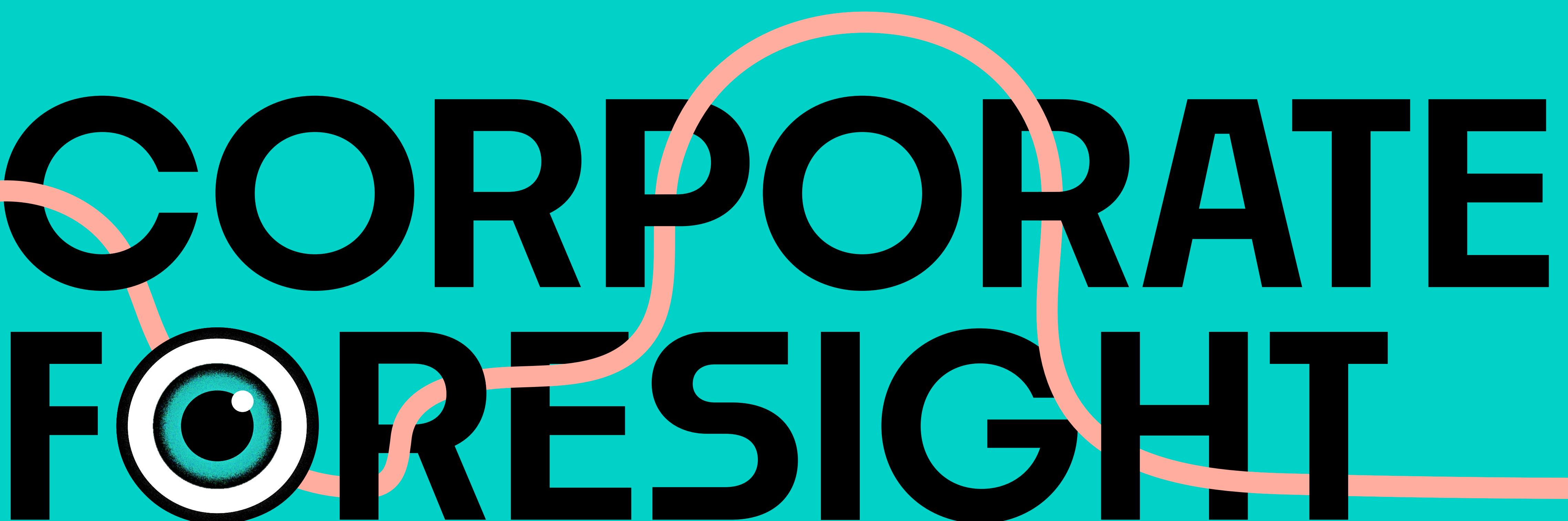


Guidebook
for organising

CORPORATE FORESIGHT

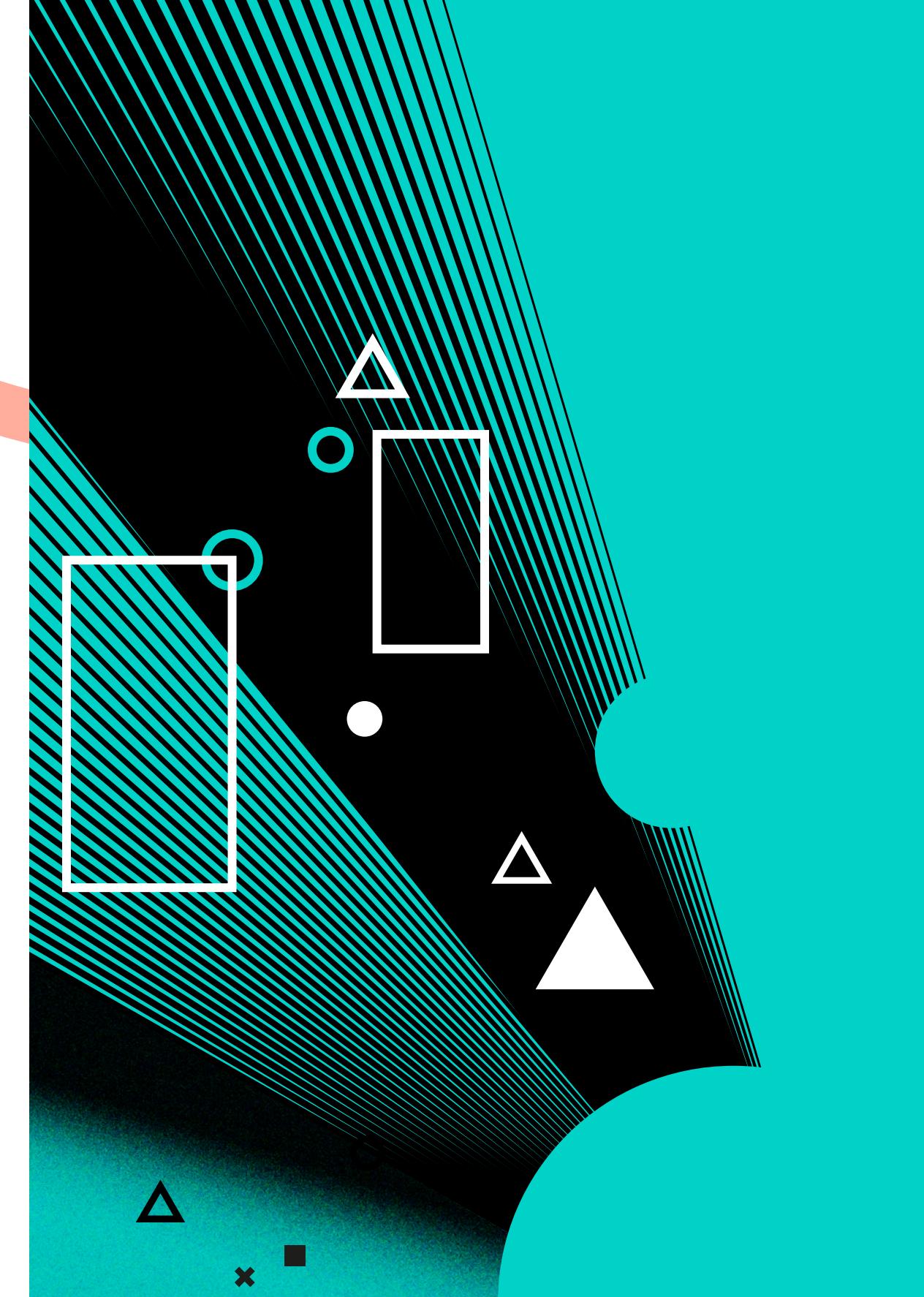


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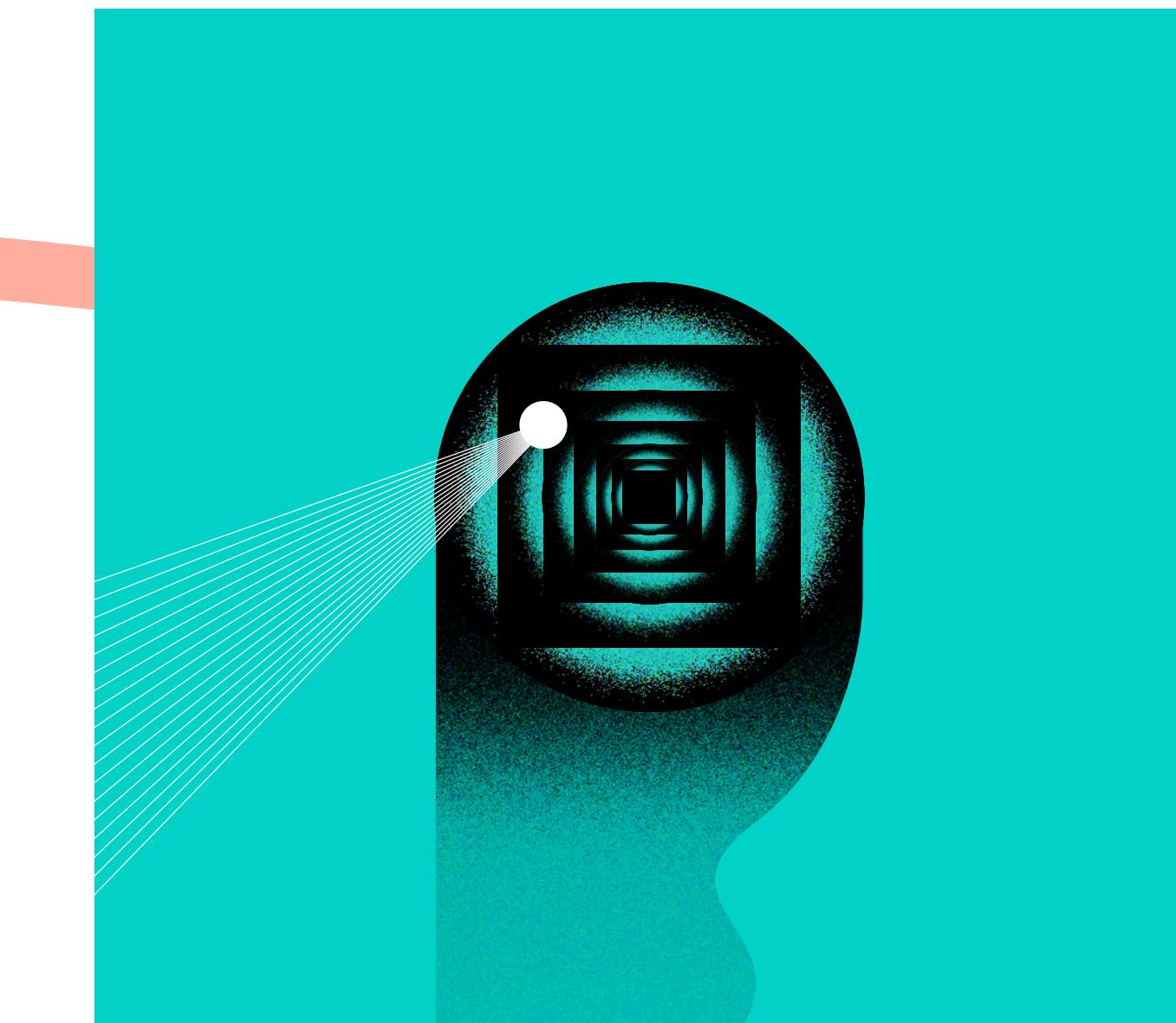
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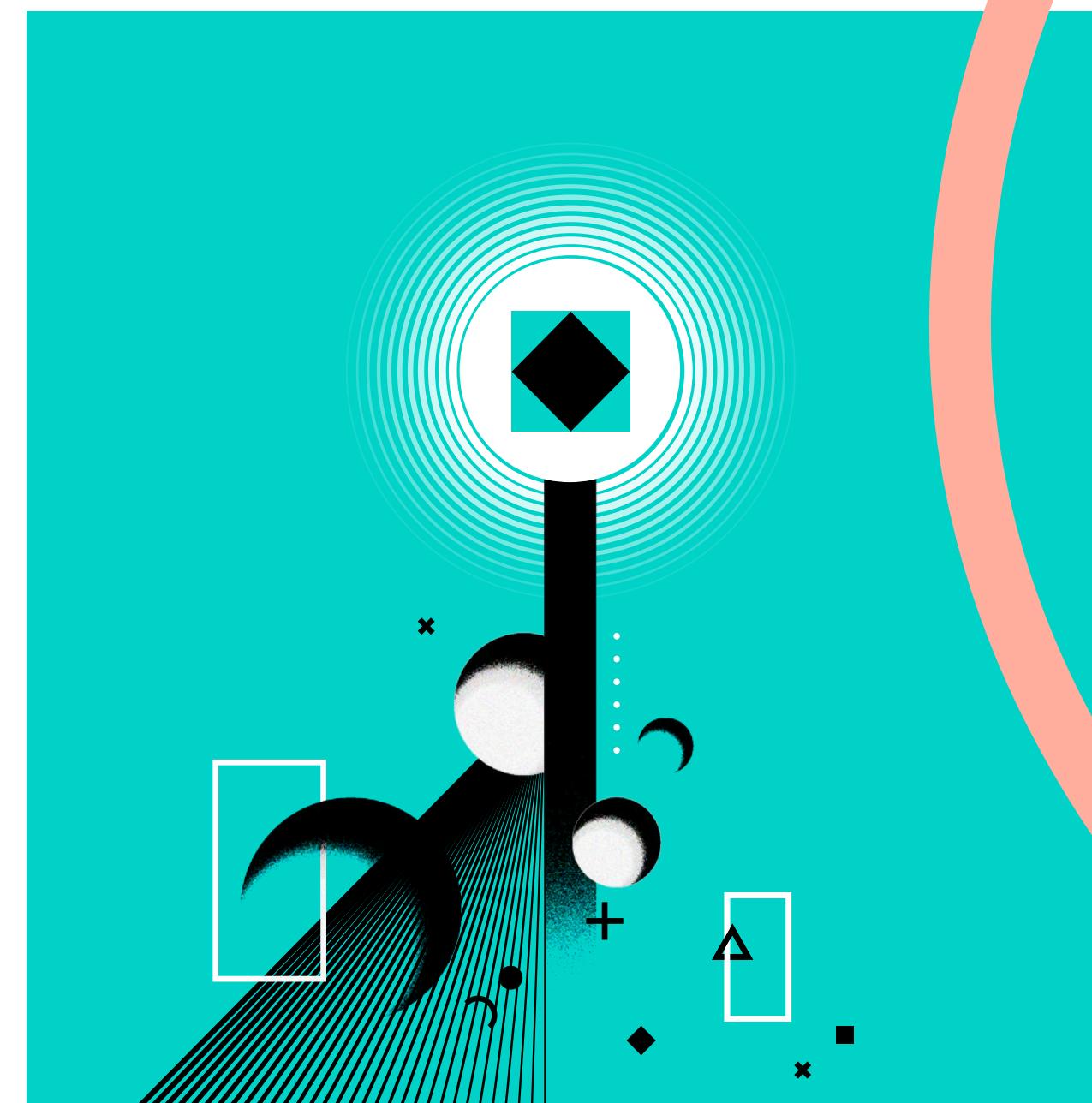
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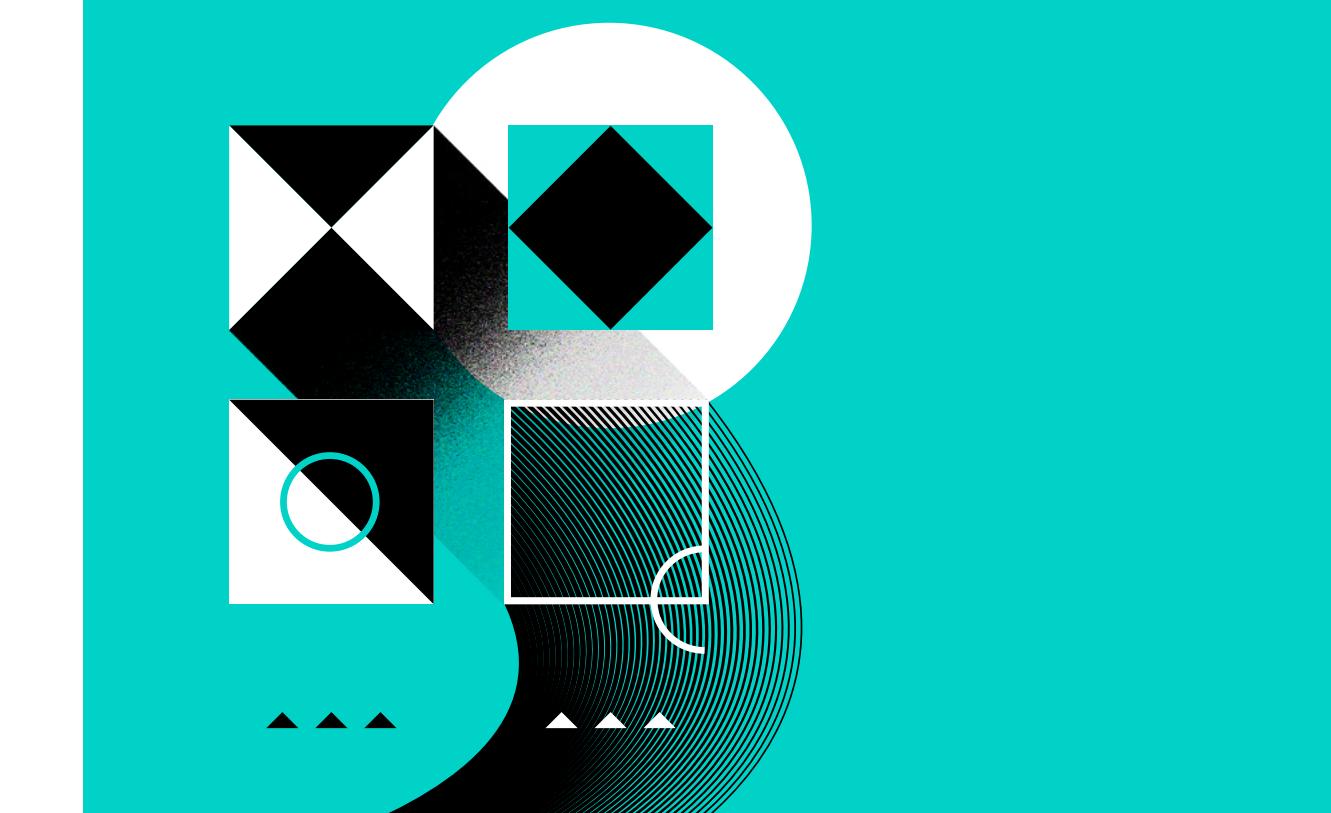
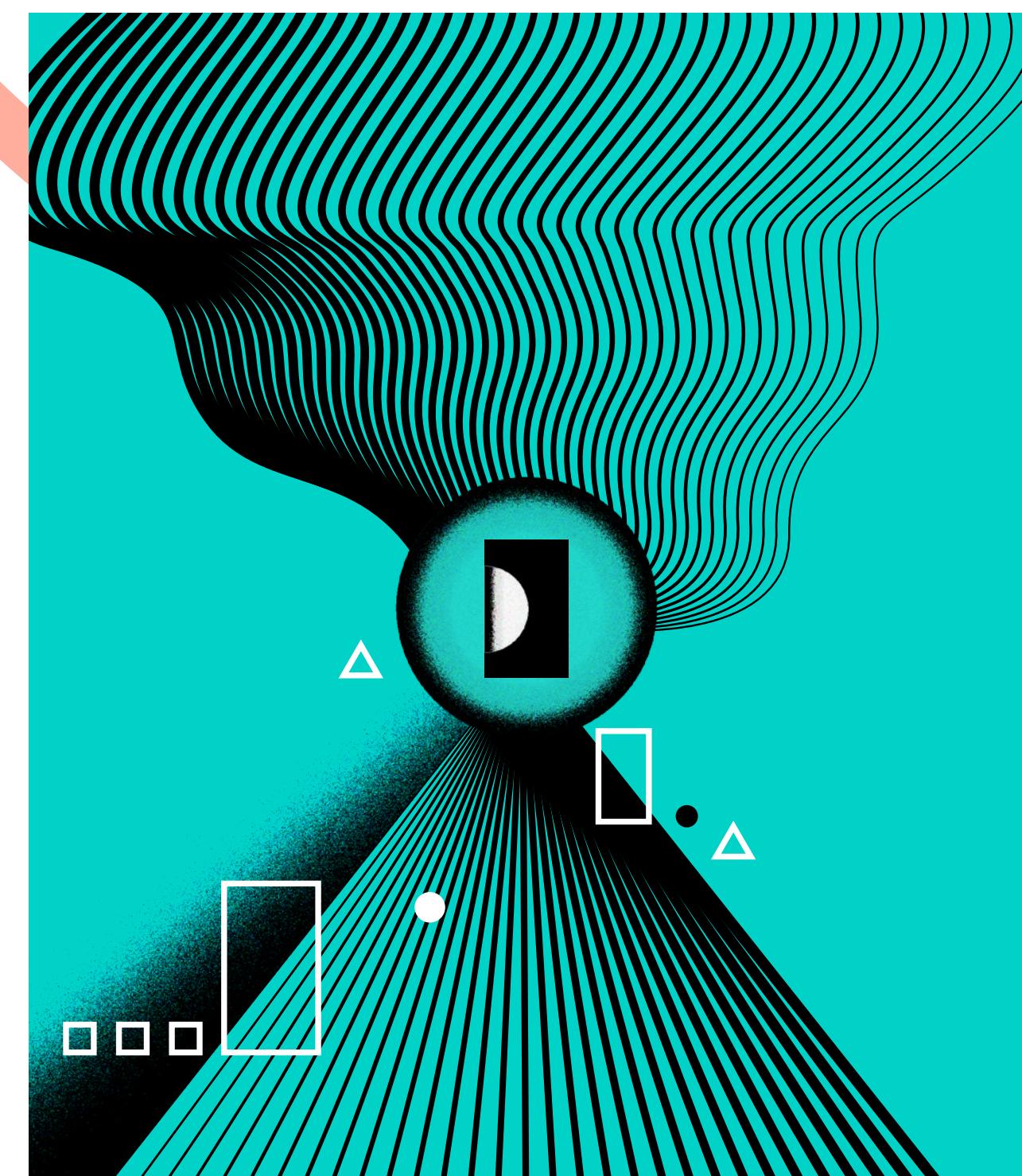


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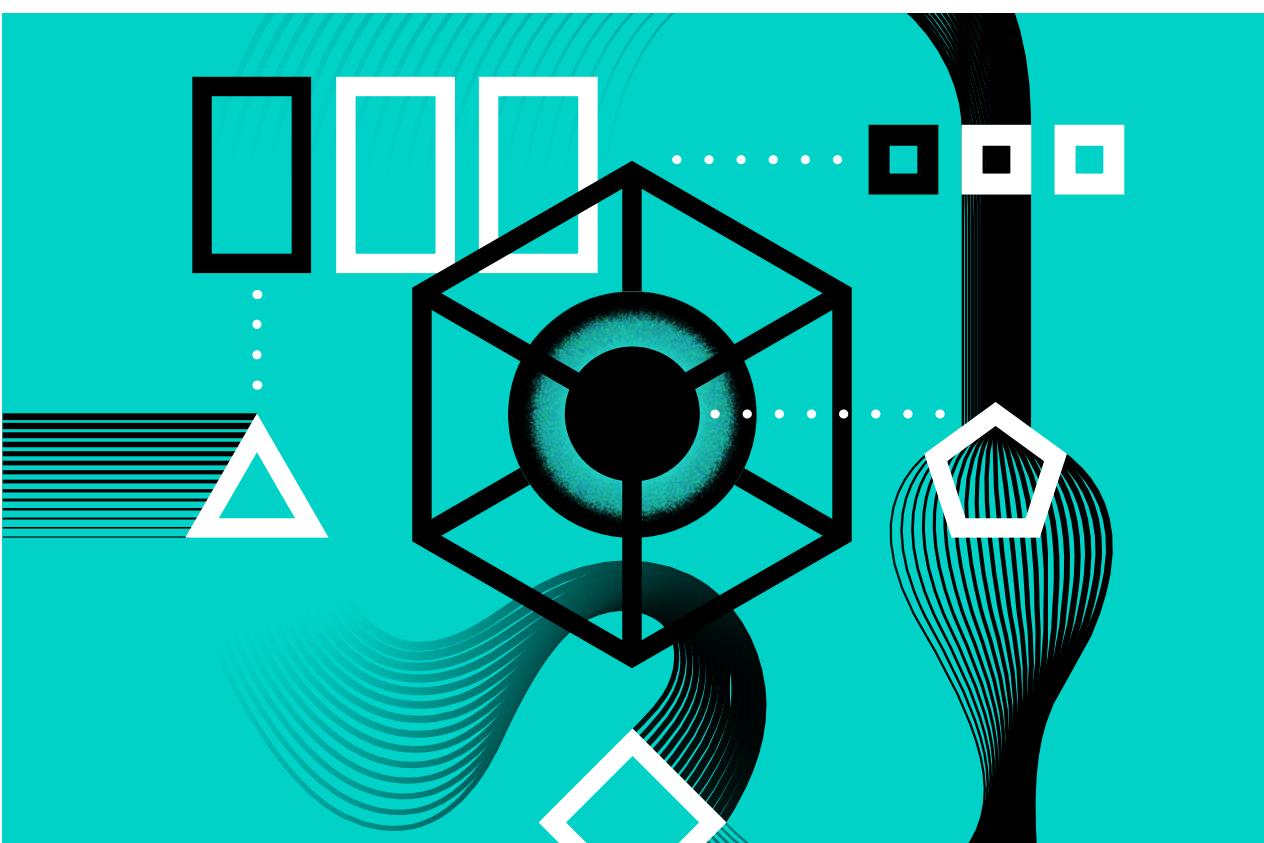
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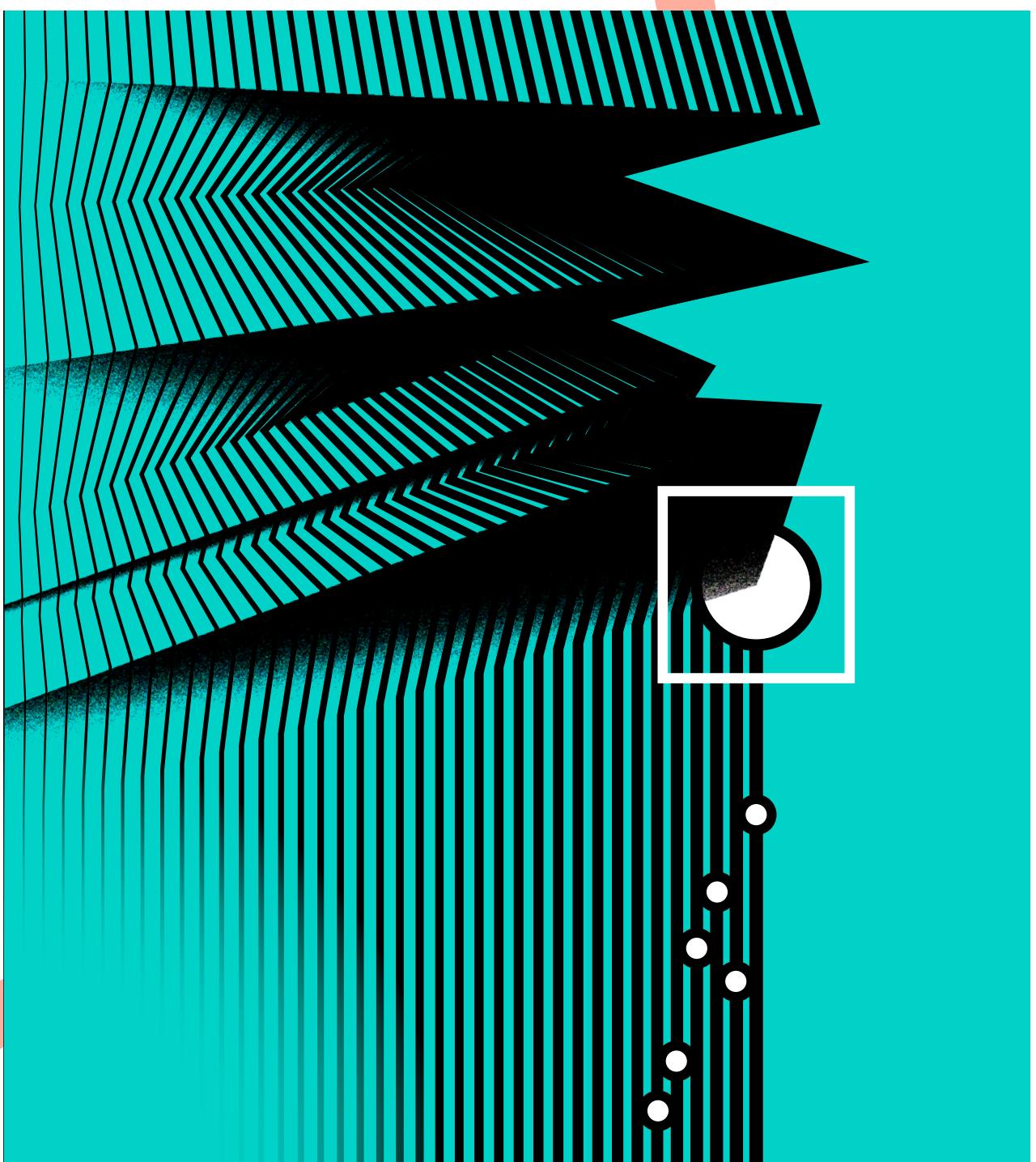


