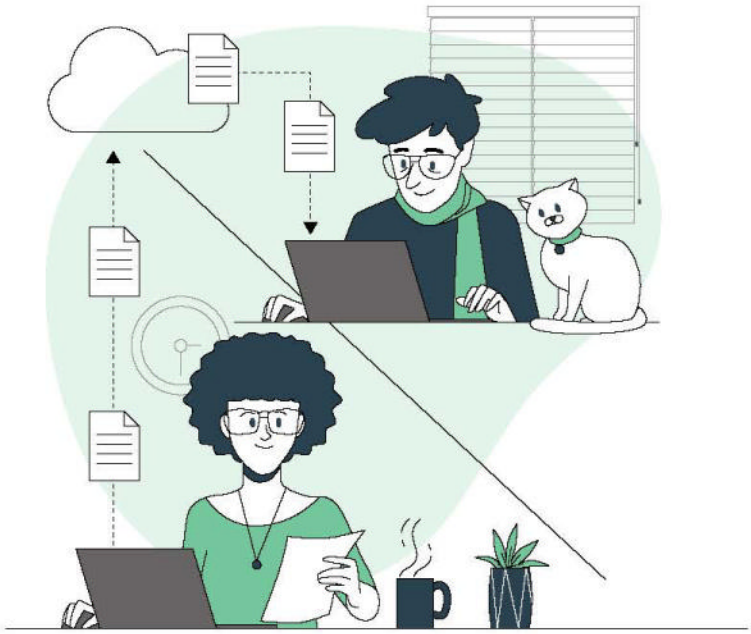
Here are the initial questions the learner may use to begin the shared journey to the FOW.

### 1 Context and Vision for the Future of Work

- What is the history of work? Why does context matter to the Future of Work?
- How is the nature of work, workers, and workplace evolving?[7]
- What management system is needed to build successful cultures and organisations? What is "Managing by Traction" (MbT) and why is it necessary for the journey?[8]
- How can we successfully and imaginatively create the future? What is the Future Design process?[9]
- What creativity and imagination skills will guide the journey?[10]

### 2 The Future of Business and Management

- How will business transform in the Cyber-Age?[11]



- How will leadership evolve and disrupt current systems? What is Leadership 5.0? [12]
- What are the core principles of "Managing by Values?" How does it differ from managing by objectives or instructions? [13]
- How can we create a continuous sustainable innovation culture? Why is MBVSIV so needed?[14]
- What is "Talenting?" How can we attract, retain and motivate talent? [15]

## 3 The Future for People and Practice

- What leadership competencies are required to lead people?[16]
- Why are value-based competencies so needed? [17]
- What new HR policies and practices will be needed?[18]
- What new forms of teamwork and intelligent collaboration are needed and why?[19, 20]
- What are the true needs for, and implications of, lifelong learning?[21]

## 4 Future Paradigms in the Future of Work

- What will be the new role of women and the feminine mindset?[22]
- What is the concept of "Human Uniqueness" and why is it needed? [23]
- How (and why) will educational systems evolve? [24]
- What is the meaning of "All-Encompassing work Metamorphosis" and why is it needed?[25]
- Why is a genuine transformation of work needed? What are our visions and strategies for transformation? [26]

**ABOUT THE AUTHORS**

Dr **Simon L. Dolan** http://www.simondolan.com/ is currently the president of the Global Future of Work Foundation (www.globalfutureofwork.com) and research professor at Adventere School of Management-Madrid (a strategic partner with Comillas, Deusto and Georgetown Universities). He was the former Future of Work Chair at ESADE Business School in Barcelona). He is a prolific author with over 82 books published on themes connected with managing people, culture reengineering, values, coaching, wellbeing and resilience.

Dr. **Kristine Marin Kawamura** https://www.cgu.edu/people/kristine-kawamura/ is a clinical full professor of management at the Drucker School of Management, Claremont Graduate University, Claremont, CA, USA. She teaches the course, Create Your Future, as well as courses in cross-cultural leadership, global leadership, and entrepreneurship. She is also the founder and CEO of Yoomi Consulting Group, Inc., a leadership success and organizational transformation company. The overall purpose for her work is to transform leadership, organizations, society, and individual lives with Care. Her ongoing research addresses three themes: Care; Future of Work; and Social Impact. (See yoomiconsulting.com)



Illustrations by Storyset on Freepik

**How is the nature of work, workers, and workplace evolving? What management system is needed to build successful cultures and organisations?**

## CONCLUSION

The purpose of this paper has been to awaken the reader to the Future of Work journey that awaits us all. We encourage you to use the reflective questions, individually and in teams, to begin the shared co-creation process of the future that is calling.

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[1] Dolan S.L., Kawamura K., Raich M., Ulrich D., (2023) The Future of Work: An Anthology, *MyEducator* (2023 - in press). Authors have equally contributed to this paper, and their names appear in alphabetical order.

[2] Many of the papers connected to this trend have been already published in this journal (i.e. Raich et al (2020) The Cyber-Organization and the New World of Work. April: Raich et al (2019) Beyond Collaborative Intelligence we can see a Meta-Mind Society Surfacing and we can Dream of a Ω-Mind. September.

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# GENERATI

# DRIVING THE PROMISE OF GENERATIVE AI

by Llewellyn D.W. Thomas and Richard Tee

**Generative fit is why Stable Diffusion, DALL-E, and ChatGPT provide APIs and extensive documentation; it makes it easier for developers to integrate the underlying technology into innovative new products and services. In this article, we discuss how managers can use generativity to transform their organisations.**

# IVITY:

Generative AI is increasingly prominent in the consumerisation of artificial intelligence. Currently popularized by services such as ChatGPT[1], Stable Diffusion[2], DALL-E[3], and others, generative AI are computer services that can use existing content like text, audio files, or images to create new plausible content. These text-to-text and text-to-image AI services are improving at a very fast rate, while newly emerging ones from Make-a-Video[4] can generate videos from a text prompt and Phenaki[5] can generate video from a still image and a prompt. Even more exciting, Nvidia's Magix3D[6] can be used to create 3D models from text descriptions.

**Generativity is not a new idea, dating back over 70 years in the social sciences. More recently, generativity has been used to understand how innovation occurs in digital contexts**

Underlying the promise and excitement of the business applications of generative AI is its *generativity*. Paraphrasing one of the more popular definitions[7], generativity is a technology's capacity to enable innovation by large, varied, and uncoordinated audiences. In the context of generative AI, this means that ChatGPT, DALL-E, Stable Diffusion, and others are generative in two senses. On the one hand, they are generative in the sense that the *underlying technologies* can be combined with others to create new innovations (what is called combinatorial innovation). The current hype around GPT-4's performance[8] and its implementation in Microsoft Bing[9] and Microsoft Office[10] is one. Lensa is another good example of a third party taking the Stable Diffusion technology and creating a new service. And on the other hand, they are generative in the sense that they create *new content* (such as new text, images, and models) that can be used as media input for innovation. For instance, Magic3D will allow anyone to create 3D models without the need for special training, thus enabling new content for much more varied and speedier video game and virtual reality (VR) development. Generative AI has been used to create a never-ending Seinfeld[11] spin-off, while ChatGPT is able to provide text output at a level that approaches that of a top MBA student[12].

Generativity is not a new idea, dating back over 70 years in the social sciences. More recently, generativity has been used to understand how innovation occurs in digital contexts[13]. Perhaps the most famous generative technology

is the internet, where digital technologies such as TCP/IP, HTML, and GUI-based web browsers led to an explosion of innovation and creativity, the effects of which we are still living today. Other highly generative technologies are the operating systems that enable mobile phones, which have spawned millions of apps in both the iOS and Android app store ecosystems almost entirely created by dispersed, independent developers. Indeed, much of the generativity of AI is itself enabled by the capacity of the internet and mobile phone operating systems to support the launch and use of new technologies such as generative AI.

But how do technologies such as the internet and AI become generative? Our recent research has shown that the generative potential of a technology is directly related to the fit between the technology and the community that uses it. By fit, we mean how the characteristics of the user community relate to the capabilities of the technology. For instance, in the case of generative AI, this means the fit between the people using the technology and how the technology's capabilities are exposed to them. If it is complex to use, then only more technically minded people will use it; if it is easy to use, then it is accessible to a much broader community.

Generative fit is why Stable Diffusion, DALL-E, and ChatGPT provide Application Programming Interfaces (APIs) and extensive documentation; it makes it easier for developers to integrate the underlying technology into innovative new products and services. We saw the same with mobile phone operating systems. In the case of the iPhone, Apple made it easy for developers from the existing Mac developer community to participate on the (then new) smartphone platform by leveraging functions, tools, methods, and identities that were attractive and familiar. In contrast, when Microsoft launched the Windows 8 mobile platform, there was a poor alignment of the technology with the existing Windows developer community, and generativity did not emerge.

Beyond (re)combining the underlying technologies into new product and service innovations, what makes generative AI special is that the new content created by generative AI supercharges its generativity. Well-designed user interfaces on consumer generative AI services make it as easy to use for the widest possible user community. This drives user adoption and the creation of a huge variety of novel content that can be recombined to create new media products. This is why Nvidia's Magix3D is so exciting. Furthermore, this broad user adoption also drives popular interest and raises the profile of the technology, familiarising the broader community with the potential for the technology. As emphasised by our research, generativity occurs when a community is varied (as different perspectives can lead to innovative combinations), independent (as individuals need to be able to innovate in their own way), and interconnected (so that best practices and learnings can be shared).

However, it is not just the fit between technology and community that is important to enabling generativity but also the feedback from the outcomes of the generative process. This is particularly true for Stable Diffusion, where not only can the user see their image being slowly created following the text prompt, but they can also view the images created by other users at the same time and in the past. Not only do these images feedback into the technological infrastructure that enables the technology but these images also feedback to the community who are creating new images. We see even more complex feedback with mobile phone operating systems. For one, the constant flow of novel apps is cumulative, as continual reinterpretations, expansions, and refinements of the platform capabilities lead to more generativity. The experience of the community in creating the apps also feeds back, with the app developers becoming more engaged as well as more skilled in generating new apps. There is also

governance feedback as tension between the mobile phone operating system platform owner and the app developers shapes the nature and design of governance.

However, as we have seen with the internet, while generativity can lead to an explosion in creativity and economic value, there is also a dark side. Just as the unrestrained innovation that typified the internet included viruses and cyberattacks, so has generative AI led to concerns of deep-fakes and concerns, both ethical and legal, as to creative ownership[14]. However, such concerns about generative technologies are not new or unexpected; it is the community that drives the innovations that are created by the technology and its outputs. For instance, the internet, probably one of the most generative technologies of the modern era, as well as fundamentally transforming the modern economy, has also enabled spam, copyright theft, rapidly scalable disinformation campaigns, and more.

What is key is ensuring that the innovations that are unleashed by such generative technologies are applied in the most socially beneficial way possible. So how can managers leverage generative AI, and generative technologies in general? We suggest there are six key actions managers can take (see associated sidebars).

1

Understand which aspect of generative AI is of interest to your organisation. Generative AI has implications for marketing[15], code generation[16], conversation[17] and knowledge management. But are you interested in the underlying technologies, or are you interested in the new content that can be generated? The benefits of automated content generation, improved content quality, increased content variety, and personalised content[18] can be delivered by both approaches. The answer to this key question has fundamental implications for how your organisation will approach generative AI. If you are interested in the underlying technologies, then you will need to work with your IT and perhaps new product development functions. In contrast, if you are interested in the new content, then it may be more straightforward to use existing services.

2

Since the trajectory of generative technologies is very hard to predict with any degree of certainty, managers should actively evaluate opportunities or challenges that emerge over time. It can be easy to dismiss early versions, especially when they seem rudimentary, but unpolished outputs and the underlying technology can improve much more quickly than anticipated. Witness the recent improvements to GPT-4. Appreciate the potential for disruption!

3

Consider which community the generative AI interacts with, and how it fits the requirements of the community. If you are seeking to leverage the technology, finding this fit is both exciting and daunting, given the potential scope of your community (which besides users may also consist of developers, advertisers, and other stakeholders) and the competing demands they might impose. If you are only seeking to use the content, understanding the community is important to understand how others could potentially (mis)use it, with the accompanying risks.

4 Leverage your existing infrastructure to bootstrap a community if you wish to leverage generative AI technology. For instance, witness how Mid Journey used the Discord social media platform as the only interface that allows users to connect to its technology. The Microsoft Windows Phone 8 example here is instructive; while there was already an existing community of Windows Phone developers, Microsoft was unable to leverage them to jumpstart generativity for the new operating system.

5 Monitor the resulting co-evolution that will occur between the innovative output, the community, and the technology, regardless of whether you are leveraging the technology or the content. Without careful governance of the output of generative technology, its successful development may be hindered. The key here is the amplification of positive feedback, such as spontaneous innovation by previously unknown users, while mitigating negative feedback, such as IP infringements and spam.

6 Finally, seize opportunities that emerge as the technology evolves. For instance, responding to the rapid uptake of Stable Diffusion, Apple made changes to its operating system and key machine learning components that allowed for significant performance improvements on Apple's proprietary architecture. Microsoft has rapidly adopted GPT-4 and ChatGPT. It is not just tech giants like Apple and Microsoft that can take advantage of generative AI, app makers (such as Lensa) and other complementors can leverage the technology and introduce new features.

Generative AI is only the most recent digital technology to gain prominence due to the power of generativity. By leveraging technology's capacity to enable innovation by large, varied, and uncoordinated audiences, managers can not only harness the creativity that comes from creating new content, but also leverage the underlying technologies. Managers that can adapt their existing organisation to reap the benefits of generativity are much better positioned to launch new products and services, as well as revolutionise marketing, R&D, and customer service in their organisation.

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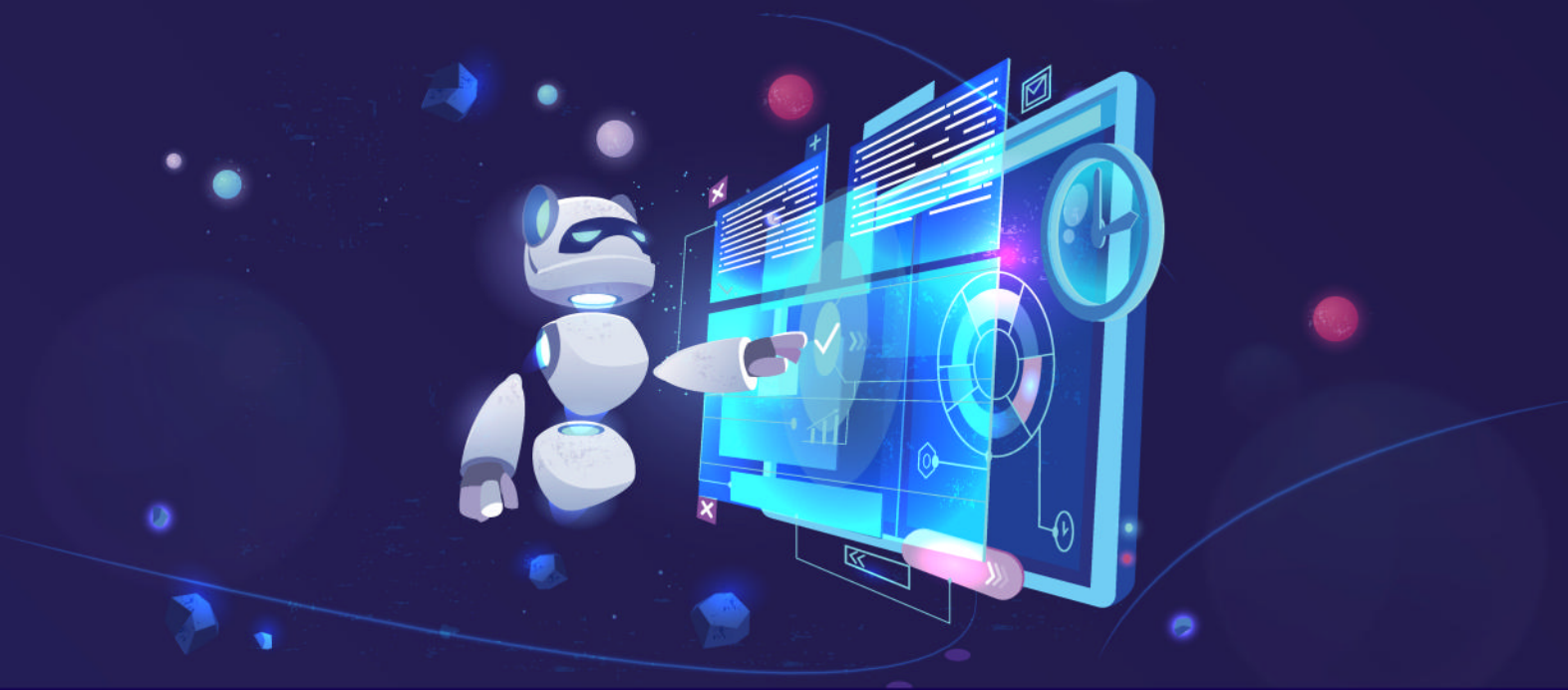

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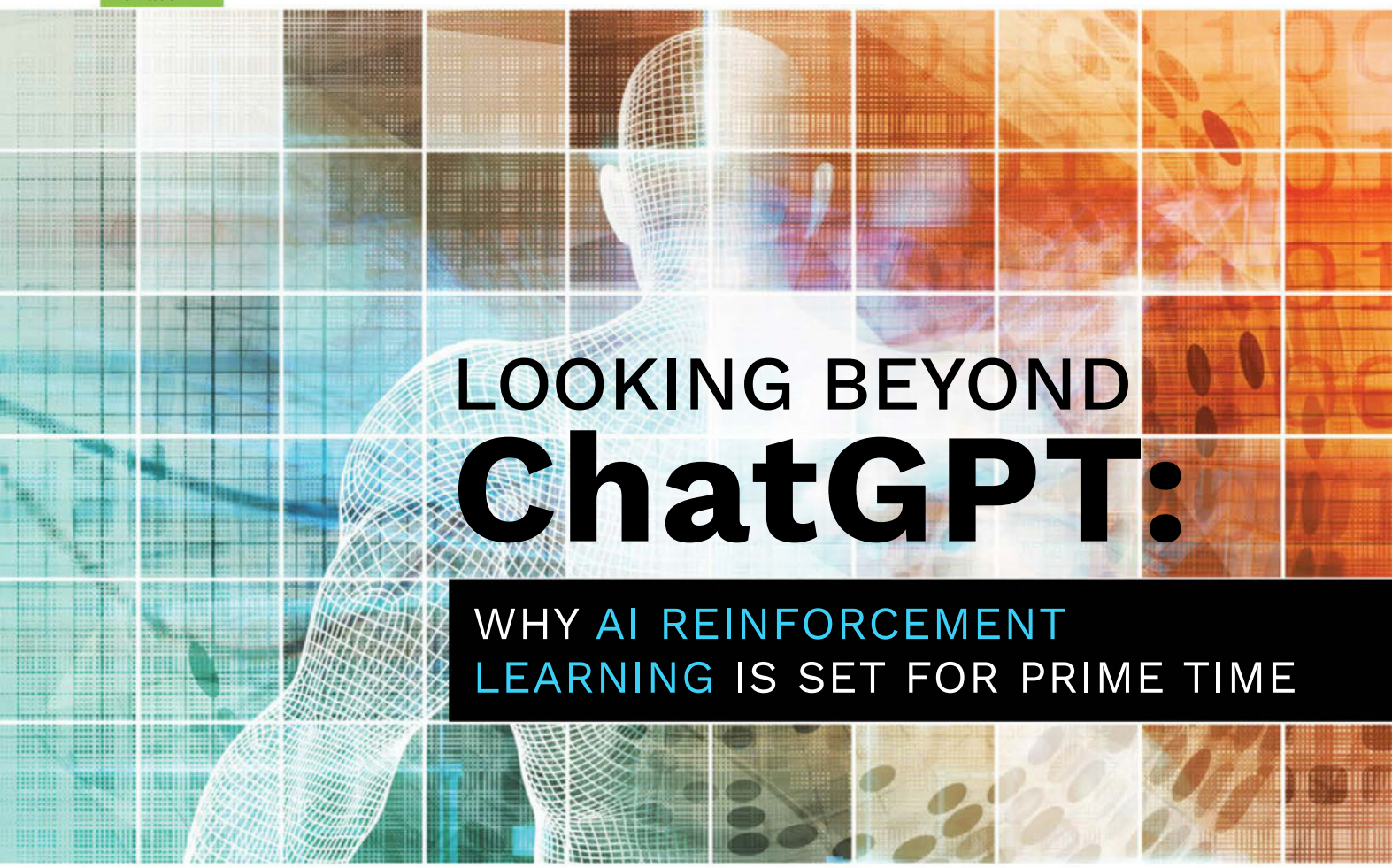

# LOOKING BEYOND ChatGPT:

## WHY AI REINFORCEMENT LEARNING IS SET FOR PRIME TIME

by Jacques Bughin

**Companies must master AI—and all techniques, whether it is (un)supervised learning or reinforcement learning as is set to revolutionise predictive powers and maximise chances of success in sports and other fields.**

**ChatGPT** has revolutionised the field of conversational artificial intelligence (AI). Beyond its ability to generate effective human-like responses, the breakthrough has been to integrate big data (large language) models **with deep reinforcement learning techniques enhanced by human feedback (RLHF).**[1] **That is, reinforcement learning is an AI technique whereby the agents in the model learn from their actions through rewards and penalties in function of good/bad actions**—but in the case of Open AI's Chat GPT and also other high profile AI applications like DeepMind's Sparrow),[2] rewards are specifically provided by a set of human interventions, allowing machines to grasp elements of decision-making distinctly embedded in human experience.

This part of feedback, even if proven to be effective, may however be subject to biases if human interventions tend to cater to certain preferences. **Still, the key generative AI technology here is reinforcement learning which might become a critical technique of machine learning.** Further, the use cases can be enlarged by adding gamification,[3] where the reinforcement will come from the winning rewards for instance in education, training, and many other cases.

## Beyond ChatGPT: the value of reinforcement learning in sport analytics

In order to understand the value of reinforcement learning, a case in point is big data sports analytics. Money in sports has become really big, and any possibility to leverage data to better predict a team´s or player´s relative performance to its competitors may guarantee large payoffs.

In the 1980s, Bill Benter became one of the most profitable gamers of all time by leveraging his own built statistical prediction model for horse racing. Twenty years later, using stats in baseball, coach Billy Beane managed to win the series with the Oakland Athletics,[4] building a team with cohesive strength, which however was not necessarily seen as the most performing in the sport by the not analytically trained baseball insiders. What AI and replacement learning further bring beyond those first data-predictive successes, is a much broader set of big data and flexible predictive models that ultimately may provide even more powerful insights as to who will be winning a horse race or which team will win a championship.

