Directing Digitalisation
Guidelines for Boards and Executives

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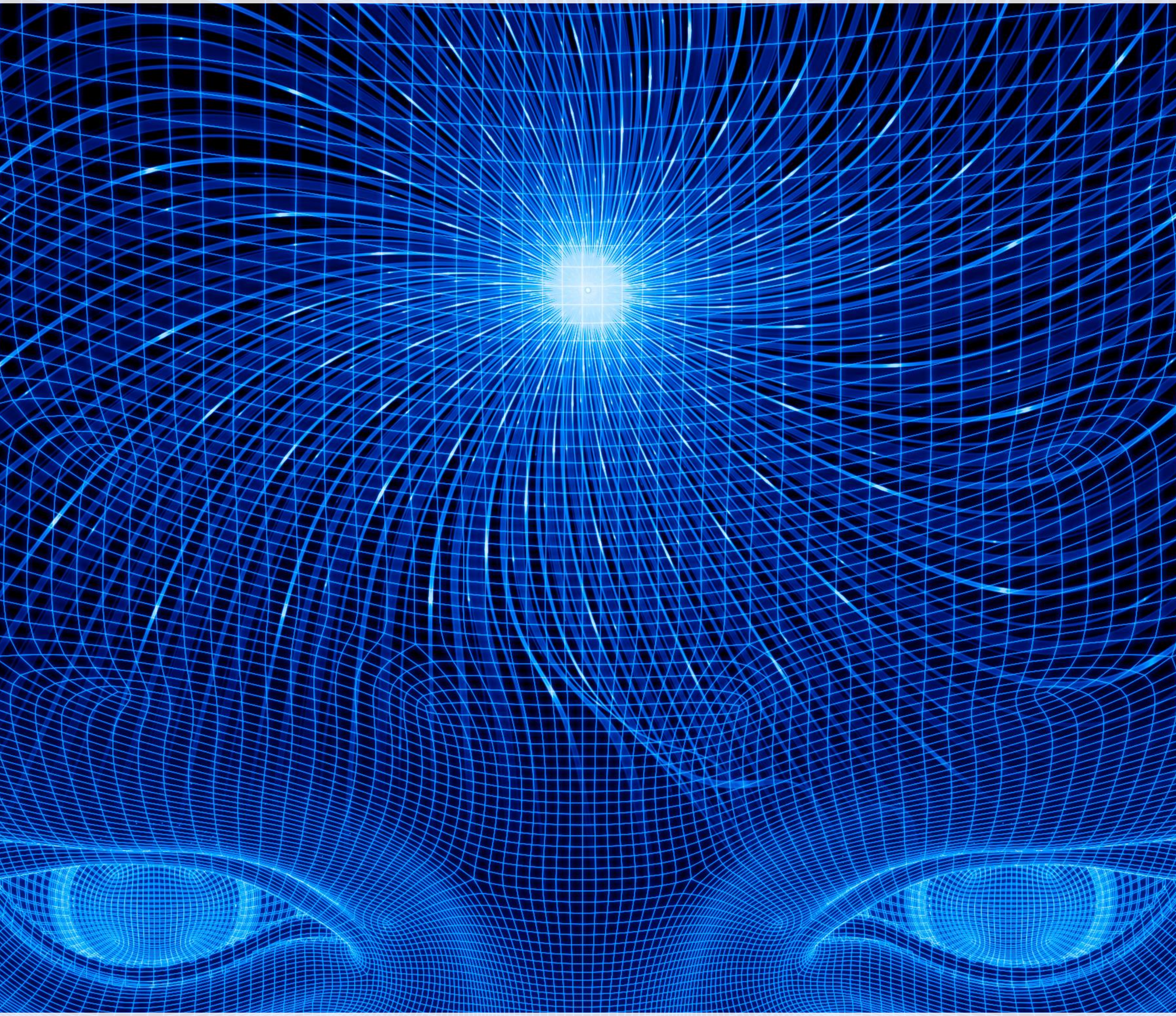

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About This Report

Professor Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, refers to the era we are living in as "The Fourth Industrial Revolution (...) characterised by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human".

In this new era of industrial revolution, boards and executives cannot afford to ignore the importance of digital innovation – and its impact on the business environment and the management of organisations.

At its most basic, this phenomenon consists of converting technology from an analogue into a digital format, making it more capable, much faster and significantly cheaper. Digital innovation has already paved the way for everyday technologies, such as the desktop computer, the World Wide Web, mobile phones and the Cloud. More recent arrivals include 3D printing, virtual reality (VR) and augmented reality (AR), while Artificial Intelligence (AI) and robotics are beginning to reach their long-promised potential.

> *The Fourth Industrial Revolution (...) characterised by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human.*

From a technological perspective, these kinds of innovations are truly disruptive. But the real revolution is to be found in the way digital innovation is influencing every aspect of human activity and business. Digital is changing how we live our lives, how we communicate, manufacture, collaborate and make decisions. Digital is breaking down traditional barriers to entering markets, such as access to capital for innovation, distribution, customers, information and talent.

As a result of developments in digital technologies, organisations are facing new business realities, such as: unpredictable and fragmented competition; democratisation of value creation; prolific innovation; new business models; evolving consumer needs; multiplication of distribution and communication channels; and systematic removal of the middleman. As the world becomes digital, so does business, and it is widely agreed that success in the 21st century requires the digitalisation of organisations.

The shift in understanding and in capabilities required to successfully address digitalisation is more than a technological question, as it requires most aspects of the organisation to be challenged – including the functioning of boards and C-suites. We believe this is a daunting task, unprecedented – in both scope and speed – in the history of the management and governance of organisations.

"Digitalisation (noun) – often spelled digitalization and sometimes used interchangeably with "digitisation" and "digitization": "the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; (…) the process of moving to a digital business." [1]

This report analyses the need for digitalisation and its impact on boards and senior executives, with the aim of enlightening and supporting those who choose to navigate the digital waters. For leaders contemplating their digital journey, we have identified eleven key implications and associated recommendations:

1. Digitalisation requires unbiased understanding of the external environment
2. Digitalisation may require a reformulation of the firm's mission
3. The meaning and impact of digital to the firm must be clearly stated
4. Digital understanding and capabilities are required across the firm
5. Digitalisation must be supported by corporate culture
6. Digitalisation demands a greater level of collaboration
7. Digitalisation requires greater engagement with the public
8. Business strategy in the digital age becomes a continuous process
9. Decision-making in the digital age is increasingly data driven
10. Digitalisation requires firms to explore uncharted territories
11. Digitalisation is about continuous management of change.