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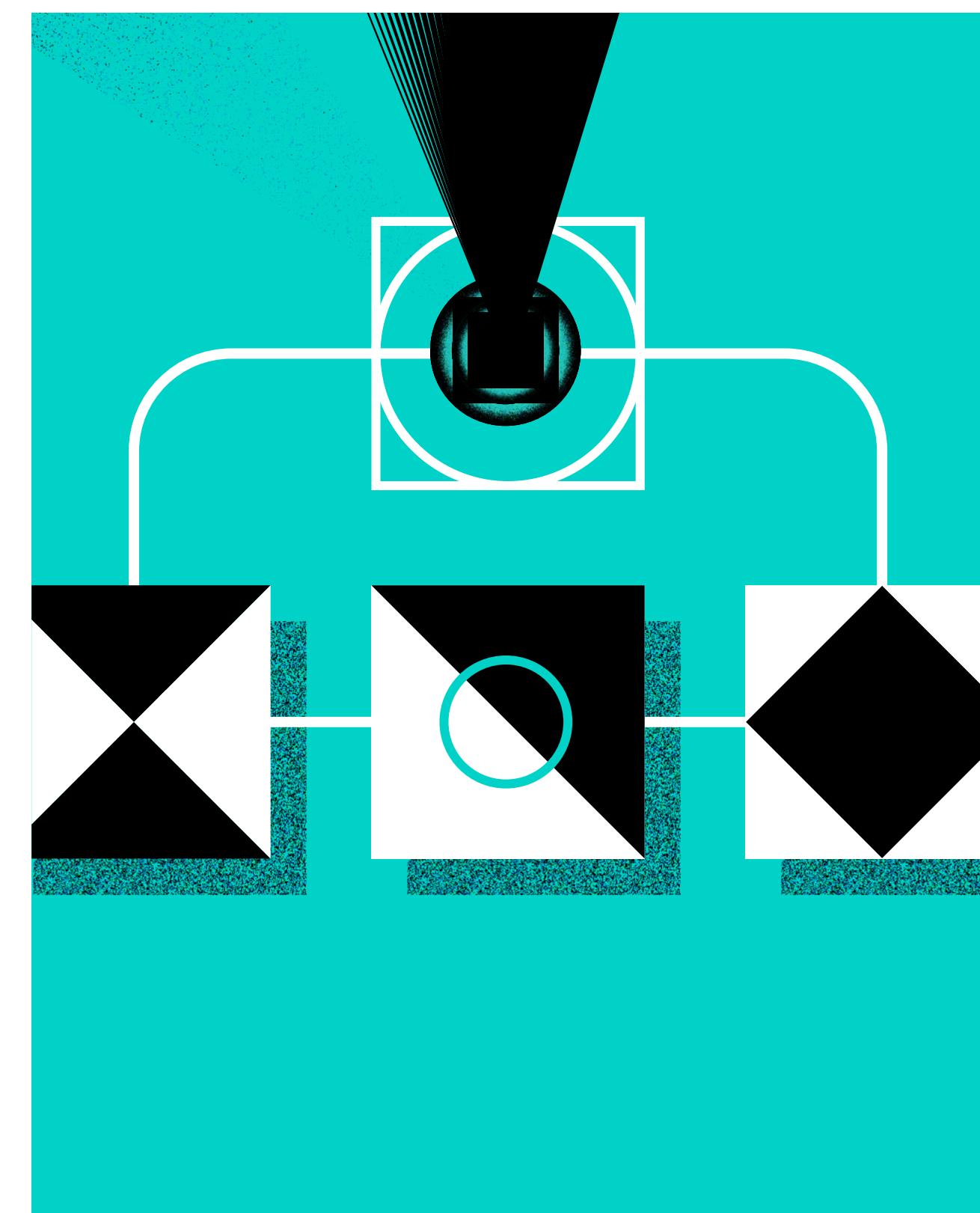
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Introduction

Tiina Apilo, Antti-Jussi Tahvanainen



How to make strategic foresight your company's superpower

If you've opened this guide, you already know that strategic foresight can empower your organisation with the approaches and tools to be prepared, agile, and resilient for the future. Someone recommended that you explore this topic. Either way, you're in the right place. No matter what stage of your company's foresight journey you are currently at, we have created a guidebook for organisations like yours to further develop and enhance their foresight capabilities, ensuring the organisation is future-proof.

Grounded in the latest research and co-created alongside pioneering companies, this book offers a practical path forward. Through numerous real-world examples, you'll discover the practices that leading organisations use across various areas of foresight, reassuring you that you can apply this knowledge effectively.

The first three chapters focus on the benefits of having a future-oriented mindset and integrating foresight into decision-making.

In Chapter Four, we take a giant leap – or at least a moonshot – as we learn how to leverage foresight to uncover ideas for radical innovation. Chapters Five and Six focus on organising systematic foresight and involving the entire organisation in foresight practices. The following two chapters show how to include stakeholders in your foresight activities, such as anticipating customers' future needs and collaborating with networks for foresight. Chapter Nine covers methods for demonstrating the impact of foresight on C-level executives. Finally, the last chapter summarises the key takeaways from the book and includes a glossary of new concepts.

- ✓ Why foresight matters
- ✓ For business leaders, managers, strategists, or anyone interested in the future of their organization
- ✓ Research-based knowledge on how to navigate to the future
- ✓ Real-world examples bring the concepts to life

How to use this book

Feel free to browse the chapters, focusing on the perspectives that are new and most relevant to you. Each chapter follows the same structure to make navigation easier:

Dive deeper into new topics and explore further with the curated reading recommendations at the end of each chapter.

Why this topic?

- ✓ The rationale for engaging in foresight
- ✓ Make a case for initiating foresight activities
- ✓ A company story about establishing a foresight unit

In a world constrained by resource scarcity, why should we invest in foresight? An accumulating body of evidence demonstrates that strategic foresight is an increasingly valuable capability for navigating uncertain and complex landscapes. However, initiating foresight activities is not always straightforward, and not everyone agrees on the need for it. Short-term efficiency is often preferred over long-term exploration.

1. WHY THIS TOPIC:

An explanation of the chapter's topic and its importance in the broader context of strategic foresight.

Strategic foresight enables orienting business development. It also provides excellent insight into the potential customer needs.

Solution Example
Profiling forrunners

Industry forrunners can offer valuable insights into emerging opportunities, challenges, and changes in customer behaviour. Furthermore, the information gathered from these forrunners can be a vital component of a robust and future-proof strategic foresight process, guiding the development of capabilities to ensure success in the future.

A recent study⁷ elaborated on preferences and views on the future of forrunners in the wood construction industry, including those of experts and customers. Forrunners particularly value sustainability, architecture, and design. Additionally, they are interested in the use of wood in construction and developing carbon solutions within their organisation and the wider industry. The forrunners are ready and willing to innovate, explore novel approaches, and establish collabora-

tion models and value networks among stakeholders. The forrunners are eager and able to receive, try new courses of action and build new value networks and collaboration models between the actors.

The forruners are not, however, a unified group of actors. Forruners could be divided into categories depending on how they prioritize sustainability, innovation, and growth. By profiling forrunners, foresight professionals can better understand the needs of different groups and tailor their approach to meet specific requirements.

Jussi Björman, Director of Business Development and Customer Experience at MenSö Wood

3. EXAMPLES AND SOLUTIONS:

Real-world case studies and potential approaches to address the challenges.

Challenge description

- Understanding the role of foresight in a complex world
- Seeing foresight as a competence, not a toolset
- Acknowledging when and where foresight is needed
- Bridging the gap from fuzzy front-end to impact

In recent years, the term 'polycrisis' has rapidly gained traction. A polycrisis signifies a situation in which multiple global systems become causally linked in ways that significantly increase their impacts (Lewellen et al., 2022). The interconnected crises cause issues greater than the sum of the crises would create in isolation. A polycrisis situation may cause widespread disruptions in food, energy, and trade systems, causing these systems to become more fragile and less resilient.

"We are on the cutting edge of the energy and technology transformation. The change during the past 15 years is not the same we are seeing now. We need foresight and we are working on it!"

- Company interviewee

2. CHALLENGES:

The key obstacles or questions organisations face in this area.

Key learnings

An customer behaviour constantly evolves, it is essential to research current trends and future scenarios. For instance, should the journey from conceptualisation to commercialisation of a product span a decade, the customer's environment could undergo significant transformations during this period. Nonetheless, it is feasible to construct scenarios of plausible futures in the here and now.

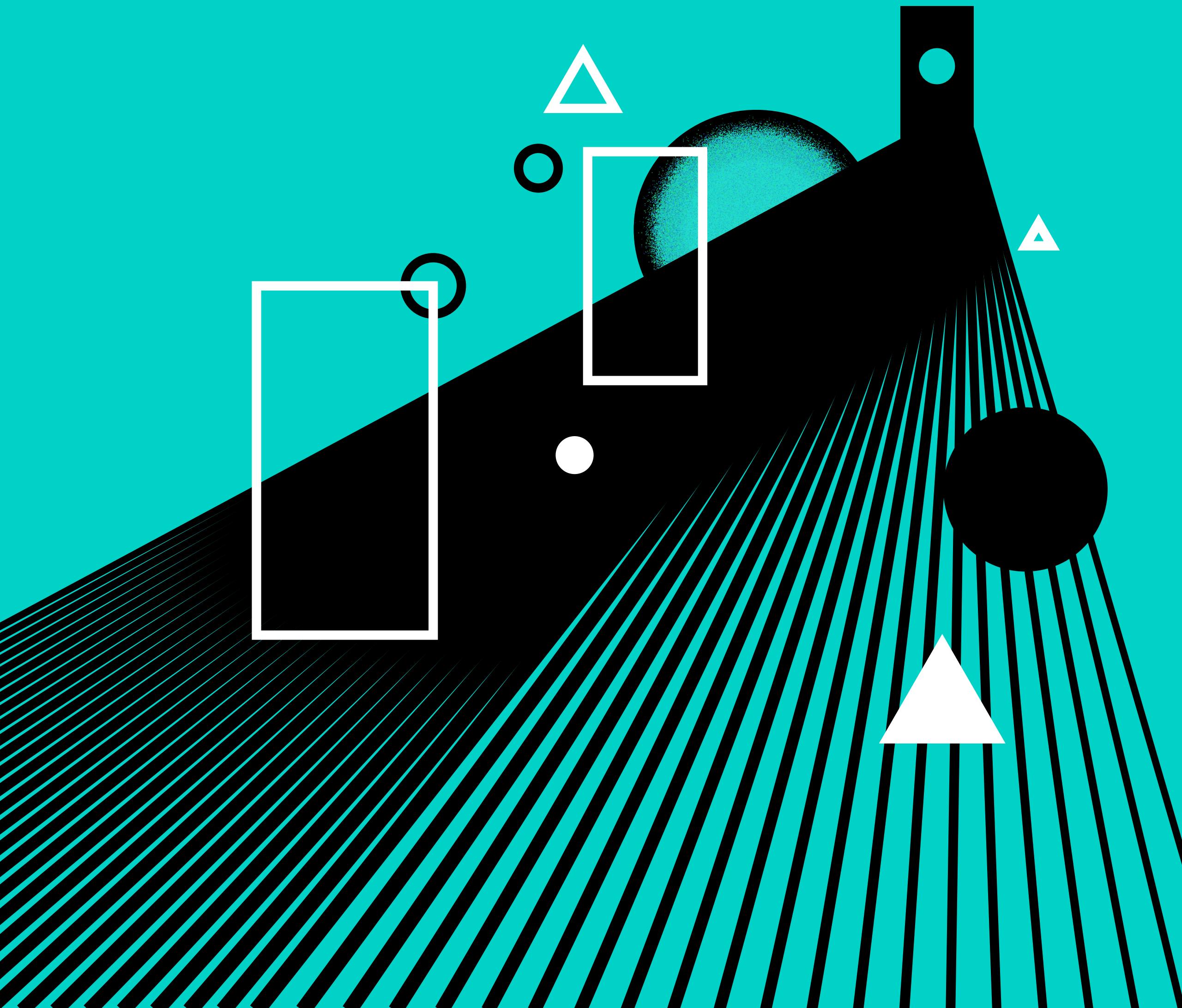
Customer foresight is crucial in business-to-consumer (B2C) and business-to-business (B2B) contexts. Although it is not always easy to engage with customers, their perspective is very useful in meeting the future customer's viewpoint enables the creation of solutions and strategies tailored to meet forthcoming needs. This proves particularly critical in sectors characterised by lengthy product development and innovation cycles. For instance, should the journey from conceptualisation to commercialisation of a product span a decade, the customer's environment could undergo significant transformations during this period. Nonetheless, it is feasible to construct scenarios of plausible futures in the here and now.

The forward-thinking, customer-centric approach can remain competitive and aligned with evolving customer expectations. Engaging with customers as partners in the development process enriches the innovation pipeline. By involving them in the process, companies can better understand their needs and preferences. Thus, embracing the dynamic nature of consumer behaviour and incorporating customer foresight into strategic planning is imperative for sustainable business growth and innovation.

- 1 Familiarize with customer foresight
- 2 Work on customer trends
- 3 Co-develop with forrunner customers

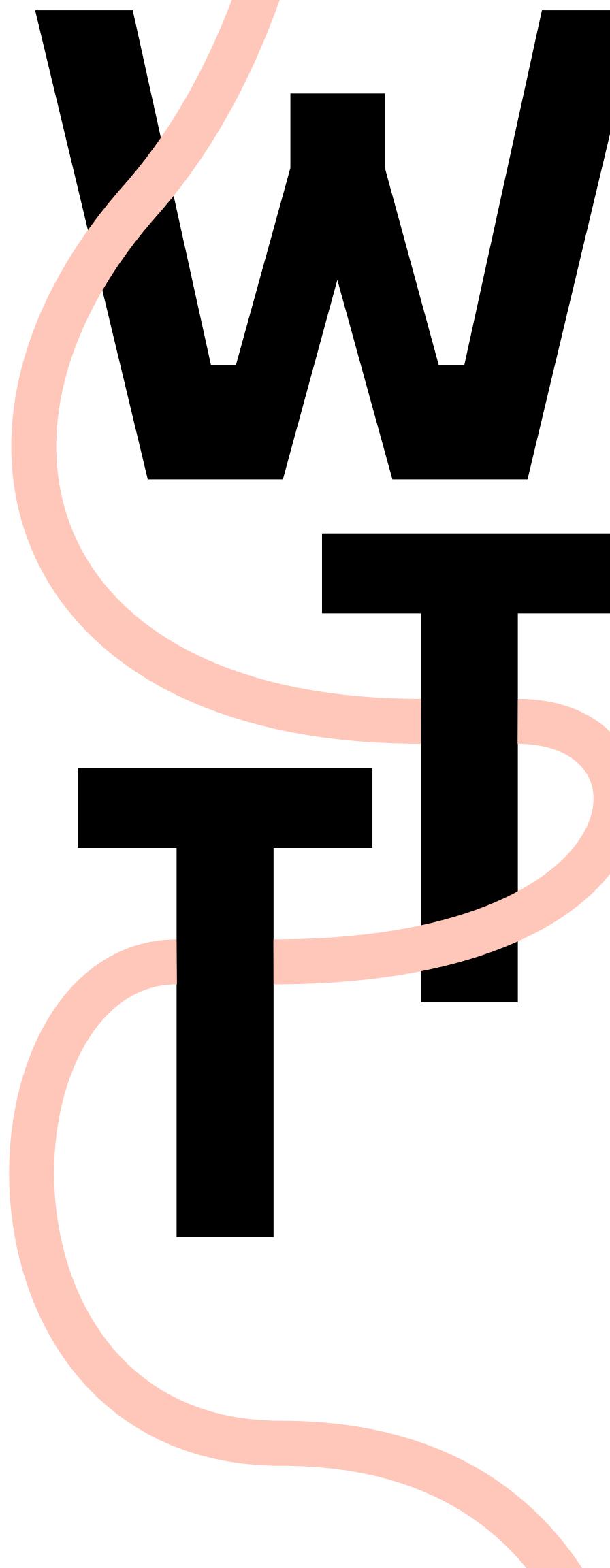
4. KEY LEARNINGS:

A summary of the most important takeaways to remember.



Why do we need foresight?

Pauli Komonen, Sofi Kurki, Jyri Rökman



Why this topic?

In a world constrained by resource scarcity, why should we invest in foresight? An accumulating body of evidence demonstrates that strategic foresight is an increasingly valuable capability for navigating the uncertain and complex business environment of our times. However, initiating foresight activities is not always straightforward, and not everyone agrees on the need for it. Short-term efficiency is often preferred over long-term exploration.

This chapter advocates for the use of foresight. It discusses the starting points and rationale for engaging in foresight activities, and briefly addresses their value, uses and visionary potential. The chapter does not offer solutions, however – that is the purpose of the remainder of this book.

Included is a case study of a company that recently established a foresight unit. It illustrates why a particular company in the energy sector regarded foresight as a strategic asset for long-term innovation, competitiveness, and a company-wide understanding of critical trends.

- ✓ The rationale for engaging in foresight
- ✓ Make a case for initiating foresight activities
- ✓ A company story about establishing a foresight unit

Challenge description

- ✓ Understanding the role of foresight in a complex world
- ✓ Seeing foresight as a competence, not a toolset
- ✓ Acknowledging when and where foresight is needed
- ✓ Bridging the gap from *fuzzy front end* to impact

The world is in flux; that goes without saying. The complexity of change, however, is unforeseen. It is a key justification for foresight work. If everything were linear and predictable, there would be no need for systematic foresight that considers multiple possible futures.

We could simply pinpoint trends in historical data and project them into the future. In this scenario, the future would simply be an extension of the present.

Conducting strategic foresight would be easier in a more stable world. Fortunately, there are tools and methodologies available for managing present uncertainty and complexity. Although we can't predict the future, we can systematically explore various plausible future trajectories and options. The uncertainty won't vanish, but coping with it becomes better informed, which ultimately allows for better decisions and actions. Anticipated changes in the business environment require changes in the ways business is done.

Numerous characterizations capture the turbulent nature of the current operating environment. For instance, VUCA, an acronym standing for volatility, uncertainty, complexity, and ambiguity, has been used for decades¹. Its continued relevance is hard to dispute, yet it can be expanded from different perspectives. Another acronym, BANI, describes the world as brittle, anxious, nonlinear and incomprehensible. In all of the contemporary characterizations, the world is something other than stable, peaceful and predictable.

In recent years, the term 'polycrisis' has rapidly gained traction. A polycrisis signifies a situation in which multiple global systems become causally entwined in ways that significantly threaten our prospects². The interconnected crises cause issues greater than the sum of the crises would create in isolation. A polycrisis situation may cause widespread disruptions in food, energy, and trade systems, causing these systems to become more fragile and less resilient.



We are on the cutting edge of the energy and technology transformation. The change during the past 15 years is not the same we are seeing now. We need foresight and we are working on it.

Product Development Director, Valtra

Futures studies have suggested that we are living in post-normal times³. Postnormality is defined by complexity and uncertainty, along with chaos and contradictions. In a postnormal world, old orthodoxies are dying, new ones have yet to emerge, and things seemingly make no sense⁴. The only tools to cope with complexity, contradictions, and chaos may be imagination and creativity. Postnormal times also question the extent to which we can control and manage things, or whether these mental frameworks remain valid at all.

Despite the crises-ridden times, the visionary potential of foresight can inspire more desirable, plausible, and achievable futures. The ability to envision better futures enables action in the present moment. Consequently, foresight informs and creates agency – the ability to have a proactive role in shaping the future.

Here, perhaps, emerges the most typical bottleneck in the use of foresight: its applicability. To effect change, foresight must speak the language of the top management. Foresight professionals have to understand the perspective of the users of the information. The information has to be packaged and delivered in a business-relevant, actionable and concise manner. When shared frequently,

the futures literacy of the whole organization begins to transform.

Foresight has many uses. Classically, it supports the early stages of strategy and innovation processes. However, its utility goes well beyond these two company functions. In our research⁵, we discovered that foresight is perceived as almost equally important across a broad range of essential company functions, such as sustainability, procurement, manufacturing, and marketing. In addition, foresight was considered useful for nearly all kinds of decision-making situations, such as go-to-market decisions, investment decisions, and capacity planning.

In order to appreciate the many benefits of foresight, attention should be paid to assessing its value. Foresight can be evaluated by assessing a company's overall foresight maturity and reflecting it against the company's financial performance⁶. Quantitative measures of innovation are a common tool for understanding how foresight affects the company. In Chapter 9, we present a novel approach based on multi-criteria evaluation that seeks to capture the value of foresight for different business objectives. In times of uncertainty and volatility, the top management typically relies on tried and tested practices that help mi-

nimise damage to the key indicators that investors and other key stakeholders follow. More often than not, it requires cutting costs in the short run. If foresight has been seen solely as a part of the *fuzzy front end* of innovation, the cost-cutting frenzy might leave companies lacking the instruments and capabilities for finding the next growth cycle.

There is an option: Foresight is not seen as a supernatural skill possessed by only a few people in the innovation department but an integrated part of and a requirement in selected business areas that are seen to influence the future paths of the company the most.



The ability to envision better futures enables action in the present moment.

Case: Neste's reasons for establishing a foresight unit

Neste has a long history of utilising foresight as part of its business development. Its roots lie in strategic thinking at the executive level. In 2019, Neste established its own foresight unit to support innovation, long-term competitiveness, and company-wide awareness of future trends.

There are numerous reasons why Neste adopts a long-term perspective. Not only are investment cycles extensive, but Neste's field of business is also at the forefront of transformation. It is widely acknowledged that change is inevitable. The magnitude of these changes is vast, and the time horizon is extensive. Foresight provides the tools necessary to comprehend the bigger picture.

The rationale for investing in foresight at Neste stems from the company's high level of ambition, aiming for world-class performance. Innovation is central to the

business in the long term, with foresight seen as a key element of this strategy. The initial goal in establishing a specific foresight function at Neste was to support innovation and to identify and develop novel business areas, thereby future-proofing the company. Although innovation was the primary focus initially, it was evident from the outset that foresight was needed throughout the organisation.

While there are many potential approaches to integrating foresight into a company, at Neste, it is believed that having an in-house function for foresight is best suited for fostering company-specific understanding and strengthening the connection between foresight and other key analytical functions within the company. However, Neste's approach to foresight keeps constantly evolving, and the next phase in Neste's foresight development is to increase its impact on strategy.



Foresight provides the tools necessary to comprehend the bigger picture.

Foresight has many uses. Classically, it supports the early stages of strategy and innovation processes. However, its utility goes well beyond these two company functions.



Literature resources

Build a future-proof company by establishing the four cornerstones of transformative corporate foresight.

Malmelin, N., Pihlajamaa, M., & Komonen, P. (2021). Building a future-proof company—Four cornerstones of transformative corporate foresight. *The European Business Review*. (March-April 2021).

Learn the mindset of a futurist.

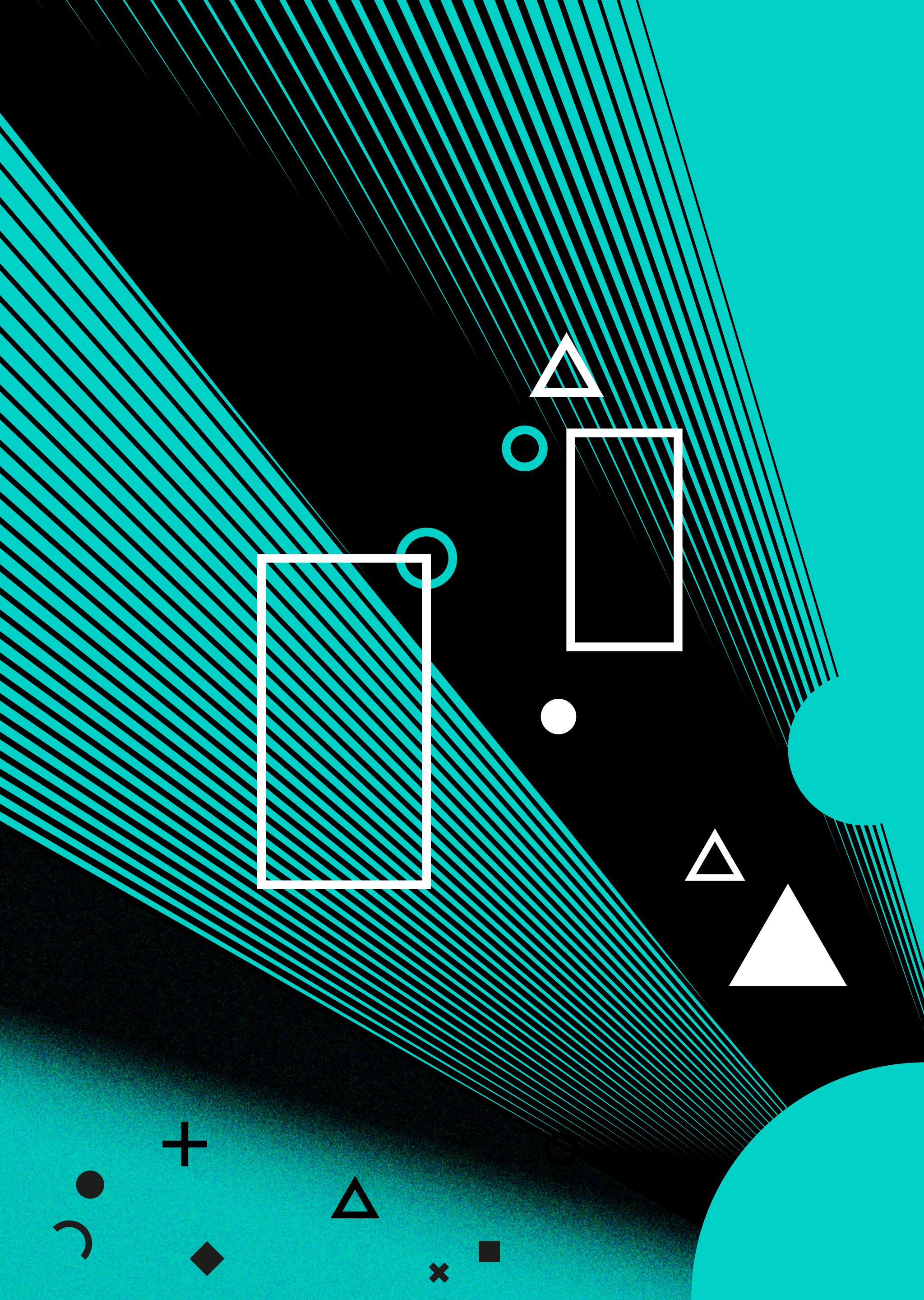
Webb, A. (2017). The Flare and focus of successful futurists. *MIT Sloan Management Review*.