**With big data, the best sport AI analysts would now ingest thousands of games, with hundreds of features to refine the predictive power of their analytics.**

Take football for example as the number one global sport. The issue with football is that the average number of goals per game is typically low (it was 2.6 for the most recent World Cup in Qatar) as is the percentage of time "creating or conceding a goal" (in the range of 2% of the total time of the game). Faced with this infrequency, it is rather difficult to predict the odds of performance unless based on past performance, or the prevalence of known scorers, for example. But with big data, the best sport AI analysts would now ingest thousands of games, with hundreds of features to refine the predictive power of their analytics. These days, one can collect data on pretty much anything, from the location of players, the chain of their moves, timing of actions, type of plays (defence/offence), features such as shots and passes, the direction of play (lateral, backward, forward), the velocity of actions, and many more. All those actions that contribute the bulk of time of the game beyond scoring, should bring significant insight for better prediction and for maximising the chance of success.

Such reinforcement learning tools are now becoming the reference, being used in ice hockey, rugby, basketball, and American football(gridiron football), for a variety of uses such as player scouting or valuation, or field strategies. An extra decade after Beane's success story, the director of data research and analytics of Liverpool Football Club convinced the leadership to acquire both Sadio Mane and Mohamed Salah each for less than 40 million pounds. Those two players were instrumental in making the club win the Champions League, and are still today perceived as top players in the UK and European leagues.[5] Needless to say, both players are likely now worth a few multiples of their original transfer price.

As an example of insights, consider a model that evaluates each player´s on-ball action based on its probability of creating and conceding a goalscoring opportunity in the context in which the action occurred. This framework[6] is much more complete than looking at goals only as it considers all types of technical actions like passes, crosses, dribbles, take-ons, shots, interceptions, and tackles. The framework is also only possible because of data tracking and sophisticated machine learning tools that can assess all complex combinations of actions among different players. Looking at model

results for the UK league, for example,[7] a ton of new insights can be obtained, such as:

a) 10% of Premier League players have negative value, that is, their actions help the competing team. Not good for sure.
b) On average, the most valuable player is the keeper, not the central forward.
c) Left-position players tend to be slightly more valuable than right players. Not sure why but the wisdom is that left players have higher velocity in sports (tennis is another example).
d) Value goes slightly up the more forward a player is (remember that this is not tautological as each action is weighted by its probability of creating/conceding a goal).
e) There is a real trade-off between quantity and quality of actions.
f) But a group of 20% of players is also able to deviate from this trade-off and boost both the quantity and quality of actions. Needless to say, those are the most interesting players.
g) In general, the value of a player varies from 1 to 2, for each position. This is really significant: imagine you have 11 players at the top end of the value range; you are sure to win.
h) The most valuable player in the league is a Belgian midfield player (Kevin De Bruyne). He also has value statistics up to 5 times the average value of his competitive peers with the same midfield position.
i) Liverpool and Manchester City have the largest pool of most valuable players.
j) 95% of on-ball actions do not directly change the score but influence the game indirectly. This deep data underground is where the value of AI reinforcement learning lies.

## Reinforcement learning will become mainstream, get ready to use it

Companies must master AI—and all techniques, whether it is (un)supervised learning or reinforcement learning. Besides cases of sports/games and chatbots, here are a few examples that prove its wide applicability. In healthcare, reinforcement learning has been used for lung cancer and epilepsy and the use of erythropoiesis-stimulating agents (ESAs) in patients with chronic kidney disease. In industries, a large set of manufacturing companies are propelling the automation of their factories by using deep reinforcement on robots to learn how to optimise tasks for the best efficacy, speed, and precision. In retail, the personalisation of product promotion is based largely on reinforcement learning algorithms.

We are just at the start of the AI revolution but managers should urgently be aware that new algorithms and techniques such as reinforcement learning are now set for prime time.


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# AUTOMATE VS AUGMENT

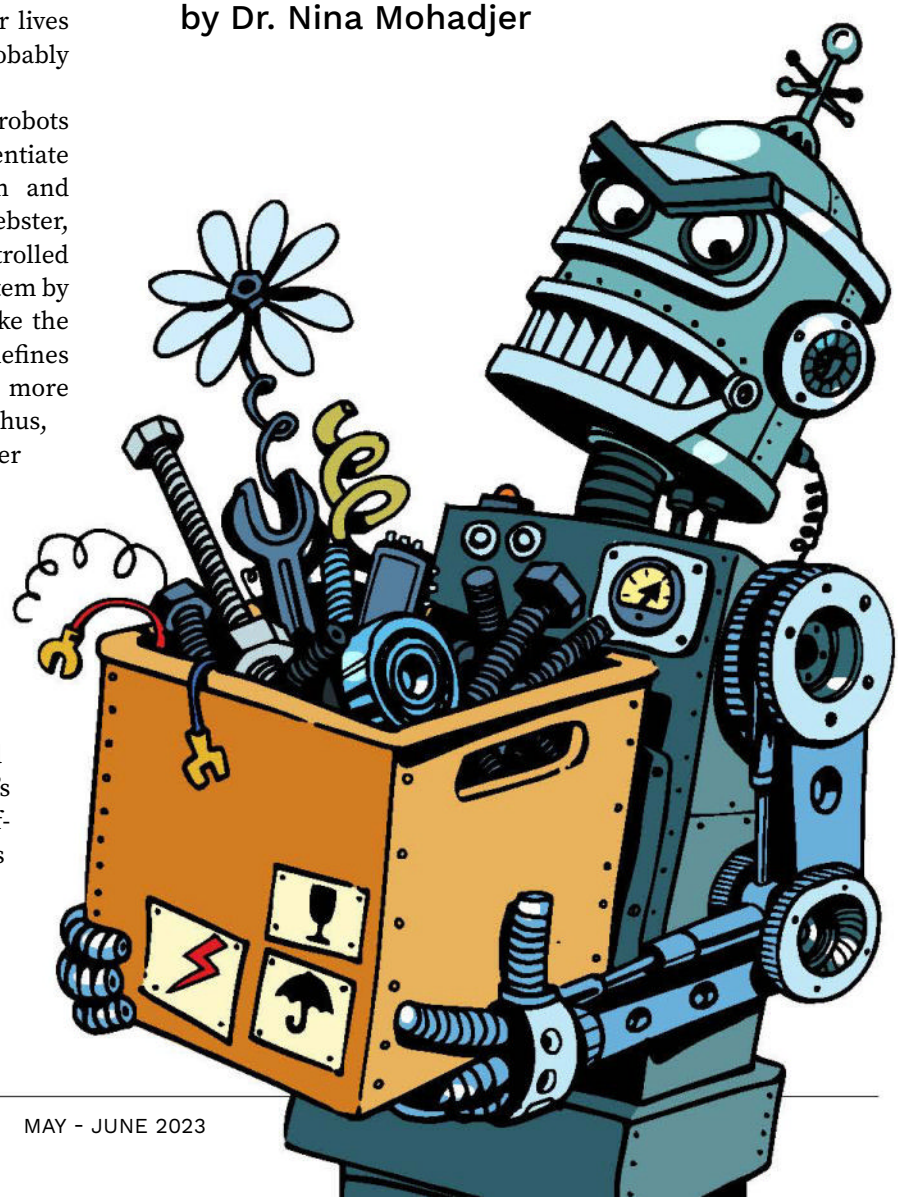
**Robots are taking over our world. Many of us live with this fear, unaware that the words augmentation and automation are indeed describing a different level of human interaction with machines. So, automatically, the question comes up: Will humans soon be redundant?**

by Dr. Nina Mohadjer

Robots are better at everything. Apparently, as they are taking jobs away. Hence, they are better drivers, they register our groceries in the supermarket, and they collect and analyse our data (Thomas, 2020). Radiologists are made redundant, so are document review lawyers, as well as cashiers. Soon we will be left with employees with zero economic value (Autor, 2015). Watson will educate our children, while Google will drive us around, and we will soon be redundant as robots will live our lives for us (Colvin, 2014). These statements probably sound familiar.

Before analysing the need and work of robots and their take-over, we should differentiate between automation and augmentation and define each term. Based on Merriam-Webster, automation is the "automatically controlled operation of an apparatus, process, or system by mechanical or electronic devices that take the place of human labor." The same source defines augmenting as the act "to make greater, more numerous, larger, or more intense." Thus, one act replaces the human, and the latter enhance human abilities and is considered an addition to the human brain (Davenport & Kirby, 2016).

Davenport and Kirby (2016) illustrate the advantage of automation and augmentation by demonstrating the self-checkout counters at grocery stores. In old times, cashiers had to memorise prices for every product and errors were traced to the human brain's weakness. Now through automation, self-checkout counters ensure accurate prices for goods and promise shorter lines. Previously, five cashiers had to work while now only one person is in charge as a supervisor. However, Davenport and Kirby (2016) state further that a



previous augmentation through the introduction of scanners has enhanced the cashiers´ work by assisting them in their weakness. Thus, while one could argue that the automation eliminates the cashiers´ work, it fails to consider that customers do not always use the self-checkout and would still rely on humans, even though the error propensity of the human brain is known. Hence, the scanner is only a small change to our previous cashier experience, which Iansiti (2020) calls "weak AI". It reshapes the general supermarket business model by ensuring growth in the correct digital direction.

Another example would be "Blockbuster". The former innovation of family video stores, which were designed to have a friendly atmosphere, was originally designed to be different from the dark back rooms of Triple X video stores. However, when Netflix entered the market in 2000 (Austin, 2016), the business model for video rentals changed. Customers were given the convenience to stream movies directly, without leaving their homes. Movie streaming was automated and this disruptive innovation created a new business model, eliminated Blockbuster, and subsequently made the employees redundant. But again, using this statement as is fails to evaluate whether Blockbuster's bankruptcy was based on automation or rather on the fact that it failed to see the digital change.

**Through the application of AI, computers started reviewing documents in an effective and efficient manner. This led to the elimination of unnecessary human employees and decreased any overhead.**

Another area that was affected by automation and augmentation is legal technology and eDiscovery. EDiscovery has started the world of legal technology. Twenty years ago, pre-discovery evidence had to rely on human work (Austin, 2016). The human document reviewer managed the market with their language skills, understood the case, and subsequently determined the hourly compensation. In 2008, when I started working as a document reviewer, the general price for an English-speaking reviewer was USD 75 per hour. Each additional language would add USD 50 to this hourly rate.

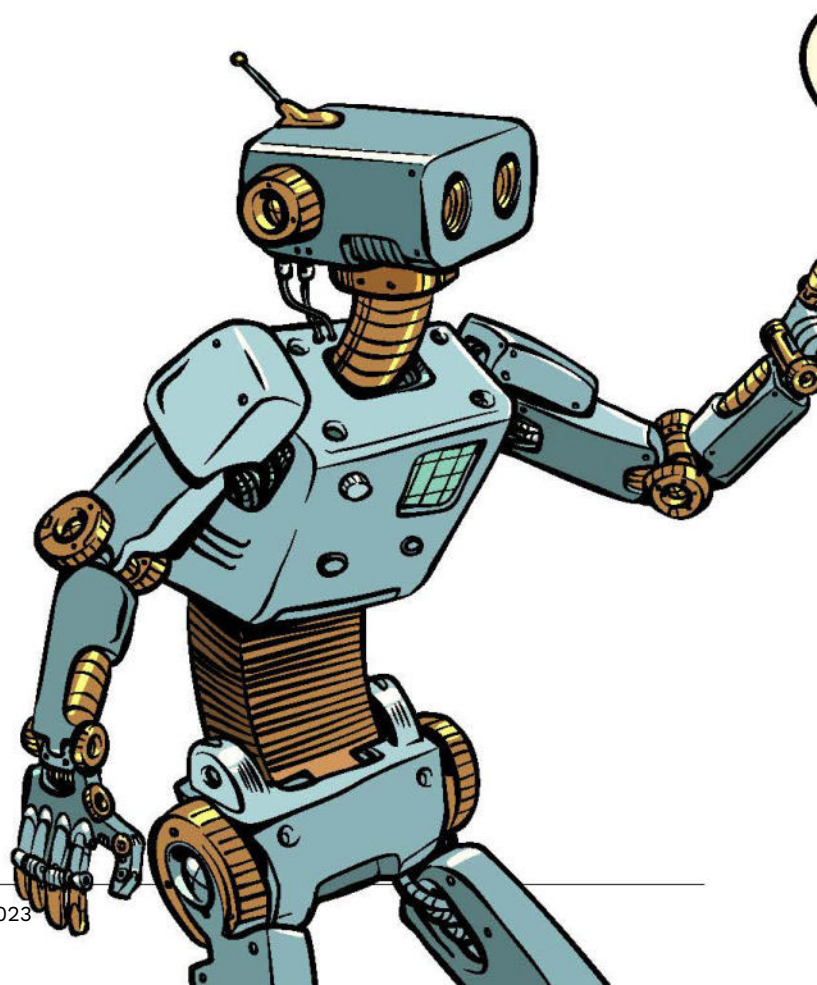
However, through the application of Artificial Intelligence (AI), computers started reviewing documents in an effective and efficient manner. This led to the elimination of unnecessary human employees and decreased any overhead. Once the documents underwent AI, the results were reviewed by attorneys. The hourly price for an English-speaking review lawyer has decreased to USD 20 per hour. Therefore, AI has not caused automation, but an augmentation, as the computers became co-workers of the human reviewer. As Davenport (2016) states, humans created these

**TABLE 1**

| Stepping Role | UP | ASIDE | IN | NARROW | FORWARD |
|---|---|---|---|---|---|
| **Document Reviewer development to Review Manager** | **In 2008:** Batches of 100 documents were generally reviewed in 2 hours minimum. However, if the batch was filled with system documents or blank pages, those batches could be reviewed in 10 minutes. However, reviewers would trick the system by leaving the laptops turned on and charging the client 2 hours. These documents could easily be sorted out by automated systems. Required skills were legal knowledge and language skills. | **In 2010:** Mass-coding of system files, by identifying the system files and marking them at once as non-relevant. Human reviewers moved to the position of Quality Control reviewers and making sure that the computer-generated results are accurate. Required skills were quality checks and a broader understanding of the workflow. | **In 2011:** Application of pre-review tools during the processing stage of ESI to eliminate the system files. Thus, the reviewers did not have to code or mark them for mass coding. Required skills were technical ability by humans who understood the ESI system. Reviewers gave the "orders". | **In 2012:** Artificial Intelligence changed the world of discovery and many processes got automated. However, the level of complexity increased and client attorneys were unable to understand and monitor the programs. Required skill was the Development of the Litigation Support analyst, who would understand the system and could explain the tricks of artificial intelligence to the litigation attorneys. | **Today:** Further development of the systems and subsequently artificial intelligence to eliminate the originally reviewed documents, and review them as well. Through a close interaction of human and system, the computer "learns" to differentiate between relevant and non-relevant documents. While Document reviewers are still required, they are used as "teachers" of the predictive coding system and manage the review. Required skills are management and technical understanding in addition to the previous requirements. |

machines and will use them to ease their work, not to make humans redundant. Thus, the last step in any completion process will always remain human decision making. AI in predictive coding will ease lawyers´ work to ensure that they focus more on the legal aspects or analyse the data concerning the case context. However, this will not eliminate the human work or lead to shorter workweeks. It will solely shift the focus of the human work, as the machine will never be able to learn without the human input. Automation of the Electronic Discovery Reference Model (EDRM), primarily of the review aspect, would require computers to collect, process, and review the documents without any sort of human input. This could be comparable to the self-check counter at the grocery store. Humans and computers work hand-in-hand and each one is leveraged for their strength (Autor, 2003). This requires that the human receives sufficient and continuous training. The automation of specific workflows requires the identification of job skills and job fits (World Economic Forum, 2018).

Similar to the machine that strives to get closer to Six Sigma, the human worker needs to upskill in order to stay above the machines (World Economic Forum, 2018).



## LEARNING

The development and continuation of the new industrial revolution through automation as well as augmentation have changed the working environment. But this change enforces us to consider the opportunities it has brought. Jobs have not disappeared but required working skills, and requirements have adapted and adjusted to the new needs of the market (World Economic Forum, 2018).

Some twenty years ago we were referring to office assistants, review lawyers, and supermarket cashiers, just to give a few examples. These employees had to do basic work which can now be done by machines. Thus, only the basic opportunities are taken by the automation process. However, adding skills and endless learning opportunities are enabling human workers to grow into different branches of their original work (Dickie, 2020). Litigation Support, eDiscovery Specialist, and Processing Analyst are some of the positions that did not exist before humans and machines started working hand in hand.

But it should be mentioned that job seekers and present employees must differentiate themselves by stepping up and evolving from the basic worker (Dickie, 2020). From the stepping role table (Table 1) below, review lawyers can see the development of their job role and present requirements. While 2008 required legal and language skills, now the Litigation Support Analyst or the Document Review Manager has to have technical, management, and people skills. With the newly gained knowledge and the additional skills, human workers are getting more in demand (Autor et al., 2003).

**Litigation Support, eDiscovery Specialist, and Processing Analyst are some of the positions that did not exist before humans and machines started working hand in hand.**

## CONCLUSION

Automation can only lead to the right results if it does not require a subsequent consumer-human interaction, but an interaction of human and machine during the entire business relationship. Thus, work that is focusing on emotional intelligence, needs quality control, has to analyse a big picture, and is overall responsible for the design of a machine, cannot be automated (Chui et al, 2016). As soon as the consumer has the option to type " zero" in order to speak to a human customer service assistant or speak to a human Document Review Manager, the complete automation is interrupted and it is an augmented workflow. Thus, in the latter case, humans and computers complement each other (Autor et al., 2003; Fourie, 2016). As Davenport (2016) states, the former chairman of the US Federal Reserve was denied a loan application based on his financial input. The machine did nothing wrong by denying the application based on the numbers. However, the machine was unable to identify that the former chairman's finances did not follow a straightforward financial pattern. Only a human could have made the distinction.

Davenport and Eberly (2016, p.63) state "The general point to be made is that machines need augmenting when there are important exceptions to rules and structured logic." Autor (2003, p.25) adds to this statement by suggesting "Tasks that cannot be substituted by computerisation are generally complemented by it. This point is as fundamental as it is overlooked."

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**Dr Nina Mohadjer, LL.M.** 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.

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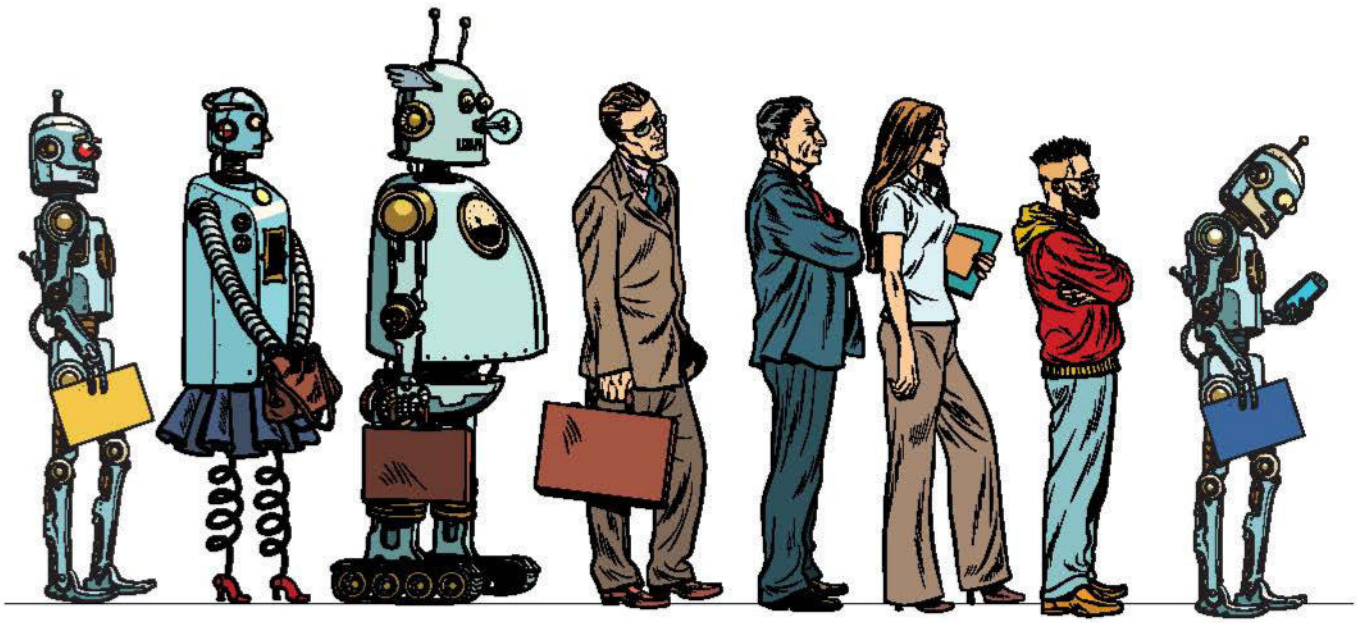

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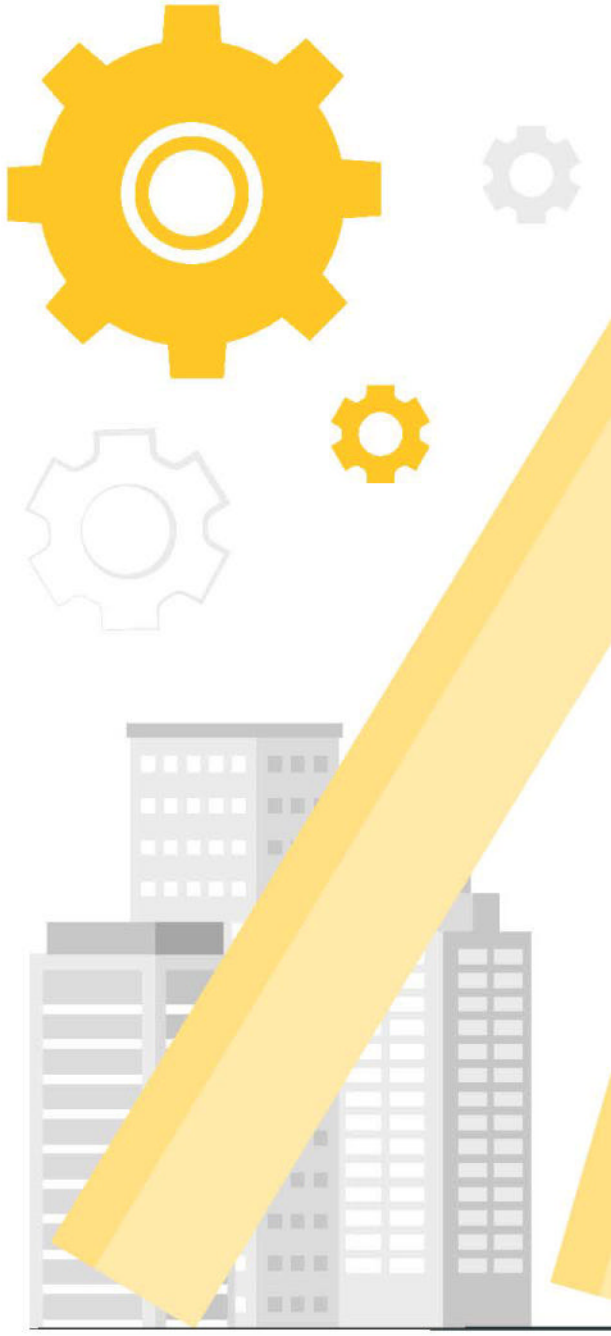
# RESILIENCE IS MORE THAN BEING ABLE TO REBOUND: IT SHOULD BE USED AS A COMPETITIVE ADVANTAGE

by Jacques Bughin



**While they may not be able to prevent pending economic crises such as those resulting from the COVID-19 pandemic, businesses can use them as launch pads to growth by becoming resilient and doubling down on growth instead of cutting costs.**

Worried about a crisis? You might think it's coming if you add in the Ukrainian war, inflation, a remnant COVID-19 pandemic, and burgeoning private debt. But in reality, there is also a bright picture to contrast with this bleak outlook in that the war may soon be over, China has reopened its economy, and inflation is levelling off slightly in some parts of the world.