Our analysis, advice and conclusions are based on research, including: a previously issued report on how digitalisation is experienced inside firms, combined business and teaching experiences at both executive and board levels; and professional collaborations with organisations across multiple regions and industries.[2]

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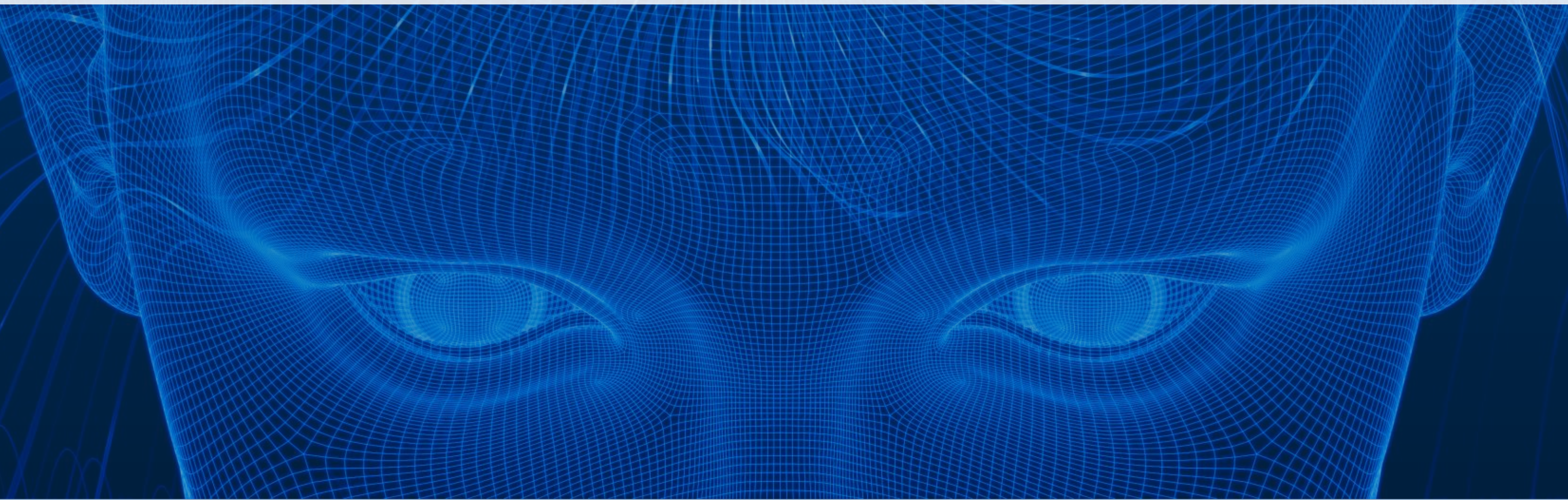
Guidelines for Boards and Executives



Our eleven strategic implications and recommendations are organised under three main headings:

A. Impact of Digitalisation on the Business Environment

B. Impact of Digitalisation on the Organisation

C. Impact of Digitalisation on Strategy

A. Impact of Digitalisation on the Business Environment

1. Digitalisation Requires An Unbiased Understanding of the External Environment

In order to operate successfully in the digital economy, a key responsibility of the board – as the body ultimately accountable for the organisation and its future – is to cultivate an awareness and understanding of innovation in digital technologies. This is because of the myriad implications for society, consumers, industry and, consequently, the business and its strategy.

Developments in technology will certainly have an indirect impact on all industries and firms – due to the effect on human behaviour and preferences. The success of companies like Airbnb[3] and zipcar[4], for example, shows a trend away from ownership to access. This shift is having a fundamental impact on the automotive, real-estate and financial industries among others. Similarly, the increased affordability of VR and AR technology[5] is resulting in a redefinition of reality that merges the physical and virtual worlds – and is transforming the sports, entertainment, travel and retail industries. In 2012, China's largest online grocer Yihaodian broadened its footprint by taking the business "beyond online". But, instead of incurring the vast cost of building physical supermarkets, the retailer opened – overnight – 1,000 "virtual stores" in key locations throughout China. These were visible only through smartphones loaded with an augmented reality app, which also enabled users to purchase the products on the virtual shelves. The move helped the company to increase its revenue by 17% in just three months.[6]

Trends driven by technology, such as cloud and mobile computing, big data, 3D printing, virtual reality, automation, artificial intelligence and robotics, will also undoubtedly have a profound direct effect on all industries, changing the nature and level of competition and ultimately the organisation's mission, strategies, business models, products, services, cost structure… in short all aspects of running a business.

Take 3D printing as just one example. This technology promises to transform every major industry. Bioprinting, the process of creating cell patterns in a confined space using 3D printing technologies, is one of the fastest-growing fields – and is fundamentally changing medicine and healthcare. Anything that exists in liquid or powder form can be 3D printed, so the food industry is poised for major shake-up.

In addition, 3D printing could bring developing countries, which are often disconnected from global supply chains, into the loop. And, as 3D printers become more affordable, people will print household goods, toys and tools to any required size, shape or colour, reducing the need for traditional suppliers.[7] 3D printing is clearly a threat but is also an opportunity for all industries, making it risky for any firm not to consider its impact on their business.

Board members and executives must also reconsider the tools used for environmental scanning and analysis, as traditional processes may no longer be sufficient or suitable to understand the external forces at play. Michael Porter's "five forces"[8], for example, have become a less useful way to analyse industry rivalry, now that digitalisation is rapidly eroding traditional physical barriers to entry – such as scale, geography and access to talent or customers. Nor does conventional analysis allow a firm to identify "left field" competition. In an early interview Janus Friis, one of the founders of Skype[9], stated, "The telephony market is characterised both by what we think is rip-off pricing and a reliance on heavily centralised infrastructure. We just couldn't resist the opportunity to help shake this up a bit".[10] Although Porter classified telecommunications as having high barriers to entry, the two entrepreneurs did more than shake this industry up a bit. In 2013, Skype achieved revenues of $2 billion[11], while simultaneously depriving established telecoms firms of an estimated $37 billion.[12] Thanks to digitalisation, traditional barriers to entry are being replaced with softer obstacles, such as purpose, authenticity and trust. These dimensions will play an increasingly important role and must be factored into future competitive analysis.

The constant change that characterises the digitalised world requires ongoing analysis of the business environment and competitive forces. New questions will arise incessantly and will need to be reviewed by firms, which will have to adapt their points of view and revise their strategies as a function of the changing context.