Understand the essential approaches of strategic foresight in theory and practice.

Schwarz, J. O. (2023). *Strategic foresight: An Introductory guide to practice*. Routledge.

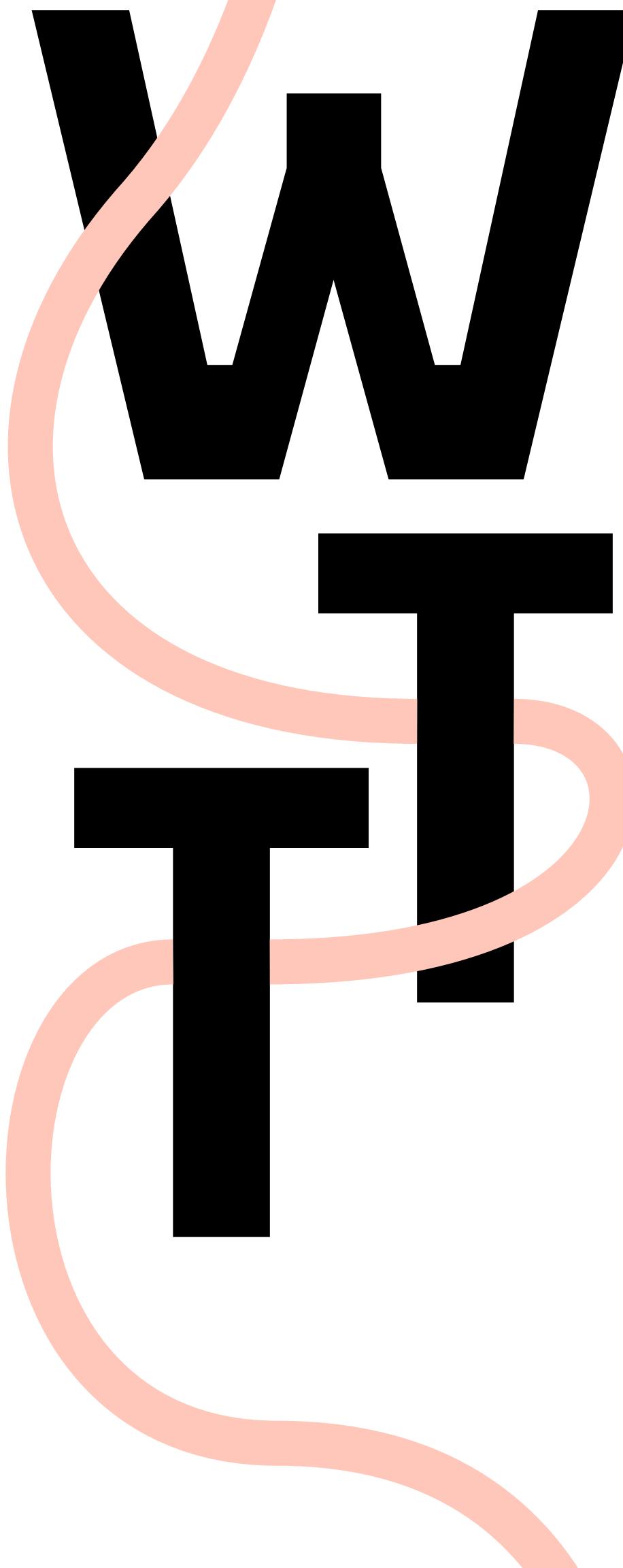
Prove the value of strategic foresight.

Buder, F. (2021). The value of foresight in a VUCA world: Results from a survey of organizational foresight capacity.



Seeing the unseen

Kalle Kantola, Maaria Nuutinen



Why this topic?

Business leaders and managers make hundreds of decisions every day from strategic to tactical to operational. Decisions are often based on limited information, guided by previous experiences. These experiences can be detrimental or biased, sometimes leading to wrong decisions. This is the case, especially in unforeseen situations, uncertain business environments, and long-term decisions. Currently, the global business environment exhibits all these traits, and thus, reliable, relevant, and unbiased information is highly beneficial for decision-makers. Foresight tools and practices can provide this kind of information.

Foresight helps decision-makers see unseen information for making both short—and long-term decisions. Implementing foresight practices does not require a large investment, but certain basic requirements must be met for effective rollout. Foresight thinking helps the organization's management become more future-oriented, benefiting business development and other functions in the long term.

- ✓ More objective insights for decisions
- ✓ Cost-effective implementation
- ✓ Enhanced future focus
- ✓ Fostering a growth mindset

Challenge description

- ✓ Decision-making in a complex environment
- ✓ Pitfalls for experienced decision-makers
- ✓ Organisational cognitive barriers
- ✓ Taking foresight into action

Business management is continuously making decisions - either operational or strategic. Naturally, decision-makers would like to use all available information to make the best decision possible. In reality, decisions are always made based on limited and uncertain information in a complex environment - And the more experience the decision maker has, the more they can rely on their existing mental models, i.e. use the information and ex-

perience unaccessible to the less experienced decision makers. These models usually lead to reasonable outcomes but have limitations, especially when facing a new type of situation or operating environment. Experience-based mental models can also be detrimental as they can be biased and influence decisions.

Research⁷ has shown that organizations have “cognitive barriers” that prevent them from perceiving and acknowledging weak signals and other indicators, as these do not fit the mental models of decision-makers. This can cause organizations to stick to their current way of doing business rather than proactively seeking opportunities for potential changes in operating environments. As a result, they may miss out on opportunities and be forced to react to market changes.

Most organizations can recognize some forms of cognitive barriers in their operations. For example⁸, decision-makers tend to push the world into their frames (mental filters), are too confident and believe that their view is correct (overconfidence), cherry pick information that confirms their view (confirmation bias), and feel more confident in belonging to the majority in their views (group thinking), etc. All these are natural be-

haviour models, which also have a lot of value in decision-making. They can become blind spots, however, if not recognized.

The following case study describes how foresight is taken into action by pharmaceutical distributor Tamro Ltd. and how that has helped the company drive its business.



**Within any organization,
there are cognitive barriers
that hinder our ability to
perceive and acknowledge
weak signals.**

Case: Tamro - Foresight in action

Tamro's mission is centred on delivering health, and it has a notable impact, supplying nearly 60% of all pharmaceuticals to hospitals, pharmacies, and retail outlets across Finland. In addition to its core services, it offers data-driven solutions, sales and marketing services, and digital home care solutions.

Amidst a landscape of constant change and stringent regulations, where policy shifts and consumer behaviour can significantly disrupt operations, Tamro recognizes the necessity of adaptation and anticipation.

To navigate this dynamic environment effectively, the company has systematically fostered a future-oriented mindset across various functions. They have actively sought better methods to integrate foresight into daily decision-making processes. To gain insight into how different functions make decisions, they asked multiple decision-makers about their daily, weekly, and yearly decisions and the information they use in current de-

cision-making. This helped them identify the needs and foresight requirements of different decision-makers. Furthermore, decision-makers have been asked about what future information would help them make better decisions, allowing foresight development to be driven by a clear and directly actionable purpose as well as to naturally integrate into the decision-making processes.

Moreover, Tamro has fostered a culture of collaboration by organizing events aimed at engaging stakeholders in collectively interpreting anticipated changes within the industry.

Currently, the company is focused on finding solutions to streamline the accumulation of future insights into easily digestible, data-based formats for everyday use. This lean approach ensures that foresight is not merely a theoretical exercise but a practical tool that informs actionable strategies and decisions in real time.



Tamro cultivates a future-oriented mindset across functions to navigate the dynamic environment effectively.

Solution example

Informed decisions

Foresight can be used to overcome cognitive biases and support decision-making. It can be used in both short- and long-term decisions as it provides a toolbox that makes essential information about past and future developments available. This helps deal with new uncertain situations and reduces the potential biases of mental models of individuals and cognitive barriers of organizations. This is especially useful for big, challenging decisions that have a long-term impact and need to consider transformational changes in the operating environment. However, foresight can also support shorter-term operational decisions in uncertain environments.

Foresight is not a silver bullet that solves everything; it has various limitations. Foresight is also a term that is broadly used and has different meanings. From a practical point of view, foresight combines a future-oriented mindset and a set of practical tools for information generation and exploitation. While the future-oriented

mindset can be applied widely, the foresight tools must be selected based on the target. Digitalized businesses, increased data availability, and advances in AI have generated new data-driven foresight tools for different purposes. This does not change the fact that we cannot predict the future, but they have made foresight more effective. We can now analyse weak signals, trends, and business decisions more effectively and even simulate them. Therefore, foresight implementation should not be driven by the tools but by business reasons. As each tool has limitations, the decision-makers should always validate the information and reflect on their perception. By doing so, one can get the best out of foresight information and people's experiences.

Implementing foresight can be a manageable investment. The critical issue is to identify the areas and situations where one can benefit from better information about future development and changes. The most suitable practices can be created based on the concrete

needs to get that information. By this, the organization recognizes the value of foresight and can use that information in practice. As a side effect, the organization's management is becoming more future-oriented and understands their cognitive barriers, which benefits business development and other functions in the long term.



Implementing foresight does not require a large investment.

Key learnings

Foresight counters cognitive biases and aids decision-making for short- and long-term goals. It equips decision-makers with crucial insights into past and future developments, facilitating adaptation to uncertain situations while mitigating individual mental biases and organizational cognitive barriers. Particularly beneficial for significant, long-term decisions amid evolving environments, foresight also proves invaluable for shorter-term operational choices in uncertain conditions.

Foresight is a partial solution and comes with limitations. Practically, it's a blend of a forward-looking perspective and practical tools for gathering and using information. While the future-oriented mindset is broadly applicable, the choice of foresight tools depends on the specific objectives.

Digitalized businesses, increased data availability, and AI advancements have ushered in new data-driven tools that enhance the effectiveness of foresight. While we

can't predict the future, these tools enable better analysis of weak signals, trends, and business decisions, even allowing for simulating the future. However, foresight implementation should prioritize business objectives over tools, acknowledging each tool's limitations. Decision-makers must validate information and align it with their perceptions to maximize the value of foresight and experiences.

Foresight implementation doesn't demand significant investment. The crucial step is identifying areas where improved future insights are valuable. Tailored practices can then be developed to meet specific needs, fostering an organization's appreciation for foresight's value and practical application. Additionally, this process cultivates a future-oriented mindset within management, leading to better recognition of cognitive barriers and benefiting long-term business development and other functions.

- 1 Foresight counters biases, guiding decisions
- 2 It's a mix of future-oriented mindset and tools
- 3 Prioritize business goals over tools
- 4 Start implementation by identifying needs



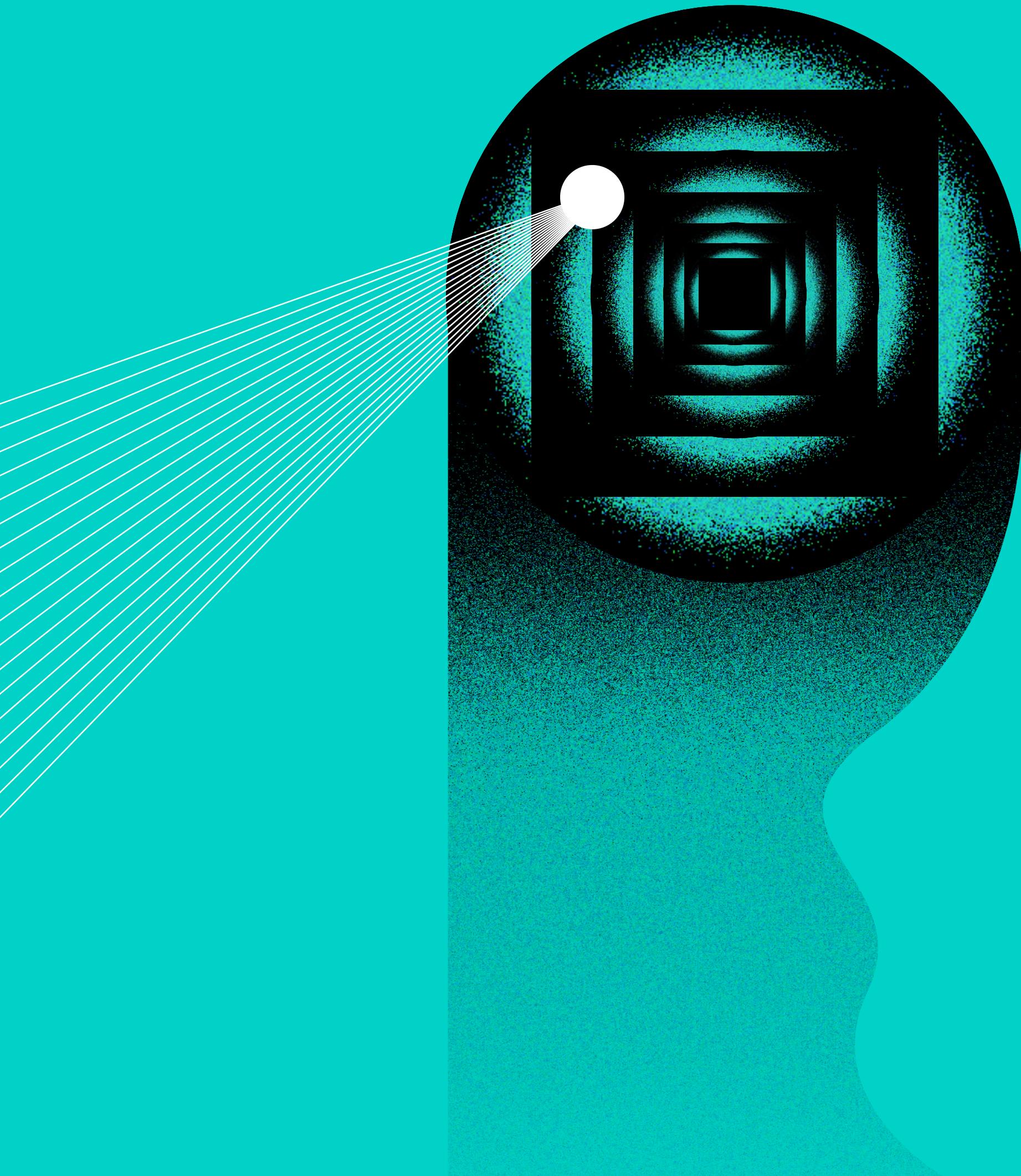
Literature resources

This book explores how organizations can implement strategic foresight, examining its connections to strategy, innovation, and leadership. It explores the rationale for conducting foresight, elucidates mental models, and discusses cognitive barriers, drawing from sources for reference.

Schwarz, J.O. (2023). Strategic foresight: An Introductory guide to practice. Routledge.

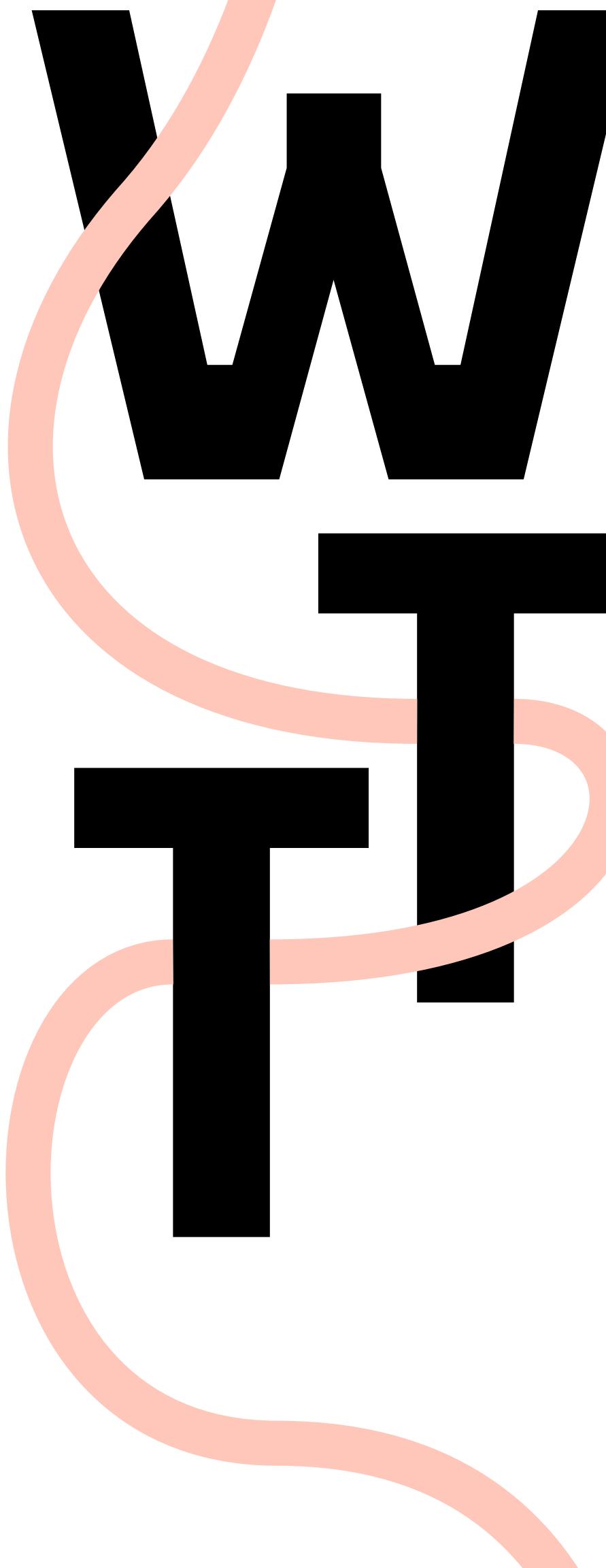
Traditional decision-making studies often use artificial tasks to portray people as biased and unskilled. Gary A. Klein's groundbreaking book is based on a naturalistic approach that focuses on real-life decision-making, emphasizing the integration of intuition and analysis through experience. He supports his theory with examples of individuals facing various constraints, like time pressure and high stakes.

Klein, G. A. (1999). Sources of power: How people make decisions. MIT Press.



From foresight to actionable insight

Tamara Carleton & Antti-Jussi Tahvanainen



Why this topic

The use of foresight in decision making helps lead to more favourable outcomes. As the father of modern management Peter Drucker stated once, “You cannot predict the future, but you can create it.” What could be more favourable than to shape the future to one’s liking?

The renewed discussion on foresight in the business press and the rise of futurists-in-residence show that companies are keen to harness the actionable power of foresight. Yet how do those in business take advantage of foresight knowledge? This chapter discusses how foresight can be used to drive business insights – whether to anticipate changing customer needs, stay a step ahead of competitors, or reduce uncertainty in R&D investments and strategies.

We consider multiple challenges that hound corporate foresight today, including balancing a long-range outlook with short-term priorities. We then offer some proven ways to convert foresight data – from activities such as future scenario plans, megatrend research, weak signals reports, and other efforts – into actual usable insights for business.

- ✓ The business value of foresight for decision-making
- ✓ The importance of taking the long view in corporate decisions

Challenge description

A considerable number of companies struggle with capturing value from foresight activities. Despite good intentions, scenario planning reports often end up on the shelves. Trends are fun to know but often hard for project teams to leverage. And foresight groups can become seduced by futurism hype or esoteric questions, losing sight of business relevance.

These symptoms have well-documented root causes. One pernicious challenge is that senior management may give lip service to corporate foresight efforts. Staff don't see or feel that foresight matters to business strategy, so any potential insights aren't carried forward into action. Another challenge is that the organizational culture prioritizes short-term results, thwarting long-term foresight attempts. Managers also often lack the knowledge and tools to know what to do with foresight input. As a result, meetings tend to stay at the conversation level, not converting into decision points. All talk and little walk.

The real value of foresight lies in developing a deeper, shared understanding of future alternatives, where preparation is the key to future success.

Even when ready, we see many managers lack a consistent definition for the term 'insight' and a systematic approach to identifying and expressing these insights across their teams. Insights are not data, and many insights on closer look are simply observations from the field, missing the associated tangible actions or outcomes. The "so what" and "now what" details are lacking, making it hard to know how to use that information.

On the flip side, with management support, team training and tools, and foresight values deeply embedded into an organization's soul, foresight insights can boost decision making at all levels of an organization. Let's look at how to make this happen.

- ✓ Identifying potential insights from foresight data
- ✓ Shifting decision timeframes from short-term to long-term outlooks
- ✓ Supporting managers with foresight models and tools geared towards action



In my 20 years as a decision-maker I have never gotten anything valuable out of foresight.

A business decision-maker

Solution example

Making the future tangible with a Future press release

Many futurists use imaginary news headlines or hypothetical magazine covers set at a far future date because these items provoke others visually and dramatically to consider a different alternate future in very concrete terms. The future press release takes this concept further by adopting the format of a traditional media announcement as a team foresight exercise. Now instead of reacting to a future media announcement provided by an expert, the team is responsible for creating the future story themselves.

Several benefits result. First, the team breaks from the constraints of today. They must consider the outcome they want to see at a future date they choose, imagining the result as if it has already happened. This encourages them to anchor in a future vision. Second, using a press release format requires teams to consider what is potentially newsworthy. This focus typically sparks a discussion about customer value and societal benefit, as a team finds agreement on what they are actually an-

nouncing and what will change in the company, market, and world overall.

Amazon has long championed this tool with their product teams and combines the future press release with a Frequently Asked Questions (FAQ) document. Modelled after an actual FAQ, their rendition proposes a list of typical questions with corresponding answers based on the press release vision. Their process is described in this chapter's case study.

Tamara Carleton and William Cockayne have developed a version called the "Press release from the future", which is especially useful for radical ideas. In particular, their template recommends three fictional quotes to feature in the release: a quote from a company leader, a quote from a customer or user, and a quote from an external expert or community leader. This quote mix encourages a team to view their idea from other viewpoints, namely via leadership, customers, and the ecosystem.

In addition, Carleton and Cockayne have developed a corresponding "FAQ From the Future" template, which proposes a core set of questions, which are aligned with the Four horizons framework, that most teams need to address as they transition across horizons. This reference set helps to accelerate team decision making.



A future press release is a fantastic way to foster more visionary thinking and helps a team see what actions to take to get to a desired future.

Senior manager

Case: Amazon's Press release approach

Amazon has become one of the top technology companies in the world, providing diverse services across e-commerce, cloud computing, online advertising, digital streaming, and artificial intelligence.

Since the company's early years, a core part of Amazonian culture has been a process called "working backwards". Teams start by envisioning a desired solution in the future and then determine how to make it happen. This approach makes them think about what the customer wants first, before deciding what features to include in a new product or service. It also helps them understand *why* they are doing the work, not just how to build and deliver it. The approach has been used for multiple industry-defining solutions, including Kindle, Alexa, Prime, and Amazon Web Services (AWS).

The process has been documented in the book *Working Backwards* written by two longtime Amazon leaders Bill Carr and Colin Bryar.

The process begins with the creation of a press release about a breakthrough product or service of the future. The release is usually less than a page and half long and centred around a future customer's problem. The target audience are customers, which are either Amazon retail customers or internal users of a technology.

Once approved by Amazon management, the press release drives team action. Ian McAllister, a former Amazon product manager, explains, "Once the project moves into development, the press release can be used as a touchstone; a guiding light."⁹

An FAQ document accompanies a press release. It is written for two audiences: external and internal. The FAQ is a set of tough questions that the team anticipates key stakeholders will ask. Team insights emerge from the process of identifying the key questions and drafting concise answers, preparing them for the actual task.



Amazon relies on a process called "working backwards"; teams start by envisioning the future solution and then make it happen.

Solution example

Uncover future signals in the past with Progression curves

Where Amazon's Working backwards approach takes a leap into the future first, the Progression curves tool looks the opposite way to uncover signals about the future in the past. First described in the *Playbook for strategic foresight and innovation*, at its simplest, Progression curves is a timeline that documents events in chronological sequence for a topic of interest such as a business driver, a technology or a societal phenomenon.

Foresight lies hidden in the set of events and their time stamps on the curve; you can begin to find patterns in time and frequency. For example, when did the earliest attempts to achieve a certain technological solution occur? Who led the major precedents that are influencing today's actors? How long did it take to get from invention or pilot to market launch? The data patterns help reveal possible insights.

Say your team has developed a solution for telerobotic surgery, and you want to serve the European market. By scanning a few key papers from an online search, your team can quickly map the industry in broad strokes and discover the key players and their overlapping timelines: You would see an industry seeded by US defence funding and driven mostly by American and Japanese companies, dominated by a California-based company named Intuitive Surgical. This industry backstory would lead up to recent efforts, including a technical experiment in 2024 to perform surgery on the International Space Station (ISS) remotely from earth.

This last data point lets you lean into the future: From research and experience, we know that a technology does not jump immediately from the lab into the commercial market. Any technology progresses through stages. If you can determine the current stage using Progression curves, you have a reliable expectation of the subsequent stage(s) in its future.