Rather than spending too much time guessing at the next crisis, its size, nature, and timing, business leaders should instead teach their organisations to become resilient. In analysing

the numbers from numerous crises, including research conducted in cooperation with Accenture Research at the time of the COVID-19 pandemic, we have discovered three important elements for leaders to take notice of.

**The first is that resilience**, or the ability to bounce back, is both a rare and long process. Brands like Hertz, JCPenney, and J.Crew went out of business in the first few months of the COVID-19 pandemic. In previous crises, 17% of publicly traded companies have gone public, either because they went bankrupt, went private again, or were bought out. And while most firms survived, it took between 1.5 and 3 years for firms and economies as a whole to recover the losses incurred during a major shock.

The second insight is that **crises often redefine the status quo, with new winners emerging, and old winners becoming new losers**. The falling angels are numerous, about 25% of total companies, but new rising stars are also visible. In fact, the idea is that resilience is a strategic complement to do better than before the crisis: what academics call bouncing "forward". Resilient companies are those that use the crisis *as an opportunity*. Remember

**In fact, the idea is that resilience is a strategic complement to do better than before the crisis: what academics call bouncing "forward".**

Andy Grove, then CEO of Intel, when he said that "crises make great companies better? At the time, Intel nearly collapsed because of a bug in the Intel Pentium processor. In fixing the bug, Intel also radically reinvented its partner ecosystem, while developing its Intel Inside Program that allowed the company to rebound and dominate the semiconductor market for years. A final point concerns the ingredients for resilience and performance. Many studies, including consulting firms, will preach the virtue of agility, the ability to innovate or, the need to digitise. But the reality is more subtle than that. If a leader wants resilience to drive the new trajectory of his or her company**, that same company will need to invest in the entire portfolio of capabilities (agility, innovation, digitisation, sustainability, and flexible work practices). And the best time to do so *is during a crisis* --precisely when rivals are scared, retreating, and overly focused on survival**, instead of preparing for the next competitive battle. As Winston Churchill once said, "a good crisis should not be wasted."

In practice, however, the typical company has a narrow set of capabilities and tends to retrench during a crisis. Winners are already preparing for the next crisis, and are eager to invest in difficult times when rivals have morphed into victims of turbulence. Best companies are not necessarily good at predicting crises, rather they focus on excelling in rising, and not falling, when the crises hit. Are you that breed?

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# NEW RULES OF THE GAME OR GAME CHANGER?

## THREE THINGS TO CONSIDER AS YOU PREPARE FOR (MANDATORY) SUSTAINABILITY REPORTING

by Florian Hoos and Mahwesh Khan

**The world is facing a dramatic change in corporate reporting, where the focus is on the harmonisation of the way in which ecological, social, and governance (ESG) issues are reported. For politicians and customers no less than for investors, sustainability is increasingly at the core of decision-making.**

**Creating long-term value requires both a focus on financial and sustainability performance. This means we need tools for measuring sustainability performance just as we have for financial performance."**

**Klaus Schwab,**
Founder and Executive Chairman
of the World Economic Forum

In 1993, Germany's Daimler Benz AG listed its shares on the New York Stock Exchange for the first time. In the same year, it posted an after-tax loss of 1.84 billion Deutschmarks under US accounting principles, while reporting a 615 million Deutschmarks net profit under German accounting rules. No, this was not a case of fraudulent reporting or auditing malpractice! Different accounting principles led to different bottom-line results of the same entity in the same year. These variations due to different accounting standards were fixed by the introduction of International Financial Reporting Standards (IFRS) in 2001, which enabled a harmonisation of financial accounting and reporting.

Twenty years later, the world is once again facing a dramatic change in corporate reporting. This time, it is about the harmonisation of corporate sustainability reporting on ecological, social, and governance (ESG) dimensions. Politicians and customers are increasingly putting sustainability at the heart of regulation and purchase decisions. For the investors, there is compelling evidence that corporate investment and improvements in ESG practices generate an ESG premium, and/or make companies more resilient in the face of crisis. In response to this need for consistent ESG measurement and reporting standards, there are several regulations being introduced that will make sustainability reporting a *de jure* responsibility for listed corporations, and a *de facto* one for many value-chain partners.

Most notably, in November 2022 the European Union Council passed the Corporate Sustainability Reporting Directive (CSRD), which is targeted at making businesses more publicly accountable for transparency and disclosures around their social and environmental impact. Applicable as of 2024,


**The new era of stronger sustainability reporting comes along with multiple possible crossroads that companies must navigate and prepare for.**

it is estimated to apply to 50,000+ companies doing business in Europe and will lay the groundwork for sharper and more consistent sustainability reporting standards at global level. Similarly, in 2021 the IFRS Foundation announced the formation of a new standard-setting board – the International Sustainability Standards Board (ISSB) – which is currently developing non-financial sustainability disclosures for companies.

Whether big or small, the rules of the game are being changed forever. The new era of stronger sustainability reporting comes along with multiple possible crossroads that companies must navigate and prepare for. As business leaders prepare to face a very influential one-time change, what are the key questions to which they must have the answers ready?

## SHOULD YOUR SUSTAINABILITY REPORTING BE DONE ON THE BASIS OF FINANCIAL MATERIALITY OR DOUBLE MATERIALITY?

Financial materiality refers to disclosures on anything that can have a material impact on the finances of the company. Double materiality refers to considerations beyond immediate financial impact, i.e., those that create a wider environmental or social impact. From a compliance perspective, the question is easily answered, but it is not straightforward from a strategic perspective, since what is immaterial today might become material tomorrow.

The European approach to reporting on sustainability, as seen in the CSRD, is based on ***double materiality.*** On the other hand, ***financial materiality*** is the basis for the US-based ISSB standards. Critics of financial materiality point out that there is a risk of excluding a company's broader societal and environmental impacts, as it may lead to the omission of decision-critical information in the strategy setting and oversight processes. Numerous greenwashing scandals over the past years show that many companies have a too narrow view on sustainability, potentially influenced by a too narrow perspective on materiality.

Another important element to consider is that as disclosure requirements get stricter for scope 1, 2, and 3 emissions, companies will begin to ask their value chain partners, especially suppliers, to provide disclosures on their carbon footprint. For example, if you are a freight company, then your carbon emissions, aka your scope 1, become part of the value chain

of your customer, say an FMCG company, and thus will be reported by them as their scope 3 emissions. The stronger your scope 1 reporting is, the better will scope 3 reporting be for your value chain members, thereby making this a solid value-add of doing business with you. Such interdependencies mean that there will invariably be a practical convergence between materiality reporting. Many companies will not be able to escape the stricter reporting, even if they are based in jurisdictions with relatively lax requirements.

## Our verdict:

Prepare your strategy and consequently your internal reporting systems from a double-materiality perspective, even if you are in a financial-materiality-focused jurisdiction. When designing your sustainability report, consider choosing an ambitious legislative benchmark —perhaps one which applies to your competitors. Investors often use the highest standards in your industry as the sustainability reporting benchmark, when comparing potential investments.

# 2

## SHOULD YOU BE A PIONEER OR A FAST FOLLOWER IN YOUR ESG DISCLOSURES AND TRANSPARENCY APPROACH?

As the new era of sustainability reporting dawns, corporate leaders find themselves in two camps: one, those who comply with the regulations but wait and watch before publicly announcing any voluntary actions beyond the regulatory requirements; and two, those who are playing a more proactive role in shaping and pre-empting the emerging standards and going beyond regulatory requirements in their external disclosure practices – hence taking on more of a pioneering role.

Clearly, companies in both camps will play the compliance game to perfection. Being compliant with regulation is a baseline licence to operate. However, stopping there means missing the opportunity to create an internal thrust for rethinking the performance metrics within their organisations.

Those in the first camp may, as counterintuitive as it might seem, often be better off than those in the second. The smart ones prepare internally in anticipation of stricter regulations, thereby being ahead of the regulation curve but without externally disclosing their ESG data or strategies. This can be a good strategy. Recently, we have seen companies being penalised heavily for being too bullish when reporting on their ESG performance. In absence of non-mandatory external standards, companies are finding it harder to make their their externally communicated sustainability claims presented in bulletproof. Consider DWS, Deutsche Bank's asset management arm, which learned its lesson the hard way. In mid-2022 the asset manager's Frankfurt offices were raided by police, based on a whistle-blower report alleging that DWS reported a grossly inflated amount of ESG assets. Not only did the DWS CEO Asoka Wöhrmann resign the day after the raid, but the firm has also made a downward revision of 75 per cent in €459bn of assets that it noted as "ESG integrated" in its 2021 annual report. The firm's new CEO, Stefan Hoops, has been reported by the *FT* to believe that the firm's earlier communication on ESG might have been too bullish. And, while DWS was "fully committed" to ESG, "you will not hear me use terms like 'leader' or 'world class'". So, unrealistic sustainability promises based on voluntary disclosure, often supported by little or the wrong accounting metrics will most likely backfire.

Looking at the second camp, there are clearly also instances when having invested in exemplary ESG practices is an enabler for companies to build a competitive advantage, identify corporate opportunities, or preempt risks around the corner. Increasingly, the power of social media and sustained pressure from broader stakeholder groups is forcing companies to have a voice even about areas not directly related to their core business. In such instances, companies that have systematically developed a strong internal ESG muscle from stra- tegic, cultural, and operational perspectives are the ones that tackle these demands and challenges most effectively. For companies like Patagonia, Schneider Electric, and EDP, for example, reporting becomes almost an incidental by-product of well thoughtout internal sustainability metrics. Strong metrics and their active measurement help firms progress on their ESG mandates, but more importantly foster a culture of sustainability. As we all know, ultimately it is the culture of the organisation that is required to activate any strategic intent.

## Our verdict:

**When it comes to public disclosures and reporting, do not get carried away with the opportunity of marketing, over-promoting ideas, and making (often unfulfillable) long-term promises. You must communicate the direction your company intends to take on its sustainability journey but try to remain humble and cautious in external reporting.**

## 3 SHOULD YOU REPORT BETTER OR DO BETTER?

In light of new ESG reporting regulations, there are many businesses that can optimise for sustainability only to a certain extent. An agriculture business can reduce water consumption, soil use, pesticides, and emissions. However, in most instances, unless there is a fundamental systems-level shift in business models and patterns of consumption and production, the metrics will not change as significantly as they should to bring about sustainability impact. Companies that have done well by doing good are those that go beyond the baseline rules of the game. For example, Infarm, a Berlin-based start-up that has attracted over $600 million in venture capital investments, for instance, was created to revolutionise the agriculture business through its vertical farming solution. Based on their communication, they reduce water consumption by 95 per cent, pesticide use to zero, and emissions by about 90 per cent relative to traditional agriculture businesses.

The ambition of companies like Infarm is not to reduce but to disrupt those activities that produce ESG footprints. As a company, reporting better is an immediate necessity to remain compliant with new regulation and to compete in both financial and sustainability disclosure dimensions. Nevertheless, companies will need to have the ambidexterity to also simultaneously think about new business

models and creating customer value by better embracing the principles of circularity, ecosystems plays, and consideration of the natural capital — not just footprint measurement.

Consider Ørsted — by 2020 the company had completed its divestment in fossil fuels and ramped up its investing in offshore wind power, which enabled a reduction in carbon emissions by 83 per cent. "The transformation has now come to a point where the vast majority of our energy production comes from renewable sources," said its then CEO, Henrik Poulsen. After taking over from Poulsen as CEO in 2021, Mads Nipper expressed a company-wide ambition of installing 50 GW renewable capacity by 2030, as well as building a global leadership position within renewable hydrogen and green fuels. Ørsted has set targets for net-positive biodiversity impact from all new renewable energy projects commissioned by 2030. These shifts would not have been possible without a fundamental business model shift that saw Ørsted transform from being one of Europe's most coal-intensive energy companies to the largest renewable-energy company in the world.

## Our verdict:

**It is important to adhere to reporting requirements by enhancing ESG footprint tracking and subsequently doing timely disclosures. However, true sustainable value can only be created when companies are open to fundamentally transforming their business models by being ambidextrous, improving the ESG dimensions of the current core business while inventing the sustainable business model for the future. That is when you not only report better but actually do better.**

## CONCLUSION

Mandatory sustainability reporting will be one of the big challenges for your company in the future – one that will be decisive in terms of maintaining or gaining competitive advantage. A candid introspection around the questions provided in this article will enable corporate leaders to devise the best pathways applicable to their individual context.

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# TYRANT LEAD

**Vladimir Putin appears to be firmly in control of his country, able to bend it to his will and send it and its people in any direction of his choosing, all the while responding to no one. Does Putin have anything to teach business leaders?**

by John Taylor and Adrian Furnham

# RSHIP:

## PUTIN AND THE PSYCHOLOGY OF POWER

Can we learn anything useful from bullies, dictators, and tyrants to inform business leadership? Does the study of good and bad political leaders help inform our understanding of leadership in the commercial realm?

Powerful leaders are often admired, even by those who disagree with their policies. Prime Minister Thatcher is still venerated by many in her party and remembered with respect by others. She was, and still is, a leader remembered all over the world, mostly with respect, if not affection.

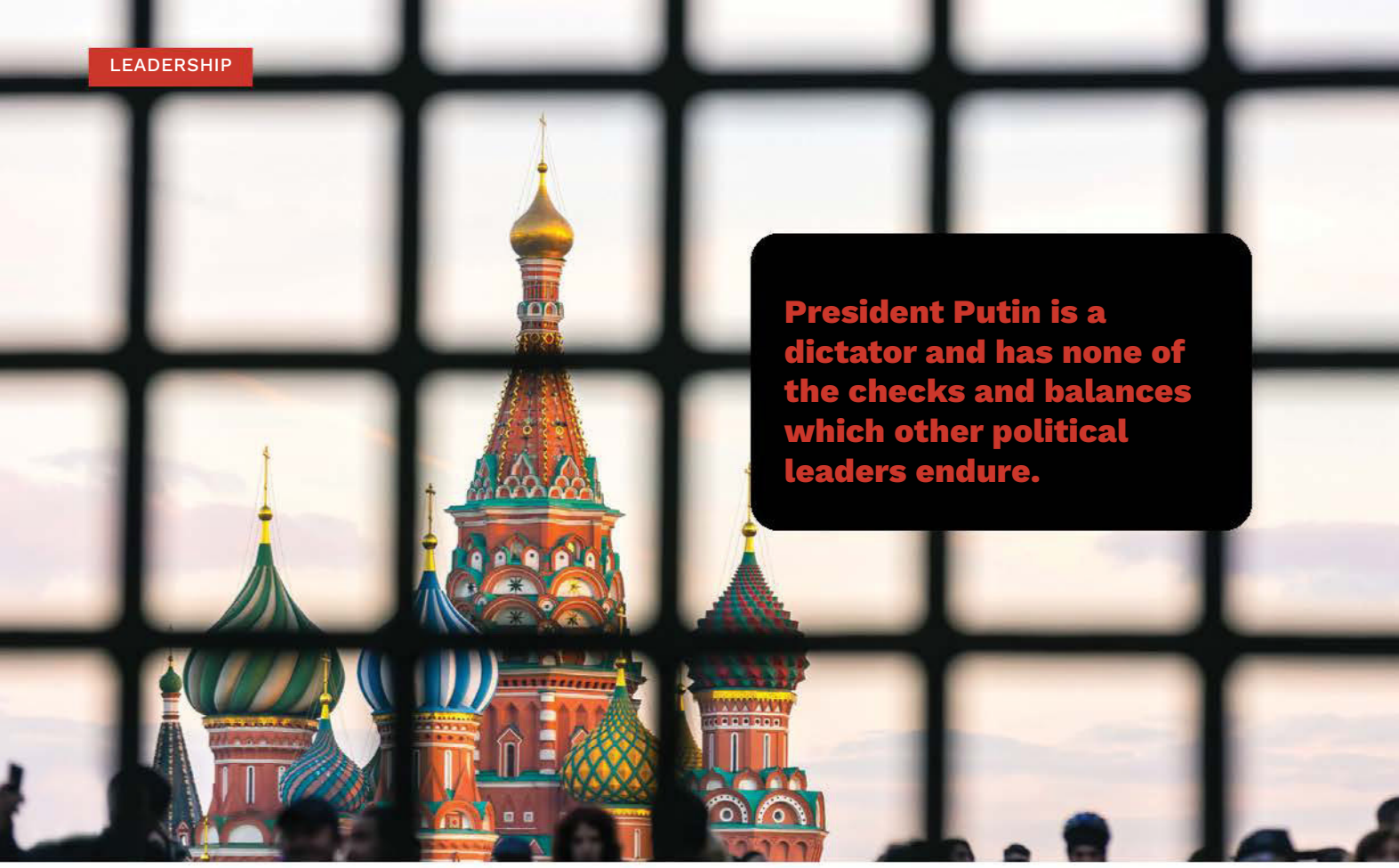
President Putin has written himself into the history books. The consequences of his leadership will be more significant than any leader in the second half of the 20th century and the beginning of this century. He enjoys strong popular support in his country and there are many heads of government who offer their backing. Academics, journalists, and government advisors are occupied by trying to forecast what Russia will do next.

There is, however, a significant difference between President Putin and the likes of Mrs Thatcher and other powerful leaders such as Churchill, de Gaulle, and Mandela. President Putin is a dictator and has none of the checks and balances which other political leaders endure.

This means that decisions are not subject to scrutiny by peers (a cabinet or politburo) or, as happens in genuinely democratic nations, by the public in elections with a functioning opposition. Putin is at the top of a tall and narrow pyramid of power. There are organisations like this!

**Of the leaders mentioned here, Thatcher resigned having lost the confidence of her party, Churchill was defeated at an election and on re-election resigned in ill health, de Gaulle resigned after losing a referendum, and Mandela declined a second presidential term.**

But it was not always like that in the Soviet Union. When Leonid Brezhnev was the leader (general secretary of the Communist party and chairman of the praesidium of the Soviet Union, to give him his full title), he had to work with a politburo



**President Putin is a dictator and has none of the checks and balances which other political leaders endure.**

which contained many powerful people, such as Yuri Andropov (head of the KGB), Andrei Gromyko (foreign minister), and Mikhail Suslov (head of the International Department of the CPSU).

President Putin has no such constraints. He has surrounded himself with sycophants, eliminated the opposition, accumulated hard power to his own office, and is effectively the ideologue of Russia. Does this never happen in business?

Most western analysts, academic, journalistic and political pundits, analyse Russia and its leadership as if the decision-making process is based on a rationality which is recognisable in our liberal and functioning political systems.

Sometimes it may be, but we contend in this article that, given Putin's extraordinary power, we need also to look at his psychological profile to understand and forecast his decisions. We argue that it is important to understand the psychology of Putin, given his power, his aims, and his threat to the peace of the world.

**A dictator has absolute power. They are not called to account for their acts and are allowed to do whatever they want, including restricting citizens' freedoms and liberties, the freedom of expression and religious liberty.**

**Is this very different in some private companies? Are some owner/founders essentially dictators in the political sense**

## THE SIX DIMENSIONS

There are six dimensions which influence the behaviours and decisions of people. The first of these relates to *cultural background.* Putin is proud of his Russian heritage, and many of his speeches and written work have significant references to the greatness of Russia. Most politicians like to proclaim their patriotism; Putin takes it to an imperial level.

There are some significant aspects of Russian culture which are apparent in Putin's personality.

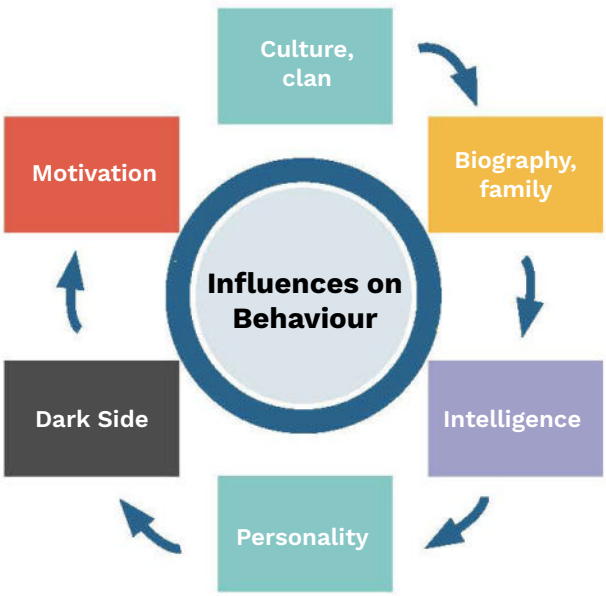
Russia is the largest country in the world and is highly centralised. There is a huge discrepancy between the less and the more powerful people. Status symbols are important, and Putin loses no opportunity to demonstrate his power status. The layout of the room for the security council meeting in February 2022 demonstrates this well.

Russia is a country with a pragmatic mindset. Truth depends very much on situation, context, and time.

Analysts are frequently mystified by Putin's current actions, destroying the Russian economy and apparently strengthening NATO and the EU against him. Putin and many Russians will look to the long term. They will be willing to take a short-term hit for glory in the future. Putin is certainly playing the long game, believing that NATO and its liberal and democratic friends will falter and weaken. He clearly longs to re-establish Russia as ***a,*** if not ***the,*** superpower

**President George Bush, 2001, on Putin: "I looked the man [Putin] in the eye. I was able to get a sense of his soul."**

**Colin Powell, US Secretary of State, commenting on Bush's observation: "I look in his eyes and see the KGB."**




The second dimension is about upbringing and ***early experiences in life.*** We need to understand the forces that moulded and shaped him.

Putin's father was badly wounded in the war and suffered great pain from his injured legs. His mother, Maria, also nearly died. By the time the siege was lifted, she was no longer able to walk on her own. Many describe Putin's birth in 1952 as a miracle.

The Putin family lived on the top floor of a five-storey block in Leningrad. Their flat was a single room with a shared toilet and a stove in the corridor which passed as a kitchen. This, however, was the experience of many people in Russia at that time. His parents doted on him and made many sacrifices for him.

In his youth, Putin was involved in many fistfights. He is small in stature and was bullied but he learned to fight back and strike first. He also had a fierce temper, to the extent that he was excluded from joining the Young Pioneers, part of the communist party's grooming process.

He worked hard to gain entry to Leningrad University in 1970. He kept to himself at university, staying out of the community and the Komsomol, and mostly out of trouble, though there are reports of some fisticuffs. Aged 22, Putin was approached by the KGB in his last year of university and started his training in Leningrad in 1975.