The key idea to take away: Board members and senior executives should consider enabling structures to facilitate the continuous and unbiased understanding of the external environment: mechanisms that are not rooted in the firm's current functioning and thinking. The knowledge thus gained will assist the board and top management in their task of charting the company's future course.

B. Impact of Digitalisation on the Organisation

2. Digitalisation May Require a Reformulation of the Firm's Mission

Ensuring a relevant mission and a sustainable future for the organisation is a key concern of the board. Faced with the environmental shift caused by digital, it is critical that the board review the firm's mission and industrial positioning, as well as the sustainability of its business models and methods.

One organisation that faced digital disruption head on is Schibsted, a Norwegian family-owned business founded in 1839 as a two-newspaper firm. The company and its board's decision to embrace the Internet some twenty years ago challenged all assumptions about the business the firm was in and disrupted every aspect of the organisation: mission, business model, processes, products, people and culture. This undertaking laid the foundation for today's thriving company: a successful global multimedia, technology-driven business with 6,900 employees with operations in thirty countries on five continents[13] and a market capitalisation of $5.2 billion.[14] While the last two decades have been the best of times for Schibsted, they have been the worst of times for other media organisations. In the US, only a handful of firms that focus on traditional print publications still exist – for example, The New York Times Company, E.W. Scripps, McClatchy and A.H. Belo. The combined market value of these four? Less than $5 billion.[15]

Unilever is another company that reshaped its mission, partly as a result of changes caused by digitalisation. The digital world, with the transparency it brings, calls for firms to behave in a way that fosters people's respect and trust.

Consumers' preference leans towards organisations that reflect their personal beliefs – with sustainability high on the priority list. Unilever focused its attention on the purpose of "making sustainable living commonplace". Supporting structures and actions were also clearly defined, helping Unilever realise its vision by[16]:

- Developing brands that offer balanced nutrition, good hygiene and the confidence that comes from having clean clothes, clean hair and good skin
- Offering products that are sustainably sourced and used in a way that protects the earth's natural resources
- Ensuring respect for the rights of the people and communities Unilever works with throughout the world.

There is no doubt that Unilever's purpose is contributing positively to the company's success. Since Paul Polman, the key driver behind the sustainability strategy, took the helm in 2009, the stock price of the company has doubled. Its revenues currently stand at some $60 billion, with profits of $6 billion.[17]

Defining a relevant mission that resonates in today's business environment typically involves developing several different scenarios of the ways in which digitalisation may affect the business. Exploration of these scenarios requires the board's cooperation with a number of external and internal experts and should result in the creation of – and commitment to – a mission that is appropriately aligned with the new industrial, business and consumer realities the firm is facing.

With this goal in mind, boards and executives should seek internal cooperation across all functions and levels, to avoid drawing conclusions that are biased towards a particular business function.

Logistics' approach to digital, for example, is through the use of sensors, big data and analytics to improve the efficiency of supply-chain operations, whereas marketing may focus on promoting brands and selling products through various forms of digital media or channels. Meanwhile, digital manufacturing is an integrated approach to production centred on computer systems. Every department's opinion and needs must be taken into consideration to achieve a cross-functional and organisational understanding. This will require a deep and potentially challenging engagement with the firm's executives, both intellectually and emotionally, as the various choices will affect different parts of the business in different ways.

B. Impact of Digitalisation on the Organisation

A related challenge is that of overcoming the fundamental disconnect between different generations' perceptions of digital. It is often challenging for younger employees to work in conditions they perceive as arcane, where old technology and traditional thinking limit speed, efficiency and creativity. But it is equally frustrating for senior management to work with a group of people who lack experience and understanding of how to run a business. It is crucial that opinions at different levels of the firm are taken into consideration to achieve a cross-hierarchical and fully integrated understanding of digitalisation.

To avoid seeing the firm as they want it to be, rather than as it really is, executives and board members should consider cooperating with independent advisers or other firms. This external perspective reduces the risk of a limited understanding of digital that is rooted in the beliefs and experiences of internal stakeholders. But beware: "expert advice" is often coloured by "expert bias". It is increasingly recognised that experts too are susceptible to partiality in the way they frame problems and solutions, typically favouring familiar options. The customisation of standard practices – in a way that truly meets the company's needs and addresses its business challenges and opportunities – is one of the board's central duties in the face of digitalisation. A technology supplier will see digital from a technology perspective, an advertising agency from an advertising-content perspective and a media agency from a media-planning perspective. As one successful way to counter bias is with an opposing bias, companies should consider engaging a panel of different experts to drive the discussion in a way that will serve the firm.

The key idea to take away: Internal and external cooperation will contribute to the board gaining a broad and unbiased understanding of the impact of digital on the firm. Such a perspective is fundamental for effective strategic decision-making with regards to the future of the company and its mission.

3. The Meaning and Impact of Digital to the Firm Must Be Clearly Stated

The number of business issues and opportunities addressed by digitalisation is vast and varied. A study that we conducted in 2016 – focusing on what firms are really doing in the digital space – revealed more than twenty distinct categories of digital-related initiatives, with activities in each differing in both shape and complexity.[18] How organisations perceive and define their engagement with digital clearly depends on a number of factors specific to the firm and its context.

Yet, too often organisations are looking for the "one right way to do digital" or for a "one-size-fits-all" approach. To date there is no indication that a single "digital recipe" will emerge around which organisations can coalesce. Rather than searching for a blueprint to guide them through digitalisation, we recommend that firms define their own digital road map.

As guardians of the business, board members are responsible – with the support of executives – for driving the exercise of defining digital for the organisation's particular context. The outcome of this process should inform and frame all major corporate and strategic decisions.

Defining digital all too often results in vague statements such as: "We will be digitally engaged by 2020" or "Digital is at the heart of everything we do". In our experience, such statements only increase the confusion around digitalisation, as they provide no guidance for managers in a complex and sometimes bewildering subject.

Boards and executives are advised to aim for specificity in their definition of digital. What is needed is clarity of what digital means in the context of the organisation, and on the revised company commitments that will result. Employees should be left in no doubt as to the meaning of digital to the firm or how it is likely to impact the company's value creation, business model, functions and, ultimately, managerial roles and tasks. Because of the prevailing confusion and multiplicity of interpretations, we would also recommend developing a precise and clear vocabulary of what the firm means by digital, including a "dictionary" definition and describing key words, terms and concepts. This dictionary will, like all dictionaries, need to be updated frequently.