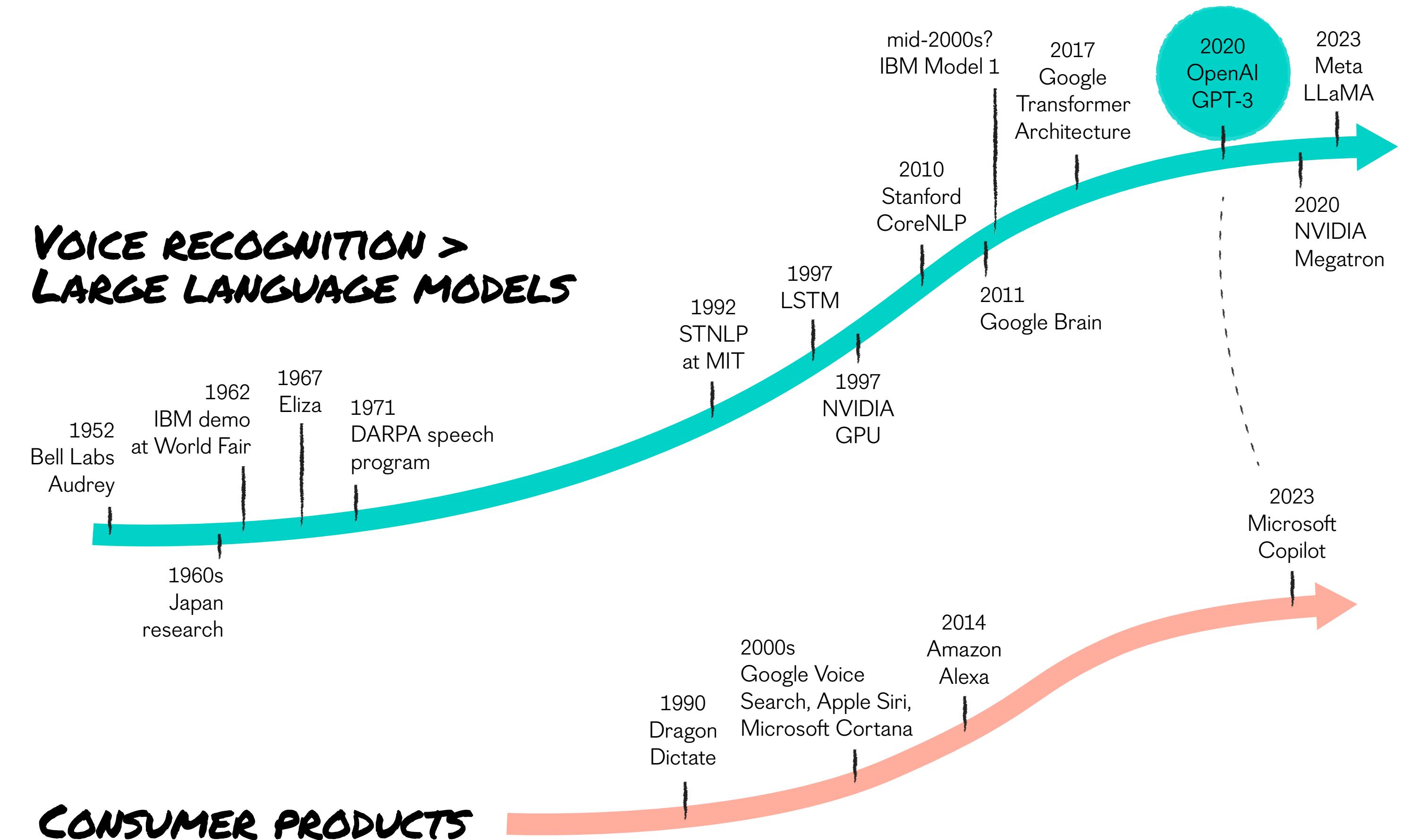
You have to know the past to understand the future.

Carl Sagan, astrophysicist

In the case of telerobotic surgery, your team can gauge the state of future competition based on their respective next stage of development, and you can estimate likely development cycles based on prior efforts. You can reflect and ask questions such as: who might we partner with to accelerate solution delivery? Which group has the fastest track record for execution, and what can we learn from their practices? Which groups are funding which stages of development?

Some answers to these questions will be informative, but not necessarily insightful. Other answers will reveal a clear, deep, and sometimes sudden understanding of the situation; these are insights! They become actionable when your team realizes that they should do something about that knowledge.

Advanced users of the Progression curves tool will develop multiple curves, layering timelines along key shared dates. In doing so, users can see if events on one curve cause, shift, or spillover onto other curves. Breakthrough solutions today require the convergence of multiple technologies and entire ecosystems of actors that drive them. Seeing the big picture of the future requires looking across technologies, actors, industries and markets.



Source: Tamara Carleton (2024)

Key learnings

The use of foresight for driving action-oriented decision-making is too often hampered by its vagueness, a decision-making culture that favours short-term returns over long-term impact, and the lack of systematic tools and processes that help structure foresight-related data into actionable opportunities.

For decision-makers the tangibility of available information drives its actionability. Foresight must therefore provide a concrete enough picture of the future that allows to connect alternative choices with their respective, clearly defined long-term outcomes.

The use of proven tools and processes helps in structuring and aggregating future insights into an accessible form. Whether it is about composing a high-resolution picture of a breakthrough offering in the far-out future (Future press release), or about taking stock of the readily available building blocks for such an offering (Progression curves), foresight tools help to connect information across time horizons with actions to be taken today. They support in making sense of mere data points and bits of information and harnessing them for pro-active strategies that aim to steer the organization towards a desired future.

- 1 Proven tools help in connecting foresight-based insights with today's decision-making
- 2 Tangible long-term visions engage internal and external stakeholders for validated decision-making today
- 3 The past teaches about readily available building blocks of the future

Literature resources

This How to note explores the value of strategic foresight and some of the tools – scenario planning and policy gaming in particular – employed by the IMF to create it.

Behar, A., & Hlatshwayo, S. (2021). How to implement strategic foresight (and why). International Monetary Fund.

This book provides an insiders' view on Amazon's foresight practices and decision-making principles for creating success beyond the visible horizon.

Bryar, C., & Carr, B. (2021). Working backwards: insights, stories, and secrets from inside Amazon. St. Martin's Press.

A widely popular set of foresight tools for creating radical ideas that become new businesses, products, or services.

Carleton, T., Cockayne, W., & Tahvanainen, A. (2013). Playbook for strategic foresight and innovation. Tekes.

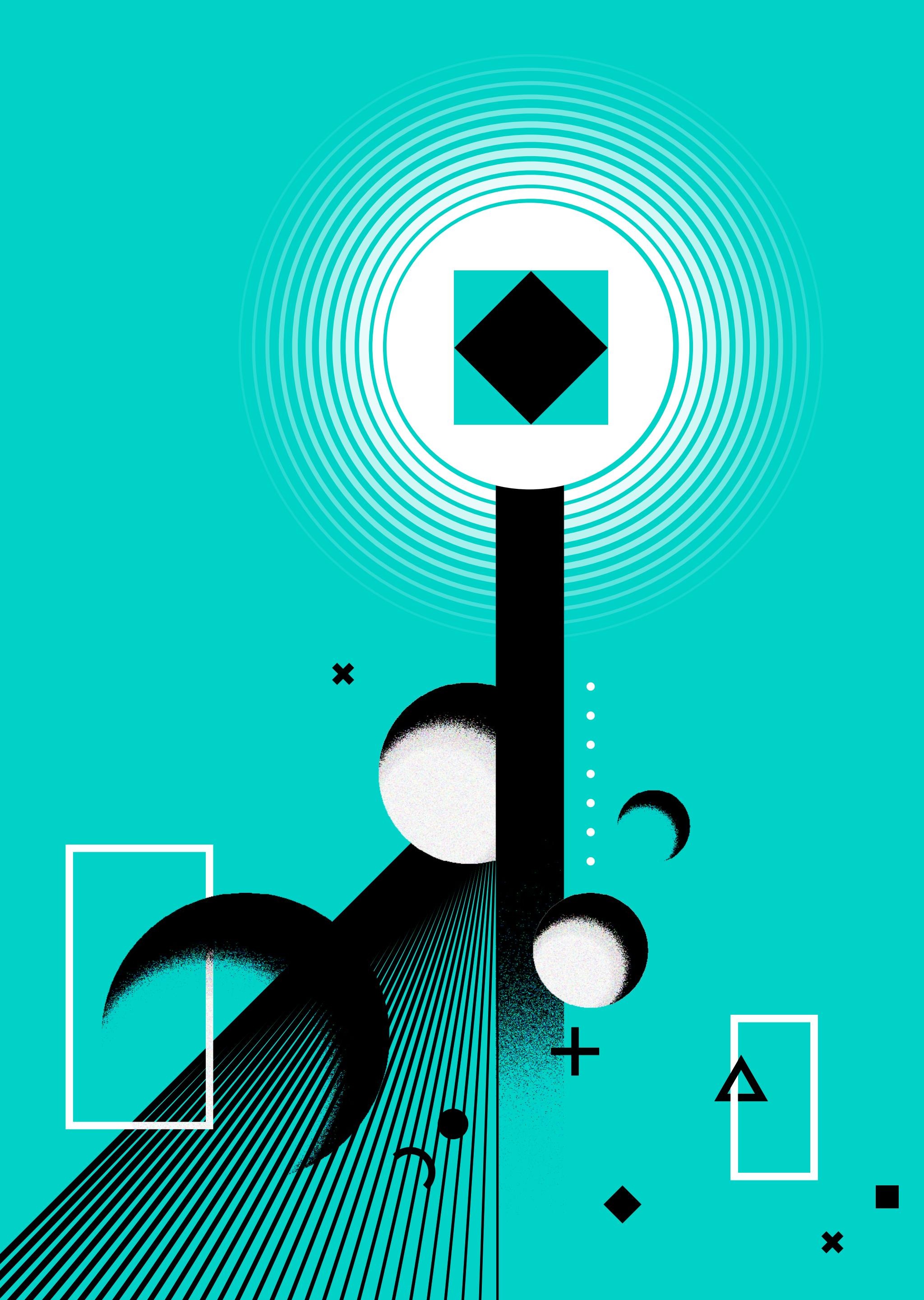
This seminal article on strategic foresight defines the concept of long-range planning, its usefulness and the requirements for its adoption in management practices.

Drucker, P. F. (1959). Long-range planning—challenge to management science. *Management Science*, 5(3), 238-249.

This article showcases concrete practices in and value of foresight in the public sector by way of exploring case studies and international benchmark analyses.

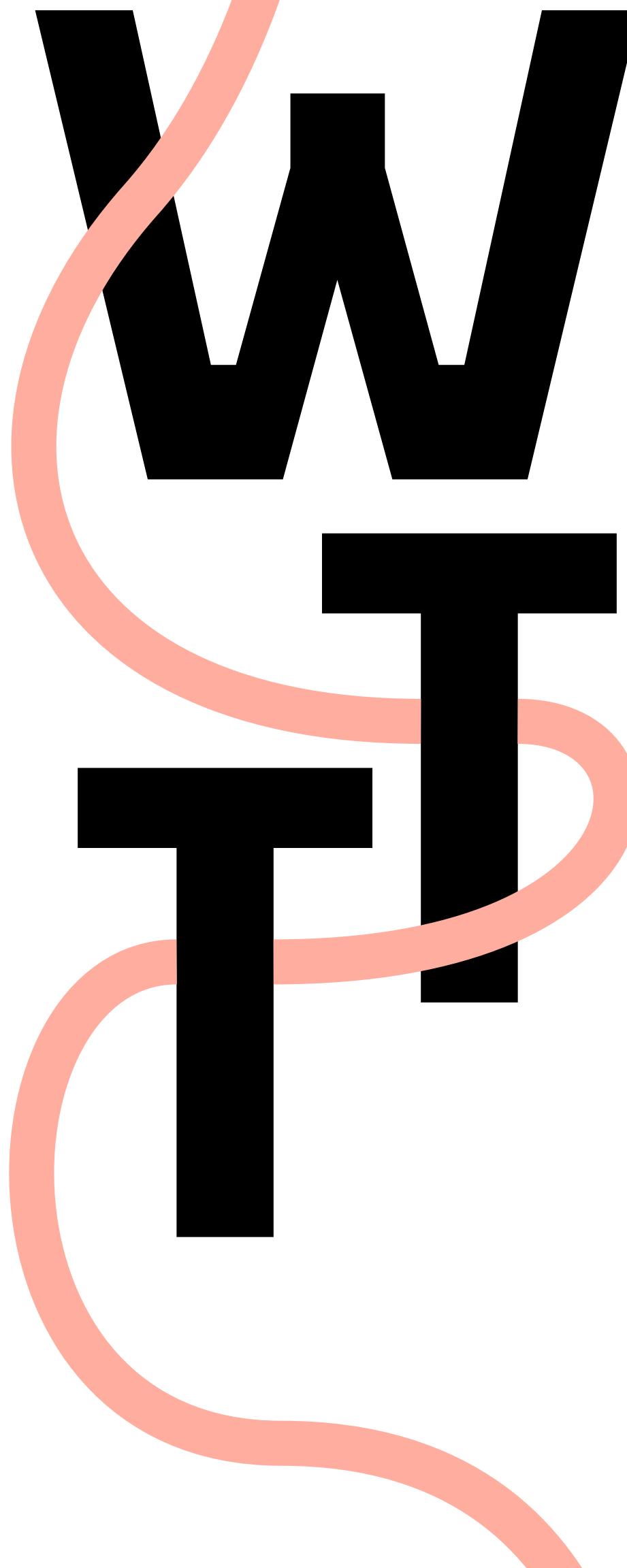
Monteiro, B., & Dal Borgo, R. (2023). Supporting decision making with strategic foresight: An emerging framework for proactive and prospective governments. *OECD Working Papers on Public Governance* (No. 63). OECD Publishing.





Finding moonshot ideas with strategic foresight

Tamara Carleton & William Cockayne



Why this topic?

All types of innovation matter to an organization from incremental to radical. Radical innovation is the commercialization of breakthrough ideas, focusing on long-term impact. Radical innovation is bigger than disruptive innovation, as the latter term is more associated with changing a known business model or when start-ups upset incumbent firms – validated by studying how these terms are used in over 1,000 scholarly papers.¹⁰

A company's radical innovation pipeline should include at least one moonshot pursuit. Moonshots are big ideas that aim for a big impact. As bold visions that push the boundaries of what seems possible, moonshots propel teams toward extraordinary achievements. As such, how can companies leverage corporate foresight tools to foster more moonshot thinking and doing?

- ✓ Understanding the need to foster a moonshot mindset
- ✓ Using foresight tools for finding sources of inspiration for radical innovation

Challenge description

- ✓ Application of foresight to radical innovation
- ✓ Reliable sources of moonshot ideas

Many crazy business ideas used to come from corporate labs. Looking at the US market as a global bellwether, the heyday of American corporate labs was from the 1930s through the 1980s. Once the hub of the US innovation ecosystem, many corporate labs have since been closed, downsized, or redirected towards more applied research. Early-stage innovation work is now done mainly at universities and startups based on analysis by the National Bureau of Economic Research.¹¹ However, by their nature, startups focus on near-term market growth, venture capitalists are less keen to fund deep-tech sectors and radical ideas, and academic re-

searchers prioritize producing scholarly publications over patents and products. These obstacles exist across national borders.

Where can companies find big ideas to drive radical innovation today? The two common mechanisms are either hiring exceptional individuals who bring their own radical visions or acquiring startups whose work shows a new and wildly promising market. Both mechanisms are scouting exercises that require time and access, which are often in short supply for established organizations. Moreover, human resource managers are not used to hiring for vision, traditionally focusing on key skills and organizational brands as staff qualifications. Companies usually lean on business incubators and consultants for startup matchmaking services.

Fostering moonshot ideas in-house is possible but harder and rarer to do. For the last decade, Alphabet's moonshot factory called X has pushed for bold homegrown ideas from its teams. X teams follow a simple rubric for finding their moonshots. Each moonshot at X must (a) address a huge problem affecting millions or even billions of people, (b) involve a technology breakthrough with expected solutions in the next 5-10 years, and (c)

rely on a radical, sci-fi sounding solution that may seem impossible today.

Yet when big ideas surface as promising opportunities, teams at any company discover that breaking out of project mode becomes the bigger challenge. Different skills are needed on the team to ship these ideas from tech to market. This is a secondary problem because many company leaders are facing the first problem of knowing where to look for moonshots. Let's look at some ways to address how to start.



Where can companies find big ideas to drive radical innovation today?

Solution example

Reading hard sci-fi

Hard sci-fi is a subgenre of science fiction grounded in scientific accuracy and technical fact. While the technology itself in the story may be speculative, it is based on reality. Many hard sci-fi writers were technically trained. For example, Robert Heinlein was an aeronautical engineer and naval officer, whose work influenced his writing. Liu Cixin who wrote the *Three-body problem* was an engineer before turning to writing.

Stories of hard sci-fi illustrate possible futures or alternative present situations where technology helps to enable or underpin human progress. For those in research or business, these stories can be more than entertainment; they can vividly influence decisions from career choices to product visions. In fact, researchers mention sci-fi more often today as an influence than at any previous time, according to a study by Philipp Jordan and colleagues.¹²

The Economist editors note three benefits that managers gain when reading sci-fi.¹³ First, sci-fi is useful as a forward-scanning radar for technological, social and political trends, often revealing near-term biases and concerns shaping our views today. Second, sci-fi helps broaden our perspective when assessing possible future scenarios for corporate planning. Third, sci-fi directly inspires the people who want to make the tech visions come true – from cell phones modelled after the “Star Trek” show communicators to the metaverse concept inspired by Neal Stephenson’s *Snow Crash* novel.

As such, every management team should consider hard sci-fi as a source of possible moonshot ideas. Beyond novels and movies, lightweight options exist. We recommend the weekly “Futures” column featuring short stories in the *Nature* scientific journal to the six-word stories every month in *WIRED* magazine.





Solution example

Using what if? prompts

What if? prompts are a classic foresight technique, which starts an imaginative exercise by asking “what if?”. These two words powerfully open up possibility and switch teams from execution to exploration mode. The human brain opens new pathways to find an answer because it doesn’t have an existing precedent or example to draw from. As some say, it is daydreaming with a purpose. As we state in our *Building Moonshots* book, “Imagining a better future is the first step in building the solutions that will define it.”

For example, Dr. Carmen Hijosa was a serial entrepreneur working in the Philippines when she discovered that the bulk of pineapple leaves that occurred during harvest every year is burned as waste. Based on her experience developing sustainable materials, she asked, “What if I make a mesh, not unlike what leather is, with [pineapple leaf] fibres?” What resulted was a high-quality, bio-based leather alternative from pineapple fibres that Hijosa’s company Anam Ltd. now produces for textiles and

other applications.¹⁴ What if? prompts are also used to connect foresight thinking with strategic planning. Some groups start with preset questions, while other groups prefer to brainstorm. Examples of preset questions for groups to complete include: what if ____ happens to our customers? Or, what if ____ legislation is enacted?

Overall, whatif? prompts are intended to spark open-ended discussion, and a number of prompts can lead to other what if? prompts. This technique is one way to find possible ideas that could become your next moonshot.

Writers like Stephen King uphold the power of what if? for their literary inspiration. Considered the king of horror, King explains why what if? works on his website: “what all of my ideas boil down to is seeing maybe one thing, but in a lot of cases it’s seeing two things and having them come together in some new and interesting way, and then adding the question ‘What if?’ ‘What if’ is always the key question.”

Case: What if? posters from ARPA-H

ARPA-H is a US government agency that funds transformative breakthroughs in biomedical science and human health. When it launched in 2022, ARPA-H introduced a what-if poster series. One poster asked: "What if we could make our joints heal themselves?" Another poster asked: "What if your body could make its own medicine?"

The agency explained, "At ARPA-H, our pursuit of health breakthroughs begins with a deceptively simple question: What if? To reach transformative health solutions for everyone, we need to push ourselves to think beyond our current limitations. We need to ask what's missing, what could be, and where could we go? When we ask 'What if?' we bring the impossible into focus."¹⁵

The posters were made available to the public to view and download and used at ARPA-H events to spark

deeper dialogue across different health R&D communities. As ARPA-H stated on their website, "Imagine with us the solutions that could reach everyone who needs them." Over the subsequent months, multiple posters directly led to new funding programs with a bold vision at their core.

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**When we ask 'What if?'
we bring the impossible
into focus.**





Key learnings

As companies seek growth, they should remember to build their radical innovation pipeline alongside business as usual. Moonshots are an important element for driving radical innovation, and this chapter discusses how to find moonshot ideas using corporate foresight techniques.

One way to find potential moonshots is to use what if? prompts, which encourage groups to challenge existing assumptions and imagine alternate future scenarios. Serious organizations like ARPA-H have used the what if? prompt to provoke bold thinking across its innovation ecosystem.

A second way is to read hard science fiction, which are wildly imaginative stories that involve technology and science. Reading sci-fi offers multiple benefits to managers, often giving them new ideas and inspiration to take back into business.

- 1 Connecting strategic foresight with radical innovation
- 2 Finding proven sources of inspiration for potential moonshots

Literature resources

This handy and award-winning book describes 50+ proven ways to act on radical ideas, including a case study and tips on how to start for each way.

Carleton T. & Cockayne, W. (2023). Building moonshots: 50+ ways to turn radical ideas into reality. Wiley.

This scholarly collection offers a mix of critical analysis, industry case studies, and teaching examples from an international and interdisciplinary group of scholars, practitioners, and mavericks.

Carleton, T., West, S.; & Cockayne, W. R. (Eds.) (2023). Inventing the almost impossible: creating, teaching, funding, and leading radical innovation. Springer.

Focused on the power of what if?, this book mixes humour and scientific expertise to explore crazy questions for curious minds.

Munroe, R. (2014). What if?: serious scientific answers to absurd hypothetical questions. Dey Street Books.

One of the top scholarly journals publishes a weekly science-fiction column called "Futures" that features short stories from established authors and those just beginning their writing career.

"Futures" column.Nature.<https://www.nature.com/nature/articles?type=futures>

WIRED is an American technology magazine that publishes monthly stories written in six words on various sci-fi prompts, in the spirit of Ernest Hemingway's famous challenge for a six-word story.

Six-word sci-fi: Stories written by you. WIRED magazine. <https://www.wired.com/story/six-word-sci-fi/>

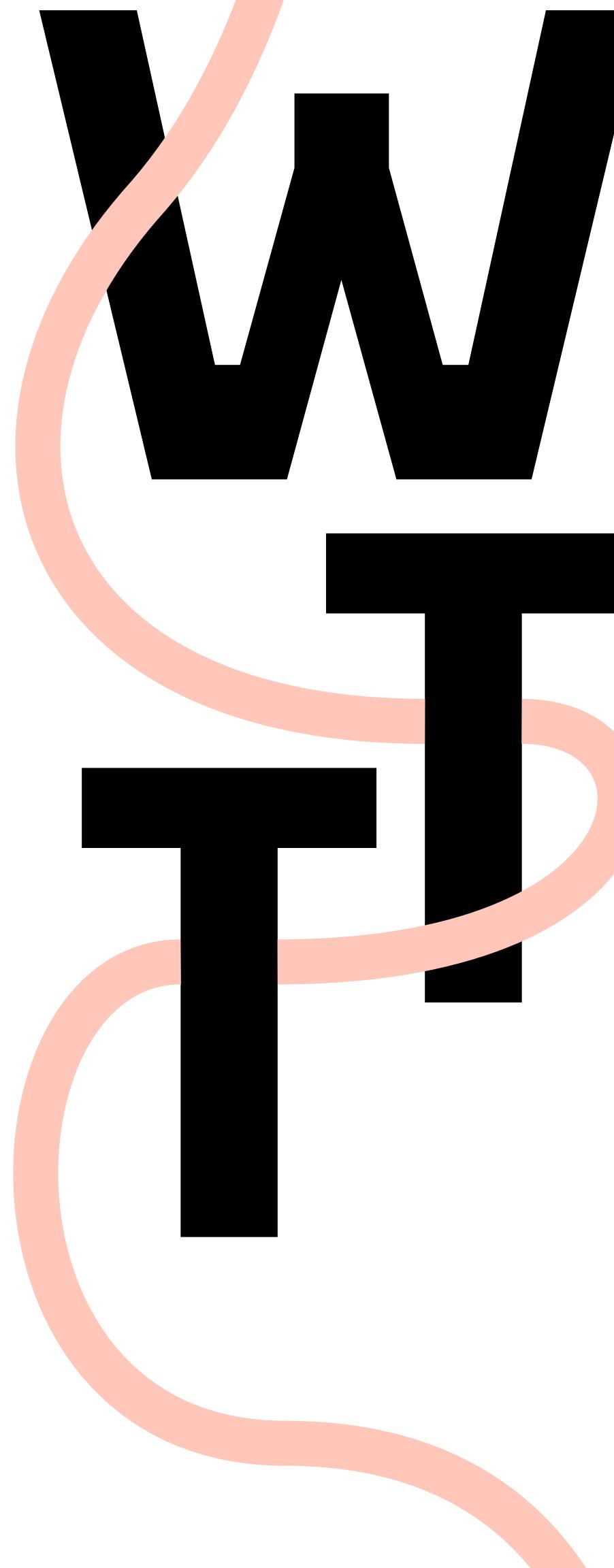


**Foresight tools can find possible moonshots
to drive radical innovation.**



Organising systematic foresight

Matti Pihlajamaa, Pauli Komonen,
Juuli Huuhanmäki, Sofi Kurki



Why this topic

- ✓ Integrating foresight activities into decision-making
- ✓ Different models for organising foresight
- ✓ Selecting the most suitable organising model

Even the methodologically most proficient companies may struggle to turn their foresight efforts into competitive advantages. Developing a systematic ability to integrate foresight into decision-making requires attention to how it is organised.

To be effective, foresight must be integrated into the organisation's fundamental design and decision-making processes. This chapter explores different models of organising corporate foresight.

Organising for corporate foresight includes defining roles and responsibilities as well as building structures and networks. It determines how well a company can develop the right knowledge about potential futures, make it accessible to internal stakeholders, and ensure that someone puts it into practice.

This chapter presents four archetypal models companies can use to structure and systematise their foresight activities. By examining real-world examples from various companies, we provide insights into how organisations can effectively use foresight to make informed strategic decisions and achieve long-term goals.

Challenge description

- ✓ Importance of organisational design
- ✓ Involvement in foresight activities
- ✓ Legitimisation of foresight

Corporate foresight has become a critical tool for businesses to identify and prepare for potential disruptions and to stay ahead of the competition. However, its effective implementation requires a strategic approach beyond monitoring trends or identifying weak signals. One of the biggest challenges companies face in managing corporate foresight is how to organise it effectively.