His 16 years in the KGB did make a significant impression on him. He was a half-colonel by the time he resigned but his career does not appear to have been enormously successful.

His time in East Germany working with the Stasi will have been instructive. He will have learnt from their methods of monitoring the population, the importance of keeping information on people, and how to use that information to his personal advantage.

He will also have learnt much from his time there about how to develop instrumental relationships, and how to use information to "control" people. In Russian, the word kontrol' means "to monitor" or "to check", as well as the English meaning, which is to be in charge. It also encompasses the importance of when and how to release information and what should not be released and, finally, manipulation through the use of information and the careful control of its release.

**Putin's intellectual ability in his early years was never described as anything more than "modest".**

Putin's ***intellectual ability*** (the third dimension in our model) in his early years was never described as anything more than "modest". He did, however, have determination and, believing he needed to go to a prestigious institute to get into the KGB, he applied to Leningrad University.

He has a reputation as a hard worker and he seems to have kept himself to himself at Leningrad and worked hard at his exams. He is, we believe, "bright enough" but he is not an intellect, and his judgements are questionable.

The fourth dimension is about ***personality.*** Using the five-personality trait classification, we assess Putin as having the following personality traits:

1. **Not strongly introvert or extrovert.** Essentially an *ambivert.* Enjoys the company of others but also values privacy.
2. **Borderline neurotic.** He is not empathetic and can be anxious and bad tempered. He complains and is not trusting.
3. **Tough, hard-headed, sceptical, proud, and competitive.** Tends to express anger directly. There is little or no evidence of warmth, empathy, or kindness
4. **Closed, down-to-earth, practical, traditional, and pretty much set in his ways.** There is little sense of curiosity, openness, or imagination.
5. **Conscientious, well organised,** has high standards, and always strives to achieve goals.

But what of the dark side of his personality – evidence of ***personality disorders***? We believe there are indicators of paranoia, sadism, and sociopathy.

There is clearly evidence of Paranoid Personality Disorder (PPD). This is a pervasive distrust and suspiciousness of others, such that their motives are interpreted as malevolent. Consider the following characteristics:

**Paranoids avoid the limelight and keep their own council.**

Putin does not court big events. He does the minimum needed for a leader, unlike a narcissist. Public speeches are carefully orchestrated and edited videos are provided. But, for the most part, Putin only appears when it is necessary to do so as president. He is famously secretive. He is also very guarded about his private life, his daughters, lovers, former wife, etc.

**Paranoids are motivated by needs for power and control.**

Since he came to presidential power in 2000, Putin has accumulated all power around himself. He presides over one of the highest and narrowest pyramids of power in the world and in Russian history. In addition, he has eliminated all others with power, particularly oligarchs.

**Paranoids take ideas very seriously.**

This is because the core of paranoia is a complex and comprehensive delusional system that is impossible to challenge with data or logic. He takes his intellectual inspiration from right-wing, populist, and Russian nationalistic writers and broadcasters who are frequently quoted and appear on the state-controlled TV.

**They often believe they are the chosen one who can save their people.**

Putin does everything he can to diminish the status of those around him, leaving him as the only possible leader. Famously at the National Security Council meeting at the end of February 2022, he positioned himself many metres from his cabinet and chose to embarrass the head of his intelligence service (the SVR). At the same time, he doesn't change his team. Putin also does not admit mistakes.

**Paranoids attract followers through vision (make Russia great again).**

He is critical of some aspects of the old Soviet Union, citing the granting of independence to countries such as Ukraine as a major mistake. He reaches back to imperial Russia under the tsars to promote the "greater Russia". Putin is less about money and more about the big Russian world mission. Money is almost a religion in itself in Russia.

**Paranoids respect others who are strong.**

Putin has not developed many relationships with international politicians. He had a friendship of sorts with the Italian Prime Minister Berlusconi. Both he and President Trump were "strong" but unpredictable. He shows no sign of respecting leaders such as Macron or Merkel, who have sought compromise. Macron is made to wait and has to sit at a great distance; Merkel, well known for her dog phobia, had to endure a roaming large, black dog during their meetings.

**When paranoids are frustrated, they plot revenge.**

Putin has consistently chosen brutality and military strength in response to perceived attacks on Russia or his own position of power.

**Paranoids want to win.**

Putin's fortunes in Ukraine so far have been mixed. At present (spring 2023), Russia is fighting a bloody battle in the Donbas but making little progress, if any. He may be able to claim some kind of victory, but it will hardly be convincing.

**Paranoids are very insightful about other people.**

They tend to be surrounded by a small number of long-term "trusted" advisors. Putin has few trusted advisors, and those that do exist come mainly from his KGB/Leningrad days. The bunker mindset has solidified and is being reinforced by others. His team are not allowed to disagree with him.

**Paranoids can only be controlled by the threat of superior force.**

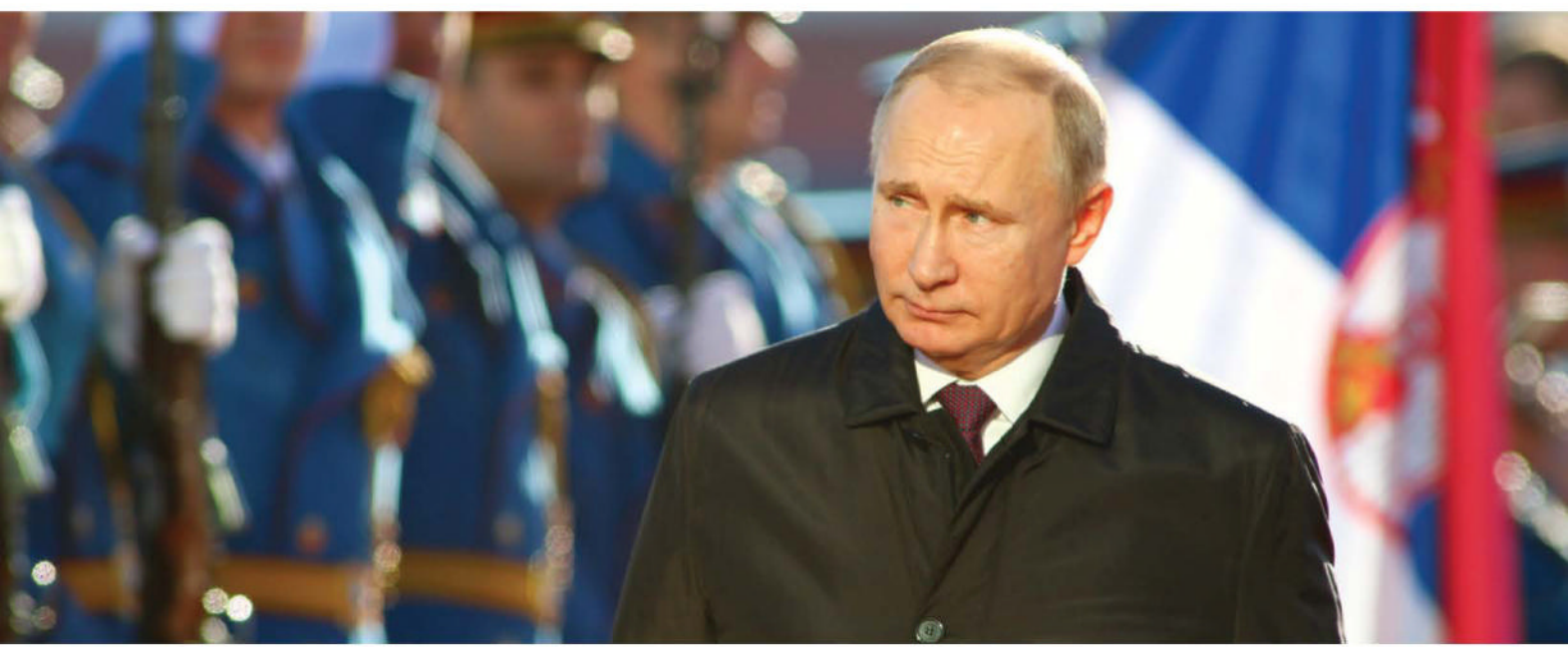
The war in Ukraine is still being played out. The consequences of perceived weakness are, however, clear. We have seen Putin's ruthless nature not just in laying waste to vast areas of Ukraine, he has also been brutal in Chechnya, Georgia, and with individuals. He needs victory and that is not guaranteed. His reaction to potential defeat will not be to retreat. He will want victory and will take revenge.

## AND MORE DISORDERS

Psychologists use the term "co-morbidity" to indicate that a person may be suffering from more than one disorder/malady at the same time.

***Sadistic*** people like Putin use physical or mental cruelty in relationships to establish dominance. They like to humiliate and demean people in the presence of others. They operate through intimidation or terror to get others to comply and they have a fascination with violence, weapons, and torture/injury.

He also appears somewhat ***antisocial/psychopathic,*** being callous, manipulative, and free of conscience. Such individuals see others as merely to be exploited and, therefore, have problems maintaining commitments and are unconcerned about violating expectations. Many are self-confident to the point of feeling invulnerable and have an air of daring and sang froid that others often find attractive and even irresistible.



They are highly rewarding to deal with, but unpredictable. They can be impulsive, reckless, faithless, remorseless, and exploitative. They have problems with telling the truth. President Putin has demonstrated many of these facets.

He is also ***hubristic* or *narcissistic*.** He is surprisingly vane, particularly about his physical prowess. Putin's combination of paranoid, sadistic, and antisocial dark side personality is unusual (Hitler is the closest previous example we have). It means that Putin will be ready to authorise violent and extreme actions to further his beliefs and causes. The question is how far is he willing to go? We judge that he is some way from admitting defeat and pulling back his forces.

***Motivation*** is the sixth and final dimension which influences people's behaviour. There are many motivations which drive people. We believe President Putin is driven by the following.

**Power and influence** – These people like to be thought of as leader-like; they are assertive, competitive and ambitious for success. They enjoy being influential and wielding power. Think Thatcher and Trump: the thrill, the goal is to have as much power as possible to do things.

Putin has held on to power for 20 years. He has changed the constitution and acquired increasingly autocratic powers to ensure that he now runs Russia unchallenged and for as long as he wishes.

**Recognition and vanity** – For people with this profile, the positive attention of others spurs them on and makes them work harder. It helps their self-esteem and satisfies a desire or need to feel valued. For them, fame, visibility, and publicity are important.

At the extremes, these tip over into exhibitionism and narcissism. The quiet approval of their peers does not suffice; they are peacocks and want constant adulation, acknowledgment, praise, and prizes, often outside their immediate work environment. Without them, they can become angry and disruptive.

There are some indicators of narcissism in Putin. He wants to be taken seriously on the international stage, but he has disqualified himself from that position by his actions in Ukraine. The dangers of increasing anger are therefore more profound now.

## CONCLUSION

There is little disputing that President Putin is a dictator who has few of the checks and balances to mould or restrain his decisions. We have argued in this article that Putin's decision-making is more likely influenced by his personality and, in particular, the disorders which we believe he suffers: paranoid, anti-social, and sadistic.

Analysts would be wise, in our view, to look more closely at the consequences of his psychology than the traditional political and military factors which normally influence our leaders.

The question is what is the relevance of all this to business? One answer lies in the analysis of leaders and the top team. Using our six-factor model, it is possible to draw up a much richer profile of people than is often got through head-hunters and typical psychometric analysis.

There are enough CEOs in jail as well as generally disgraced to indicate that many organisations are not aware of how to spot potential tyrants and dictators. Money and time spent doing careful profile analysis is rarely wasted. EBR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**John Taylor** joined the British Foreign Office in 1971 and is now a senior research fellow in the Department of War Studies, King's College London, where he lectures on their master's course.

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# INCREASING THE PROPORTION OF CYBER-SAVVY WOMEN IN LEADERSHIP POSITIONS

**The shortfall in appropriately skilled personnel to confront the ever-escalating cyber threat to organisations around the world is just one more reason for businesses to adopt measures targeted at encouraging and empowering more women to enter the field of cybersecurity.**

by Camélia Radu and Nadia Smaili

The pandemic has driven an acceleration in digital transformation,[1] exposing organisations to higher levels of cyber risks. Therefore, organisations must consider cybersecurity no longer as an operational necessity, but more of a top-level strategic priority. Hepfer and Powell[2] conducted interviews with senior executives and reported that a problem arises when executives, who generally have technical expertise in areas such as engineering, finance or marketing, assign strategic priorities based on their own expertise. To develop and implement an integrated cybersecurity strategy, executives need new skills and knowledge related to cybersecurity. We put these findings into perspective in relation to the benefits of diversity on boards of directors and in senior management.

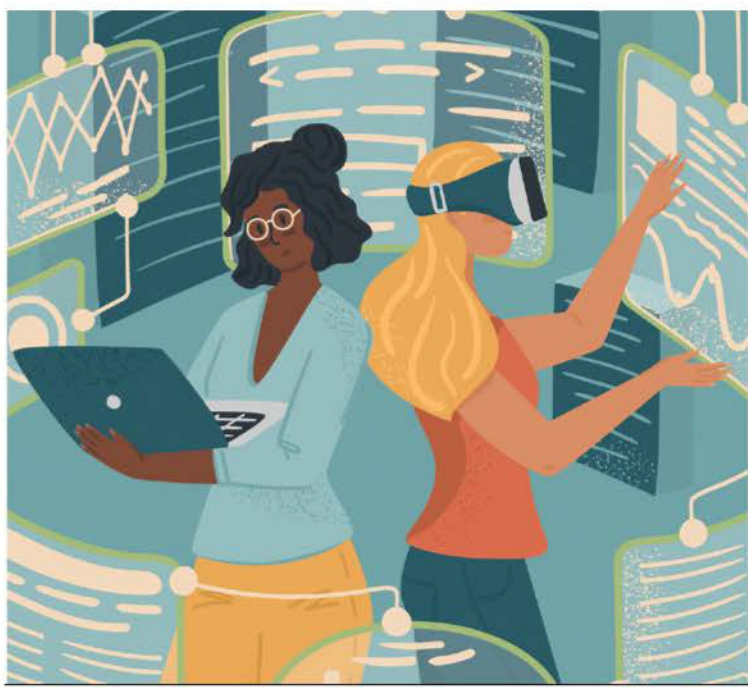
## TALENT SHORTAGE AND THE GENDER GAP

Following the digital acceleration, the cybersecurity industry has witnessed considerable growth. The global cybersecurity workforce grew by 49.6 per cent from 2019 to 2021 (with increases of 100.0 per cent for Europe, 42.6 per cent for North America, 32.6 per cent for Latin America, and 36.6 per cent for Asia-Pacific countries) and the estimated global cybersecurity workforce for 2021 is 4.2 million.[3] Despite this remarkable growth, the cybersecurity industry faces a glaring talent shortage. For 2022, Cybersecurity Ventures estimates that the lack of skilled workers in cybersecurity is the equivalent of 3.5 million jobs.[4]

The talent shortage is not the only issue the industry is facing. Cybersecurity Ventures found that, in 2022, women held only 25 per cent of the jobs in cybersecurity. This gender gap has nevertheless decreased, in that women made up 10 per cent of the cybersecurity workforce in 2013 and 20 per cent in 2019. In the US, women represented 28 per cent of the tech industry workforce and 34.4 per cent of the workforce of the five largest tech companies, GAFAM (Google now Alphabet, Amazon, Facebook now Meta, Apple, and Microsoft), in 2022.[5]

**As women tend to offer different perspectives from men, their underrepresentation in cybersecurity management and governance could be critical in addressing cyber risks.**

Although in recent years women have tended to hold more senior positions in organisations, they are still underrepresented in cybersecurity leadership. In the US, they hold fewer than 20 per cent of leadership positions in this industry, and only 18 per cent of the chief information officers or chief technical officers of the 1,000 largest tech companies are women.[4] This low level of representation is mainly associated with the underrepresentation of women in the science, technology, engineering, and mathematics (STEM) fields. For women, the choice to embark on a STEM career is still fraught with important barriers: gender stereotypes and discrimination, income inequality, lack of female mentorship and models, jobs that are not family-oriented, etc.



Recent research reveals the scarcity of women with IT expertise on boards and in senior management positions. In 2018, for example, the 60 largest companies listed on the Toronto Stock Exchange had a total of only 22 women with IT expertise on their boards of directors (Radu & Smaili, 2021). Yet diversity, particularly the inclusion of women, can bring several advantages to cybersecurity leadership in organisations and be beneficial to society as a whole. Sustained efforts in management practice, education (universities), and regulation are needed to increase the representation and inclusion of women cyber experts in the corporate world. Indeed, academic studies show the multiple advantages of including women in management and upper echelons. In addition, the experience and expertise of women cyber experts often offer an interesting framework and a different perspective that complements other perspectives to provide a holistic view of a particular issue.

As women tend to offer different perspectives from men, their underrepresentation in cybersecurity management and governance could be critical in addressing cyber risks. Given women's ethics and stakeholder-oriented sensitivity, they could respond to certain cyber risks differently. Furthermore, the inclusion of women in senior management could enhance their sense of accomplishment and bring improved performance. They could provide a role model for younger women who, in turn, could increase the presence of women in higher-echelon positions in the future.

We recently explored the value added by the presence of one or more woman directors on corporate cybersecurity disclosures (Radu and Smaili, 2021). Based on a sample of the companies listed on the S&P/TSX 60 index over the period 2014-18, we provide evidence of a positive association between the presence and level of cybersecurity disclosure and board gender diversity. The average percentage of women on boards of directors rose from 20.4 per cent in 2014 to 27.7 per cent in 2018. The total number of women with IT expertise, who are mainly outsiders, on the boards of the above-mentioned 60 companies increased from 11 in 2014 to 22 in 2018. In 2018, there were only four women cyber experts on the boards of directors of these TSX 60 index companies. These findings illustrate how difficult it is for women with cyber expertise to access the upper echelons of organisations. Given the rising incidence of cyber threats worldwide, together with the barriers to women's inclusion and the importance of organisational ethics, we believe that our study sheds light on an interesting issue and proposes solutions that could increase the empowerment of women cyber experts to take on senior executive positions.

The growing number of cyber attacks in recent years and their expansion during the pandemic have stepped up the pressure on businesses to hire more cyber experts. This context provides an opportunity for organisations to attract women with cyber expertise as board members and senior executives and to benefit from their presence. Management, stakeholders (including investors), and governance actors should increase and promote the presence of female cyber experts in their organisations, which in turn will facilitate women's access to top positions both inside and outside the organisations. Given the many advantages of including women with cyber experience, organisations should develop programmes to empower them. These programmes would involve amending recruitment plans to take this issue into account and introducing policies that promote gender diversity more effectively. In addition, management and boards of directors should demand more heterogeneous and diversified boards. Including women cyber experts on corporate boards could enhance protection against cyber attacks, and reinforce stakeholders' trust in the ability of the firm to respond to cyber risks effectively, ethically, and fairly.

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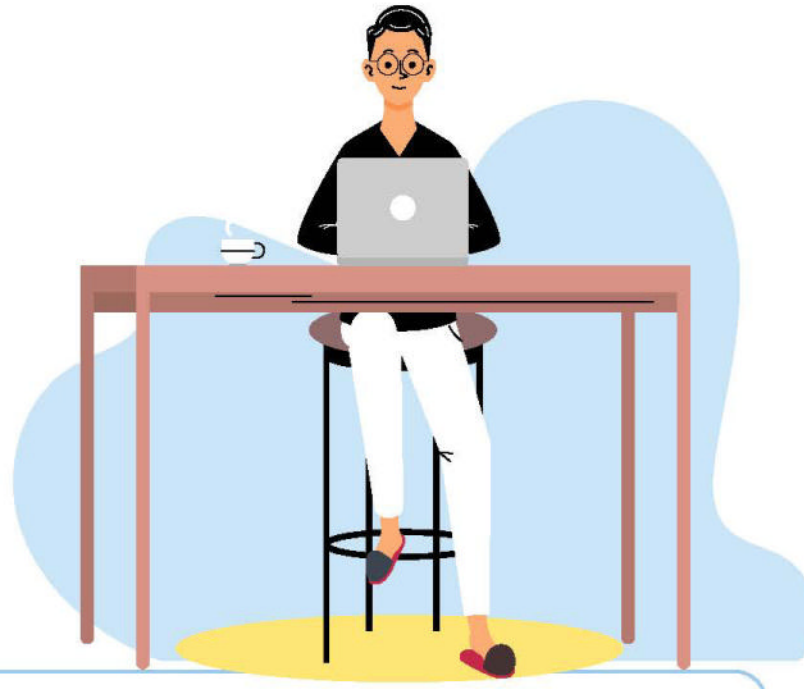
# WHAT LEADERS AND MANAGERS NEED TO KNOW ABOUT HYBRID WORKING

by Véronique Rapetti
FROM INSIGHTS LEARNING AND DEVELOPMENT

**Hybrid working is here to stay. That much is clear but, given this new normal of the business world, what can business leaders – in all probability schooled in the environment of the "old normal" – do to facilitate successful outcomes for their organisations?**



New research by Insights has confirmed that an overwhelming majority of global teams are now working hybrid – and that trend is here to stay. Our research asked 3,000 office workers across Europe and North America about their existing hybrid working arrangements, their preference for the future, and what they felt they needed to be successful.

Respondents noted that delivering objectives and learning and development activities were among the key aspects made easier since switching to hybrid. One-third of employees felt that they had more efficiency, creativity, and focus when working in a hybrid pattern (though, interestingly, far fewer managers felt that this was a benefit). Of course, for both managers and employees, the key benefit was reduced commuting time and the ability to manage time more flexibly.

An astonishing 92 per cent of teams questioned are more hybrid than before the pandemic, with 72 per cent eager to maintain a hybrid arrangement into the future. My home country of France is embracing hybrid/remote work the most, at 76 per cent, with the UK slightly lower at 60 per cent. Globally, office-first is the least attractive option, with only 10 per cent preferring it, and that could also be seen as a deterrent for new recruits.

**Most employees have developed an affinity for hybrid working, feel that they are more productive working in a hybrid role, and want that pattern to remain.**

Our research is backed up by a recent Gallup study which found that 59 per cent of respondents preferred a hybrid arrangement, while only 9 per cent wanted to work from the office full time. Importantly, their research found that when employees who preferred a hybrid/fully remote option were forced to work from the office regularly, they experienced lower engagement and well-being, a higher intent to leave, and significantly higher levels of burnout.