The key idea to take away: An organisation where the board of directors and executives clearly define the meaning of digital to the firm will be in a stronger position to guide the company and its employees throughout their digital journey.

B. Impact of Digitalisation on the Organisation

4. Digital Understanding and Capabilities are Required Across the Firm

Some organisations classify digital activities as technology deployment. In such cases the responsibility of digital is delegated to the IT department, which then submits a digital strategy to the management. This approach seriously underestimates the impact digital initiatives can – and will – have on the organisation. Digital is not a stand-alone initiative or discipline but is merging with traditional aspects of business and, as a result, transforming companies and industries. To facilitate an organisation's digital transformation all employees must become digitally capable so as to remain effective in their role.

Digitalisation involves a great number of functional experts, some of whom will be digital specialists, as many of these initiatives invariably have substantial technical aspects. The process, for example, of scoping out a CRM tool that assists with managing contacts, sales and productivity is best left to CRM specialists. The implementation of a digital platform aimed at facilitating collaboration with suppliers, partners and customers also requires the input and possibly the leadership of a digital specialist. Similarly, a social media campaign is best managed by a digital advertising agency collaborating with the firm's marketing department.

Digital is an all-encompassing disruptor of business in every form and practice. In other words, business is now digital… and digital is business. In this scenario, the ultimate responsibility for digital does not not fall to a functional expert; it belongs to the entire firm – from junior contributors all the way up to the board. Boards and executives cannot afford to ignore this imperative.

The key idea to take away: It is not sufficient to hire "digitally savvy" staff, recruit a head of digital or appoint a digital director to the board. Board members and executives have to ensure awareness and understanding throughout the organisation of the impact of digital on the business environment and the firm. This can be the case only if board members and executives themselves have a solid understanding of digitalisation. Only then can the company be sure to make the right choices among the vast number of strategic options in a digitalised business world – and embark on appropriate change initiatives to ensure success in the 21st century.

5. Digitalisation Must be Supported by the Firm's Corporate Culture

Successful digitalisation requires the combination of the right vision, effective leadership and managerial competences – and ultimately an enabling culture. Although the people aspects of a business (such as leadership and management supported by corporate culture) are recognised as key success factors in deploying digital initiatives, our research has shown that these often receive insufficient attention.[19]

A firm's corporate culture represents the customs and values that define workers' behaviour and decision-making. "Organisational culture eats strategy for breakfast, lunch and dinner," is an all-too-true maxim originated by Peter Drucker[20] and later embellished by Mark Fields, President of Ford. As it is for strategy, so it is for digitalisation.

It is therefore imperative that the firm's executives – under the board's leadership – define, shape and encourage a corporate culture relevant for the digital age. In our experience, such a culture will be authentic, transparent, agile, explorative and people-centric. It will focus on learning and challenging assumptions. Compared to traditional organisational cultures, it will be less hierarchical and more collaborative – with an overarching goal of improving people's lives. Today's successful companies typically have a corporate culture that reflects these traits.

Tesla Motors topped Forbes' list of The World's Most Innovative Companies in 2016. The firm's corporate culture plays a fundamental role in empowering employees to search for ideal products and solutions that make the business stand out in the automotive industry. The company also encourages employees to innovate to support continuous improvement of the business. Through its organisational culture, Tesla maintains the necessary capabilities for continued success in the global market for electric cars. They are the exact same capabilities that help companies to thrive in a digital world.

B. Impact of Digitalisation on the Organisation

Nike has an enviable sportswear brand. It is also admired as a digital and design innovator. Mark Parker, CEO of Nike, once said, “One of my fears is being this big, slow, constipated, bureaucratic company that's happy with its success.”[21] On the back of this attitude, the organisation has embarked on initiatives such as a collaboration with Apple that led to Nike+: a platform consisting of an iPod, a wireless chip, Nike shoes that accept the wireless chip, iTunes membership and a Nike+ online community. More recently the two giants teamed up to develop a watch for runners.

The online shoe and clothing store, Zappos, has developed a corporate culture focused on innovating for employees, clients and the business ecosystem – and the imperative of delighting customers. CEO Tony Hsieh wrote in an article, “At Zappos.com, we decided a long time ago that we didn't want our brand to be just about shoes, or clothing, or even online retailing. We decided that we wanted to build our brand to be about the very best customer service and the very best customer experience.”[22] Thanks to the reputation it has gained, Zappos now offers courses on how to create a culture leading to “WOW Customer Service”[23] to other organisations.

The key idea to take away: Executives and boards must prioritise identifying and promoting the right organisational culture in their quest to support the digitalisation of the firm.

6. Digitalisation Demands a Greater Level of Collaboration

In business, value is usually generated through agreement between owners, board members and senior executives on a suitable strategy, which then guides day-to-day decision-making and execution throughout the organisation. Traditionally this process has been excessively ad-hoc and largely linear – top-down for the communication of decisions and bottom-up for feedback on progress.

In a fast-paced digitalised world value creation can no longer be ad hoc or linear. Business success requires constant sharing of information, review and realignment of needs, assessment of opportunities, decision-making and execution – with a direct line to strategy formulation kept open all the time. This can be achieved only through continuous collaboration and ongoing conversations between shareholders, boards, executives and staff on the “front line”, who are often best placed to confirm that value has been captured and delivered.

Boards and executives can learn a lot from the Gore-Tex approach to collaboration and communication, which has worked in W.L. Gore and Associates’ favour for over forty years. The company has a “lattice” network structure, connecting every member of the organisation. Information flows freely in all directions, with one-to-one communication the constantly practised norm. Individuals and self-managed teams can go directly to anyone in the company to get what they need to be successful.[24]

As well as blending business functions, digitalisation is also blurring the lines between different industries, which suggests that most successful products and services in the future will be the result of cross-functional or external collaboration. As more and more innovation becomes service based, R&D departments might, for example, have to broaden their perception of value creation, extending it beyond physical products and new product development. This is what L’Oréal did with the launch of its virtual reality Makeup Genius App, which enables users to experiment with multiple new looks simultaneously.

Further, in creating products and services, companies must consider the impact on the entire value chain. When British Airways launched its mobile application, security staff at Heathrow had been neither informed nor trained, causing major confusion at the security gate. Similarly, not being able to return an item ordered online to a physical store makes no sense to a customer. Yet many retailers such as Comptoir des Cotonniers see these two channels as separate – with individual P&Ls, and hence do not allow purchases made online to be returned in the store.