TOWARDS EFFECTIVE FORESIGHT

Without proper organisation, foresight activities may not receive adequate attention, resources, or integra-

tion with the company's broader strategic goals. Foresight work may result in valuable insights, but if these insights are not embedded in decision-making processes, they may have little impact on the company's future direction. To be effective, foresight insights need to be communicated and translated into action.

CHALLENGE OF BALANCING

Different organising models each have their strengths and weaknesses. If foresight is too centralised, it may not be responsive enough to the needs of various functions of the organisation or may be disconnected from the company's day-to-day operations. On the other hand, if foresight is too decentralised, it may lack a cohesive vision or direction, and the knowledge generated may not be effectively shared or integrated across different parts of the organisation.

INVOLVING THE RIGHT PEOPLE

Another challenge is ensuring the right people are involved in the foresight process. Companies can easily fall into the trap of only involving high-level executives in corporate foresight. However, this can lead to a lack of diverse perspectives and a narrow focus on a limited set of future possibilities. Involving a broader

range of stakeholders, including employees from different departments and levels of the organisation, as well as external experts and partners, can help ensure that a company's foresight efforts are more comprehensive and effective. However, this increases the need for co-ordination.

SUSTAINED COMMITMENT

Finally, a significant challenge in corporate foresight is related to the need for ongoing commitment and resources. Foresight work is a long-term investment that requires a sustained commitment of time and resources. The benefits of foresight may not be immediately visible or tangible, making it difficult for managers to justify the ongoing investment.



Without proper organisation, foresight activities may not receive adequate attention

Solution example

Multiple organising models for corporate foresight

Companies share many similarities in how they organise their foresight activities. A common approach is to reach beyond company borders to acquire knowledge. Companies widely use external knowledge sources, such as industry trend reports, to maintain a broad future outlook. For more specialised and tailored support, consultants are often engaged to enhance internal foresight activities, such as workshops, and to contextualise general industry knowledge for the company's specific needs, including insights on themes like regulation and geopolitics. Many also have a separate business intelligence or market intelligence unit for gathering and disseminating knowledge on relevant topics, occupying a similar role to sourcing external reports.

However, these methods alone typically fail to create a systematic foresight capability. More advanced companies have developed strategies to ensure that knowledge about the future is effectively generated, refined, and applied. The following pages present four distinct models for organising foresight, each with its respective advantages and drawbacks. These models represent scaffolds for developing mature foresight systems. A company may choose a particular model based on its specific needs and aims. Another may be to deliberately combine elements from various models, leveraging the strengths of one to offset the weaknesses of another.



Executive team-led model

In the executive team-driven model, the executive leadership team is responsible for organising and conducting foresight. The company's main executives, such as the CEO, direct the foresight work. This model integrates foresight into a company's strategic decision-making.

An advantage of this model is that foresight information is produced close to and interpreted by the highest-level decision-makers. The executives are committed to the foresight process and have the skills and capabilities to lead the work. In the model, the executive team primarily considers the implications of the created foresight, while the underlying information is produced by internal specialists and external actors such as consultancies. The leaders distribute foresight amongst the organisation through strategic decisions and strategy updates, which can help to create a shared understanding of the outlook towards the future.

Overall, the executive team-driven model can be an effective approach for larger organisations that have

a clear hierarchy and decision-making structure. The commitment and involvement of top-level executives ensures that foresight is integrated into the company's strategy and decision-making processes. However, ensuring that the generated foresight is widely distributed throughout the organisation and formulated as tangible guidelines is important. Otherwise, the insights may remain too general and distant, failing to translate into action.

Another potential risk in the executive team-led model is that foresight remains superficial or infrequent. Executives may have a limited perspective on the future as they are not exposed to the company's day-to-day operations. Moreover, foresight competes with the scarce attention of the executive team itself and risks getting buried under more urgent work. Therefore, it is crucial to involve other internal and external actors in the foresight process and to ensure a diverse range of perspectives and insights.

Case: Ponsse

The Finnish company Ponsse, one of the world's largest manufacturers of cut-to-length forest machines, employs an executive team-led foresight model. The CEO is responsible for driving the company's scenario planning together with the financial department. The scenarios are monitored and updated frequently. Sudden events, such as the war in Ukraine, have led to a reformulation of the scenarios. An external partner feeds information and spurs the executive team's foresight efforts.

Function-driven model

The function-driven model for organising corporate foresight activities involves integrating foresight into a particular company function, such as innovation or strategy. Foresight work in this model is conducted in different functions and departments, typically by adding foresight responsibilities to existing job roles. Cross-functional foresight groups can be used to enrich emerging insights with complementary perspectives. The results of foresight activities can be embedded in documents and artefacts, such as R&D or product roadmaps, which help guide daily operations.

An advantage of the function-driven model is that it can provide a clear objective for the foresight work, which helps organise it and gives it a specific purpose. This model helps to ensure that foresight is inherently applicable and that different actors can organise their work around the functional goal. Additionally, the function-driven model can help companies identify and address future risks

and opportunities that are specific to a company function, providing a competitive advantage in the market. However, a challenge of the function-driven model is that the relevance of the foresight work is typically restricted to a specific functional context, and broader developments in the business environment that do not directly connect with daily decision-making dilemmas or functional priorities may be ignored.

Combining results from different functions may help broaden the scope of foresight, but it requires coordination and often intensive face-to-face interaction. Insufficient investments in coordination may lead to siloed insights that do not benefit the organisation more widely.

When the function and the need for foresight are unclear, employees may have trouble deciding how much time they should dedicate to foresight work versus achieving short-term goals.

Case: Valtra

Valtra, a globally operating Finnish tractor manufacturer, utilises the function-driven model. The primary function of foresight is to support the company's technology roadmap, which outlines the company's innovation activities and impacts long-term budget planning. The company's product management owns the roadmap, and various stakeholders supply foresight information for it. The executive team reviews the roadmap frequently.

Independent foresight unit

A separate foresight unit model places foresight activity within a specific organisational unit, typically staffed by dedicated foresight professionals. These professionals are responsible for conducting foresight work as a primary activity, creating and refining futures knowledge that benefits other parts of the organisation. The work of separate foresight units can also lead to developing of thought leadership within the organisation.

One of the strengths of the separate foresight unit model is that it allows for dedicated time to be spent on foresight work, which often results in being able to conduct in-depth analyses. Professionals with foresight roles also typically have the skills to manage foresight work effectively. This can ensure that the knowledge generated by the foresight unit is of high quality and is useful for other parts of the organisation.

At their best, separate foresight units can also bridge different parts of an organisation together by involving a variety of stakeholders in foresight work. By engaging

individuals from different functions, foresight professionals can help to ensure that the futures knowledge generated by the unit is relevant to the entire organisation and can be integrated into decision-making across the company.

As is the case with all the models, the separate foresight unit comes with its own set of challenges. One potential challenge is poor integration between the foresight unit and functions that could benefit from the knowledge. In case of such a disconnect, foresight activities may not be guided by decision-makers' information needs.

Additionally, separate foresight units may face the challenge of justifying their existence, especially if foresight is new to the organisation or if other functions do not yet recognise the usefulness of futures knowledge. Recognising the benefit of often largely qualitative foresight work can also be challenging in organisations strongly relying on financial metrics.

Case: KONE

KONE, a Finnish company, manufactures lifts, escalators, and doors and provides services for their maintenance and modernisation in global markets. Their foresight unit works on the identification of desired, possible, and probable futures, with the aim to open new areas for innovation, and to understand promising avenues to develop so that the company will be as ready as possible for emerging futures. The foresight unit aims to work in tight collaboration with the strategy department and different business lines, along with customers and other stakeholders to share and co-create futures relevant information across the organisation.

Platform-based model

The platform-based model emphasises the dissemination of future-related knowledge through a dedicated platform that reaches a broad audience within the organisation. This approach allows multiple sources of information to feed into the platform, including various data, reports, and insights from employees in different parts of the company. By engaging the entire organisation, the platform-based model can benefit multiple functions depending on their requirements. Having a dedicated place for future-related knowledge can also create clarity and ease the dissemination of knowledge, offering a low threshold for people in the organisation to contribute and share even small pieces of information.

A key strength of the platform-based model is its ability to engage the organisation widely. Using of a dedicated channel for future-related knowledge can ease the dissemination of knowledge, creating clarity as people in the organisation know where future-related information can be shared and accessed. Moreover, the plat-

form-based model can help companies identify weak signals in the environment, which can be used to drive innovation or avoid future risks.

However, a challenge of the platform-based model is the abundance of knowledge, which can create difficulties for people in the organisation in using the knowledge effectively in decision-making. There is a risk that the platform becomes a "dumpster" of information, which lacks usability, as finding relevant information becomes time-consuming and difficult. In addition, information on the platform can appear as mere data points that lack company-specific, readily actionable insights. Thus, companies must focus on refining the data and translating the information with specific groups in mind to aid in deploying the information in organisational decision-making.

Potentially, an even more significant challenge is the cultural change needed for employees to start disseminating and seeking information relevant to their work. This

may require organisation-wide activation and training as well as the development of an intuitive, flexible, and mobile interface for the platform.

Case: Orfer

Orfer, a robotised material handling systems manufacturer, utilises the platform-based model for the dissemination of future-related knowledge. The platform enables the sharing of business environment observations and news across the organisation. Everyone can share even small bits of information that they consider important and useful for the organisation.

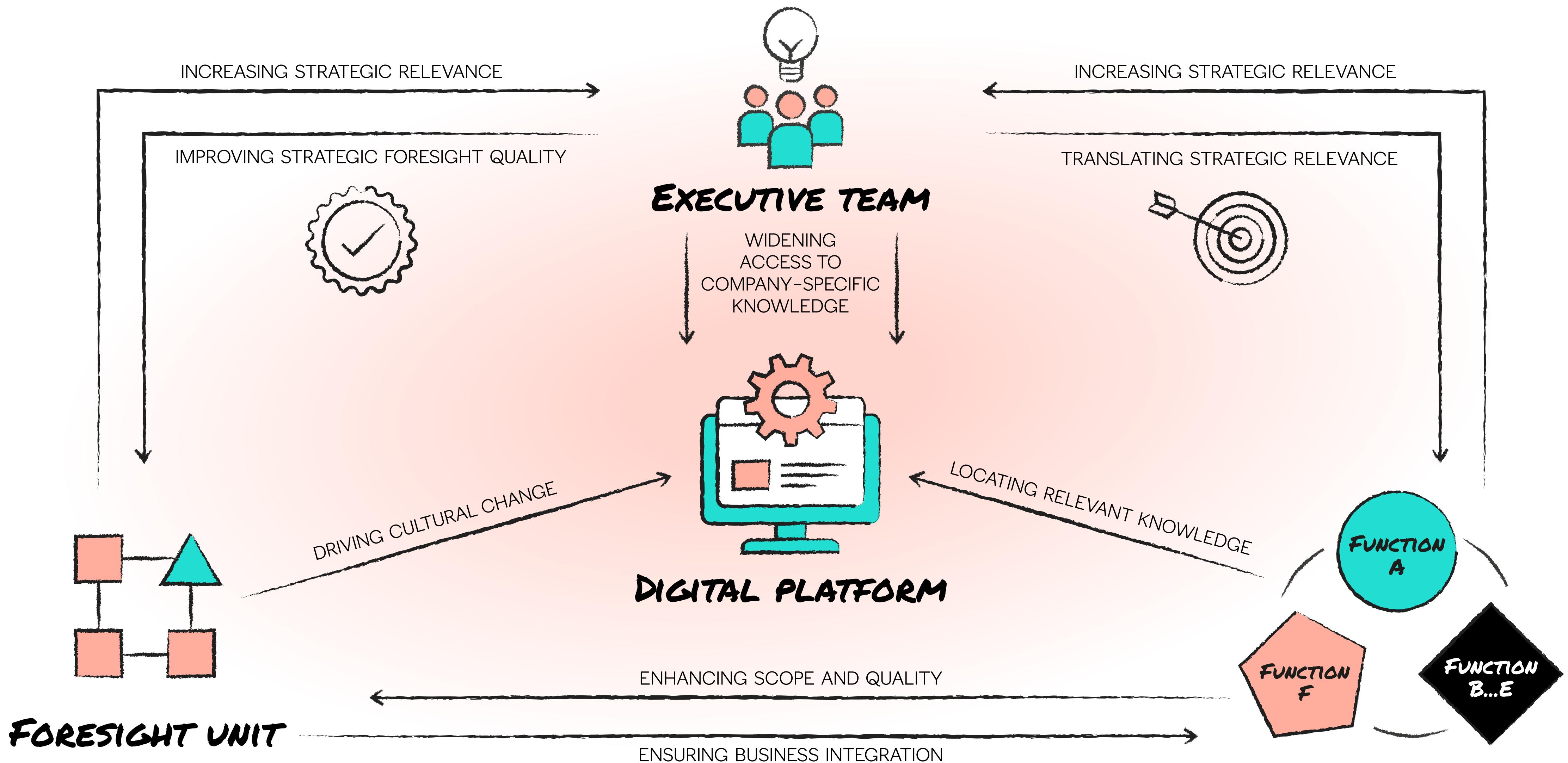


Figure: Synergies between the models

Key learnings

When systematising foresight, managers should first assess where relevant knowledge originates in the organisation, who needs it, and how it should be formatted and disseminated to make an impact. Viewing the organisation as a system for managing future-related knowledge can help identify gaps in knowledge flows that reduce the value of existing foresight activities. In developing foresight capabilities, managers should explore paths that address their organisation's most pressing needs. This might involve promoting broad-based engagement with platforms or deepening foresight through specialised foresight units, for instance.

The choice of an organising model should reflect the organisational context and culture. For instance, plat-

form-based organising may suit organisations with innovative cultures and distributed expertise, whereas the executive-led model may better support hierarchical organisations. It is advisable to ensure that future knowledge reaches decision-makers, as the value of foresight may not be initially recognised.

Once the importance of foresight is established, managers can broaden the model to include a wider range of foresight activities and users. The different models have various synergies, as illustrated in the previous page. For example, complementing functional efforts with an independent foresight unit help broaden the range of ideas beyond the usual day-to-day focus and offer the extra support needed for deeper future planning.

1

The choice of an organising model should reflect the organisational context and culture



Literature resources

An investigation of aspects that characterise a corporate foresight organisation.

Battistella, C. (2014). The organisation of corporate foresight: A multiple case study in the telecommunication industry. *Technological Forecasting and Social Change*, 87, 60-79.

Guidelines for organising "scanning the periphery" in companies.

Day, G. S., & Schoemaker, P. J. (2005). Scanning the periphery. *Harvard Business Review*, 83(11), 135.

Distinct roles for corporate foresight in supporting innovation.

Rohrbeck, R., & Gemünden, H. G. (2011). Corporate foresight: Its three roles in enhancing the innovation capacity of a firm. *Technological Forecasting and Social Change*, 78(2), 231-243.

An in-depth description of the development and implementation of the corporate foresight unit at Daimler.

Ruff, F. (2015). The advanced role of corporate foresight in innovation and strategic management—Reflections on practical experiences from the automotive industry. *Technological Forecasting and Social Change*, 101, 37-48.

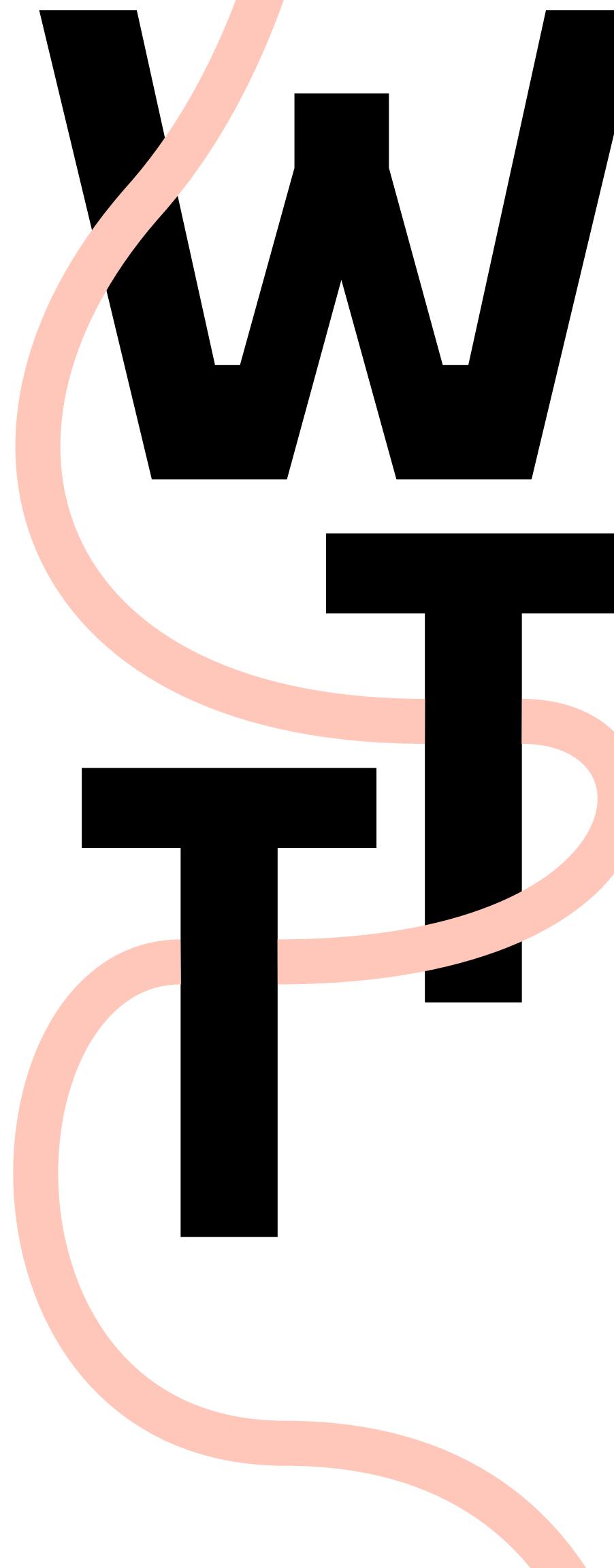
On the relevance of business environment's complexity and dynamism on organising.

Vecchiato, R. (2012). Environmental uncertainty, foresight and strategic decision making: An integrated study. *Technological Forecasting and Social Change*, 79(3), 436-447.



Cultivating a futures-literate organisation culture

Sofi Kurki, Maaria Nuutinen, Tiina Apilo



Why this topic

To navigate the volatile, uncertain, complex and ambiguous (VUCA) world effectively, organisations must gather information and interpret insights from the complex environment. In their daily lives, their personnel encounter a wealth of future-relevant information, from the customer interface to technology development to the supply chain.

When companies approach this information with a futures-oriented lens and organise its sharing to benefit the whole organisation, they can embed foresight into daily practices and have an evolving future-oriented organisational culture. Cultivating a culture that encourages anticipation, involvement, and foresight can improve the effectiveness and influence of future-oriented thinking while also helping to recruit employees by fostering a sense of community.

Futures literacy is a dynamic capability of an organisation that relies on organisation-wide anticipatory capabilities and participation. A robust futures-oriented culture can enable agility and value-based engagement of the entire personnel. Instead of short-termism, aim for a futures-literate organisational culture that remains open to emergence and continuously seeks out new practices.

- ✓ Improving the efficiency and impact of foresight
- ✓ Fostering a forward-looking organisational culture
- ✓ Enhancing employee commitment and sense of community

Challenge description

- ✓ Motivating the staff to engage in foresight
- ✓ Identifying futures relevant information
- ✓ Sharing the information with the whole organisation
- ✓ Resourcing of foresight work
- ✓ Integrating foresight with decision-making processes
- ✓ Strengthening the future orientation of organisational culture

As the business environment grows increasingly complex, keeping up with its demands for decision-making becomes more challenging. This underscores the importance of increasing the organisation's capacity to process and act on forward-looking information.

SYSTEMATIC LEARNING AND RESOURCE ALLOCATION

The ability to think and plan for the future is partly innate, but much of it is developed through practice. It involves cultivating thought patterns that allow us to envision alternative futures and challenge existing assumptions. However, benefiting from this in business organisations requires systematic development, resource allocation and learning of foresight methods and new ways of thinking.

UTILISING FORWARD-LOOKING INFORMATION

Access to foresight is a self-evident precursor to utilizing it. Several factors influence the flow of foresight-re-

lated information in organisational decision-making. Information overload is already a challenge, and tacit knowledge still plays an important role in business operations. Additionally, multiple layers of governance can filter, distort, or even block information flows, especially for highly uncertain information like weak signals.

An organisational culture conducive to foresight is another precursor for unlocking its promises. Culture emerges as groups navigate external pressures and internal dynamics. Some cultural norms operate at a subconscious level, created through past lessons. While culture evolves, it often remains resistant to external influence. Foresight activities may be considered burdensome, and collected information may be deemed irrelevant. Integrating forward-thinking into daily operations isn't always straightforward, particularly when management excessively prioritises short-term goals, hindering employees' more extended future orientation.



EVOLVING ORGANISATIONAL CULTURE

There's no one-size-fits-all solution to strengthening organisational culture's future orientation. It requires nurturing in various ways, considering the organisation's history with foresight and its current cultural status. Disappointments from previous foresight projects can reinforce short-termism if not appropriately addressed.

Even successful integration of foresight methods can pose challenges for further development. For example, if a company already implements advanced foresight methods as part of its strategy process or within specific teams, maintaining broader interest and continuous development can become challenging. This challenge arises when there is a consensus that others adequately address future matters, and individuals perceive it as someone else's responsibility rather than relevant to their own tasks. Moreover, as expectations continually rise, simply providing future-literate decision-makers with new insights by specialized foresight experts may not produce the desired outcomes.

If prior foresight efforts have effectively shaped the company's strategic direction and instigated systemic changes, disregarding this previous knowledge of the future would be unwise. Failing to acknowledge the link to the past, future work can undermine faith in foresight as a valuable tool. Conversely, if no new insights are gained from future endeavours, it may feel like time has been squandered. As an organisation's future consciousness grows, expectations for foresight work increase.



Futures-literate culture can't be forced; it grows with nurturing and support.

Case: KONE is building futures together

KONE engages its personnel to share views of the future and actively integrate sense-making into their daily work. A recent foresight project aimed to understand the futures of urban living, and KONE wanted to bring together its global base of experts to engage with the topic and harness their expertise. VTT, in turn, contributed its proprietary foresight tools and research expertise to the project. The project utilised various foresight methods to ensure a robust outside-in perspective. It commenced with VTT radar work, from which the main change drivers of future living were identified and then validated with the assistance of international experts. This created a solid foundation for beginning actual joint work in the future, such as looking for related trends, understanding their meaning and clarifying their implications for KONE together with participants.

FORESIGHT PROCESS TO CONTRIBUTE TO DAILY WORK

In the many phases of the project, special attention was paid to making it easy for the participants – rep-

resenting different business lines and expertise areas – to take the co-created results into their own respective use. Participants were encouraged to find the results relevant to their current work topics. For example, workshops included exercising the use of information to prepare presentations for forthcoming events and customer discussions.

BRINGING TOGETHER A WIDE RANGE OF STAKEHOLDERS

The project engaged external stakeholder perspectives, such as end users, in workshops. As an outcome, the project built a new, multi-perspective understanding of future possibilities. It contributed to strengthening company-wide foresight capabilities, creating new insights for marketing, enhancing thought leadership and crystallizing topics for research collaboration. Additionally, the project helped to enhance existing internal networks and create new ones.



Special effort was made to ensure participants could easily utilise the co-produced results.

Solution example

Discovering the power of foresight at the heart of business

The transition towards a futures-literate organisational culture is propelled by discovering together the significance of future information in navigating the operating environment and as a core aspect of the company's business. This entails integrating foresight into customer relationships, management practices, and business understanding. Crucially, the culture begins to shift only when both internal and external perceptions of the company's purpose and role in its industry change, with customers, partners and stakeholders coming to expect forward-looking insights and solutions for future success.

Engaging all personnel in this transformation cultivates futures literacy, prompting a reassessment of cultural assumptions and better readiness for the VUCA world. However, achieving this requires ongoing development efforts. Shallow adoption of foresight, such as ordering a foresight report at the beginning of the strategy process or merely using future-oriented slogans on the company website without real changes or resource allocation, won't lead to meaningful renewal. Genuine progress demands commitment, understanding, and a focus on substance rather than just superficial changes or single activities.

Identifying pain points in current business practices, whether within your own organisation or with customers and partners, can kickstart collaborative future work. For example, facilitating future information sharing between functions addresses information exchange issues and advances future-focused initiatives, solving persistent problems while progressing together.

Creating opportunities to explore the future with customers, partners, and stakeholders can challenge existing cultural norms and notions of success, prompting the organisation to adapt to evolving demands. Therefore,

genuine future-proofing requires a comprehensive shift in orientation, with a deep understanding of customers' needs and the anticipated or even unexpected changes disturbing their business environment, driving cultural evolution. Ultimately, the drive for change, in addressing the WHY question, must align with the organisation's purpose and financial viability, which are ultimately rooted in both current and future customer needs and preferences. Understanding these needs requires collectively creating broader viewpoints of the future, i.e., a futures-literate organisational culture that both draws from and feeds into the company and its networks.

Developing a company-specific change framework based on organisational culture transformation models like VTT's¹⁶, facilitates mindset evaluation, constructive debate, and communication of underlying motivations. It helps understand different perspectives and fosters commitment to progress. A new culture gradually emerges as future signals and demands are embraced in daily work. Participative organisational culture evaluations support this process.