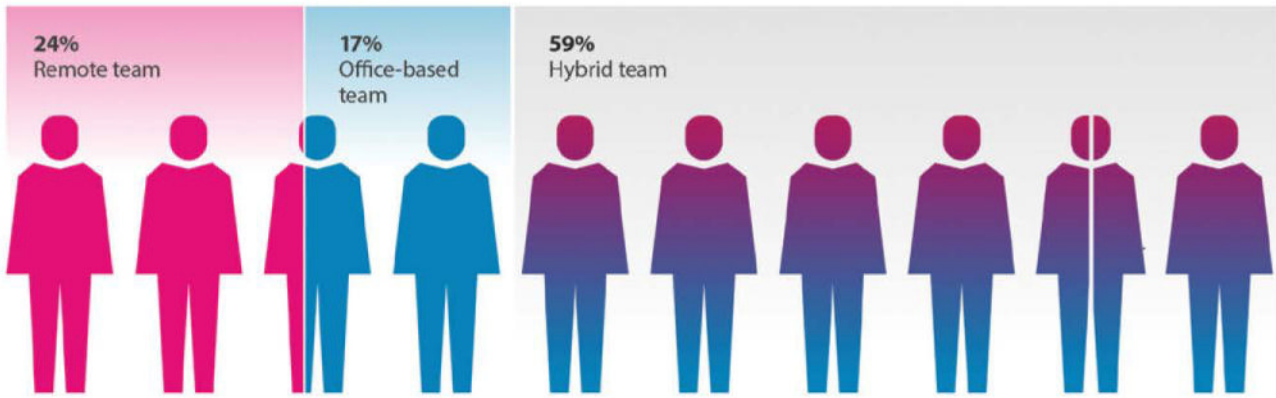
Unfortunately, however, it's not as simple as offering all employees the opportunity to work hybrid or fully remote. Almost every second employee who responded to our survey said that building relationships was now more difficult due to the "hybridisation" of their team. It was by far the most impacted aspect and, together with team connectivity, the only one with an evident negative development. Elsewhere, culture and identity were also identified as having been impacted by hybridisation.

So, what should every leader know about hybrid working and how they can contribute to successful outcomes? Here are a few things to ensure that you're headed in the right direction.

## HYBRID IS HERE TO STAY

Despite some media stories about employees being forced back into the office, it is clear from our data that most employees have developed an affinity for hybrid working, feel that they are

Structue of teams across the globe




more productive working in a hybrid role, and want that pattern to remain. As a leader, you need to respond to this by asking what you can do to make hybrid work for your business and your people. This will certainly not be a "one size fits all"; of course, no two people are exactly the same, and we all come with our own needs, preferences, and expectations.

Importantly, make sure that hybrid is appropriate for the role and the person performing it. Where there are doubts, create a safe space to have an open and honest conversation with your employee and explore options and requirements. Agree steps and measurements and track against these to ensure that everyone is working towards the sought-after outcomes. Make sure that communication channels remain open throughout, so there are no surprises down the line.

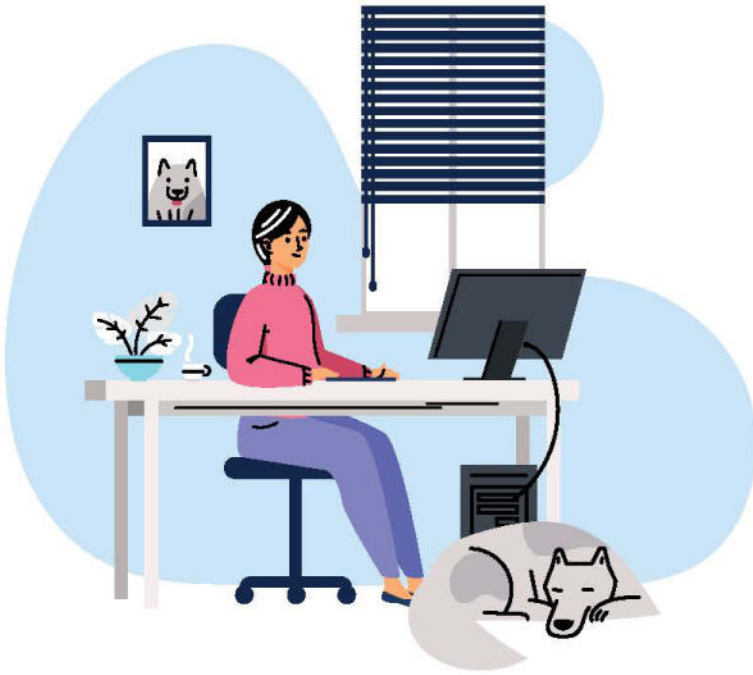
## THE HUMAN TOUCH IS CRUCIAL

Forty per cent of global survey respondents said that a lack of social connection was a major challenge (55 per cent in Denmark and 45 per cent in Germany), with 29 per cent saying they struggled to establish relationships with colleagues (32 per cent in Germany). Sixteen per cent of global respondents said they struggled with feelings of loneliness (21 per cent in France and 18 per cent in Germany).

It might be surprising, then, that many global companies with hybrid teams are failing to invest in initiatives that could support the general health, lifestyle, and behaviours of employees. Managers must incorporate wellness initiatives that accommodate hybrid workplaces and flexible schedules.

Something we do at Insights to maintain the human touch is a "check-in" at the start of every meeting. This creates space for everyone to connect, to be authentic and vulnerable, and then focus on the meeting. We also encourage our people to take ownership of their own wellness, which includes supporting them to seek out activities and initiatives that support their physical fitness, mental health and well-being, nutrition, and lifestyle. We are working with a company that has an online platform for our employees to connect with various experts to support them in whatever challenge and wellness needs they may have (including nutritionists, executive coaches, counsellors, etc.). Where appropriate, these are shared across our global community to

**Organisations must adopt new communication methods that are more suited to hybrid working and ensure that everyone is skilled and confident in using them.**



encourage others and cross-pollinate ideas.

## COMPANY CULTURE MUST BE A PRIORITY

We all know the famous quote by Peter Drucker: *"Culture Eats Strategy For Breakfast." Never before has the role of culture been so important in any organisation.* As a leader, you need to ensure that you foster the right culture in your organisation. When the pandemic forced Insights' employees to work remotely, we responded by holding more virtual meetings, encouraging people to practise "active listening".

Our company experience was that being as human as you can, as often as you can, creates a powerful ripple effect that flows across an organisation, building mutual respect and understanding across all levels.

In addition, we recognise that being together in a social capacity is incredibly important to bring our culture to life. This is why last year we reopened our newly refurbished global campus in Dundee as a safe space for our people to collaborate – and importantly to enjoy one another's company. While we allow our people to work with their managers to set a working pattern that works for them, we do encourage them to come in to work from the office regularly, as we recognise that the human connection provides a vital spark to ignite our organisation, which working remotely full time cannot always replicate. It's that human touch ... again!

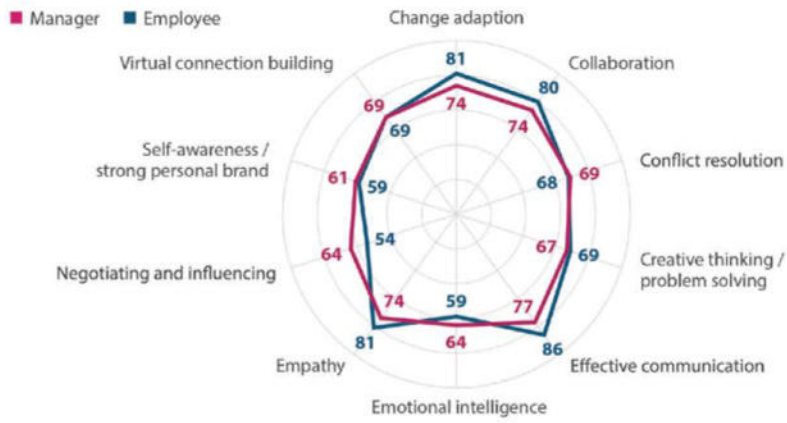
## COMPANIES NEED TO INVEST AND TRAIN IN TECHNOLOGY

Our survey found that 36 per cent of global employees don't use digital tools such as Slack, Teams, or Zoom to engage, and only 33 per cent used task management or collaboration tools to stay on top of projects. Instead, most continued to rely on more traditional communication channels such as email, telephone, or in-person meetings – risking isolating hybrid/remote employees.

Organisations must adopt new communication methods that are more suited to hybrid working

**How important are the following skills for hybrid teamwork?**

Results range from 0 (not important) to 100 (very important)




Importance of the skills has been calculated as the mean of the ratings "not important* (0), "partly important" (50), and "very important"


and ensure that everyone is skilled and confident in using them. The ability to successfully use the tools available to continue collaborating and innovating – regardless of working location – will be immensely valuable for everyone.

For example, Miro has been used successfully by our remote teams as an online "whiteboard" to share ideas or for mind mapping. Elsewhere, tools such as Monday.com can create workflow, increase visibility, and enable feedback about projects. Of course, with the introduction of any new technology, it's incumbent upon leaders/managers to ensure that appropriate training and support is available.

## AWARENESS IS KEY

Only 20 per cent of global employees who responded to our survey are currently exploring team dynamics and culture to improve team performance. This is despite our study's finding that the most highly valued skills for hybrid employees/teams are:

- Effective communication (the number-one skill required for effective hybrid teamwork)
- Empathy
- Adapting to change
- Collaboration
- Conflict resolution
- Virtual connection building.

Exploring team dynamics, team effectiveness, and culture can help to improve not only connections, but also the interaction between and performance of hybrid employees, and their engagement. Our survey found that teams still feel they are lacking the deeper emotional connection that comes from social interaction and casual conversation. Ultimately, this connection is what builds a unified, engaged, and cohesive community, which is the foundation for longer-term innovation and business success.

At Insights, we use the Discovery awareness model to help people understand psychological type and develop the human skills needed to adapt and connect with others, improving relationships and achieving better outcomes and performances. Awareness of self helps you understand your strengths and weaknesses, where and how you can add most value, how to challenge appropriately, and how to turn your ideas into new realities. Taking the time to understand others – their strengths and weaknesses, likes and dislikes – helps you become more understanding and accepting of others, and able to adapt, connect, and collaborate more effectively to achieve better business outcomes.

We also use Discovery's common language of colour to help make these preferences easier to understand and more memorable and give people the tools to talk about issues in a non-judgemental, non-confrontational way.

Hybrid teams are here to stay. These few things should help managers focus energy and resources in the right direction, ensuring that people are supported and enabled, and businesses are successful in the future world of work. EBR

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She has over 28 years of experience in learning and development, leadership entrepreneurship, strategic execution, and commercial focus. She is an advocate of, and strong believer in, empowering people and in the power of unlocking entrepreneurial skills and mindset to support personal and professional growth, innovation, and new thinking to solve problems.

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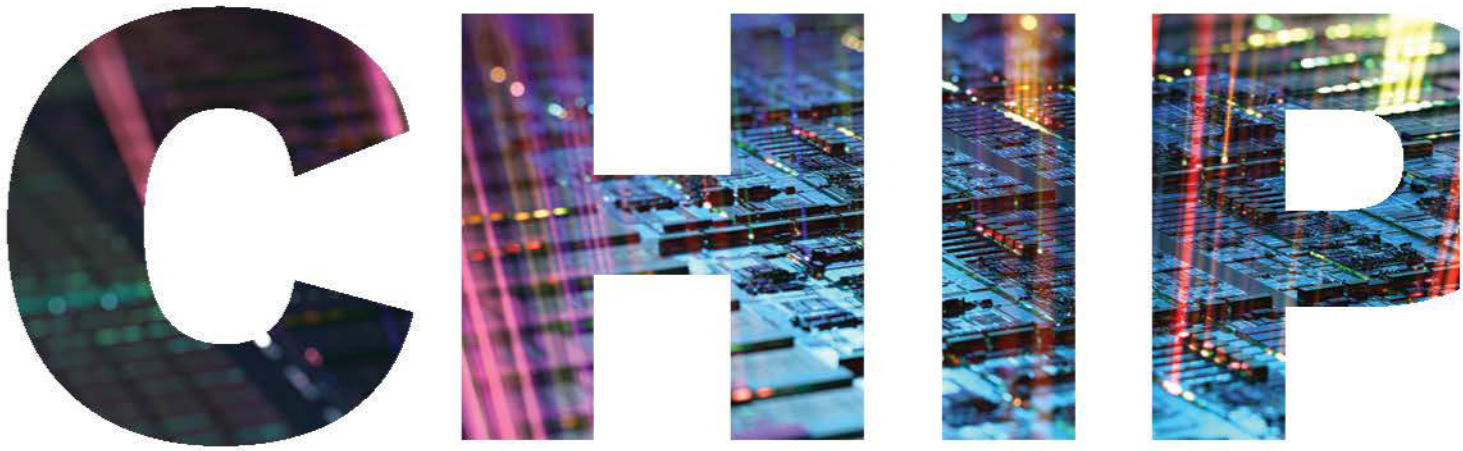



**Until recently, Taiwan's central position in the global supply chain of advanced semiconductors was not seen as an issue. But today, in an uncertain geopolitical climate, governments around the world have good reason to reexamine the security of supply of these increasingly crucial components.**

Economic prosperity and global power in the twentieth century were defined by oil. Today, economic growth and our very way of life are defined by silicon. Semiconductors that are thinner than a strand of human hair power everything from our electric toothbrush to our smartphones to the most sophisticated fighter jets.

The global semiconductor market was valued at US$573.44 billion in 2022 and is projected to exceed over 1 trillion dollars by 2030. To put this into perspective, in 2021 China spent US$432 billion on imported microprocessors, the equivalent of its total expenditure on grain and crude oil imports.

Given the crucial role of semiconductors, often referred to as chips, in the modern-day economic system, it is surprising that it has taken increased tensions with China and the supply chain disruptions caused by COVID-19 for heads of state to view seriously the vulnerabilities in these global supply chains.

## SUPPLYING CHIPS

The quirk of history that located the most advanced semiconductor manufacturing in Taiwan was a product of the far-sightedness of the government, which invested billions in the sector, the decision of Western policymakers to leave the location of manufacturing facilities to market forces and, within the EU, the system of regulation and taxation, which has created an environment inhospitable to the emergence of domestic tech champions.

The Taiwan Semiconductor Manufacturing Company (TSMC), which manufactures the most advanced chips, stands at the apex of a complex global supply chain, comprising thousands of specialised companies across the world. The Semiconductor Industry Association estimates that, prior to the pandemic, one of its members had more than 16,000 suppliers, of which more than 8,500 were outside the US. The raw materials and the components of a chip, criss-cross the world before eventually ending up as the brains of a device.

# EVERYWHERE AND WITH EVERYTHING

by Elizabeth Stephens

The quest for cost savings meant that this global complexity was acceptable for much of the past 30 years. Now, the vulnerabilities of global supply chains, revealed by COVID-19 and the geopolitical tensions between the US and China, are putting pressure on chip manufacturers to onshore or friend-shore part of the manufacturing process.

Given the complexity of the sector, from the raw materials to the human talent and the vast investment required to fabricate chips, the industry may be confronting its greatest challenge.

**Now, the vulnerabilities of global supply chains, revealed by COVID-19 and the geopolitical tensions between the US and China, are putting pressure on chip manufacturers to onshore or friend-shore part of the manufacturing process.**

## WHAT'S IN A CHIP?

Chips are made from silicon. Each chip has hundreds of tiny layers, made up of transistors and electrical circuits, which determine what the chip can do. The miniscule circuitry is printed on each layer using lithography, extremely precise rays of light. The smaller the width of the transistor gate – 5nm, 3nm – the more processing power can fit in a given space, with less power needed. The smallest transistors are more than 10,000 times thinner than a human hair.

Different-sized chips are used in different equipment. Intel manufactures a lot of 10nm and 14nm chips that are used in computer CPUs and GPUs. Less-advanced 28-40nm chips are primarily used in the automotive industry and in household devices such as coffee makers and electric toothbrushes. Chips of 5mn are sought after for advanced data processing and AI. They are used in the latest smartphones, NASA Rovers, and F35 fighter jets.

## THE INSATIABLE APPETITE FOR CHIPS

A record 1.5 trillion semiconductors were shipped in 2021 and demand is expected to double by 2030. The rising consumption of consumer electronic devices fuels the market, as does demand from the industrial and military sectors. New technologies such as the Internet of Things, artificial intelligence, and machine learning create new opportunities for market development and enable chips to process large amounts of data in less time.

## THE CHALLENGE WITH CHIPS

Access to semiconductors is an integral part of national security and governments across the political spectrum are seeking to develop

domestic manufacturing capability. To be successful, this will require the adoption of government-directed industrial policy on an unprecedented scale.

## COSTS

Chip fabrication requires massive fixed-asset investment and, therefore, large subsidies, but with no guarantee of success. In August 2022, the Biden administration announced US$52 billion in subsidies for chip manufacturing and research in a piece of legislation that became known as the "Chips Act". This was a significant step forward for US domestic manufacturing but, to put in perspective the sums required to compete in the semiconductor space, this investment was dwarfed in March 2023, when South Korea announced it would build the biggest chip centre in the world, using US$230 billion of private investment from electronics giant Samsung over the next 20 years.

Each fab easily costs US$15 billion to build, and the essential piece of equipment to yield the most advanced chips costs upwards of US$180 million. Creating 5 nm chips and below requires the use of an extreme ultraviolet lithography machine. It uses small rays of light to etch the miniscule circuitry onto the chips. Only one company, ASML, based in the Netherlands, makes this EUV machine, the price of each one being over US$180 million. Buying these machines means that production costs will soar, but if you can't implement the process without the machine, you have no choice but to buy it. There is fierce competition to be the company that buys the next machine to be manufactured among the three main players in the market, TSMC, Intel, and Samsung, who can afford the hefty price tag.

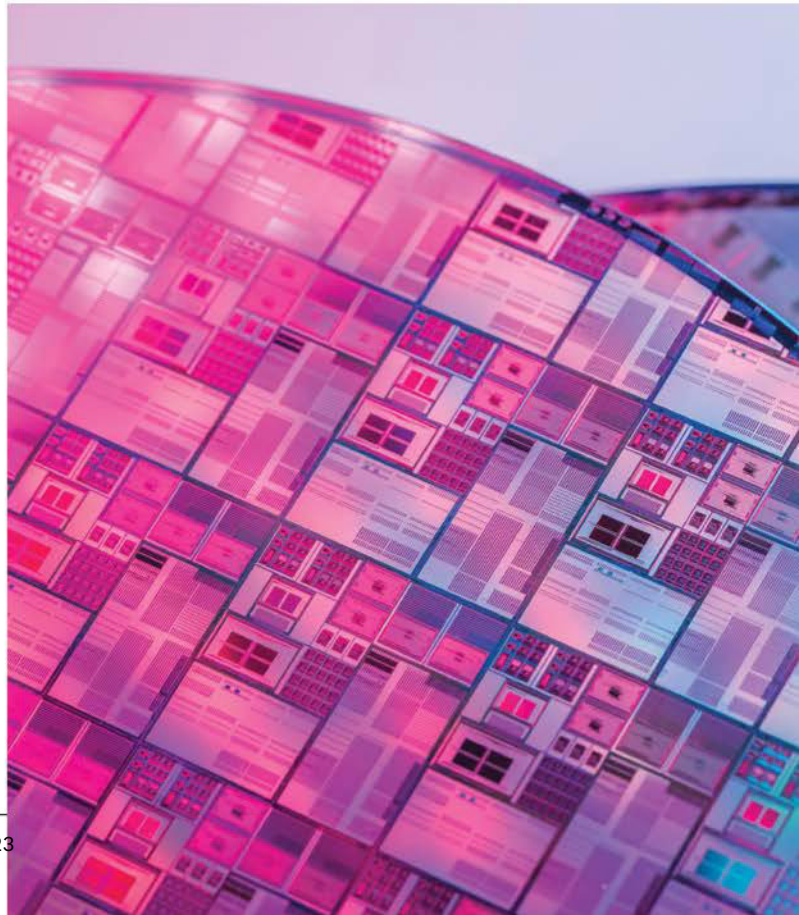
**China currently controls the majority of the world's separation facilities that produce the purified metals. In the event of increased geopolitical tensions or supply chain disruptions caused by other factors, the US and EU could quickly face shortages of these metals.**

## BUILDING PLANTS

Once the funding for fabs is made available, building time is three years and the project requires 6,000 construction workers to complete. Each fab is a manufacturing marvel. It is at least 250 thousand square feet, and houses 9 million metres of cabling, 1,200 multimillion-dollar tools, and 1,500 pieces of utility equipment.

## TALENT

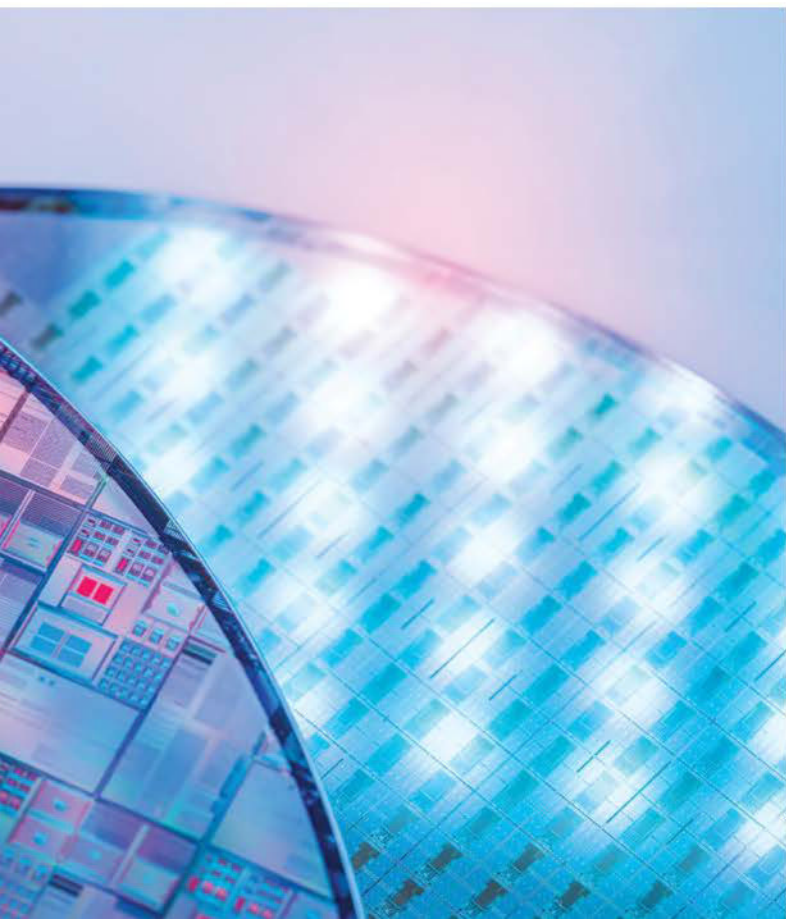
Once the fab is constructed, multiple layers of talent are required for each step of the design and manufacturing process. A large, fab-less semiconductor company may well need 100 doctorate-level



designers at the design stage. A sizeable fab needs about 4,000 workers with skills in production engineering, logistics and support, and production operations, plus thousands of lower-skilled workers. As technology evolves, with greater analytics and automation, the talent and skills required will also evolve and employment requirements will change.

To expand domestic manufacturing, the US and the EU will need to rethink their educational priorities and incentives for talented individuals to work in the sector. In 2021, the global semiconductor industry had about 2 million direct employees worldwide. The number is projected to increase to 3 million by 2030 if current forecasts for increased production are to be met.

The EU and, more notably, the US have an asymmetric advantage in attracting talented individuals, given their high living standards and opportunities for personal-wealth creation. Current immigration requirements are undermining the allure of the regions as employment destinations. As a consequence, the unanswered question remains: where the talent will come from.