The key idea to take away: Digitalisation demands greater collaboration across industries and business functions. This represents a fundamental change to the way most organisations and boards function today. The challenge for boards in this context is to get closer (but not too close) to execution. Meanwhile executives should remain alert, leading and guiding managers, while also empowering them in the running of an organisation that is becoming increasingly complex.

B. Impact of Digitalisation on the Organisation

7. Digitalisation Requires Greater Engagement with the Public

The public has traditionally been a relatively silent and disempowered group in business. Innovation in digital technologies is changing this situation, empowering people to create and commercialise value with size, scope and speed. Indeed, the public is now a key player in value creation… and value destruction.

Democratisation of financing through crowdfunding has made innovation more accessible to the public. At the time of writing, nearly $3 billion has been pledged to innovation projects on the Kickstarters[25] platform. Oculus Rift, the maker of virtual reality headsets, was funded through Kickstarters, where 9,522 backers invested $2,437,429 to help bring the project to life. In 2014, the social network Facebook benefitted from this innovation facilitated by the public and paid $400 million in cash plus 23.1 million Facebook shares for Oculus Rift.[26]

Crowdfunding is also restructuring the ownership of firms. Mondo Bank raised $1.3 million from 1,861 investors in just 96 seconds through equity crowdfunding, effectively creating "crowdsourcing shareholders". The funds raised are part of an $8.8 million round of investment involving prominent VCs like Eileen Burbidge's Passion Capital. Mondo, with its crowdsourced ownership, is now valued at £30 million – even though it is still waiting for a full UK banking licence.[27]

In addition, democratisation of the creative process through crowdsourcing is having a fundamental impact on innovation. Muji, the Japanese consumer goods company, has been crowdsourcing designs for years. One study found that its crowdsourced products were three times more successful than those designed entirely in-house in terms of first-year sales revenue – and four times more profitable in terms of gross margins.[28]

When the family-owned toy company LEGO Group faced bankruptcy in 2003, it decided to take a new approach to innovation. One of the adventures LEGO embarked on to ensure survival was Cuusoo[29] – aimed at sourcing the talents of crowds. The platform invites users to submit and vote on ideas for new LEGO sets. If a design is developed and launched, its creators get a 1% cut of the product's total net sales. The popular online game Minecraft, which hit the market in one-third of the usual development time, is one of Cuusoo's success stories.[30]

Digitalisation has already revolutionised communications. Some 56 million blogs a month are published on WordPress alone, while 500 million Tweets are sent each day and 300 hours of video are uploaded to YouTube every minute.[31] This democratisation of communication has changed the media and advertising landscape for ever. The public now has the power to make or break a brand in an instant. The day before Apple unveiled the first iPad, a web search for "Apple tablet" yielded more than 17 million mentions of a product that had not yet been launched!

Democratisation of communications does not always work in an organisation's favour, however. In 2008, Canadian country singer Dave Carroll wrote a protest song about his guitar being broken during a flight with United Airlines. "United Breaks Guitars" became an immediate YouTube and iTunes hit on its release. To date the song has had 16,012,201 YouTube views.[32] More importantly, it was widely reported that, within four weeks of the video appearing online, United Airlines' stock price fell 10%, losing shareholders a total of about $180 million.[33]

It is clear that digitalisation brings unprecedented transparency to corporate behaviour. In 2013, a senior employee at AOL leaked audio of CEO Tim Armstrong firing him "in front of" 1,000 colleagues. A few days later Armstrong had to issue a public apology to his entire staff for the unintentionally public manner of the dismissal during an internal conference call.

B. Impact of Digitalisation on the Organisation

Kevin Kaiser and David Young, co-authors of *The Blue Line Imperative*[34], believe that what an organisation needs more than governance is customer-centricity, an understanding of its business model and the ability to increase Net Present Value. This point of view has become more valid in a digitally enabled business world where customers fulfil much of the governance function by exercising their power of communication, voting en masse with their feet and contributing to innovation through the co-creation of products developed by established firms – or even the sole creation of their own products, financed by other members of the public.

Organisations must engage with both customers and the wider public if they are to effectively navigate the new digital waters. Firms that do not satisfy the people's preferences will not win the hearts and minds of consumers. Nor will they benefit from collaboration with the public… or satisfy its standards of governance.

Executives must recognise the power of crowds – and the value to their firm of the collective support and intelligence of the public. Meanwhile, boards have a mandate to ensure that members of the organisation behave collaboratively and ethically, by defining guidelines on how to work with partners and the community, and on how to treat employees. There is even an opportunity for forward-thinking boards and executives to rejuvenate and possibly reinvent their roles.

The key idea to take away: For curious and open-minded directors and executives, digitalisation allows ongoing observation of – as well as conversation and collaboration with – customers and the general public, heralding new opportunities to guide creativity and strategic decision-making. In short, digital offers new ways to supervise the creation, delivery and capture of value.

C. Impact of Digitalisation on Strategy

8. Business Strategy in the Digital Age Becomes a Continuous Process

Until recently, major business trends were few and far between, while strategic choices were limited and discrete. Organisations and their boards had a generous window in which to formulate strategy, after which the focus would shift for a few years to implementation. In this environment the approach to strategy incorporated four broad phases, repeated every five years or so.

- **Definition.** The board tasks the executives with the development of potential strategies – in cooperation with consultants if internal resources are deemed insufficient.
- **Selection.** The board and executives discuss a number of options and agree on a strategy.
- **Communication.** The strategy is communicated to the senior managers, who are tasked with execution.
- **Monitoring of execution.** The board's focus shifts to monitoring execution of the strategy, with adaptations as required.

The impact of digital is changing the business reality faced by executives and boards. Major trends are arriving fast and furious, generating multiple strategic choices, while the windows for decision-making are shrinking just as rapidly. Dedicating months to defining a five-year strategy – validating all assumptions before spending the rest of the five years overseeing execution – is a process of the past.

In March 2016, the French bank, Crédit Agricole, launched a new strategy entitled 'Strategic Ambitions 2020', before completing its previous mid-term strategic plan – which had been drawn up only two years earlier. One key reason advanced by Jack Bouin, Deputy Chairman of the Board of Directors, was the profound impact of digital on the firm's business, far exceeding all previous expectations.[35]

Competitive environments can now change in the blink of an eye. The time required by the founders of Airbnb – 27-year-olds, Joe Gebbia and Brian Chesky – to have the idea of renting out airbeds on their living-room floor, to create their website and to welcome their first guests was less than six weeks. The word spread fast, and it was only a matter of days before requests started arriving for similar sites in Buenos Aires, London and Tokyo. Fast-forward nine years and it is estimated that hotels in New York City alone lose $450 million a year in direct revenues to Airbnb. How well hotels are responding to this competition is a matter of debate, but one thing is certain: it took the incumbents at least five years to take the threat seriously.