FUTURES-LITERATE ORGANISATION CULTURE

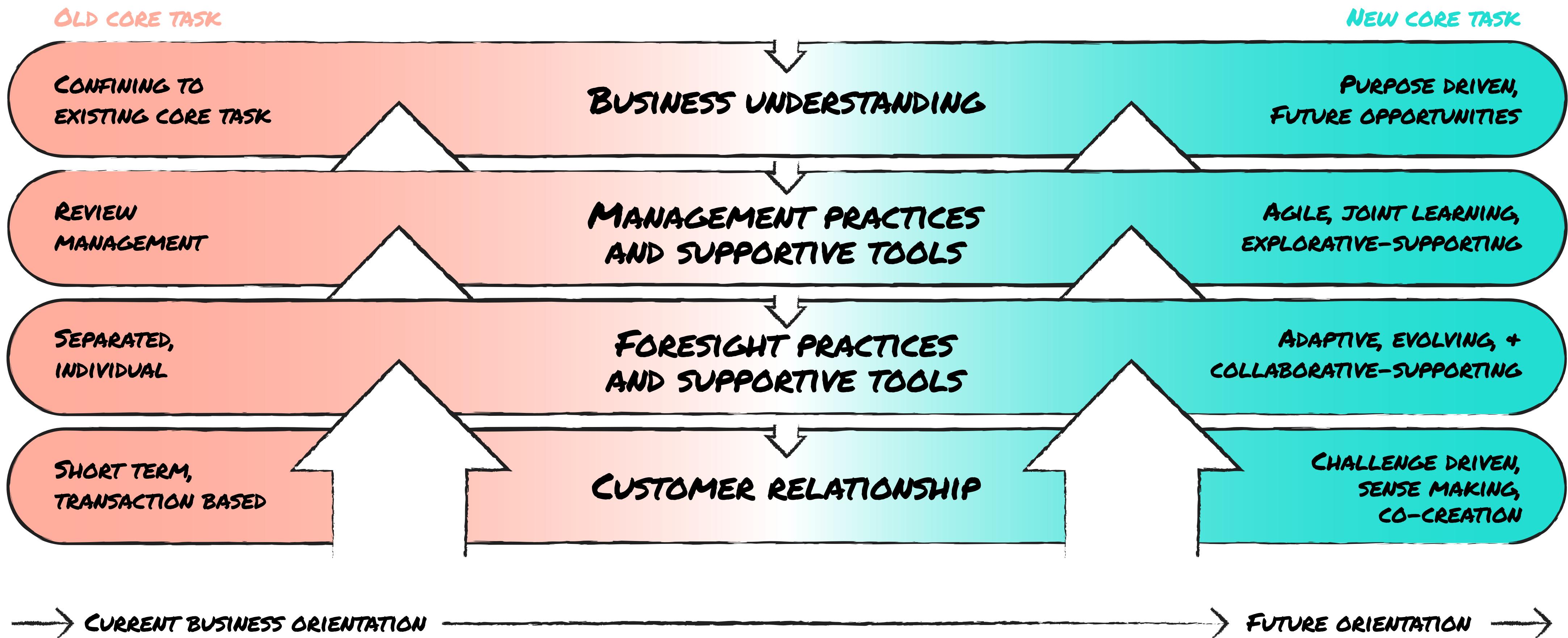


Figure: A general framework for cultivating transformation towards futures-literate organisational culture.

Key learnings

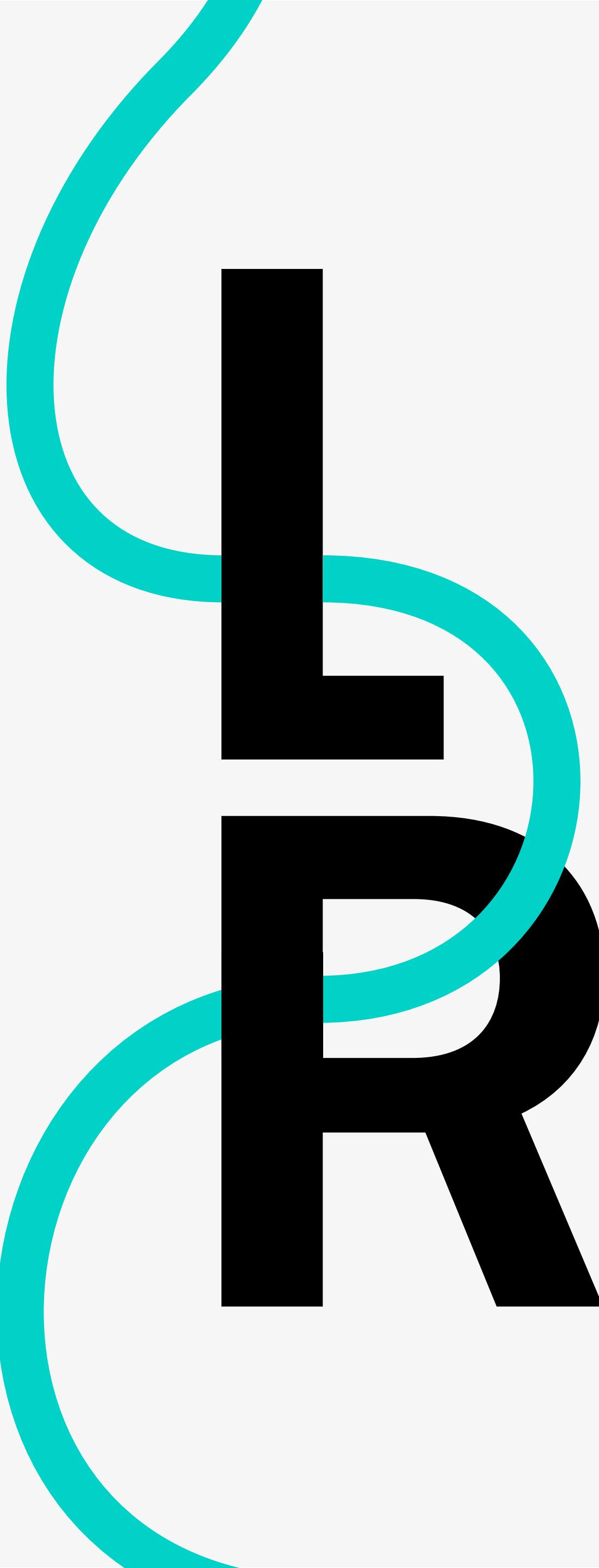
To establish a future-oriented organisational culture, take a customized and patient approach. Experiment, adapt, and stay committed to long-term growth. Understand the organization's specific history, strengths, and areas for improvement to tailor effective initiatives.

Integrate foresight work into daily work to improve its future orientation. Encourage collaboration across all departments.

For successful foresight, effective processes and structures are paramount. Establishing designated channels for information flow ensures that the right information reaches the right people in a timely manner. Allocating dedicated resources for foresight activities is not just beneficial, it's crucial.

Fostering a futures-literate organisational culture requires integrating foresight into all business aspects and shared foresight understanding with decision-making processes. Success will be achieved when both current and future customers trust you to safeguard the future of their business.

- 1 Customised and patient approach towards future-oriented culture
- 2 Common understanding of impact and meaning for business
- 3 Processes and structures to identify and share futures relevant information
- 4 Resources and tools, both integrated and dedicated foresight
- 5 Integrating shared foresight understanding with decision-making processes
- 6 Enhancing customer demand for future insights and shared exploration



L R

Literature resources

This classic on management discusses, among other things, the role of organisational filters in disseminating information within the organisation from the perspective of decision-making bottlenecks.

Ansoff, H.I. (1990). *Implanting strategic management*. Prentice-Hall.

This seminal work explores the concept of organisational culture and its influence on leadership and organisational dynamics. It remains a foundational text in the field and has been used extensively in academic literature and practical applications related to organisational culture and leadership.

Schein, E. H. (1985). *Organizational culture and leadership: A Dynamic view*. Jossey-Bass.

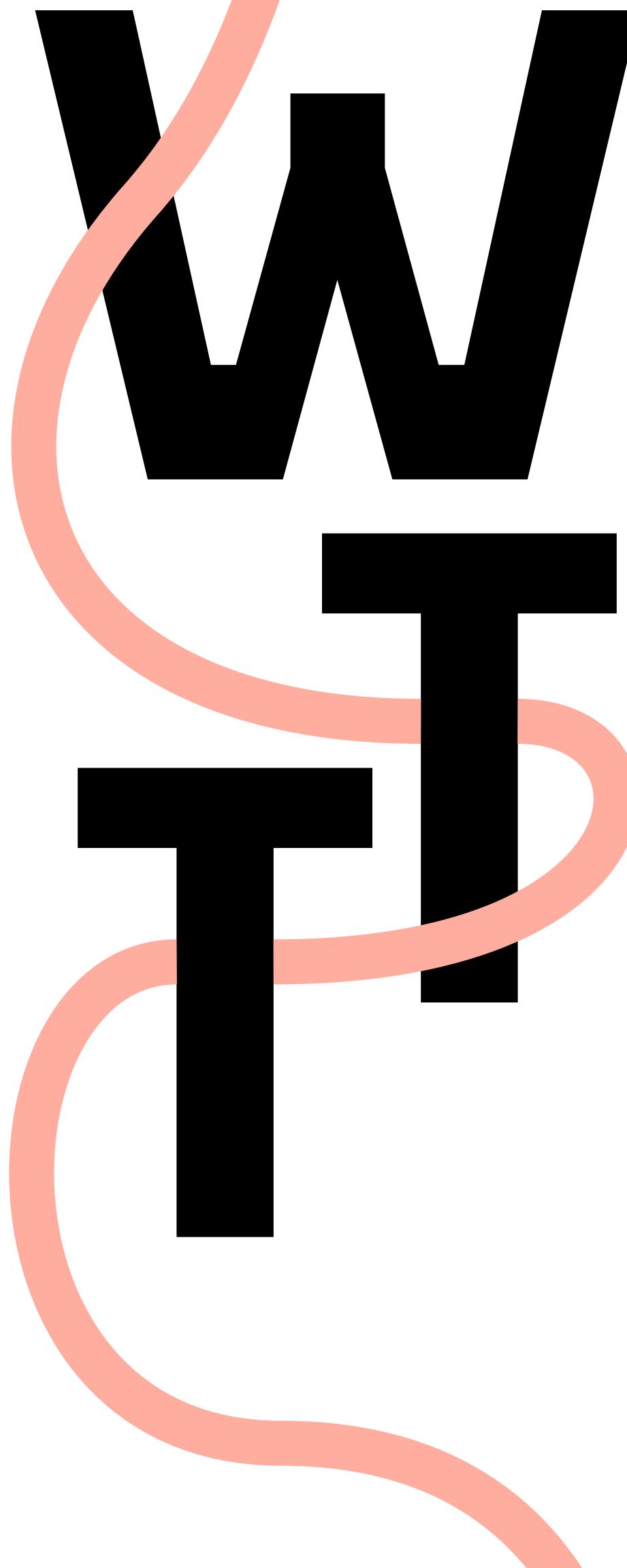
The background features a large, dark teal sphere on the left side. It is surrounded by various abstract geometric shapes in white and black, including triangles, hexagons, and circles of different sizes. The shapes appear to be floating or scattered around the sphere. The overall aesthetic is modern and minimalist.

Future customers

Maarit Halttunen, Pauli Komonen, Anu Seisto

"Customer-centricity is one of the company's strengths that has been preserved since the company was founded. It is also, if you think about foresight, one of the most important, if not the most important, tool, to know how our customers see what we are doing and their own future."

Sustainability Manager, Ponsse



Why this topic?

From a corporate strategy viewpoint, understanding the dynamics of past, present, and future customer behaviour is critical for maintaining competitiveness and relevance. Without customers, there is no business.

Customer behaviour is constantly changing. New needs, practices, and lifestyles emerge, all connected to environmental, societal, and cultural changes. On the other hand, people's lives are stable. Customers often stick to their routines, habits, and values. Within these dynamics of change and stability, future customer behaviour is evolving.

Whether we are interested in change or constancy, our challenge is that the customer of the future is not yet here. We cannot time-travel into the future to conduct a customer survey or interview. The methods to overcome this obstacle involve integrating strategic foresight and customer research approaches. So far, customer and future insights have often been created separately in different company functions.

The emerging field of customer foresight integrates these two viewpoints to create robust insights about the future customer.

- ✓ Future customers are not yet here; and yet you can create insight about them
- ✓ Working with leading-edge customers brings a fresh perspective to business development
- ✓ Customer foresight builds long-term competitiveness and relevance

Challenge description

- ✓ Understand future customers, even as you are building out your customer foresight capabilities
- ✓ Consumer trends change constantly; how do you track, analyse, and utilise them?
- ✓ Customers can be co-developers; what's the approach, value, and utility?

A study on the foresight capabilities of Finnish companies¹⁷ found that strategic customers and target groups are typically not involved in foresight processes despite the companies' desire to involve them. Underlying the desire is the companies' acknowledgement of the impor-

tance of anticipating the emerging needs of both their direct customer's and their customers' customers. The ability to do so effectively, however, seems not to be fully developed yet. There is a prevailing need for businesses to better understand and integrate their customers into their efforts to anticipate future developments.

A variety of customer foresight tools exists to bolster these capabilities, including consumer research approaches such as lead user and early adopter studies. In addition, foresight methods like environmental scanning and scenario planning can be helpful. The key is establishing a common ground and creating a valuable combination of methods from both fields.

The past few years have been tumultuous, regardless of whether we are examining consumers or business-to-business clients. Many aspects of customer behaviour have profoundly changed. Several fundamental assumptions of daily life have lately come into question, rattled by global health risks, geopolitical tensions and energy availability. More recently, breakthroughs in generative AI are effecting changes at a breakneck pace, with hard-to-predict consequences in customers' lives.

The transition towards sustainability brings new opportunities and constraints for customers. Increasingly, customers are driving this transition with a rising demand for responsible products and services. At the same time, regulation is pushing towards using sustainable materials, energy, and logistics, impacting the entire value chain.



Sales and marketing functions want to understand the customer better all the time. However, I don't believe that they look at the year 2030 and beyond. Corporate clients are monitored in business development, too. I don't see it done very systematically, though.

Business Development Director, Orion

The sustainability trend can be called a megatrend of customer behaviour. This shift has substantial implications for corporate strategy and product development. Megatrends like sustainability help contextualize the big picture of change, but detecting discontinuities requires looking elsewhere.

SHIFTING CUSTOMER BEHAVIOUR REQUIRES TREND MANAGEMENT

Weak signals of customer behaviour often emerge from the fringes of consumer culture and, for instance, from among young people and other pioneering groups. Matt Klein, Head of Global Foresight at Reddit and an active cultural commentator, has conducted a meta-analysis¹⁸ of over 50 recent global cultural forecasts. He has identified several notable, yet easily overlooked trends, including psychic healing, AI plural perception, gamed defictionalisation, and nostalgia spins.

In the rapidly moving world, it is not easy to keep track of all these trends with playful and witty names, but luckily, there are tools for it. Trend management is an area of corporate foresight that aims to identify, interpret, and utilise trends systematically. Many software tools help manage trend databases in practice. In con-

sumer-facing and rapidly evolving businesses, such as fast-moving consumer goods and telecommunications, tracking customer trends with a relatively short time horizon from one to three years is a typical approach for understanding changes in consumer behaviour.

ETHNOGRAPHIC IMMERSION UNCOVERS SOCIO-CULTURAL CHANGES

Trends are critical to customer foresight, but what exactly are they? Liebl & Schwarz¹⁹ define trends as socio-cultural innovations arising from crossing and challenging the boundaries of ordinary life. This definition is particularly insightful in the context of consumer behaviour change. An emerging trend can be understood as a vague silhouette whose new quality and outline must be identified and evaluated²⁰. A critical role of customer foresight is identifying, analysing and interpreting these silhouettes.

Interpretation necessitates a comprehensive understanding of the respective phenomenon. In consumer research, ethnographic immersion into consumer culture can prove invaluable. Ethnography involves observing and interacting with consumers for several hours to several days. Such immersion uncovers nuanced, em-

pirically based insights that are challenging to obtain through other methods.

LONG PRODUCT LIFECYCLES CALL FOR VISIONARY CUSTOMERS

Specific customers possess visionary capabilities. Rupert Hofmann²¹ has described how Audi collaborates co-creatively with customers identified as “trend receivers.” The car manufacturer’s product development cycle typically spans seven years. As a result, products conceived today must remain relevant in a future that could be markedly different from the present. Visionary customers are instrumental in this regard. They represent a unique customer segment with an ability to envision future lifestyles, technologies, and aesthetics, among other aspects. This approach has been widely adopted and proven effective at Audi.

Among B2B customers, tracking trends and recognising forerunner customers requires, at least partly, different methods than among consumers. However, recognising forerunner customers can benefit B2B companies in many ways, not only by anticipating future trends and success factors but also by understanding future markets and customers more thoroughly.

Case: Customer foresight within a cluster

SIX Mobile Machines cluster, a cluster of leading Finnish mobile work machine producers, has joined forces to form a joint agenda and roadmap towards green and digital mobile machines in 2030. The cluster wanted to enhance the customer, user, and human perspective to support its foresight efforts as part of this future roadmap and vision building.

For this aim, the cluster started investigating the everyday challenges of salespeople and their customers. The goal was to elaborate on the importance and meaning of the various mobile work machines for customers, both currently and in the future.

In addition, the cluster wanted to evaluate the challenges in the industry's operating environment. Therefore, they prioritised recognised challenges and assessed the possibilities for influencing their realisation.

It became apparent that by understanding the reality of the customers and users, the producers of mobile work machines could support customers in the transitions they are facing and formulate their offerings to best suit their current and future needs. Although challenges differ among mobile work machines, customers, and producers, many are common.

(1) The severe changes in the operating environments, (2) the increased know-how of the customers and users as well as (3) the changes in the work and working environment make it crucial to pay attention to the customers' routines and related challenges. As part of the cluster's vision and roadmap building process, it is important to consider the perspectives of future customers and users, in addition to technical aspects.



Even though our customers are different, we share the same future challenges, which we can tackle better together.

Harri Nieminen, Head of SIX initiative

Solution Example

VTT Consumer futures cone

How do we categorise the approaches to consumer foresight? The VTT Consumer futures cone is based on the Futures cone framework, initially developed by Joseph Voros²² and later adapted and modified by many others. This framework helps understand the different types of futures, from possible to plausible and even preposterous.

The Consumer futures cone shows that different kinds of change require different analytical tools. For example, consumer megatrends typically point towards probable futures. Megatrends and their direction can be validated through large masses of data. They can be used as a stable indicator and a strategic signpost of change in consumer behaviour. Demographic development is one example: in most developed markets, consumers will be older on average in the future. Consequently, these developments are robust building blocks for a growth strategy.

Near the core of the cone, we can also identify plausible and projected futures, which can also rely on a large amount of data and modelling. As we move towards the outer circles, the findings become more uncertain and speculative, relying on less data. Micro trends and weak signals can be identified in the behaviour of various leading-edge consumer groups. However, predicting wild cards and black swans is almost impossible. Nonetheless, it is important to discuss possible surprising events that could have a significant impact. A co-creative approach such as speculative design and sci-fi prototyping can be helpful in future-oriented product and service development.

A comprehensive view of the future requires a holistic perspective. However, sometimes, it can also be beneficial to focus on a certain layer of change if it serves the challenge at hand.



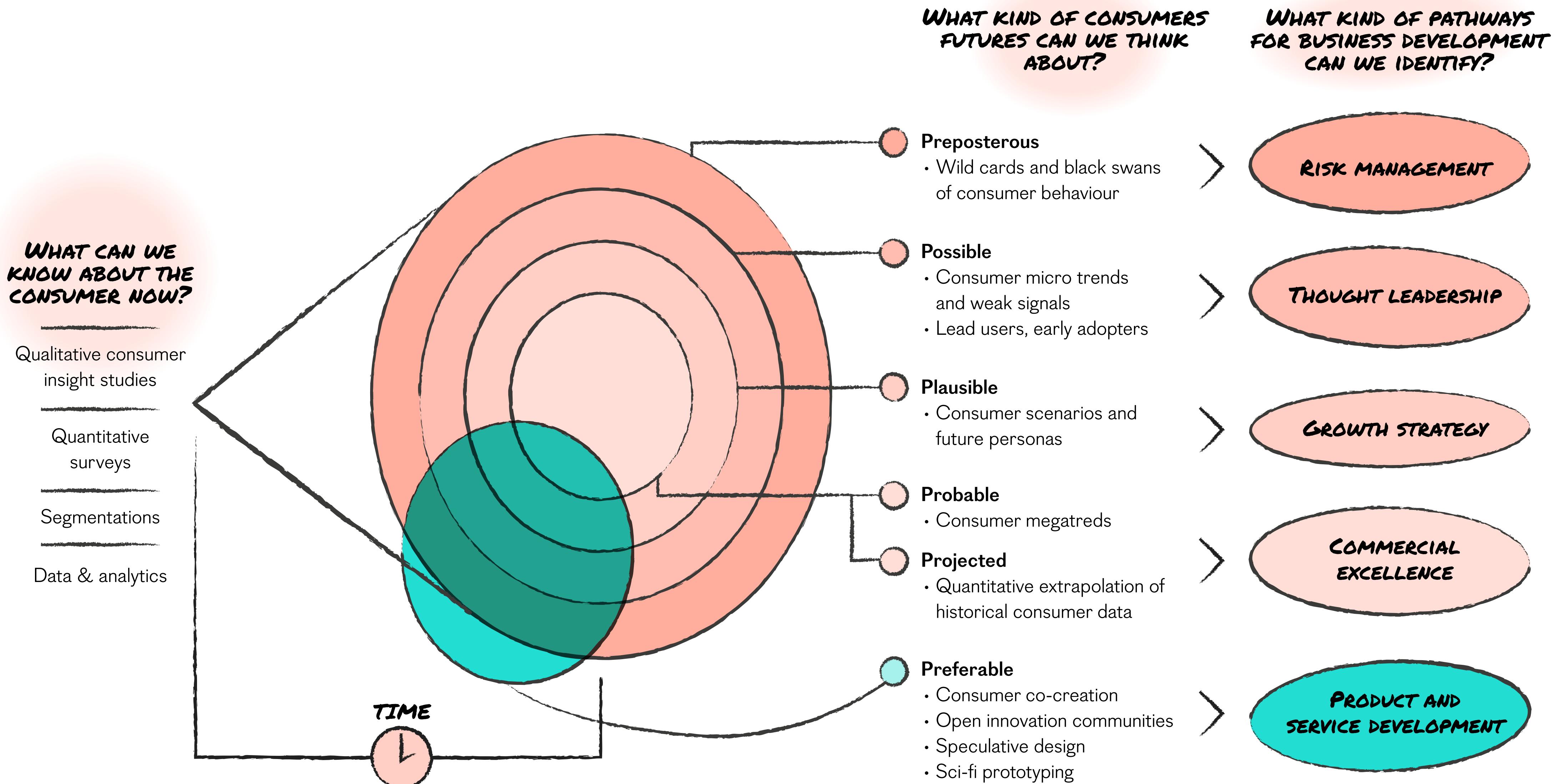


Figure: VTT Consumer futures cone

Solution Example

Profiling forerunners

Industry forerunners can offer valuable insights into emerging opportunities, challenges, and changes in customer behaviour. Furthermore, the information gathered from these forerunners can be a vital component of a robust and future-proof strategic foresight process, guiding the development of capabilities to ensure success in the future.

A recent study²³ elaborated on preferences and views on the future of forerunners in the wood construction industry, including those of experts and customers. Forerunners particularly value sustainability, architecture, and wood as a material. Additionally, they are promoting the use of wood in construction and low-carbon solutions within their organisation and the wider industry. The forerunners are ready and willing to innovate, explore novel approaches, and establish collabora-

rative models and value networks among stakeholders. The forerunners are eager and able to renew, try new courses of action and build new value networks and collaboration models between the actors.

The forerunners are not, however, a unified group of actors. Forerunners could be divided into categories depending on how they prioritise sustainability, invest in developing know-how and capabilities, and use wood materials in their construction projects.

By profiling forerunners, it is possible to understand better what issues will be emphasised in future business. Understanding the forerunners also helps to realise what skills, practices, or values are helpful in future-proof organisations in different industries.



**Strategic foresight
enables orienting business
development. It also provides
excellent insight into the
potential customer needs.**

Jussi Björman, Director of Business Development and Customer Experience at Metsä Wood

Key learnings

As customer behaviour constantly evolves, it is essential to research current trends and future scenarios. Changes in customer behaviour manifest across multiple levels, necessitating robust analysis and management of trends. Customers should not be viewed merely as subjects of research; instead, they possess the potential to act as active co-creators and visionary contributors towards business development. As co-developers, they can bring a fresh and less biased perspective rooted in real-world, everyday needs.

Customer foresight is crucial in business-to-consumer (B2C) and business-to-business (B2B) contexts. Although the methodologies for engaging customers in these spheres might vary, gaining an insight into the future customer's viewpoint enables the creation of solutions and strategies tailored to meet forthcoming needs. This proves particularly critical in sectors characterised

by lengthy product development and innovation cycles. For instance, should the journey from conceptualisation to commercial distribution of a product span a decade, the customer's environment could undergo significant transformations during this period. Nonetheless, it is feasible to construct scenarios of plausible futures in the here and now.

The forward-thinking, customer-centric approach enhances product relevance and ensures that businesses remain competitive and aligned with evolving customer expectations. Engaging with customers as partners in the development process enriches the innovation pipeline, leading to more effective and user-centric solutions. Thus, embracing the dynamic nature of customer behaviour and incorporating customer foresight into strategic planning is imperative for sustainable business growth and innovation.

- 1 Familiarize with customer foresight
- 2 Work on customer trends
- 3 Co-develop with forerunner customers

**Without a customer,
there is no business.**

L R

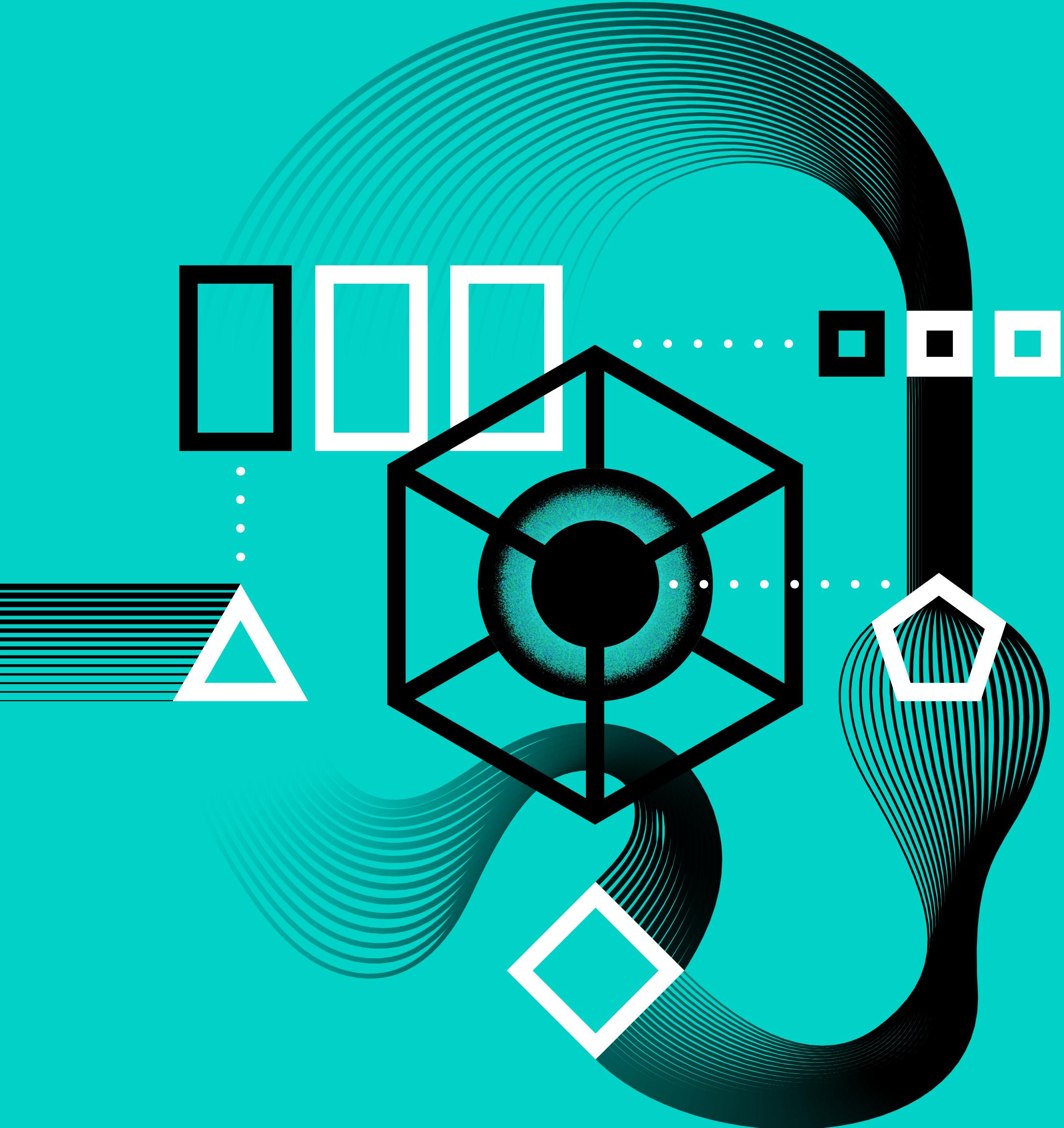
Literature resources

Introducing the customer foresight research field in practical terms.