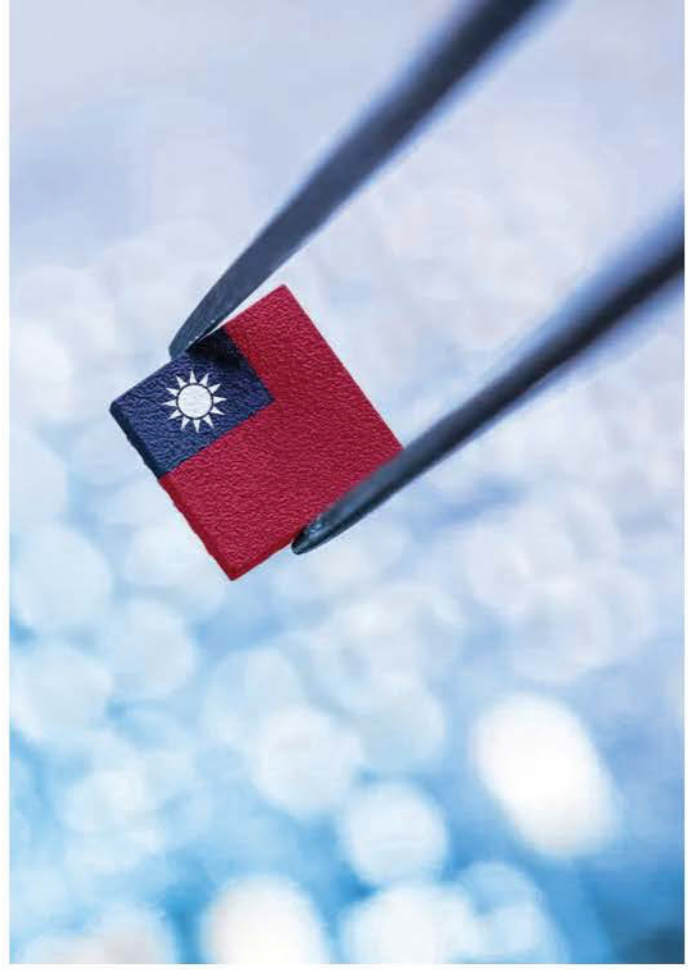


## RAW MATERIALS

Once the talent is in place, the 17 rare earth elements, which cluster near the bottom of the periodic table, become vital to the manufacture of semiconductors. While the US government lists these minerals among those deemed critical to the country's economic and national security, the term "rare earth" is misleading. These metals are relatively abundant in the Earth's crust, but extraction is complicated because such elements are jumbled together with many other minerals in different concentrations.

China currently controls the majority of the world's separation facilities that produce the purified metals. In the event of increased geopolitical tensions or supply chain disruptions caused by other factors, the US and EU could quickly face shortages of these metals.

Investment in domestic mining infrastructure and securing supplies in other regions of the world is crucial if the US and EU are to enhance their security of supply, particularly as demand



for these metals increases. While this is achievable, the costs involved are significant and, for the EU, sustainability and environmental considerations may act as an impediment.

Newer materials that are used in the production of chips that are capable of handling high voltages and currents, as required for electric vehicles, solar panels, and wind turbines, are a field where the US and EU can be relatively self-sufficient. Gallium nitride (GaN) and silicon carbide (SiC) can run at thousands of volts (in contrast to silicon, which can't handle extreme heat) and are quickly becoming multibillion-dollar markets.

## CHIPS ARE THE NEW GEOPOLITICAL BATTLEFIELD

Technology will define the future of geopolitics. Advanced semiconductors will define the future of military capability. The price of a fab is the same as a new aircraft carrier, with the fab now being of greater importance to national security.

The silicon shield that protects Taiwan was, until recently, considered by many to be impervious. It gave the world a reason to defend the island from invasion and, perhaps, created a reason not to invade. New geopolitical realities are challenging this assumption and Taiwan is a major vulnerability to all importers of advanced semiconductors.

**The worldwide semiconductor industry is expected to double its capacity by 2030. The question is where this capacity will be built and whether the US and EU will demonstrate the political will necessary to revolutionise domestic production.**

The worldwide semiconductor industry is expected to double its capacity by 2030. The question is where this capacity will be built and whether the US and EU will demonstrate the political will necessary to revolutionise domestic production. It is non-negotiable if the regions are to remain economically, politically, and militarily competitive and if their domestic manufacturers are to have access to an abundant supply of chips.

**ABOUT THE AUTHOR**

Dr **Elizabeth Stephens** is an investment and country risk advisor and managing director of Geopolitical Risk Advisory, a tech company that uses AI and data analytics to map geopolitical instability. She is a regular conference speaker and visiting lecturer at London and Henley Business Schools.

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# DIGITAL COMMUNICATION and PUBLIC CONCERN during natural disasters

by Federico Platania, Celina Toscano, and Fernanda Arreola

**While it makes sense that governments should use social media for effective communication with the public in times of crisis, research suggests that they should understand that their well-intentioned efforts might actually have the effect of exacerbating the problem, rather than mitigating it.**

When a crisis occurs (an economic recession, a natural disaster, a health emergency, or an armed conflict), it is essential to establish an appropriate communication process between central governments, emergency response agencies, and the public. The purpose of such communication must be twofold. At one end it must help intensify the efficiency of the emergency response teams. At the other, it must inform the population and contain public concern.

Today, a particularly intense period of simultaneous crises is touching our world. One of its most critical vectors is an unparalleled climate crisis. Global warming is the result of the increasing concentrations of greenhouse gases in the atmosphere. It jeopardises not only the natural environment but also economic stability by increasing both the frequency and intensity of natural disasters and weather extremes, threatening global food security. Combined with the increasing global inflation rate (the World Bank[1] estimates that almost 90 per cent of all countries have seen a food price inflation of over 5 per cent between April and June), it has immediate and long-term repercussions for society, leading to poverty and malnutrition.

The role of the government in attenuating such effects is fundamental. Public officers must find a way to organise regulatory responses that can reduce the impact of the crises while mitigating the fears of the population. To develop an efficient communication strategy, one must consider and understand matters of public concern and how public attention might react; otherwise, such communication may not have the expected impact, and it might even have the opposite effects, generating more concern and uncertainty. In our opinion, the moderating effect of public attention affects not only government agencies involved in disaster management, but any institution or large corporation implementing a sensitive communication strategy.

**To develop an efficient communication strategy, one must consider and understand matters of public concern and how public attention might react.**

To better understand the behaviour of such communication, we produced an academic study that sought to understand the effects of social media activity and the interaction (either positive or negative) with public attention.

In this study, we analyse the relationship between the social media activity of government agencies involved in disaster management and the agricultural commodity market during a natural disaster or extreme weather conditions and the role that public attention towards global warming plays in intensifying or reducing such effects. Our research shows a significant relationship between social media activity and agricultural commodities futures prices. We also show that higher levels of public concern about global warming intensify the impact of social activity, provoking a more intense market reaction. We go on to explain the results of our study, while providing some insights into how government agencies may better control the impact of social media.

## CRISIS AND USE OF SOCIAL MEDIA

A natural catastrophe requires timely, targeted, and reliable information. This makes social media a far-reaching tool that facilitates transmission, engagement, and accessibility, at a relatively low cost. Given the high penetration rate across demographic groups[2], social media are increasingly being used as a primary source of news and information[3], playing an instrumental role during emergencies, crises,

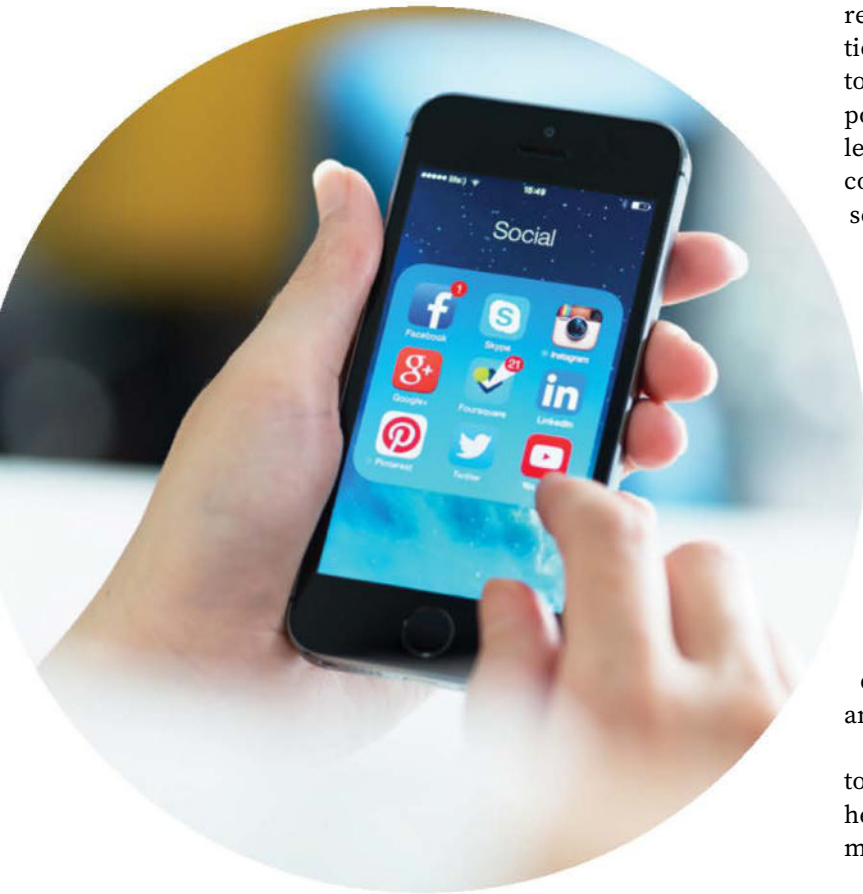
and disasters[4]. Therefore, government agencies involved in crisis management have turned more than ever to social media platforms to alert the population, share information, and enable a two-way channel of communication.

## GOVERNMENT COMMUNICATION EFFECTS ON COMMODITY PRICES

To explore the effect of social media communication, we analyse[5] the use of Twitter by several government agencies involved in disaster management in the United States. For our analysis, we collected Twitter activity related to natural disasters and extreme weather conditions. We chose Twitter because is well established and widely used by government, emergency agencies, and first responders and because it is known as a source or reference of rapidly available information.

**Our results indicate that when a crisis occurs, government agencies use social media as communication channels with targeted audiences.**

Our results indicate that when a crisis occurs, government agencies use social media as communication channels with targeted audiences. The higher the intensity of the natural disaster, the higher the social media activity and traffic, triggering public and market concern about the aftermath and potential losses. The threat of potential shortages and financial losses increases the demand for the commodity, as well as the hedging positions in the futures market, pushing up the commodity price. In other words, social media and trending topics related to natural disasters might act as public attention catalysts and enable a market reaction, leading to increasing demand for the commodity and hedging positions. In addition, our study shows that higher levels of economic policy uncertainty and public concern about global warming intensify the impact of social media communication.




## WHAT SHOULD GOVERNMENTS, CITIZENS, AND COMPANIES DO?

As our results conclude, social media are increasingly being used as a primary source of news and information. Higher levels of social media activity and traffic are associated with more severe natural disasters and extreme weather conditions and, in consequence, with deeper repercussions for the agricultural commodity market. This effect tends to be more pronounced during periods of high economic policy uncertainty and public concern about global warming.

The lessons gathered from our research allow us to provide two simple recommendations that should help to implement a resilient and efficient social media communication strategy.

**1** Our first piece of advice is simple: "Gauge public concern." Public attention plays an instrumental role in influencing and moderating the market reaction in periods of crisis. In particular, public attention and concern about global warming has been shown to intensify the impact of social media during periods of natural disasters and weather extremes. Equally important, government agencies involved in disaster management should take into consideration the economic environment when implementing a communication strategy, as higher levels of economic policy uncertainty are associated with deeper market reactions.

**2** On the other hand, governments should start a practice of measuring the market reaction to each one of their communications. To our knowledge, there is no precise agency in charge of understanding the consequences of government social media behaviour for economic tendencies. We therefore suggest that governments (and companies) should start a data and information analysis practice, for which they can take advantage of academics and scholars that can perform objective inquiries. In following these two recommendations, they will be able to tame (and therefore reduce) the negative impact of such types of announcements on commodity prices and be more aware of the wording, hashtags, images, and overall content that provides a less excessive response of concern from the public.

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# FUTURE SHAPING FOR **ACTIVE AND COLLABORATIVE STRATEGISING**

by Katri Valkokari, Sofi Kurki, Juuli Huuhanmäki, Jyri Rökman, and Kalle Kantola

**Business strategists could be forgiven for being content merely to draw up contingency plans to meet the range of foreseeable situations that the future might hold. But wouldn't it be even better to create strategies for influencing that future?**

The recent and ongoing flow of extreme global business environment changes calls for a new mindset and tools for strategy work. Strategies vary in their emphasis and scope of assumed control. For some, the business environment is considered an external force that primarily requires timely adaptation from the company. At the other extreme, *shaping strategies* refers to understanding the business environment as a co-created system that individual actors, such as companies, can affect through strategic choices and actions. In this article, we introduce future shaping, a novel conceptual construct that combines and synthesises multiple viewpoints with *active strategising*.

It is widely accepted that strategy development requires an analysis of the business environment. Future shaping, however, calls attention to the longer-term goals of the strategy. This requires a more ambitious future orientation and a more sophisticated foresight approach. It has been noted that strategy processes today mainly employ the same approaches as 40 years ago. Of the respondents to the recent follow-up of a 1983 study, "Strategic Planning in the Fortune 500", 85 per cent follow a strategic planning cycle. What has changed in the past 40 years is the realisation that for a successful strategy, not only the whole company but also its stakeholders need to be engaged (Halal *et al.*, 2021). This stakeholder engagement calls for *collaborative strategising*. In summary, today's main challenge is not strategy analysis but how to turn it into actionable business plans in a continuously changing business environment.

*Future shaping* takes this challenge on and asks what a forward-looking, actionable strategy needs in order to engage stakeholders broadly. Future shaping starts from the identification of trends and drivers that indicate emerging changes in the business environment. It then takes a step further to imagine and create a more desirable future to which people can aspire, businesses can aim, and a critical mass of actors can align. This turn from a passive tracking of potential exogenous threats towards the cultivation of an active strategic agency enables perceiving grand global and societal challenges, such as the green transition, as opportunities. In short, future shaping means paving the way for a preferred future for all.

Desired future is thus the ultimate goal of ambitious future-oriented shaping strategies. A systematic exploration of alternative futures can enable the following:

- ✔ providing a systems view of the evolving dynamics of the operating environment to identify change drivers and barriers
- ✔ restructuring current value chains to renew industrial sectors and cross their boundaries
- ✔ boosting the change through the comparison of alternative development paths resulting from different strategic choices
- ✔ building novel business opportunities, shaping markets and being a timely forerunner or an active creator of network effects

## What are the key elements of future shaping?

We have identified four central aspects of future shaping to be (figure 1) strategic foresight, active strategy, business environment, and strategic partnerships. In the following sections, we discuss each and show how they contribute to the future-shaping approach.


*Figure 1 Elements of Future Shaping*

### *Strategic foresight as the basis for actively impacting futures*

Future shaping is rooted in foresight approaches and co-creative visioning of the future. Strategic foresight is sometimes reduced to mere information gather-

ing about signs of change and creating strategies for optimal positioning. For future shaping, however, the purpose of foresight is to maintain an active and open view of the future. Analysing trends, drivers, and emerging technologies serves as an inventory of possibilities one can start leveraging when moving toward a desirable future.

**Strategic foresight mimics possible real-life situations by constructing images of alternative futures.**

In less turbulent times, strategic decision-making has relied much on decision-makers whose vast experience from endured challenges has helped tackle novel strategy issues. However, companies increasingly face situations that lack analogies to the past (Scoblic, 2020). Strategic foresight mimics possible real-life situations by constructing images of alternative futures. It then evaluates possibilities for action in these radically different future worlds. Moreover, strategic foresight helps to evaluate the preferability of alternative futures and to identify action toward a desirable future (Bell, 1997). This evaluation, and thus understanding of future valuations, needs to account for a diverse set of viewpoints, ranging from aspects of future society to understanding future customers and environmental limitations, to allow the vision for the shaping strategy to be future-proof.

### *Active strategy – building the future competitive edge*

At the heart of future shaping is the idea that "the future cannot be predicted, but it can be invented."[1] Our current world is a result of innovations that have shifted the shared expectations and perceptions of possibilities. Their creators have understood the technological opportunities and have been able to match them with societal needs for paradigm-shifting breakthroughs. For example, **Apple** deployed the macro-trend of media consumption of the time by introducing a device that set brand new expectations for cell phones. The reframing of the cell phone as an internet and entertainment device set off a novel wave in the communication revolution (Flaig *et al.*, 2021).

Therefore, an essential aspect of future shaping is enabling creative visioning as the basis of strategy formation. Key tools for a future-shaping active strategy include future-oriented practices such as knowledge-building through participatory methods and design thinking. More generally, future shaping demands an attitude prioritising the ability to make use of the future in the process of innovating the present and, with this perspective, create something that everyone needs but no one has been able to long for yet.

### *The art of guessing[2] – the business environment is changing all the time*

Future shaping is informed by analysing the complex and dynamic systems forming the business environment. The innovation landscape is increasingly volatile, uncertain, complex, and ambiguous (VUCA). These dynamics can no longer be addressed in conventional "linear" terms such as "technology push" or "market pull". As complexity science has pointed out, the causalities in a complex network of actors (such as an ecosystem) are extremely difficult to point out. By now, it is clear that business environment analysis limited to customers and competitors is insufficient. The actions and aims of a broad range of other stakeholders need to be understood.

Currently, the different paths of how the imagined futures might come to reality are under-explained and under-explored. This deficit is at the heart of disruption. The structure and paths of change are not sufficiently understood. We all need novel tools to understand how the systems co-evolve and how our actions – intentional and emerging – are intertwined and connected. Competitors engaging in collaborative shaping actions to overcome disturbances by, for example, pooling resources at a communal level can produce resilience in an otherwise turbulent environment (Beninger &

Francis, 2021). The dynamics of the business environment can be examined through (both present and future) actors and their strategic intentions and actions. Different application domains of autonomous vehicles provide good examples of how current actors are bringing forward their views on the future of flying[3] (Finnair), robot cars[4] (Google), or autonomous ships[5] (Rolls-Royce). Sensitivity to the environment needs to be combined with agility, and even the forerunners need to be able to change their path. Just ask yourself: can you kill off your well-planned business model in a week – and create a new one the week after? And with whom should you scan the new opportunities arising from future visions?

### *The future is built together – strategic partnerships and ecosystems as tools for future shaping*

Future shaping involves not only finding measures for implementing one's own vision of the future but understanding the competing visions and finding complementarities with them, along with analysing cross-impacting goals. Therefore, in forming strategic partnerships, one should consider stakeholders who can affect or be affected by the shaping efforts and take action to address them. For instance, **Novell** found a way to push through its new operating system for LANs by selling off major parts of its other business to reduce competition and send a strong signal to other manufacturers about its commitment to innovation (Hagel *et al.*, 2008).

The key to ecosystem composing and orchestration is generating shared meanings together with key actors. Popularised by Peter Senge, the idea of a shared vision should not be limited only to individual organisations. Ecosystems shape the future. This becomes crucial, as does the need for effective boundary spanning when parties have different and colliding interests. Thus, at the ecosystem level, exchange and interaction practices set the boundaries and rules of the game for an entire system and different futures within it. Through ecosystem thinking, one can recognise dependencies between actors and distinguish between the ecosystem actors that can be guided, influenced, or even controlled, and the factors that remain immune to shaping efforts.

### Bring the future into the present – how can we evaluate futures?

Assessments of preferable futures are tightly connected with valuations that make a certain future preferable to others. Preferability, even in business, involves a broader set of considerations than profitability alone. In recent years, companies have witnessed the strength of political consensus and introduced various environmental assessment methods on top of traditional methods of business case analysis. Hence, the valuations of desired futures are counted in local currency and increasingly involve environmental factors and other, less-tangible units closer to social norms and values.

On a more fundamental level, there are and will remain differences in preferences and valuations regarding preferred futures. While these differences are a fact of life, they also impact cultural and business value assessments. Values are embedded in our views of the present and future opportunities as we continuously trade between the costs and benefits of our choices. In a complex networked business environment, these evaluations are not easy.

The core of business strategies is the ability to define a preferable future from one's own perspective and make decisions based on independently relevant values. However, it is not enough, as competing visions for preferable futures affect the likely outcomes of any future-shaping efforts. It seems inevitable that actions intended to produce a "good" future occur in a mesh of widely differing actions, striving to

achieve competing, possibly mutually excluding, goals.

The valuation of different potential futures precedes the actors' orientations and actions. Future shaping is an approach that helps to consider questions about whose visions of the future come about, why some visions become performative, and who has the capacity to extract their visions to actionable agendas and build a competitive edge by shaping the future. A vision that can shape the future answers the genuine needs of the stakeholders, and it needs to be actively implemented.

**FOOTNOTES:**

1 This quote has appeared in literature in slightly different forms. It has been attributed to at least Dennis Gabo, Abraham Lincoln, Ilya Prigogine, Alan Kay, Steven Lisberger, Peter Drucker, and Forrest C. Shaklee.

2 Quoting futurist Bertrand de Jouvenel, the method used by futurists 1 and 2 is mostly based on "the art of guessing". Research has shown that even highly merited scholars fail more often than they succeed in producing accurate judgements on future events over a long time range (Tetlock 2005).

3 https://newatlas.com/finnair-future-fleet/10520/

4 https://www.discovermagazine.com/technology/googles-car-is-the-face-of-future-robots

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# ON THE ROAD AGAIN: **PUTTING THE ROCK TOUR SUPPLY CHAIN ON MUSIC**

By Gilles Paché

**Rock tours attract millions of fans each year around the world. But are concertgoers aware of the logistics involved in pulling off impressive concerts? Gilles Paché offers an overview of a fascinating topic that deserves more attention from researchers and practitioners.**

While the COVID-19 pandemic put a major halt on rock tours for more than a year, now is the time for legendary bands and singers to return to the stage, after having experimented with virtual concerts on Web 2.0 platforms[1] instead of the traditional live gigs. Just like the restoration of a "new normal" in companies, 2023 is a return to the big tours for dozens of artists and bands in the United States[2]. More broadly, the entertainment industry, including major sporting and cultural events, is experiencing an economic renaissance, as evidenced by the popular success of the 2022 World Cup football tournament in Qatar. If the public is now accustomed to seeing the impressive images of thousands of fans gathered in a stadium for the concert of a famous band, it does not suspect that worldwide tours are the result of the perfect coordination of hundreds of people, a prerequisite for a total – and successful – experience for fans. To illustrate the "logistical overkill" and the stakes involved, one of the best examples is undoubtedly the *Rammstein Stadium* tour.