Digitalisation is also eroding national borders, leading to increased competition from global players. China's Alibaba saw a sharp increase in international sales – by 123% to $165 million – between April and June of 2016. However, this figure represents just 4% of Alibaba's overall revenue, and the e-commerce giant is looking beyond China for further growth. International success for Alibaba will no doubt have a fundamental impact on global commerce.

Drastic changes in the business environment caused by digitalisation suggest that boards would benefit by adapting their process of strategy development as follows.

- **Constant engagement.** Strategy formulation will require the continued engagement of the board, not just one-off approval.
- **A continuous process.** Strategy formulation will become an ongoing exercise, where progress is analysed and hypotheses relentlessly reviewed for validation or rejection.
- **A wide and impartial understanding.** Strategy formulation requires a solid and unbiased understanding of the ever-evolving external environment and the firm's required capabilities.
- **The merger of formulation and execution.** Scanning, evaluation, formulation and implementation are increasingly a seamless, continuous and sometimes simultaneous process.
- **Collaboration across hierarchical levels.** Strategy formulation and execution are part of an internal collaborative process, involving the board, C-suite and senior management.
- **Digital enabling of all aspects of the business strategy.** Boards need to go beyond predicting the next big technology trend or running various digital initiatives, and embrace digital opportunities across all dimensions of the business, so that the firm realises its full potential.

The key idea to take away: Strategy is no longer a step-by-step process but a continuous exercise, involving constant engagement of the board, as well as two-way communication across the corporate hierarchy and structure – and beyond.

C. Impact of Digitalisation on Strategy

9. Decision-Making in the Digital Age is Increasingly Data Driven

A principal role of boards is to assume responsibility for the consequences of their own decisions – and of the decisions delegated to the firm's executives and managers. Taking responsibility for decision-making is impossible, both emotionally and intellectually, without an understanding of and commitment to digitalisation.

The board will honour its fiduciary liability only by making decisions based on a factual and unbiased understanding of the firm's external and internal environments. To ensure not just efficient but effective decision-making, boards must go beyond understanding the chosen action and aim to comprehend the impact of alternative courses of action – and the state of the world thus not entered – so as to allow a genuine examination of options.

It is no longer enough for board members to base decisions on executive summaries with binary choices, often presented in static two-by-two matrices. The new business reality is shaped by digitalisation in numerous ways and requires insights derived from the analysis of networked, interdependent and complex information patterns – increasingly in real time. The use of big data and algorithms allows the processing of infinitely complex information, facilitating truly data-driven decision-making.

The Internet, combined with increased efficiency of computers (thanks to better algorithms), has significantly increased firms' access to data. This trend is gathering pace with the so-called "Internet of Things" (IoT)[36], which enables ordinary objects, such as household appliances and basic electronic devices, to generate and exchange information continuously. IHS Markit[37] forecasts that the IoT will grow from an installed base of 15.4 billion connected devices in 2015 to 30.7 billion in 2020 and 75.4 billion in 2025.[38] Analysis of newly acquired data is helping companies to evaluate the options under consideration, thus facilitating decision-making at board level and throughout the organisation.

Big data, for example, makes it much more achievable to differentiate pricing strategies at the product level. McKinsey[39] has found that 75% of a typical company's revenue comes from its standard products and that 30% of the thousands of pricing decisions companies make every year fail to deliver the optimum solution. With a 1% price increase translating into an 8.7% increase in operating profit (assuming there is no loss of volume), big data offers significant potential for improving profitability.[40]

Big data is also revolutionising techniques for generating customer responses and insights. A Forrester[41] study found that 44% of B2C marketers are using big data and analytics to improve responsiveness, while 36% are actively using data mining to plan more relationship-driven strategies.[42]

In addition, big data is used to drive productivity. Transport company, US XPRESS, collects about a thousand data elements ranging from fuel usage and tyre condition to truck engine operations and GPS information. This information is used to optimise fleet management, saving millions of dollars in operating costs.[43] Predictive analytics uses many techniques from data mining, statistics, modelling, artificial intelligence[44] and machine learning[45] to analyse current data and make predictions about the future. American Express, for example, is developing sophisticated predictive models to analyse historical transactions, using 115 variables to forecast potential churn. The company believes it can now identify 24% of accounts that will close within the next four months.[46]

The key idea to take away: Access to large amounts of data – associated with consumer preferences, competitor behaviour, new business models, and opportunities for operational effectiveness and efficiencies – is introducing more detail and complexity into the decision-making process. Sleepy boards will face a difficult wake-up call, if not a major headache, when they discover the implications for their own decision-making, as well as for the organisation's architecture, strategy and execution. However, data offers exciting opportunities for boards to back up beliefs and assumptions, enabling directors and executives to combine intuitive thinking with an analytical mindset.

C. Impact of Digitalisation on Strategy

10. Digitalisation Requires Firms to Explore Uncharted Territories

The majority of a firm's activities are focused on playing to its strengths and exploiting its core business competences. This is widely accepted by stakeholders and boards as the right approach to produce the expected return on investment.

However, today's unpredictable business environment requires a firm not only to stick to its core business but also to expend considerable effort on exploring new business models and revenue streams. Successful business exploration requires organisations to move away from established management techniques and continuously acquire new capabilities.

For example, to cope with the many unknowns introduced by the digital revolution, organisations will have to shift from a traditional "plan-to-execute" mindset to one that also plans to evaluate, learn and adapt. This is why Google, one of the world's most influential organisations, deliberately looks for learners in its hiring process, thus fostering the ability to learn at an organisational level.[47]

Technology increases the ability of firms to explore and innovate. Hotel group Marriott International was named one of the most innovative companies in travel for 2016 by Fast Company magazine. Much of this innovation involved improving guests' experiences by connecting with them instantly and everywhere through new technologies, including Alipay[48], Apple Pay, mobile check-in and mobile requests. The company also meets customers' needs through "Canvas", a co-creation food and beverage platform, and "Meetings Imagined", which is a planning tool designed to reinvent meetings, making them more visual, social and purposeful.[49]

The need for organisations to innovate has always been a reality. Today, however, organisations need to innovate radically. Yet the majority of innovations – some say as many as 70% – do not come from established companies but rather from entrepreneurs.[50] In the democratised digital business world entrepreneurship is substantially increased, which suggests that the figure of 70% will only rise. This in turn will put even greater pressure on incumbents to innovate, if only for survival. A primary focus on radical creativity, innovation, experimentation and learning will also become the norm for established firms.