Eller, E., Hofmann, R. & Schwarz, J. O. (2020). The customer foresight territory. *Marketing Review St. Gallen*, 37(3), 12-19.

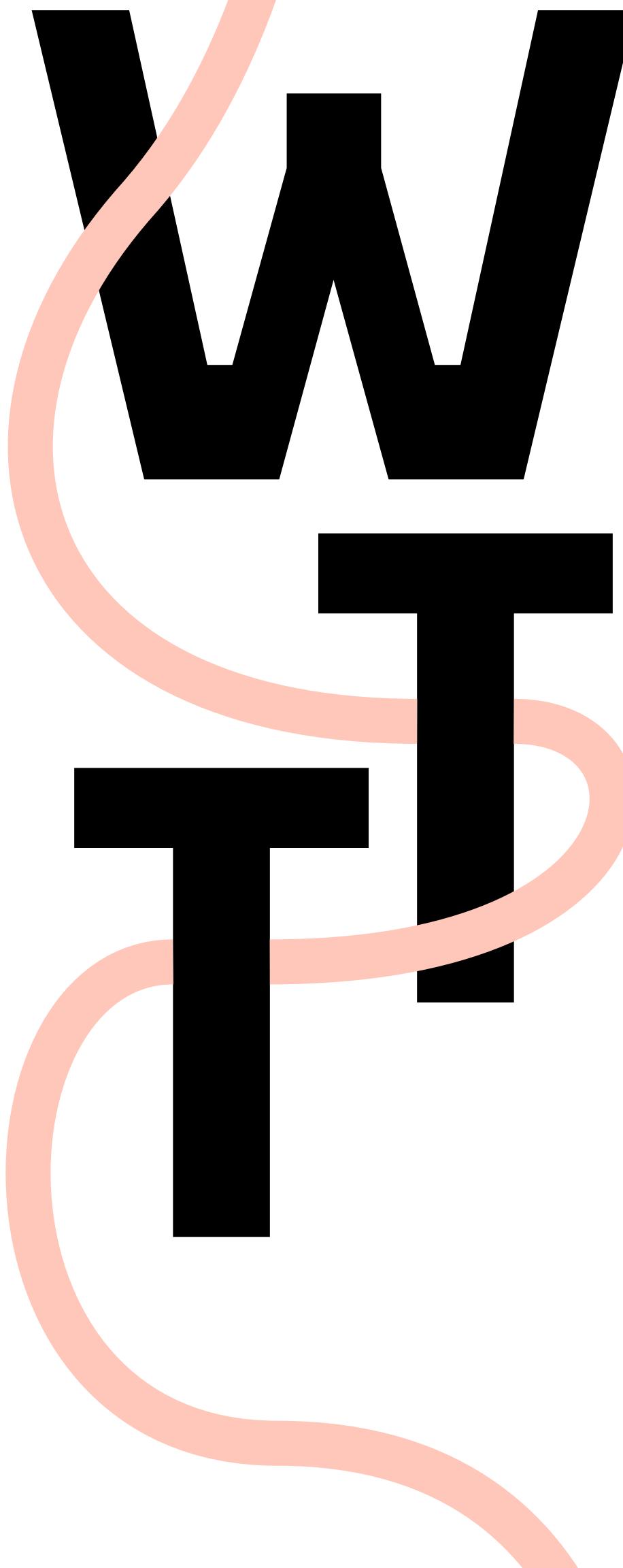
How KONE collaborated with visionary lead user consumers in London.

Komonen, P., & Jacobson, S. (2023). Citizens envisioning life in 2040: A qualitative corporate foresight study in London. *Futures & Foresight Science*, e175.



Building futures by networked foresight

Katri Valkokari, Jaakko Paasi, Maaria Nuutinen,
Tiina Apilo, Juuli Huuhanmäki



Why this topic

The landscape of business and innovation has become too complex and uncertain to be understood through conventional “linear” approaches such as “technology push” or “market pull”. In the complex and highly interconnected business environment disruptions may emerge either inside or outside the current landscape.

Today’s main challenge is not strategy analysis but turning the gained insights into actionable business plans in a continuously changing business environment.

Despite the complexity of the current business environment, companies are still using the same approaches for strategy design as they did in 1980. Even so, over the last 40 years, there has been a shift in understanding that for a strategy to be successful, the entire company and its stakeholders must be involved. According to a survey²⁴, 65% of respondents believe that engaging stakeholders is crucial.

This stakeholder engagement calls for collaborative and networked foresight. Futures are built together with external stakeholders, probing various alternative paths towards a desired outcome.

This chapter considers how different objectives of foresight call for collaboration with a number of different stakeholder groups.

- ✓ Complex business requires collaborative foresight
- ✓ Sharing future views enhances collaboration
- ✓ Diverse futures are built together

Challenge description

- ✓ Identifying the stakeholders needed for networked foresight
- ✓ Understanding the purposes of networked foresight
- ✓ Engaging different stakeholders for foresight
- ✓ Choosing collaboration models

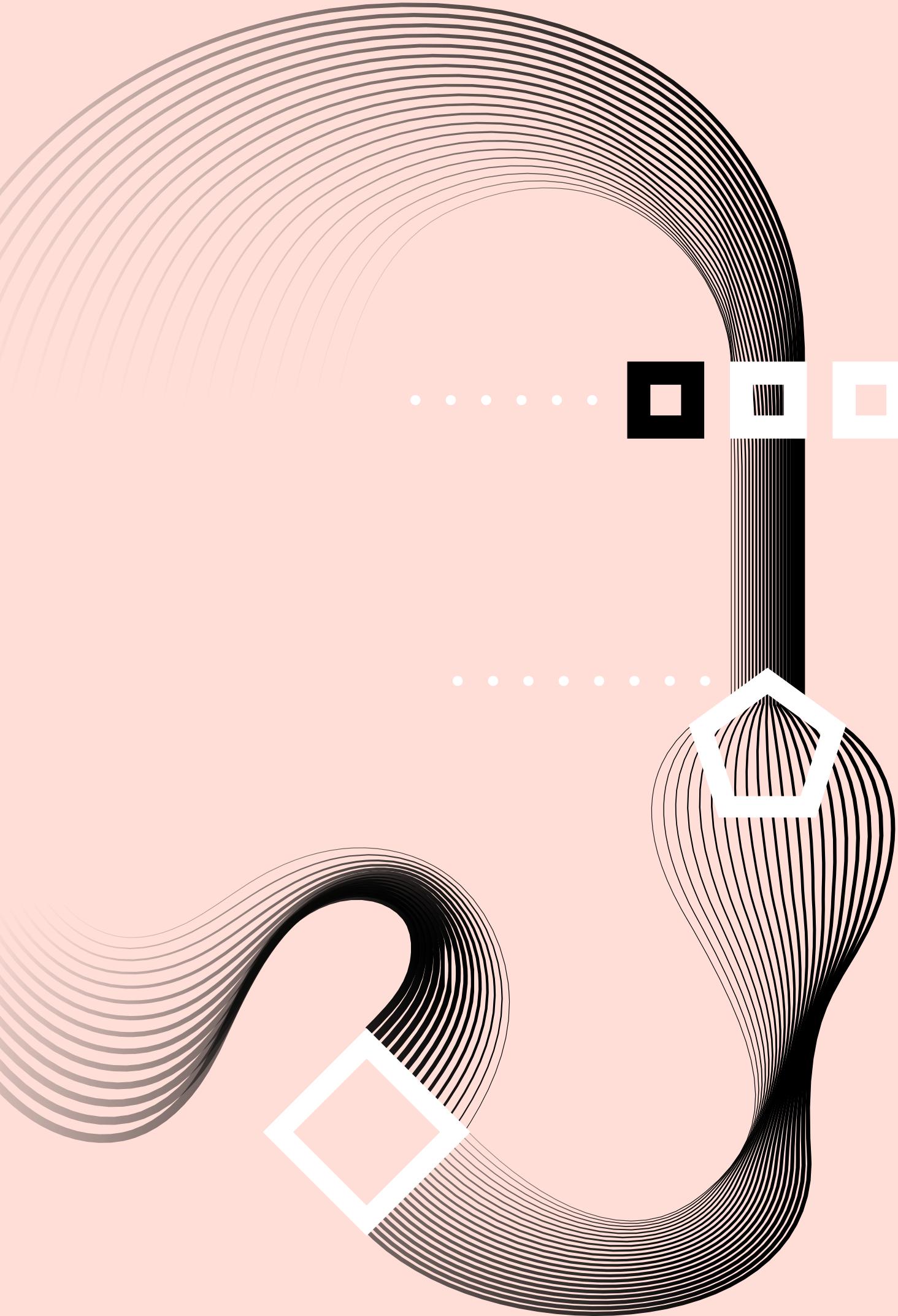
As companies came to experience first-hand in the early 2020s, the ever increasing complexity of and interdependency in global industrial structures have rendered businesses more and more vulnerable to disruption. Putting aside the potentially massive effects of external shocks, the actions of single actors alone can reverberate unpredictably throughout economic systems, creating seemingly unknowable consequences for single stakeholders.

Businesses need tools to understand how economic systems can co-evolve as their actions — both intentional and emerging — are connected.

NETWORKED FORESIGHT INCREASES ALIGNMENT

The dynamics of a business environment are created by the interplay of mostly uncoordinated actions of its present and future actors. They pursue self-motivated strategic intentions at their own industry-specific clock frequencies and based on their myopic interpretations of future opportunities. Predicting change in any given business environment is therefore challenging, even if the intricate direct and indirect interdependencies between the actors were known.

Identifying the key stakeholders in a business environment and engaging in networked foresight together can alleviate many of the key challenges. It increases coordination, extends the foresight window in breadth and length, facilitates collective sense-making of emerging phenomena, facilitates a shared view of the future, and – importantly – allows for the alignment of actions.



NETWORKED FORESIGHT SERVES MANY PURPOSES

With many actors come many objectives. For some, the intention is to build novel offerings and related business models. They analyse current trends and aim to be a forerunner, creating self-reinforcing network effects on the market. The focus is on the current business environment and its short-term changes, relying on collaboration with current network actors. Significant business environment disruptions are unexpected. Collaboration over industry borders may provide novel insights and support foreseeing disruptive changes. Consequently, looking for partners identified as experts on ongoing trends and change drivers is beneficial.

Emerging technologies and other potentially disruptive drivers, on the other hand, necessitate the renewal of industrial sectors and restructuring of current value chains. This allows actors to actively change the rules of the game. Major disruptions in the business environment are considered possible, and a proactive approach to exploiting them is taken. The collaboration models differ based on the objectives. If change is to be induced or exploited together, the need for sharing strategic knowledge is obvious, and the collaboration model is typically tighter.

Finally, macro trends, such as climate change, require system-level changes. Networked foresight can enhance the ability to understand and even shape futures by identifying the dynamics of a system and actors' change drivers and barriers. Here, boosting the change is possible by comparing alternative development paths resulting from different strategic choices. Due to the lengthy timeline involved, there will likely be changes in the actors participating.



How do we navigate a dynamic business landscape and jointly build an understanding of possible futures?

Solution example

Solving networked foresight

Networked foresight activities can occur at different levels with different stakeholders and have different objectives. The frame for networked foresight (see figure at the next page) has three dimensions:

- 1 the shared purpose of foresight (why)
- 2 the engaged stakeholders (who)
- 3 the joint process (how)

FRAME FOR NETWORKED FORESIGHT

We summarise the three purposes of networked foresight as follows:

- ✓ Adjusting existing business through assessing external knowledge sources, analysing future needs, and developing (joint) offerings.
- ✓ Triggering change and recognising and breaking the current path-dependencies.
- ✓ Anticipating and shaping futures by identifying emerging opportunities and dynamics in unforeseen circumstances.

ELEMENTS OF NETWORKED FORESIGHT

The purpose and motivations for inter-organisational strategic foresight are fundamental factors explaining actors' approaches to the collaborative process.

Regarding the external partners for networked foresight activities, the crucial aspect is the current (complementary) knowledge base shared by the actors and their motivation to join. Collaboration with partners from other industries can benefit out-of-the-box knowledge creation, whereas collaboration with competitors benefits from resource alignment and common motives. Collaborative foresight with competitors is feasible when the purpose of joint activities is relevant but does not require sharing knowledge related to current business models.

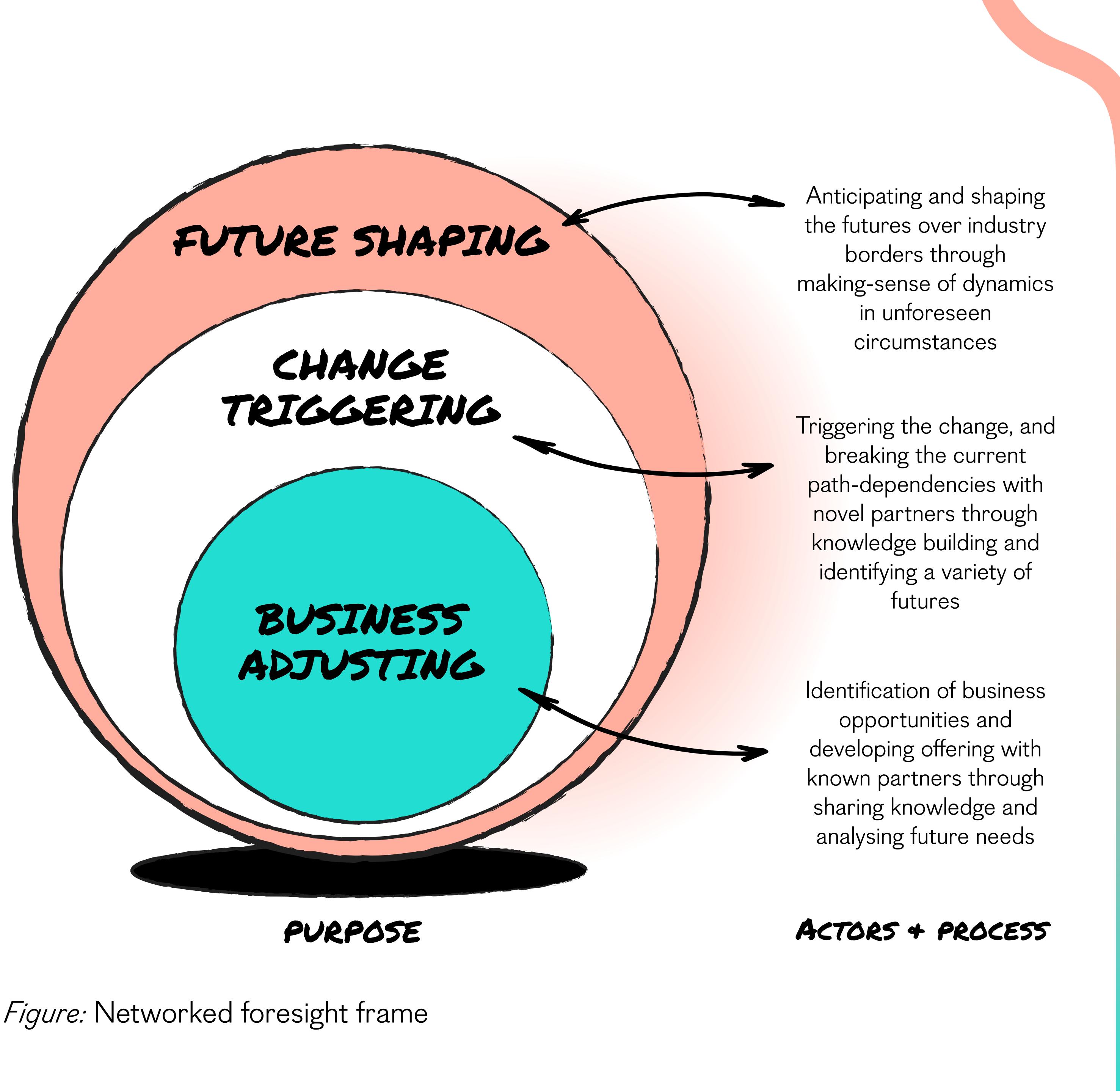


Figure: Networked foresight frame

The collaborative process should be aligned with its overall purpose, including adapting to or anticipating future developments while ensuring partner participation. This process view is closely associated with the timeline and purpose of the collaborative process.

SOLUTION EXAMPLES

Next, we present four case examples to demonstrate the different perspectives of networked foresight. The first two cases examine the long-term changes in systems and opportunities to shape the future of the EIT ICT Labs and the FutureQ project. The third case finds the change-triggering potential of radical new technology at NextGenProteins. The fourth case deals with adjusting business strategies by creating scenarios for joint offerings in the smart construction sector.

Case: Anticipating and exploring future disruptions

QUANTUM COMPUTING IN DIFFERENT INDUSTRIES

Quantum computing is a potential game-changer for businesses in various industries, solving complex problems that classical computers can't. However, it also creates uncertainty about the future.

The FutureQ research project brought together a dozen companies from various industries to explore the opportunities and challenges quantum computing can offer businesses and markets. The project involved early adopters of quantum computing from different sectors who work collaboratively to understand the dynamics and uncertainties of the future.

IDENTIFYING SIGNALS OF DISRUPTIVE TECHNOLOGY

The participants used the future radar method to identify signals that could indicate potential quantum-related business opportunities and risks across all PESTEL

dimensions—political, economic, social, technological, environmental, and legal. Given the uncertain and competitive nature of various quantum technologies, it is also essential to understand broader, quantum-driven future scenarios – as opposed to single, isolated signals of opportunity or threat – from a beneficiary perspective.

The case demonstrates the value of networked foresight in making sense of the dynamics and uncertainties of emerging technology.

MAKING SENSE OF CHANGE PATHS

By sharing and learning from different perspectives and experiences among the participants, they co-created a holistic and systemic view of the future. They identified and analysed the key drivers and uncertainties of quantum computing and explored the implications and opportunities for their businesses and respective industry sectors. The collaborative effort fostered a culture of curiosity and openness among the participants, who

were willing to challenge their assumptions and experiment with new ideas.

Collaboration in ecosystems and networked foresight is critical to accelerating the transformation of emerging technology into real enabling technology that empowers your business.



Co-creating a holistic and systemic view of the future by sharing and learning from diverse perspectives and experiences.

Case: Shaping and driving innovation

NETWORKED FORESIGHT FOR SHARED FUTURE OUTLOOK

More than 100 industry partners supported shaping and driving innovation in the European ICT industry through networked foresight activities. The foresight activities aimed to assess the future of ICT, form scenarios, identify disruptions and discontinuous change, and disseminate information among the partners in the network.

Networked foresight supported the creation of a shared vision for the network. The vision sought to shape innovativeness in European ICT, inducing long-term system-level change as presented in the foresight framework above. The network setting was considered valuable, as partners could actively shape the future of ICT innovation in Europe.

DIGITAL PLATFORM ENABLED PARTICIPATION OF OVER 100 ACTORS

The foresight work culminated in foresight workshops, foresight deep-dive studies, white paper development and an online platform, all engaging experts and the know-how among the network of partners from industry, academia, and research. The online platform provided effortless information sharing among the geographically fragmented network. At large, the network also engaged in, e.g., experience labs, technology transfer programs, and business modelling.

The value of the network became more tangible for SMEs that could not afford the use of complex and expensive foresight tools independently. This emphasises the valuable resource effect of networked foresight. In addition, networked foresight created value through access to a broadened and enriched knowledge pool.

CREATING LONG VIEW WITHIN AN EXTENSIVE NETWORK

The network's goal was to drive innovation in ICT, a challenge that necessitates looking beyond longer-term time horizons. Mirroring these goals, the network's foresight activities also entailed integral perspectives on scanning for potential disruption and challenging the state-of-the-art. This was supported by the inevitably formed multi-perspective view within the large network.



The network setting was considered valuable in itself, as participants were able to get actively involved in shaping the future and ICT innovation in Europe.

Case: Making sense of the potential of radical new technology

Triggering change can be boosted by foreseeing the market potential of radical new technology. An ecosystemic approach is beneficial, especially when entering the market, which may require a systemic change in its structures.

BRIDGING VIEWS FROM DIFFERENT LEVELS

The foresight work of Next Generation Proteins combined a Multi-Level Perspective (MLP) model used to analyse sociotechnical changes with scenario building. The MLP model included three levels: 1. The Regime of current markets, actors, politics, regulation, values, attitudes, physical infrastructures, and technologies bringing stability to the system; 2. The Landscape of megatrends, including political and regulative changes that put pressure on changes in the regime; and 3. innovations (radical technology) seeking opportunities to enter the broader Regime from their current Niche.

SCENARIOS ENABLED ESTIMATION OF MARKET POTENTIAL

In the foresight work, the market potential of four alternative proteins for food and feed currently in the Niche was estimated in three scenario Regimes, including all major aspects and a description of the change process from the current to a new Regime. At first, an MLP model of the current Regime of food and feed was developed. Then, three scenarios of future Regimes, including all significant aspects thereof, were created with drivers of the scenarios as their main differentiators. The change processes leading from the current Regime to the scenario Regimes were described next. Finally, the market potential of the proteins was estimated in the alternative scenario Regimes concerning the key factors in the Regime.

TIMELINE OF SYSTEMIC BREAKTHROUGH IS FUZZY

A major finding of the study was that market potential, time to market, and key partners to be required (value chain) strongly depend on the main driver of systemic change in markets. Companies should be prepared for alternative futures so that their business strategies or models are agile enough to adjust to ongoing changes when a trigger has been identified to occur, even though the change may mean altering the existing value chain. Business strategies should be agile to adjust to ongoing changes when a change trigger has been identified to occur.

Case: Building business scenarios in the construction industry

Business adjusting through joint scenario building requires clear roles between the participants. It is essential that the participants represent different roles in the aimed for joint offering and have the respective specialised knowledge, the related materials' supply chains, and technology development. Thus, every participating actor must have their own rationale and motivation.

In the smart building construction-related case revisited here, the ecosystem actors started off their joint foresight process by drafting five scenarios. These served as future platform-based entry models for the selected target construction market. Expanding on the scenarios, the actors then identified new value creation and capture opportunities serving various ecosystem actors and the novel capabilities needed for future business operations.

JOINT OFFERING IN THE SMART CONSTRUCTION SECTOR

The actors openly explored the five future scenarios together, although views of the most relevant market-entry scenarios varied. This discussion provided insights into alternative development steps for future business opportunities. In line with the foresight process, the participants wanted to experiment together and keep the linkages to real solutions visible. Therefore, challenge competitions and Proof-of-Concepts (PoC) were actively facilitated.

VISIBILITY OF INTERESTS ENHANCES STRATEGIC COLLABORATION

To sum up, many approaches, methods, and tools were used together, and the foresight process had a supporting role in adjusting business aims. Furthermore, the foresight process took a couple of months and provided

only short-term views on possible futures. After the joint foresight process, the companies had their internal strategic considerations on future business opportunities, and this phase was not openly shared between the participants.



Foresight tools support participants in making actionable business plans by enabling transparency of scenarios of various futures.

Key learnings

There is a fundamental difference in ways of working together whether the aim is to explore different futures or prepare strategic actions together. The different objectives have different time spans and require different key actors to align in the collaborative process.

To add to the challenge, the outcomes of foresight might call for both restructuring existing networks and building new ones (see figure at the next page). Therefore, broadening the business horizon through networked foresight calls for collaborative leadership, patience and resilience towards a certain amount of discomfort.

The best way to start off on a joint foresight journey is to map the current actors, their interests and the missing pieces as a starting point for *adjusting business* based on future opportunities. This enables pinpointing the gaps in the current business network and obliges to explore how it is constrained.

Second, *triggering change* necessitates us to figure out different pathways to design, test, and develop next

time horizons for future business landscape. Here, the joint foresight effort among key strategic partners helps aligning the objectives and coordinating roles.

Third, (re)shaping the underlying conditions for system innovation and transformation allows for *shaping the future*. This is not a fast process as we seek to join, build upon, and accelerate the change process through blended (both independent and dependent) perspectives of several actors. And typically, we don't know all these actors yet.

In the short term, the business horizon is broadened through scale-up of business within the current business environment. In the medium term, boundary crossing enables a broader view of the business horizon as novel relationships are built across the boundaries of industrial sectors, geographical areas, or knowledge clusters. Finally, in the long term, the business horizon is opened through emerging disruption in the current business environment, relationships and technologies.