The tour of the German metal band, with its "sulphurous" reputation, uses 180 semi-trailers, more than 1,000 tons of equipment, and two stages 230 feet wide and 130 feet high. It is the biggest rock tour in the world, organised in two sequences, from May to August 2019, then from May 2022 to August 2023, for a total of 104 concerts in Europe and North America with exceptional attendance (including 80,000 people at the Song Festival Grounds in Tallinn, Estonia, on 20 July 2022). Each concert ties up a stadium for 10 consecutive days, while setting up the stage requires seven days of work and the presence of 300 technicians. As for the concert itself, the pyrotechnic effects lead to the burning of 265 gallons of fuel oil per evening, to which must be added the electrical consumption of the 2,000-light shows and 370 music speakers. With the seven Boeing 747 aircraft used to transport all the material, we are very far from the *Reise, Reise* tour in 2004 and 2005, which had required Rammstein to employ "only" 10 to 13 semi-trailers.

When thousands of fans attend a rock concert, can they imagine the remarkable organisation required for the band or artist to perform? In fact, it is enough to look at the stage, the musicians, or the light shows to realise that first-class event logistics had to be implemented to transport and handle all the equipment. The admiration of the fan who is also an *aficionado* of logistics will be even stronger when they learn that the band or the artist will reproduce the concert 500 miles away the next day, then 1,000 miles away the day after. In brief, city after city, a rock tour requires strict planning of the moving of goods and people, and the coordination of supply chain operations could be even more complex given that a delay in the delivery of musical instruments or an incident could cancel a concert. In Marseille (south of France), the memory is still vivid of the collapse during its assembly in July 2009 of the roof of the stage planned for a Madonna concert of the *Sticky & Sweet* tour, causing the death of two technicians and the final cancellation of the concert, as a result of the very tight schedule of the subsequent dates. Behind the human drama, the complexity and fragility of the rock tour supply chains are revealed. But what do they really cover?

## Moving goods and people

A rock tour is based on a series of concerts performed by an artist or a band in different cities in the same country or in different countries[3]. Obviously, the volume of a tour varies greatly, and it is not possible to compare a series of a few intimate concerts in halls of 1,000 people with gigantic concerts of a hundred dates in monumental stadiums that can accommodate up to 80,000 people. In the second case, we are dealing with truly multinational events operating on a large scale and managing massive flows whose sequencing of concerts is based on rigorous planning of operations and

**It is not possible to compare a series of a few intimate concerts in halls of 1,000 people with gigantic concerts of a hundred dates in monumental stadiums.**

associated teams. The supply chain associated with the entertainment industry is traditionally subject to specific constraints compared to other, more conventional supply chains, with very little tolerance for delivery delays and scheduling errors. Indeed, each different piece of equipment transported is crucial to the performance of the concert. Thus, it is impossible to imagine that a Rolling Stones or Genesis concert could be held without a set of drums, or that the fans should be asked to come back the next day, when the drums will finally have arrived at their destination, as may happen during occasional stock-outs in a store[4].

**The transport technologies available at a given moment are at the heart of the management of the operations of a rock tour.**

The transport technologies available at a given moment are at the heart of the management of the operations of a rock tour, and the difficulties are increased when it is necessary to cross borders, with customs clearance phases conducted quickly. The supply chain difficulties linked to transport are the loss of products, their damage, delivery delays, and the lack of security of the flows. To remedy this, the quality of service required by the organisation of a rock tour implies the use of appropriate means of transport. On the ground, special trucks with padded walls and corners are systematically used to protect the (very fragile) equipment. In the air, the use of large Antonov or Boeing 747 aircraft is preferred, but the new generation of aircraft have weight restrictions and smaller doors, which sometimes makes them unsuitable for rock tour supply chain organisation. This reality is not well known by fans, and when aircraft are used, it is more usual to hear about the travels of rock stars, the most famous example being the different aircraft used by the Rolling Stones over the years and decorated with the famous tongue (see illustration 1).

**Illustration 1.** The public face of transportation: the example of the Rolling Stones' aircraft and its famous tongue


**Source:** Alec Wilson picture (2018) (Wikimedia Commons)

When all the equipment arrives at a concert venue, it is unloaded and set up in a predetermined order that never changes: rigging, set, lighting, video system, and audio system. The instruments are the last to be moved onto the stage, and after the concert, everything is repacked in reverse order. But rock tour logistics should not be limited to the management of the physical flow of equipment necessary for the stage performance. One of the particularities of rock tours is that they involve a lot of people whose movements must also be organised from site to site, in reference to a succession of dates chosen according to their economic potential (the number of fans who reside in the trading area, which can be several hundred miles, depending on the country and the fame of the artist or the band). It is not uncommon for rock tours to rely on crews of more than 100 to 150 people, including riggers, carpenters, caterers, security guards, technicians, electricians, and drivers. It is easy to imagine the stakes in terms of accommodation and catering.

## Implementation of overcapacity

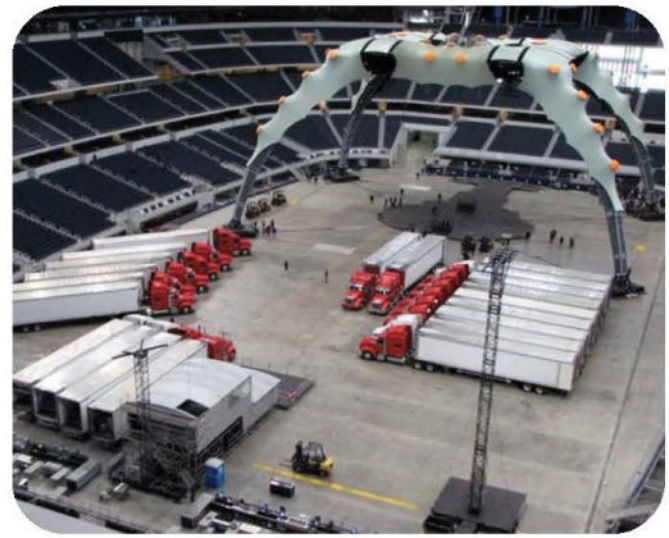
If the supply chain associated with rock tours emphasises the importance of the volumes to be handled and transported, the major point remains the continuous pressure on the management of the operations. When the price of a ticket is several hundred euros, which does not cool the ardour of the superfans[5], it is

not possible to cancel the concert because of poorly synchronised supply chain operations that result in a delay in the delivery of one or more essential elements. To cope with such pressure, the solution chosen for the largest tours is the implementation of a systematic overcapacity, otherwise known as "operational slack". Following Jay Bourgeois III [6:31], it is possible to speak of a "cushion of actual or potential resources which allows an organisation to adapt successfully to internal pressures for adjustment or to external pressures for change in policy, as well as to initiate changes in strategy with respect to the external environment". In concrete terms, two platforms are used: when one team has finished preparing the concert in city A, a second team starts preparing the next concert in city B.

**When one team has finished preparing the concert in city A, a second team starts preparing the next concert in city B.**

The case of U2's *360°* tour between June 2009 and July 2011 is impressive because it used three stages for more than two years (the set-up time of each stage was four days), and consequently *three supply chain teams:* one team working at the concert site; one team dismantling the stage from the previous concert; and one team setting up the stage at the next concert site (see illustration 2). In total, 189 trucks transported the different scenes (390 tons of material), using 380 drivers; 12 buses were also used to manage the 550 people associated with the 360° tour. Even if this rock tour remains an exceptional event, as much in its duration as in its pharaonic dimensions, with a scenic structure resembling a giant spider, it constitutes an emblematic representation of the complexity of the event logistics, which should not weaken in the next years in an experiential stream. Indeed, rock tours must give the fans a unique and memorable experience, with the use of a gigantic stage that has nothing to do with the ultra-minimalist Beatles concerts of the 1960s, with a reduced stage and four musicians playing for only about 30 minutes[7].

**Illustration 2.** A partial view of the U2's *360°* tour logistics



**Source:** http://www.u2tourfans.com/, accessed 29 December 2022.

The example of the three stages of U2's *360°* tour should not be considered aberrant, as it is in line with the principles of behavioural theory. Overcapacity is the excess of actual or potential resources that help an organisation to overcome internal or external pressures, as indicated by Jay Bourgeois III, facilitating its adaptation when there is a strong time constraint. The presence of a quantity of resources that exceeds the minimum necessary to achieve a given level of production of a service improves reaction capacity and, therefore, customer satisfaction. Harvey Leibenstein explicitly talks about a slack that is essential to the "good life" of an organisation, which he calls "X-efficiency"[8]. The existence of several stages fits perfectly into this type of analysis, since it reduces the pressure on the teams at the end of a concert to dismantle and transport the equipment to the next city. Without this slack, artists or bands would probably have to reduce the number of dates offered to fans, which would negatively impact their satisfaction, especially with a significant increase in the distance to travel to participate in the unique and memorable experience that is the concert.

## Importance of planning

However, it would be wrong to think that the implementation of logistics overcapacities makes operations planning unnecessary. The logistics of rock tours require an upstream definition of all supply activities, with the identification of the various critical tasks whose non-performance – or delayed performance – could block the supply chain, and consequently the execution of the concert in the various locations that have been selected. The organisation of a tour is therefore based on a negotiation process linked to the acquisition of logistical resources from specialised partners, which is comparable to the situation of commercial supply chains. For example, the Averitt company offers customised supply chain solutions based on 100 drivers for OTL 53-feet trailers specially equipped for the entertainment industry (for example, see the description of Drake's *Summer Sixteen* tour by Mark Solomon[9]). This negotiation to obtain logistical resources essential to the development of the succession of concerts is a key element to create the conditions for totally successful control in the sequencing of supply chain operations.

**It should not be forgotten that one of the major problems of rock tours is linked to the equipment that must be handled and transported.**

It should not be forgotten that one of the major problems of rock tours is linked to the equipment that must be handled and transported over long distances, under special safety and protection conditions. Accordingly, rock tours, especially when they take place on several continents, rely on excellent project management, which consists of designing and executing a set of operations to obtain a specific result. All project management is subject to the following three constraints: the technical specifications of the project; the material and immaterial resources required to carry it out; and the imperative respect of the deadlines for delivery. This is the case for rock tours, which rely on a set of processes throughout the life cycle, from the launch phase (beginning of the tour) to the closing phase (end of the tour). For rock tours, there is also the consistency of the quality of the infrastructure used. With increasingly elaborate tour productions and strictly timed concerts, the infrastructure is a decisive factor for the fastest-possible assembly and disassembly of the scenic structure.

While logistical planning is essential to avoid last-minute *"bricolage"*, in other words making do with the means at hand in an emergency, it does not prevent unexpected difficulties due to an unfavourable environment. This was the case for Coldplay's *Music of the Spheres* tour in 2022. Faced with the climate challenge, to which its young fans are very sensitive, the band organised sophisticated logistics to offer an "eco-responsible" tour, with the use of solar panels, a portable battery, and a kinetic floor. In addition, as well as the biodegradable confetti and eco-cups used during the concerts, the audience was invited to pedal to generate green energy and

allow the concert to continue. However, Coldplay acknowledged huge supply chain problems as, in trying to make their tour green, the band quickly ran into difficulties transporting equipment at an acceptable cost. An interruption of the *Music of the Spheres* tour was considered, before unexpected sponsors prevented a financial crisis and allowed the tour to continue. This example is interesting because it highlights the fact that the issue of implementing sustainable supply chains affects the entertainment industry as much as the retailing and manufacturing industries and, for that reason, knowledge transfers are of obvious interest.

## A key topic to be explored

Rock tours attract millions of fans each year around the world. But are they aware of the logistics involved in pulling off impressive concerts? Indeed, for a rock tour to succeed, it requires the transport of a lot of goods, with the teams in charge of handling them, but also of assembling and disassembling the different elements of the stage structure every day. These teams must be fed and housed city after city, requiring efficient hospitality management. In comparison, transporting 25 tons of fruit and vegetables from Spain to Norway or importing 40 containers of toys from China is "a piece of cake". A rock tour lasting several months or even years requires moving huge scenic structure, fragile musical instruments, hundreds of costumes, and giant video screens. Of course, when a rock tour is launched, there is no room for delays, damage, or scheduling errors. Each leg of the tour must be tailored to the specific laws and customs regulations of each country, which can be very demanding.

Paradoxically, the rock tour supply chain has not been tackled head-on by management research, which leaves the field open to carry out work in cultural economics, sociology, musicology, or ethnology, as if the management of rock tour flows over several hundred thousand miles did not raise any specific issues. It is surprising when we learn that, in the late 2010s, the various tours of the Rolling Stones since 1962 had led the band to travel more than a million miles, or 43 times around the Earth! However, the specific constraints associated with tours are undeniable, and they deserve special attention. It is enough to consult Google Scholar to see the very low number of works dedicated to the rock tour supply chain stakes; an example is the recent doctoral dissertation of Gabrielle Kielich in communication studies[10], and the almost total absence of academic articles published in the best world journals in logistics and SCM. This lack of interest is regrettable and is undoubtedly rooted in a purely "artistic" vision of rock tours, for which "the stewardship will follow" (*"l'intendance suivra"*), to quote General de Gaulle's famous sentence. At best, some observers think vaguely that the logistics can be outsourced in total confidence to specialised competent logistical partners like Averitt.

**This field of event logistics can attract talent, because it offers a stimulating environment that would, for example, allow bright students to link their passion for music with their job.**

This approach cannot be satisfactory when we consider the economic benefits of rock tours, especially

for the cities hosting the concerts (even if it remains difficult to quantify these benefits precisely; for example, the fans' spending on food products and accommodation at the concert venue). Even more importantly, significant business opportunities exist, especially for graduate students who have chosen to specialise in supply chain management. This field of event logistics can attract talent, because it offers a stimulating environment that would, for example, allow bright students to link their passion for music with their job, because finally, as the philosopher Georg Wilhelm Friedrich Hegel[11:22] wrote, "Without passion nothing great in the world has been accomplished." By way of comparison, for many years, MBA programmes in sports management have been developed in Europe to feed the professional sports sector, especially football. Tens of thousands of students passionate about sports are trained in marketing, finance, HRM, or management control to improve the governance of well-known clubs. This is not yet the case for the logistics management of rock tours. A word to the wise!

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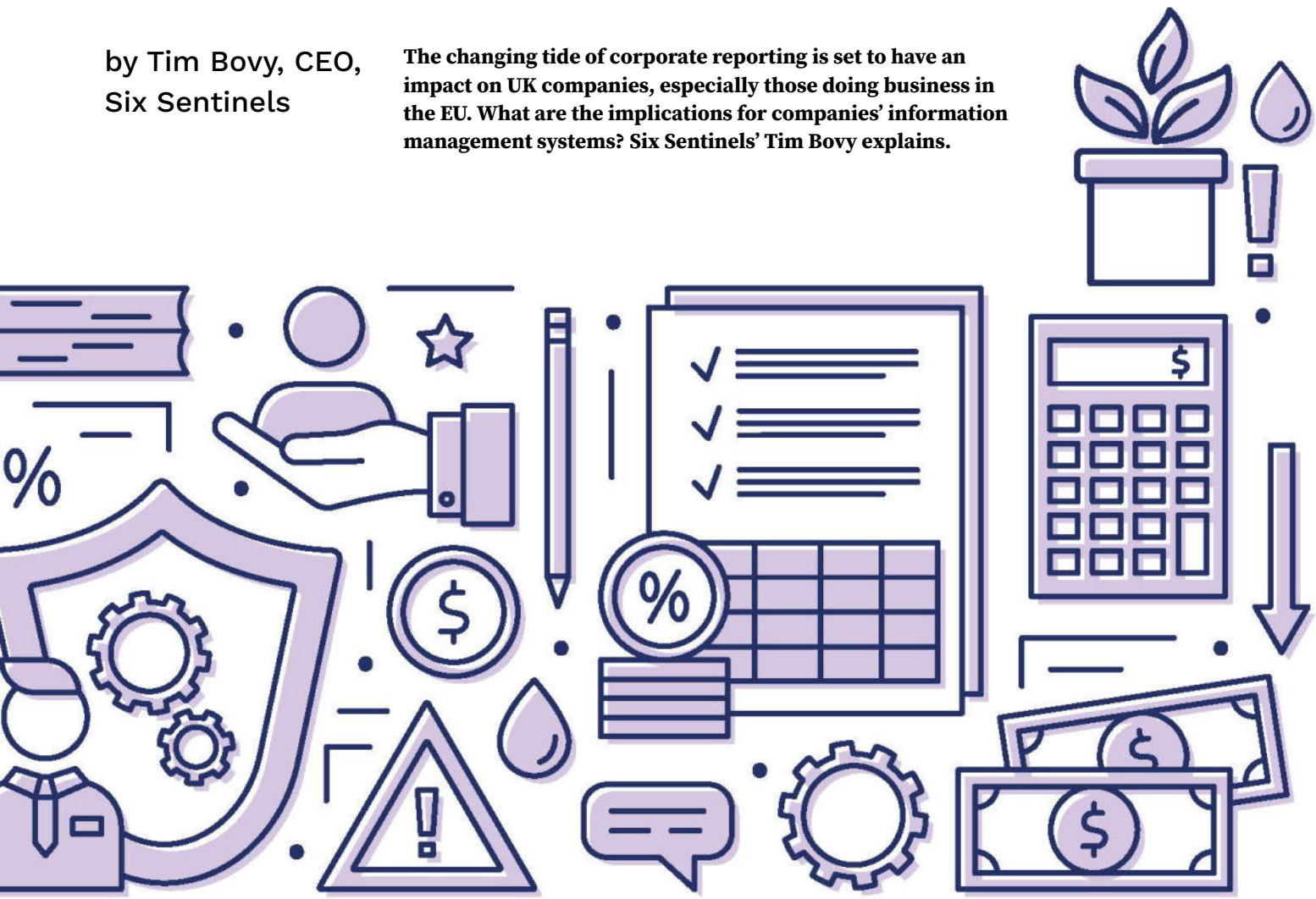
# DOUBLE MATERIALITY:

# Realising the Value of a Comprehensive Information Management System

by Tim Bovy, CEO, Six Sentinels

**The changing tide of corporate reporting is set to have an impact on UK companies, especially those doing business in the EU. What are the implications for companies' information management systems? Six Sentinels' Tim Bovy explains.**



The London Stock Exchange (LSE) guidance on environmental, social, and governance (ESG) issues recommends that issuers "should explain the relevance of ESG factors to their business model and strategy", describing how they are positioning themselves either "to benefit from these factors or to manage and mitigate the risks associated with them".[1] There are two sides to this equation: the effect of the outside world on an organisation's operations (Outside-In), and the organisation's effect on people and the planet (Inside-Out). This two-way street takes us to the heart of double materiality. The first pertains to financial materiality; the second, to impact materiality.

Although, like the United States, the United Kingdom tends to focus on the first of these, the European Union's Corporate Sustainability Directive (CSRD) and the European Sustainability Reporting Standards (ESRS) are necessitating that organisations prepare themselves for the requirements of double materiality, adding the category of impacts to risks and opportunities. These requirements will place a concentrated emphasis on the ability of an organisation's non-financial information management systems to access a large body of information for reporting purposes.

The systems of UK companies operating in the EU will need to be equally comprehensive. In fact, the concept of double materiality appears to be gaining traction in the UK. The LSE, for example, has noted that: "While the TCFD recommendations emphasise single materiality (information which has an immediate financial impact and therefore should appear in financial filings), companies should also pay attention to double materiality, the impact a company's actions have on society or the environment," adding that it "can be of significant benefit for the future".[2] The LSE is signalling that performing impact analyses is going to be as important as undertaking risk analyses.

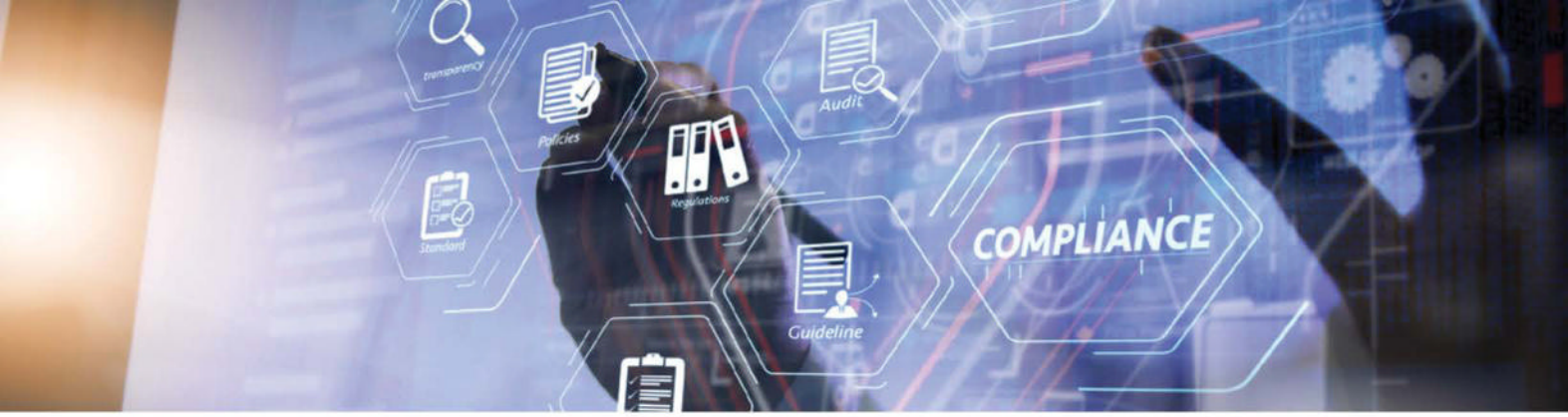
The CSRD was adopted by the European Parliament on 10 November 2022, and by the Council of the European Union on 28 November 2022. Once implemented into the national law of EU member states, its requirements will be phased in from 2024 (for reports published in 2025). CSRD replaces the Non-Financial Reporting Directive (NFRD). The main difference between the two is that environmental, social, and governance (ESG) reporting will increase to 49,000 companies in Europe, compared to the 11,000 covered by the NFRD directive.

Some large organisations will already have experience reporting on double materiality. The 2022 KPMG Survey of Sustainability Reporting (published in October) "concluded that the GRI Standards are the world's most widely used, adopted by 73% of the largest 250 global companies and by 68% of a wider sample of 5,800 businesses around the world".[3] Nevertheless, this still leaves a significant number of major companies and, with a reporting requirement for businesses of over 250 employees, a substantial number of SMEs without such experience.

Reporting on double materiality will cover a broad swathe of issues. Looking for the moment solely at the topic of European Sustainability Reporting Standards (ESRS) S1 (Draft) "Own Workforce", the subtopics will include secure employment, working time, adequate wages, social dialogue, freedom of association, existence of work councils, collective bargaining, including rate of workers covered by collective agreements, the information, consultation and participation rights of workers, work-life balance, and health and safety.[4] The non-financial information related to these issues, as well as others related to double materiality, will need to be readily accessible from a range of documents, e.g. word processing, spreadsheets, emails, and text messages, to name just a few.

**Reporting on double materiality will cover a broad swathe of issues.**

Organisations can benefit not only from having a robust, comprehensive system to retrieve important non-financial information, such as the above, but also from knowing who the experts are within the organisation who are able to support the evidentiary materials with knowledge of their content, reliability, accuracy, and provenance. A comprehensive information management system can achieve both of these ends.