Amazon is one company that truly excels in this area. It innovates in everything it does, not just technology. It is never afraid to experiment and can get things done quickly, thanks to the culture instilled by CEO, Jeff Bezos. This is why Amazon has become the key player in web services, where it still dominates Google's and Microsoft's cloud services units. Its e-commerce operation also continues to outpace most retailers globally. In 2016 too, the company released yet more new and innovative hardware: the Echo smart speaker, the 7-inch Fire tablet and the Fire TV streaming stick were all top-selling items during Amazon's Black Friday sales.

The key idea to take away: The necessity of exploration through continuous learning and experimentation requires the board and executives to accept higher levels of uncertainty, ambiguity and risk. They have to commit the company to never resting on its laurels, whether core business, key skills or established position. Boards and executives are therefore advised to look beyond traditional key performance indicators to avoid becoming trapped in repeat behaviour or short-term thinking.

C. Impact of Digitalisation on Strategy

11. Digitalisation is About Continuous Management of Change

Firms have always faced circumstances that require fundamental organisational change. In 2004, Shell experienced an oil reserves crisis that slashed its share price, forcing the company to transform its structures and processes. In 2008, to establish a stronghold in the UK banking sector, Santander acquired a portfolio of heritage UK financial brands. A change programme was implemented to ensure that all stakeholders understood the need to embrace the new era in banking.

However, no organisation can become digitally enabled through a one-off change-management programme. Such an exercise would require a crystal ball for the entire business environment, as well as a vision of the ideal outcome for the organisation. This may have been possible in the pre-digital world of business. When advertising agencies, figured out how to make money from television, for example, they dined out on their insight for over 40 years. It is a fact that may explain why many of today's ad agencies are so fixated on mastering digital: they hope that another magical one-off discovery will generate revenues for decades to come.

However, digital is making it fundamentally impossible to achieve clarity on the emerging business environment or even to reach a vision of the ideal outcome for the organisation. Digitalisation cannot therefore be considered as a one-off change management programme. Instead, it calls for continuous transformation driven by a built-in process of constant testing, learning and adaptation.

The key idea to take away: The board and its executives have an important role to play in ensuring that the will and ability to change are built into the very fabric of the organisation. It is their duty to drive the process of continuous change from the top. The reward will be increased agility, sustained relevance and unparalleled ability to customise the company's products, services, supply processes and business models to the needs of customers.

If we want things to stay as they are, everything will have to change.

Conclusions

Giuseppe Tomasi di Lampedusa famously stated, "If we want things to stay as they are, everything will have to change".[51] In the face of the dramatic changes brought about by digitalisation – as in any threatening situation – boards and executives will choose one of three paths:

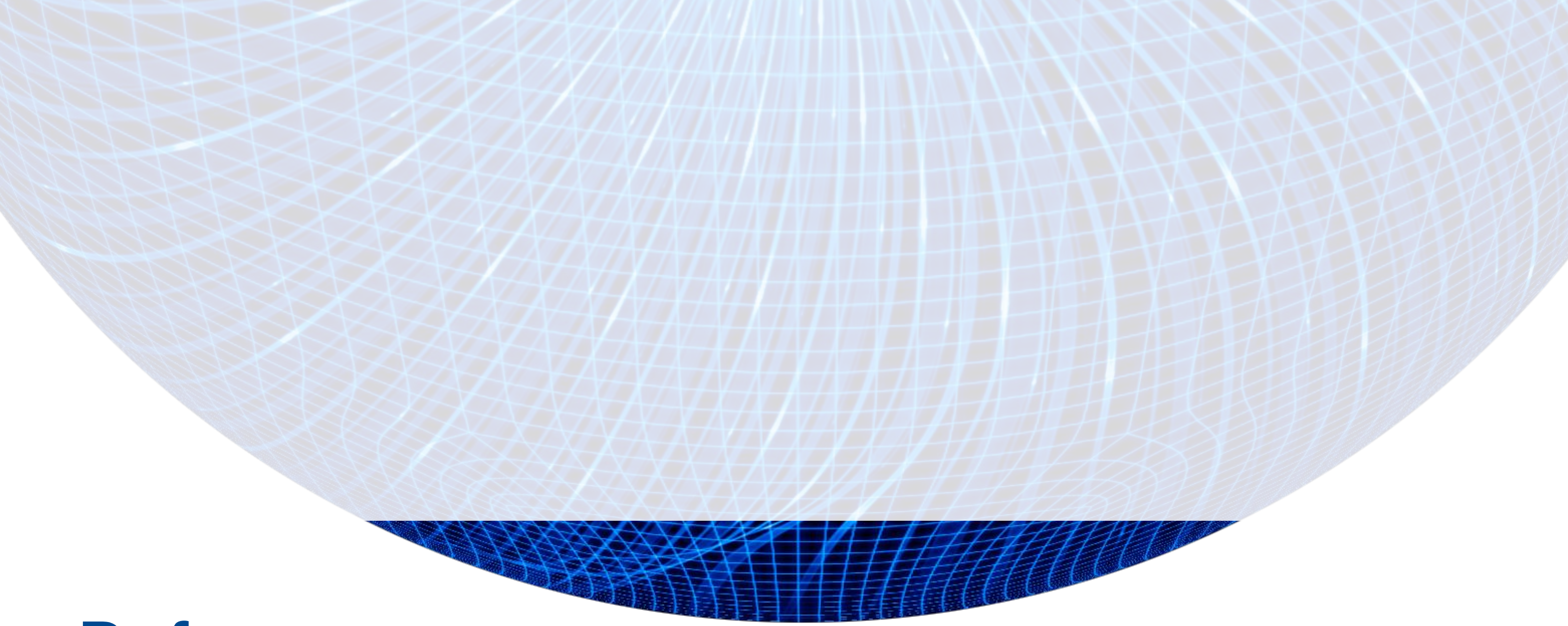
- Submit to the perceived threat of digitalisation and become governed by it: Boards who make this choice see digitalisation as beyond their understanding or capability, and in effect surrender the responsibility of digital to the firm's executives – breathing a sigh of relief that they need only rubber-stamp someone else's recommendations.
- Underestimate the impact of digitalisation: Boards who take this route downplay the extent of future change, arguing that digitalisation has been an ongoing process for several decades and that boards – in collaboration with capable executives – have coped perfectly well so far.
- Engage with digitalisation: Boards who choose this road for their journey into the future understand the phenomenon and its disruptive characteristics. They search for a strategy and commit to overcome the threats posed by digital change – while also capitalising on the opportunities. These boards assume their leadership responsibilities and tackle digitalisation head on, engaging enthusiastically with each other and their executives, with experts and the public – in search of board practices to fit the digital age.