It is understandable that stakeholders are becoming increasingly more interested in the impact of an organisation on people and the planet. Like the LSE guidance noted above, the focus of the ESRS is upon an organisation's strategy, particularly impacts, risks, and opportunities, the main difference being that the ESRS disclosure requirement will be mandatory and adds impacts as a result of the importance of double materiality. As the European Financial Reporting Advisory Group (EFRAG) has stated: "The undertaking shall disclose, in accordance with applicable [draft] ESRS, all the material information regarding impacts, risks and opportunities in relation to environmental, social, and governance matters. The information shall enable the understanding of the undertaking's impacts on those matters and how they affect the undertaking's financial development, performance and position."[5] An organisation's strategy needs to take these requirements into account.

To implement its strategy and illuminate for investors the impacts, risks, and opportunities that underpin it, accurate, reliable, and timely data must be readily available, supported by the organisation's own homegrown expertise. Done thoughtfully and thoroughly, a comprehensive information management system can yoke together ESG non-financial information and strategy, so that, at the stage that organisations are formulating strategy, data regarding ESG is embedded in the process.

**The non-financial information related to double materiality will need to be readily acessible from a range of documents, e.g. word processing, spreadsheets, emails, and text messages.**

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**Sebastian Mallaby´s book, *The Power Law*, will give readers a deeper understanding of venture capitalists and venture capitalism while arguing for the peculiar character and skills of venture capitalists as the main reason for Silicon Valley´s success.**

# THE POWER AND LIMITATIONS OF VENTURE CAPITALISTS: A REVIEW OF SEBASTIAN MALLABY'S THE POWER LAW

by Kyle Scott


There are more stories of successful founders than of successful investors. More people know of Elon Musk and Mark Zuckerberg than of Arthur Rock and Don Valentine. Venture capitalists may be less well known than the founders they backed, but their impact on entrepreneurship through their advancements in finance is one of the key reasons why anyone knows Silicon Valley or has heard of those names that are celebrated in headlines.

In *The Power Law*, Sebastian Mallaby argues for venture capital as being the primary reason for Silicon Valley's success. Journalists, academics, and industry veterans have tried to uncover the secret to Silicon Valley's success. Policymakers and politicians have been informed by these studies as they try to turn other areas into similar success stories. Tel Aviv, Shanghai, Berlin, and Singapore are among the cities that have tried to replicate the success of Silicon Valley. There is not a city of any reasonable size that does not have an innovation hub or investment programme to target local talent with the hopes of nurturing the next unicorn. Nearly every business school has a pitch competition, incubator, or mentor programme designed to spawn successful start-ups. Yet none of these efforts have yielded the success story that is Silicon Valley.

Some of the factors that play into the success of Silicon Valley are well known: proximity to a world-class university, favourable contract laws, density of talent, counterculture

mentality, and availability of capital. No single factor can produce a successful ecosystem, but combined, it is assumed, these factors will yield similar results in other locations. To this point, no other city or region has been able to match its success. There is no other location that has produced companies the size of Google, Facebook, Uber, Apple, HP, Yahoo!, Intel, Salesforce, and hundreds of others, within a half-century. Mallaby has written a book that, he believes, explains the phenomenon: venture capitalists. Not just the investment vehicle, but the character and skill of venture capitalists. Mallaby went in search of a silver bullet, and in his telling, he found one.

**Journalists, academics, and industry veterans have tried to uncover the secret to Silicon Valley's success.**

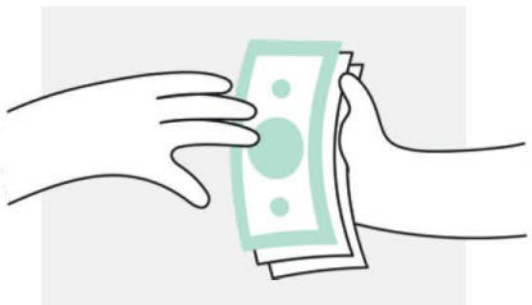
Mallaby is an accomplished writer who keeps the reader engaged with clear prose and a sharp mind. Given the book's subject matter, and the fascination the media and public have with start-ups, this book is worthwhile for those who want a deeper understanding of the subject and a solid grounding in the development of Silicon Valley and venture capitalism more generally. For those thinking about new investment structures and business models, this book can be just what they need to understand the possibilities that exist and others that have not yet been explored.

The book begins by contrasting the earliest days of venture capitalism with traditional forms of financing through banks, private investment firms, and government assistance. Mallaby shows the strengths and weaknesses of each approach while showing that only West Coast venture capitalists had the character and investment model to give life to Silicon Valley. While other investors were risk averse and viewed investment as zero-sum, West Coast venture capitalists were hard-charging, open, and treated investing as an opportunity for mutual enrichment. By offering employees meaningful equity in the company, the venture capitalist model incentivised hard work and innovation. The better the company did, the greater the financial rewards for employees. This also meant venture capital attracted others to pursue entrepreneurship rather than staying with a job that offered less upside or pursue other means of finance. The early successes, and the model that has produced enormous wealth, created gravity and momentum that resulted in talent density, ambitious founders, more venture capital investment, and a culture that celebrated contrarian thinking and outsized ambition. This contrasted with East Coast venture capitalists and other investment mechanisms in which the investors would benefit far more than the founders or the workers. West Coast venture capital not only aligned interests, but it allowed many more people to accrue wealth who then had the ability to invest in, or create, their own companies. In the East Coast system wealth was far


more concentrated and designed to enrich the investors who were already wealthy.

Arthur Rock, one of the founders of West Coast venture capital, led early investments in companies like Apple and Intel. Rock started his venture capital journey by raising money for what would become Fairchild Semiconductor. When Rock was unable to raise money through traditional means, he turned to the wealthy investor Sherman Fairchild. The experience with Fairchild Semiconductor made Rock look for a new investment strategy in which the interests of management and investors were aligned. While the eight founders of Fairchild Semiconductors made a combined $2.4 million, Sherman Fairchild made 40 times that amount.

*The Power Law* contrasts Rock with Georges Doriot and his American Research Development. Doriot was based at MIT in Cambridge, Massachusetts, and ran his investment firm more traditionally. This meant founders and employees did not share proportionality in the financial upside the financiers enjoyed. By aligning interests through financial and legal arrangements, Rock created an investment scheme that would be iterated upon by future generations. Successive iterations have sought new ways to unlock innovation and financial rewards. *The Power Law* traces these iterations through a story of outsiders who saw the current model as one that had to be disrupted so they could achieve their full potential.



**West Coast venture capital not only aligned interests, but it allowed many more people to accrue wealth who then had the ability to invest in, or create, their own companies.**

Mallaby focusses on two additional characteristics of venture capitalists to explain their impact. First, they have the skillset needed to guide a startup to success. Venture capitalists are business savvy and tough negotiators. They can correct management deficiencies and identify market opportunities better than other investment classes at the start-up phase. In many cases, they do so better than the company's founders. Second, they create networks in which companies acquire the skills and resources they need. This second point underlies many of the stories included in *The Power Law.* Venture capitalists encourage collaboration rather than being protectionist. East Coast venture capitalists created closed, secretive environments. Because the investors facilitated network creation, they created an ecosystem of entrepreneurship.

Mallaby writes interesting stories on venture capitalists and well-known start-ups. For the reader new to the subject, this is useful. But no new ground is covered for those already

familiar with the stories. Thousands of articles, hundreds of books, and dozens of movies have already covered the most popular companies. The book simply summarises those stories without adding anything new. The reader is left wanting in the chapters that cover the earliest days of venture capital. Less has been written on this era and it would have been valuable to contribute more depth to the people and companies involved.

Mallaby set out to write a book that proved venture capitalists are the reason Silicon Valley is what it is today. I assume if he wanted to write the same book, but about founders, he would have been able to. Most of the stories in *The Power Law* are those of successes, successes which Mallaby heavily weights toward the impact of venture capitalists. On those rare occasions when Mallaby discusses failures—companies like Theranos and WeWork—he lays the blame on others and provides cover for venture capitalists. The reader must be cautious of drawing causality from *The Power Law* as its manner of investigation opens itself up to confirmation and selection bias. Causality is difficult to prove due to the overlapping influences and contingencies that affect an outcome. While there is no denying that venture capitalists have been one of the factors in the success of Silicon Valley, there is also no denying that the role they have played is contingent upon, and enhanced by, other factors present in the Valley.

**So while financiers, students, aspiring founders, and businesses tend to get locked in to considering only the options before them, this book exposes the possibility of other forms of financing that are currently underdeveloped or undeveloped.**

But this is not an academic book and instead one that tries to tell an interesting story. And if extrapolating a determinant factor is only a secondary objective, then this book succeeds. What is most promising about this book is that it opens the reader's imagination to the possibilities that still exist within finance. Before West Coast venture capital was invented—and now iterated upon—this type of financing did not exist at scale. So while financiers, students, aspiring founders, and businesses tend to get locked in to considering only the options before them, this book exposes the possibility of other forms of financing that are currently underdeveloped or undeveloped. Getting there requires outsiders willing to think beyond the headlines and current trends; who are willing to take big risks; and who are smart, creative, and ambitious. It is through books such as this, if they get the readership they deserve, that creates the opportunity for exploration.

With the creation of blockchain technology and the rise of inexpensive and accessible investment platforms, the opportunity for a new investment model is available for anyone with the talent and ambition to create.

**ABOUT THE AUTHOR**

**Kyle Scott**, PhD, MBA has previously written for The European Business Review and in outlets such as the Huffington Post, Forbes, and Christian Science Monitor. His sixth book is due out later this year.

# 2023: A SPACE

## PIONEERING SPACE TECHNOLOGIES, PROTECTING THE EARTH, AND PRESERVING THE SPACE ENVIRONMENT

by Shruti Shalini, Shalabh Kumar Singh, and Shubhashis Sengupta

# OPPORTUNITY

**Space-to-Earth observation technologies are helping businesses and governments make progress towards realizing sustainable development goals on Earth. Now they need to make sure they're not harming the space environment in the process.**

## KEY TAKEAWAYS

The deregulation of the space sector has incentivized a thriving, technology-led space-to-Earth Observation economy, accelerating space-led innovation across sectors.

The precision and granularity of Earth Observation intelligence and analytics is particularly useful to drive sustainability initiatives in areas such as climate action, clean energy, urban planning, and food security.

To make the most of these technologies, it's important to address the problem of rising space junk with effective design principles, technological innovation, better dialog and ecosystem collaboration.

Space technologies are improving lives on Earth in profound ways, from assessing damages from wildfires in Spain to facilitating urban planning in Italy to extending connectivity in Ukraine. While the term 'space technology' encapsulates several things, space-to-Earth observation — or simply Earth Observation (EO) – technologies have become increasingly important for businesses in recent years.

EO technologies encompass a set of remote sensing techniques that use satellite imagery and other sensor data to capture insights about the Earth. The European Union's Copernicus program is a good example. A set of systems collect data from multiple sources including EO satellites, in-situ ground stations, and airborne and sea-borne sensors for services like rapid assessment of extreme weather events.[1]

The potential of space-to-Earth technology for boosting business growth and innovation is now at an inflection point due to the deregulation of the space sector.[2] The UN Office for Outer Space Affairs (UNOOSA) received registration of over 2000 satellites in 2022, and the expectation is that 100,000 satellites could be launched in the next decade.[3]

This democratization of space is opening new opportunities for specialized Earth analytics capabilities, which combine advances in AI algorithms with open and free or cost-effective access to data. For example, Titan Space Technologies – a platform built on a sophisticated suite of applied AI capabilities – recently launched its first AI models to the International Space Station (ISS) for designing space-led experimentation and innovation projects across several sectors.[4]

**The potential of space-to-Earth technology for boosting business growth and innovation is now at an inflection point due to the deregulation of the space sector.**

Such advances are particularly important for boosting action towards achieving the UN sustainable development goals (SDGs). Of the 16 market segments identified by the European Union Agency for the Space Programme (EUSPA) where EO applications play an important role,[5] 12 relate directly to advancing sustainability initiatives on Earth.

Two characteristics of EO data are particularly useful for advancing sustainability measures:

1. It can regularly capture granular and precise information, nearly impossible to obtain and scale with land-based survey techniques

2. It allows blending raw EO data and imagery with global navigation satellite systems (GNSS) and global information systems (GIS) to gain actionable information and intelligence

However, even as this important work advances, concerns are growing about protecting the space environment itself. The rising number of satellites in outer space is leading to a heavy accumulation of space debris. In the rest of this article, we discuss both:the sustainability potential of EO for driving business and government action towards SDGs, as well as the need for a sustainable space ecosystem.

## ENVIRONMENT & CLIMATE ACTION

Space technologies help quantify changes in climate systems over time — from increasing surface temperatures to melting ice sheets and rising sea-levels. The 4Vs of EO data – volume, variety, veracity, and velocity – make it particularly suitable for climate change research and action.[6] The unprecedented regularity and granularity of data from remote sensing is helping governments and businesses build early warning systems for climate resilience.[7]

Accenture has partnered with Planet Labs, a provider of Earth data and insights, to combine high-frequency satellite imagery with Accenture's sustainability services. This will enable an array of sustainability initiatives, including data-based climate-risk assessments. High-frequency satellite imagery is said to contribute significantly to sustainability initiatives ranging from sustainable agriculture and energy transformation to supply chain tracking and sourcing.[8]

## SUSTAINABLE AND CLEAN ENERGY

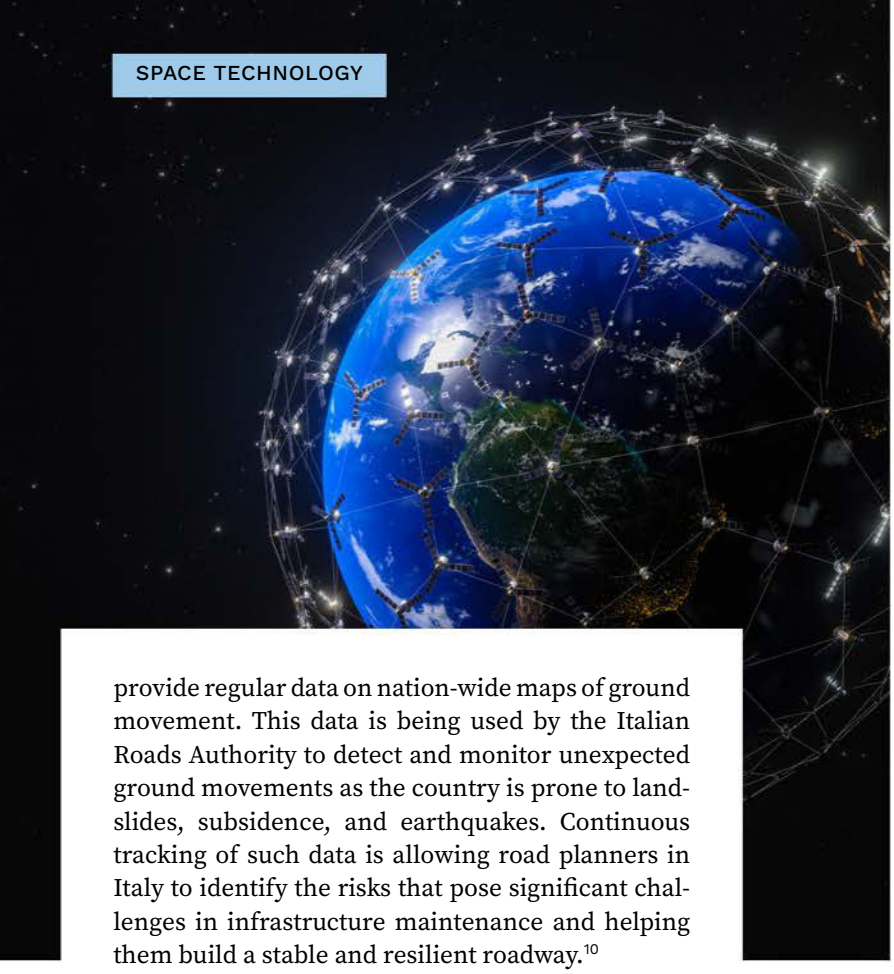
Satellite imagery and analytics can help monitor energy generation and usage in real-time and assess its impact on the environment. This enables customized energy-saving plans, optimized energy costs, improved energy efficiency, and lower carbon emissions.

In collaboration with Duke Energy, Microsoft and Avanade, Accenture has created a first-of-its-kind methane emissions monitoring platform, allowing companies to move to a "find it, fix it" leak management model and to measure actual baseline methane emissions from natural gas distribution systems. This cloud-hosted platform will track data related to leaks using advanced detection methods such as satellites and ground-level sensing technology that can detect trace levels of methane emissions on priority. This collaboration will augment Duke Energy's drive toward net-zero methane emissions by 2030.[9]

## ECONOMIC GROWTH & URBAN PLANNING

Satellite imagery, coupled with mobile communications and social media platforms with geotagging technology, could become an important tool in urban design and development. Satellite-based data is more effective than aerial surveys to monitor changes in land use, aiding city planners in designing sustainable cities.

Italian company Planetek's ground motion service called Rheticus utilizes satellite imagery to



provide regular data on nation-wide maps of ground movement. This data is being used by the Italian Roads Authority to detect and monitor unexpected ground movements as the country is prone to landslides, subsidence, and earthquakes. Continuous tracking of such data is allowing road planners in Italy to identify the risks that pose significant challenges in infrastructure maintenance and helping them build a stable and resilient roadway.[10]

## AGRICULTURE & FOOD SECURITY

Remote sensing, combined with advanced GIS data processing and visualization technologies, can help businesses promote the adoption of innovative practices, such as precision agriculture, farm automation, and real-time kinematic technology to mitigate risks to global food systems. The UNOOSA estimates that precision agriculture using EO and GNSS data can attain yield increases of over 10%, and lower other fuel, fertilizer, and pesticide inputs by up to 20%.[11]

The SAGRIS project, funded by the EU, is an open-source smart farming decision support back-end service. It continuously pulls synthetic-aperture radar (SAR) images to create sophisticated dynamic images and data layers at different temporal scales to inform the identification, monitoring and development of crop types during the farming season. SAGRIS analyzes satellite imagery from the Copernicus EO programme to provide per-parcel sampling data for various smart farming applications and for applied research in various streams.[12]

The Food Security and Agricultural Monitoring Solution recently launched by NASA Harvest uses AI and ML modelling to convert satellite data into insights for anticipating and averting food shortages and famines. The pilot was first launched in 2022 to track frontline agricultural activity in Ukraine.[13]

## TOWARDS A SUSTAINABLE SPACE ECOSYSTEM

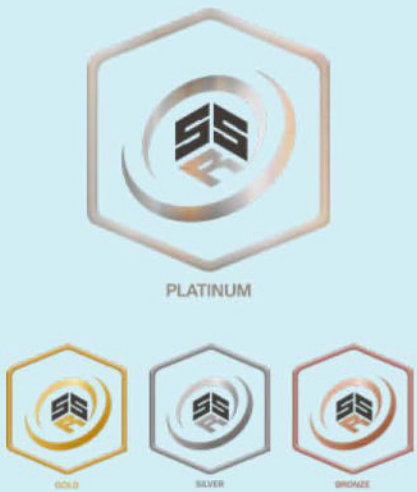
The European Space Agency has cataloged more than 36,500 objects larger than 10 cm currently orbiting Earth, along with millions of pieces smaller than 1 cm.[14] More than 80 countries currently contribute to the over 6,800 active satellites in orbit.[15] With UNOOSA's estimates of 70–90 spacecrafts being sent to orbit every year,[16] the problem of "space junk" is only likely to get worse.

Removing debris from space and abating the creation of new debris are two major concerns that need to be addressed on priority. However, no one institution can achieve this on its own. Shared responsibilities between governments, private organizations, and non-profit entities towards common goals and measurable targets is needed to build a sustainable space ecosystem.

**SAGRIS analyzes satellite imagery from the Copernicus EO programme to provide per-parcel sampling data for various smart farming applications, and for applied research in various streams.**

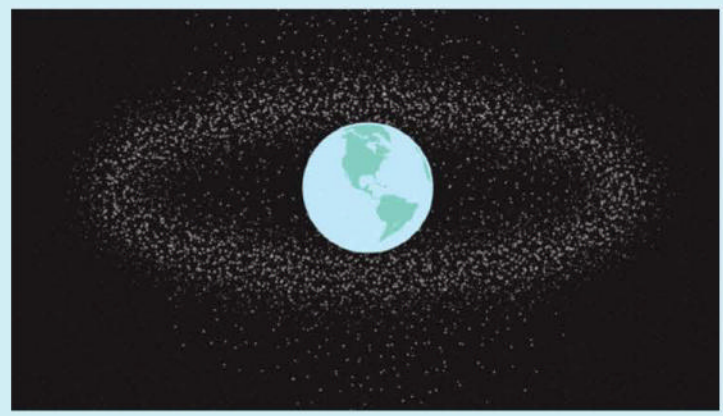
## 1 DESIGN FOR SUSTAINABILITY

Advances in material science are promoting the use of light metal alloys and light metals such as aluminum in rocket design, promoting longevity and sustainability of space operations. Alongside, initiatives such as the Space Sustainability Rating (SSR) by the World Economic Forum in partnership with several academic and institutional partners, are encouraging companies to adopt holistically sustainable design principles right from inception. The rating system relies on multiple factors—from data sharing and orbit preferences to collision avoidance and de-orbiting satellites—to assess the sustainability of space missions and operations. By voluntarily adopting the SSR system, different players in the space ecosystem can secure one of the four levels of certification to disclose their mission's sustainability.[17]




## 2 EXPLORE THE USE OF NEW TECHNOLOGIES

Technologies like space situational awareness (SSA) can help in data analysis, integration, and evaluation of key space events, including re-entering objects, conjunction and collision avoidance activities, fragmentation, satellite maneuver detection and compliance monitoring. Digantara, a space tech start-up, has launched India's first-ever commercial SSA observatory to monitor global space traffic for space debris. The observatory will likely help reduce collisions between satellites and other spacecraft by predicting their location, speed and trajectory.[18] Generative AI could have an important role in developing lighter spacecraft and mission hardware, as recently demonstrated by NASA. Called Evolved Structures, these parts weigh less, can bear higher loads and significantly reduce the time to production.[19]



## 3 PARTNER AND COLLABORATE

The Net Zero Space initiative by the Paris Peace Forum is a platform that aims to achieve sustainable use of outer space by 2030. The initiative aims to raise awareness and promote interoperability to drive a sustainable space environment through political and public advocacy and actionable policy proposals. The initiative currently has 59 members from across the space ecosystem and from 24 countries.[20]

Three actions can help begin the jouney:

Democratization of space is opening completely new opportunities for businesses. Its impact will likely be felt most on driving sustainability initiatives for achieving the UN SDGs. But care must be taken to ensure that we do not end up compromising the sustainability of space. As a first step, businesses need to explore how EO can help them achieve their sustainability goals and targets. They will also likely need to build an ecosystem around it for innovative use of digital technologies to convert data into insights. Ecosystem play will also be essential for extending the life of space. Space will likely continue to impact and improve sustainable living on Earth, but the space environment must be preserved too.

The authors would like to thank Aditi Abhijeet for her research support.

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