The future of business is digital. In order to be successful, boards and senior management will have to digitalise – encouraging not only disruption of their business but also disruption of themselves: their processes, their language, their mindsets and their interactions. To meet the requirements of business leadership in the 21st century, directors and executives will have to confront the upheavals of digitalisation head on.

However, the gathering clouds of the digital age offer a silver lining to those who lead and govern organisations, as the digital economy brings unique business opportunities. Furthermore, it heralds innovations that will turn business into a more transparent, collaborative and customer-centred activity than it has ever been. The same can be said of governance in the digital era, when customers – who ultimately pay for everything, including salaries, bonuses and dividends – will gain new insights into the inner workings of organisations, including boards and senior management.

The combined result of this increased challenge and scrutiny will undoubtedly force boards and senior executives to attain unprecedented levels of innovation, competence, effectiveness, leadership and responsibility – with a fundamentally positive impact on the commercial success of firms and the contribution of business to society.

We stand on the verge of the greatest disruption to both leadership and governance in the entire history of business. Welcome to the digital world.



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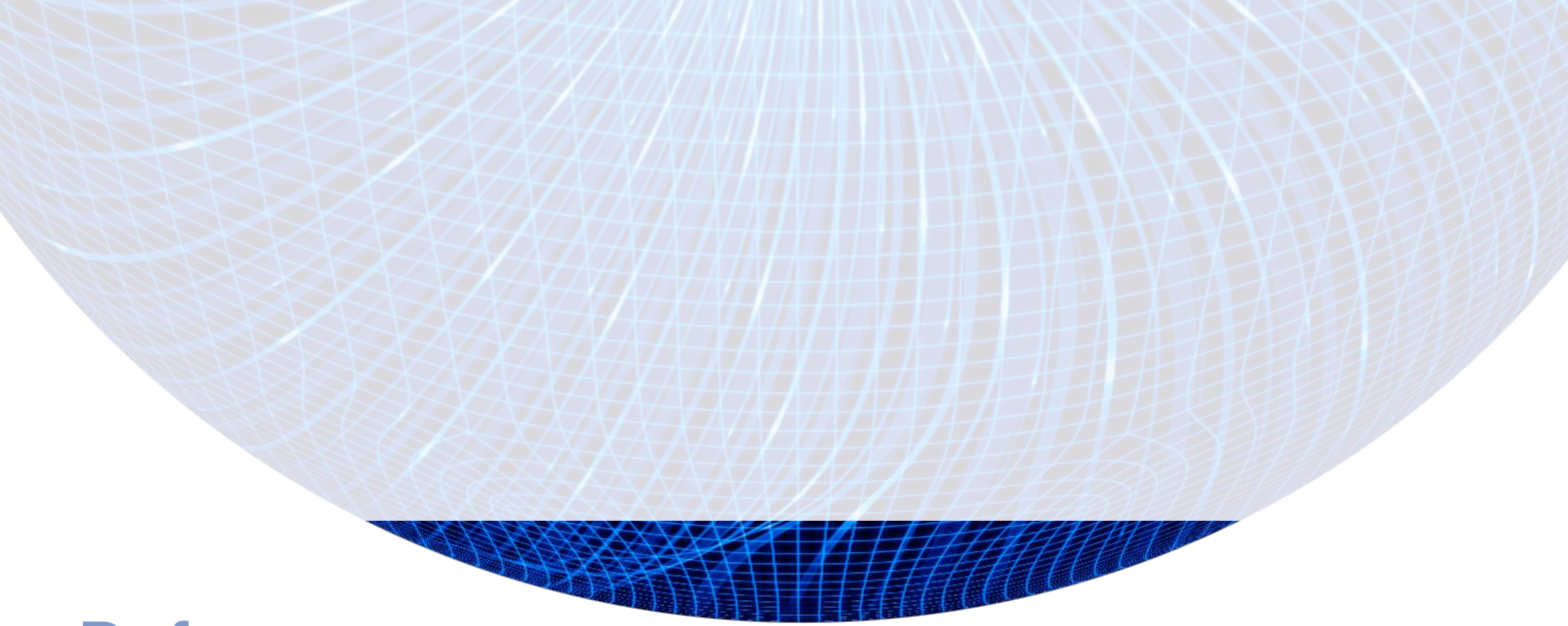

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Liri Andersson is the founder of this fluid world, a boutique business and marketing consultancy that enables global organisations to understand, navigate and commercially exploit the changing business and marketing environment.

Since its inception, this fluid world has built up an impressive track record, and has become a trusted advisor, at a senior management and board level, to many global brands.

Liri's experience spreads across nations, industries, brands, business problems and disciplines. Her energy, experience and ability to decipher the complex business environment have propelled her around the world, developing winning business and marketing strategies for global brands such as Nestlé, General Mills, Nespresso, Crédit Agricole, Danone, Bacardi, IKEA and Cisco.

Liri's contributions to the areas of strategy, innovation, marketing and organisational management is a testament to the breadth of her knowledge and talent.

Liri holds an MBA specialising in Strategy & Management and a BA in International Marketing. In addition to researching disruptive technologies at INSEAD, she is a guest lecturer on its prestigious executive education programme.

Ludo Van der Heyden is the founding Director of INSEAD's Corporate Governance Initiative. He is co-Director of the International Directors Programme and 'Value Creation for Owners and Directors' and lectures on leadership, team dynamics and business model innovation.

Ludo was the first holder of the Wendel Chair in Large Family Firms and of the Solvay Chair in Technological Innovation. He directed the Advanced Management Programme, the INSEAD Zentrum Leipzig, and was Dean of INSEAD from 1990 to 1995. He has received several Outstanding MBA Core Teacher awards, as well as an award for Outstanding Service to Executive Education.

He has a degree in Applied Mathematics from the Université Catholique de Louvain and a Ph.D. from Yale. Before joining INSEAD, Ludo was on the faculty of Yale and Harvard. His work has been published in many journals, the latest of which is 'Fair Governance: Setting a Tone of Fairness at the Top', in the Journal of Business Compliance.

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