1 Networked foresight provides a shared view of potential development paths

2 Three dimensions of networked foresight describe outcomes and collaboration models

3 Expanding business horizons occurs within different timespans

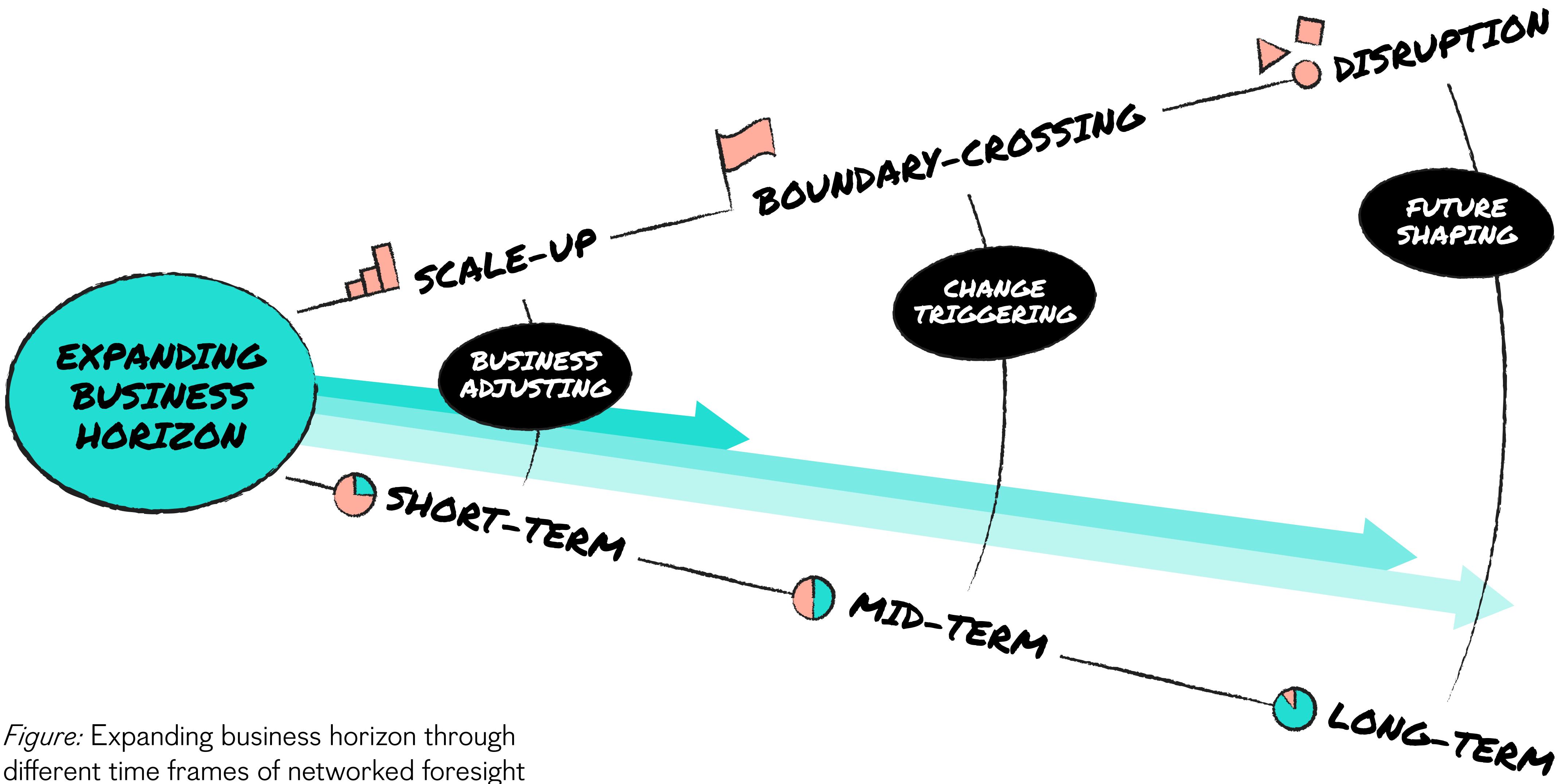


Figure: Expanding business horizon through different time frames of networked foresight



Literature resources

This study summarises the strategic practices used in 2020 forerunner companies and compares them to the 1983 survey to conclude that significant organisational changes have occurred within corporate foresight activities.

Halal, W.E., Garretson, J. & Davies, O. (2022). Updating strategy for a high-tech world: constant change from the bottom up and the outside in. *Foresight*, 24(1), 37-54.

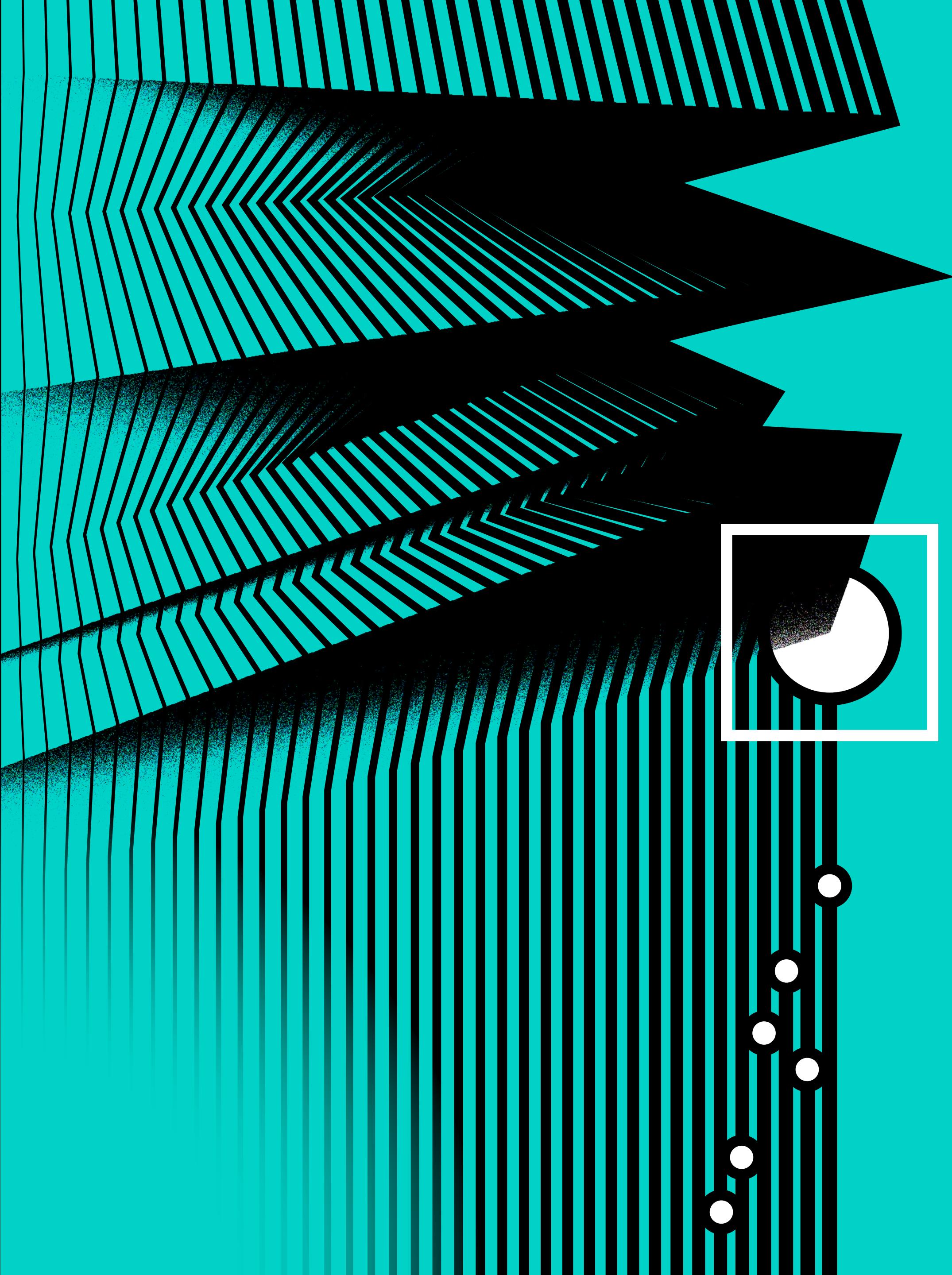
A short review on academic discussion on networked, collaborative foresight and introduction of framework.

Valkokari, K., Paasi, J., Apilo, T., & Nuutinen, M. (2023). Building a variety of futures through networked foresight. In ISPIM connects Salzburg: Sound of Innovation. Lappeenranta University of Technology.

Two studies describing the networked foresight activity in the case study of publicly funded European initiative, EIT ICT Labs. The chapter "Shaping and driving innovation" is construed based on the two studies.

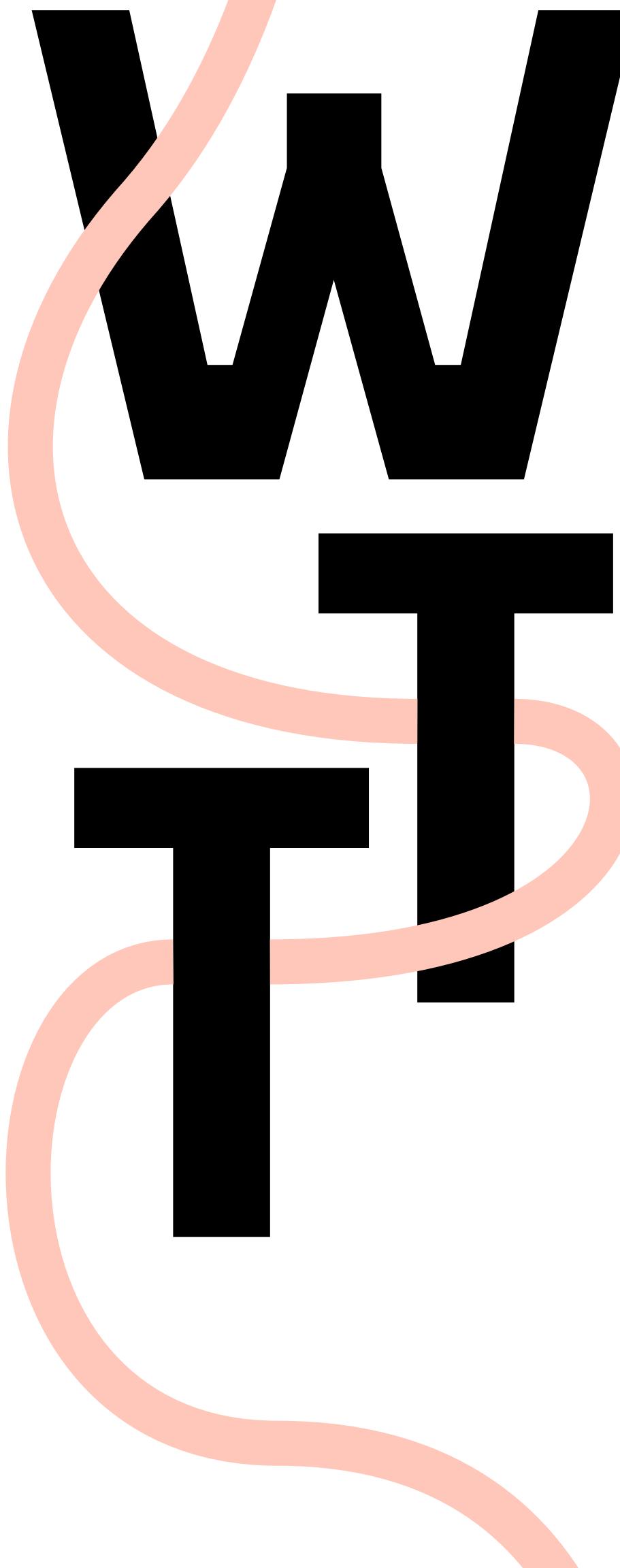
Heger, T. & Boman, M. (2015). Networked foresight -The case of EIT ICT Labs. *Technological Forecasting and Social Change*, 101, 147-164.

Van der Duin, P., Heger, T. & Schlesinger, M.D. (2014). Toward networked foresight? Exploring the use of futures research in innovation networks. *Futures*, 59, 62-78.



Foresight and firm performance

**Matthias Deschryvere, Sofi Kurki,
Kirsi Hyytinens, Arho Suominen**



Why this topic

Understanding how foresight affects the firm's performance allows for designing, implementing, and evaluating impactful foresight.

Foresight efforts that lower uncertainty in critical decision-making, contribute to building resilience, and lead to new business opportunities will have an impact on the bottom line. Connecting the dots between effort and outcome allows not only an increase in performance but also the streamlining of foresight efforts for a variety of opportunities and long-term impact. Overall, practitioners' awareness-raising and shared learnings on the role of foresight in firm performance will allow for more impactful foresight.

To address the relationship between foresight and firm performance, this chapter will explore three main themes: (1) critical inputs necessary for impactful foresight, (2) strategic decisions and actions that lead to impact, and (3) key dimensions of impact.

You will learn about selected Key Performance Indicators (KPIs) to make visible foresight inputs and outcomes as well as dimensions in which foresight is expected to provide most value.

- ✓ Tools are needed to highlight the value of foresight
- ✓ Companies do not commonly practice foresight impact measurement

Challenge description

- ✓ Demonstrating how foresight can impact decision-making
- ✓ Evaluating foresight
- ✓ Identifying the key dimensions of impact
- ✓ Increasing foresight's impact

Firms struggle to make well-informed decisions that set them apart from their competitors. Foresight can boost a firm's strategic competitiveness through futures thinking. For instance, foresight helps to explore and seize innovation opportunities beyond the industry-typical horizon, leading to early productivity gains in production, first-mover in developing new markets and robust strategies for navigating changes in the operating environment.

Especially in the private sector, however, foresight may still be met with scepticism. Key to convincing the sceptical decision-maker is to concretely demonstrate that foresight matters.

If key stakeholders and decision-makers have confidence in the value of foresight, its potential impact can be fully realised. Making the value of foresight transparent requires well defined targets as well as corresponding performance indicators and robust data. Generating data on the short- and long-term impacts of foresight requires a long time span and large sets of data.

To summarise, systematic and long-term evaluation is crucial in demonstrating the impact of foresight. Finding evidence on what works and does not work in your business and its specific context will be key to reaping the benefits foresight can provide.

It is important to note that gathering data on foresight practices and their effects takes effort, and the expenses must be proportional to the potential benefits.



The main reason for the scarcity of conclusive evidence on the impact of corporate foresight is the difficulties associated with measuring it.

Rohrbeck & Kum, 2018, p. 105

Work with KPI's

Empirical analysis of innovation's impact on firm competitiveness has predominantly happened via a model that links innovation inputs to innovation outputs and, ultimately, to the firm's productivity. In light of the approach's success, it makes sense to apply the same logic to analysing the firm-level impact of foresight via its inputs, outputs, and effects on productivity. Especially in large multinational firms, the firm-level impact of foresight constitutes a complex aggregate of converging outcomes that is created by different units, innovations, projects, and decisions over time.

For the identification of the impacts of foresight it is central to define the targets for foresight, and then relate the inputs to foresight to the expected impact and related outputs. From this perspective it is also easier to link foresight to specific key decisions made in the firm.

How can we monitor foresight to demonstrate its impact, then? The solution lies in understanding and mapping the inputs into foresight and systematically measuring them. Suggested input KPI's include:

- 1. Number and type of internal foresight people.**
- 2. Subcontracting costs related to acquired foresight expertise.**
- 3. Total expenses related to foresight (could be considered a type of R&D expenditure).**
- 4. Number of professional internal champions and their spread throughout the organisation.**
- 5. Engagement of top management team in foresight.**

Knowing the inputs into foresight is a condition that can be used to evaluate foresight at the firm level. In addition, information is needed on the direct outputs of foresight over a specific time span. As an output measure, we propose the following indicators that can be obtained via foresight champions in the firm or a broader internal firm-level survey:

- 1. Number of foresight output success stories during last year.**
- 2. Change in foresight mentality during last year.**
- 3. The number and type of decisions that were made based on or validated by foresight.**

Implementing KPIs to measure the inputs and outputs of foresight enables the structural and transparent demonstration of some of the key effects of foresight. It raises awareness of its role and importance. Moreover, this approach allows for identifying barriers and improving the efficiency of the foresight process.

Use impact framework

Foresight affects firm performance in the short term and creates longer-term, broader impacts that go beyond organisational borders. While firms often focus on the next quarter or the next three to five years at most, foresight can work with much longer time windows, from 10 to even 50 years.

To capture the longer-term, broader impacts of foresight, we offer an impact framework that guides the design and measurement of foresight activities at the firm level. Every company has its own specificities, so we need an overarching impact framework that is flexible and allows for handpicking certain dimensions and most relevant impact indicators.

The framework depicted in the figure on the next page considers four key impact dimensions plus one extra overarching impact dimension. Based on intra-firm and extra-firm relationships (relational impact), innovations can be developed (innovation impact) that affect the firm brand (reputational impact) and financial outputs

(financial impact). Eventually, this can lead to outcomes and impacts beyond the borders of the firm, driving one final (or fifth) impact dimension (responsible impact). All impact dimensions are interdependent, and impacts can feed back into inputs and outputs.

Some of the impact dimensions are more challenging to affect than others. Acknowledging that every firm is different in their capabilities, the dynamics in the innovation and financial dimensions are usually better understood while those in the relational and reputational dimensions remain more ambiguous. The scale and scope of the foresight methods (quantitative vs. qualitative) applied in the firm greatly impacts the organisation's capabilities to robustly navigate and generate impact in the various dimensions.

The framework provides a structured view of the interrelated dimensions. It serves as a foundation for developing concrete baskets of (outcome and impact) indicators that can be measured and evaluated for each

dimension of impact. In the early phases, it should be used to analyse the gaps between important metrics and the availability of the corresponding data. Establishing access to required data is a key prerequisite.

Using a multidimensional foresight impact framework helps design the firm's long-term impact and supports raising awareness on how the interaction between future and impact orientation can benefit both the firm and society.



Translating the long-term view into a short and mid-term operational roadmap is key to close the disconnect between foresight and strategy.

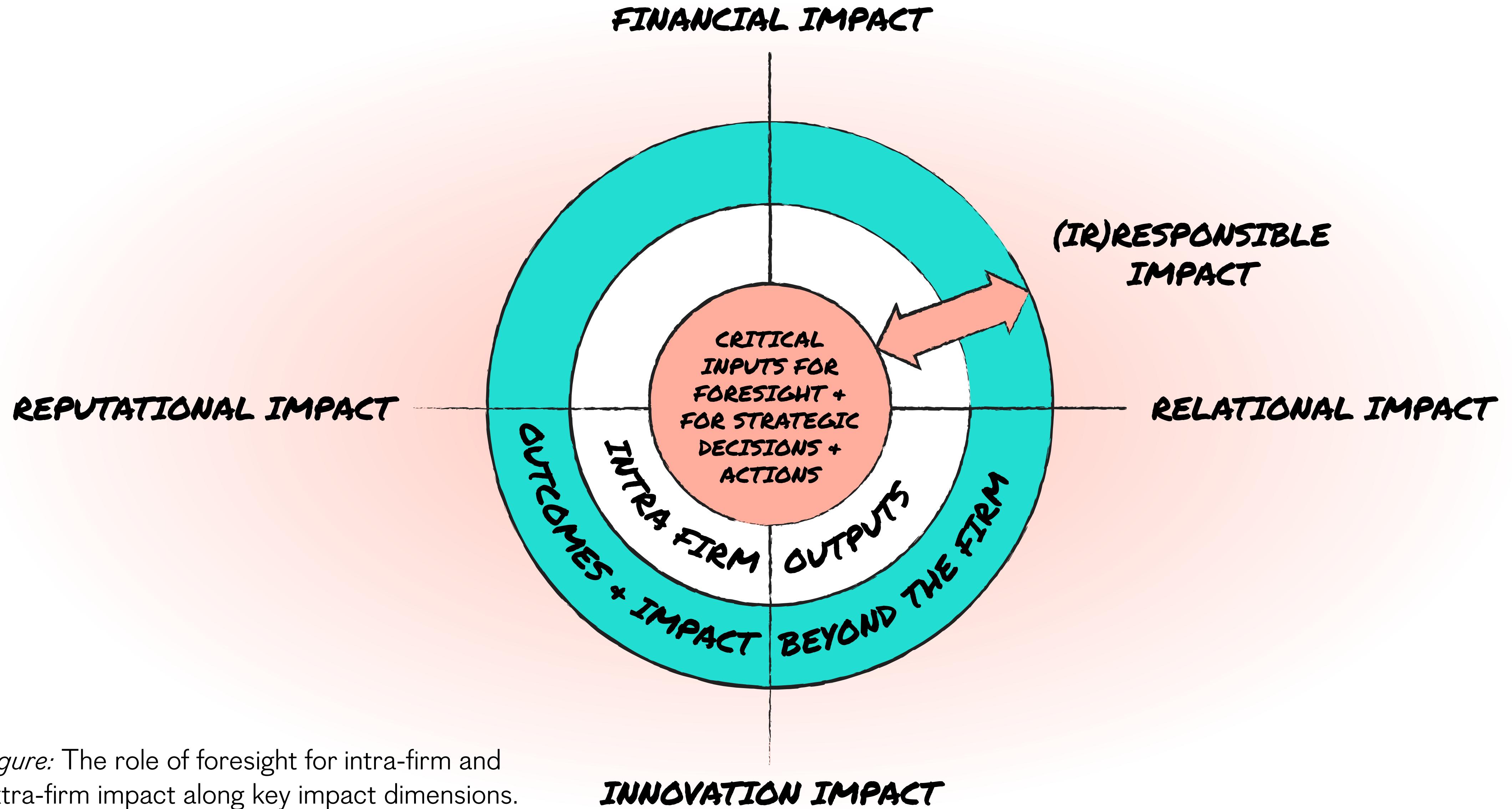


Figure: The role of foresight for intra-firm and extra-firm impact along key impact dimensions.

Key learnings

The impact of foresight is created by the decisions it initiates or influences. Foresight can advocate or confirm what to do, but it can be just as important as an informer of what not to do. Evaluating the impact of foresight helps to justify the decisions.

The top management team makes many important decisions. Therefore, it is crucial to develop a future-oriented, foresight-driven management culture in the CEO's office and amongst top management. The commitment of top management is crucial for a foresight-driven organisation, contributing to the overall quality of its management practices.²⁵

Foresight capabilities should be built throughout the organisation by fostering a virtual foresight network that reaches all levels of hierarchy. Such a network of champions can be used to raise awareness, build capabilities, monitor impact, and improve the foresight impact and the firm's performance.

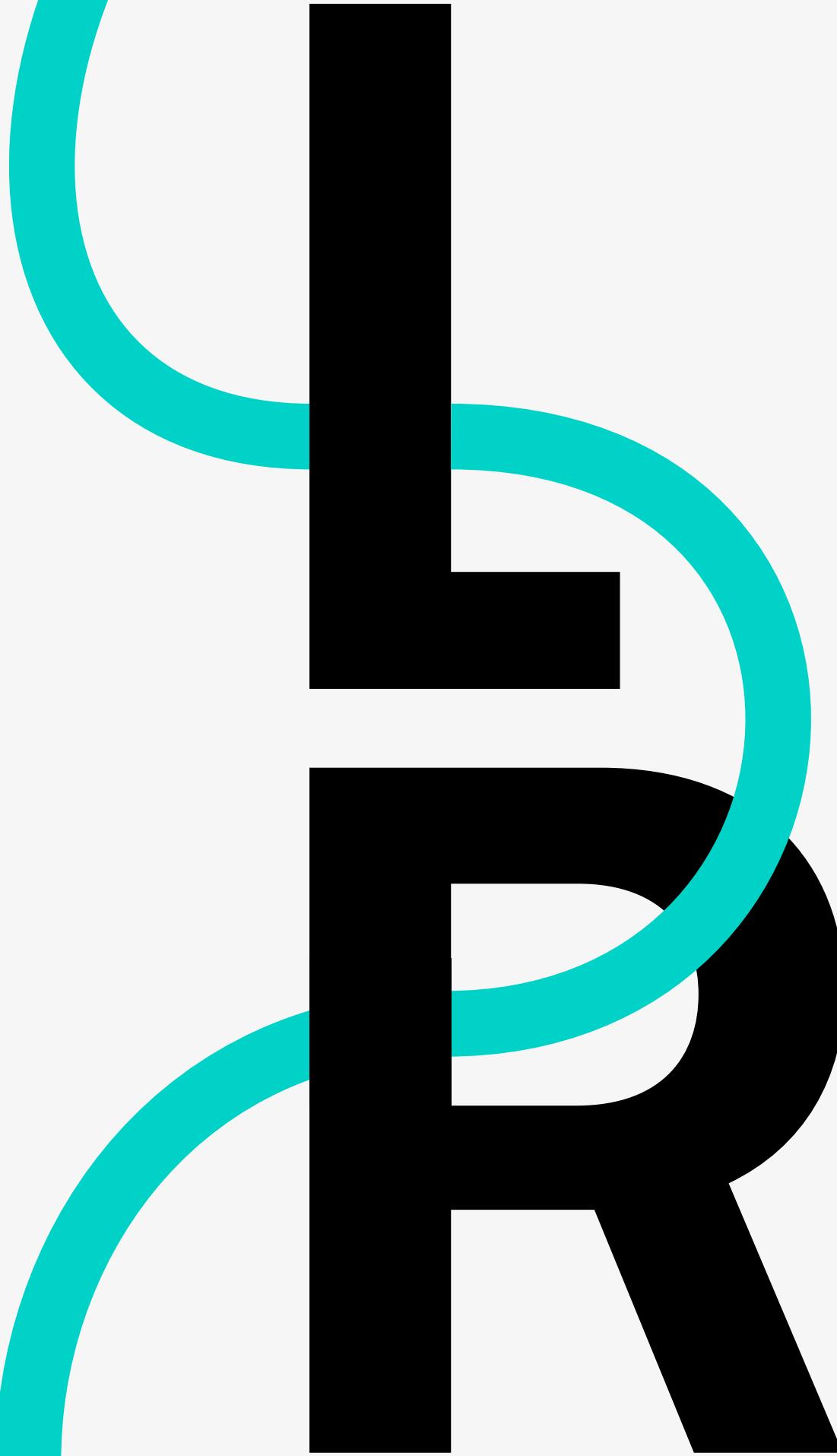
BARRIERS TO OVERCOME

While the ultimate goal of foresight is often to build a shared vision, it has also led to a divide between opinions and people. For foresight to have maximum positive impact, however, it is important to map these possible divides and take actions to diffuse them.

The initial gap that requires bridging is between qualitative and quantitative foresight methodologies. Establishing a constructive conversation between these two approaches and showcasing success stories to demonstrate how they complement each other in creating value is necessary.

Corporate foresight also often calls for a bridge between short-term strategy goals and long-term foresight objectives. To enhance the company's performance, the foresight team's long-term views should be translated into short- and mid-term operational roadmaps that the strategy team can use. This approach lets the company fully take advantage of the power of foresight.

- 1 Foresight's impact is seen in the decisions it influences
- 2 You can evaluate foresight and demonstrate its impact



L R

Literature resources

Variations in management practices can explain significant differences in productivity between firms and countries. These differences are challenging but possible to measure. More detailed management practices related to future orientation can be mapped.

Bloom, N., Van Reenen, J. (2010). Why do management practices differ across firms and countries?. *Journal of Economic Perspectives*, 24 (1), 203-24.

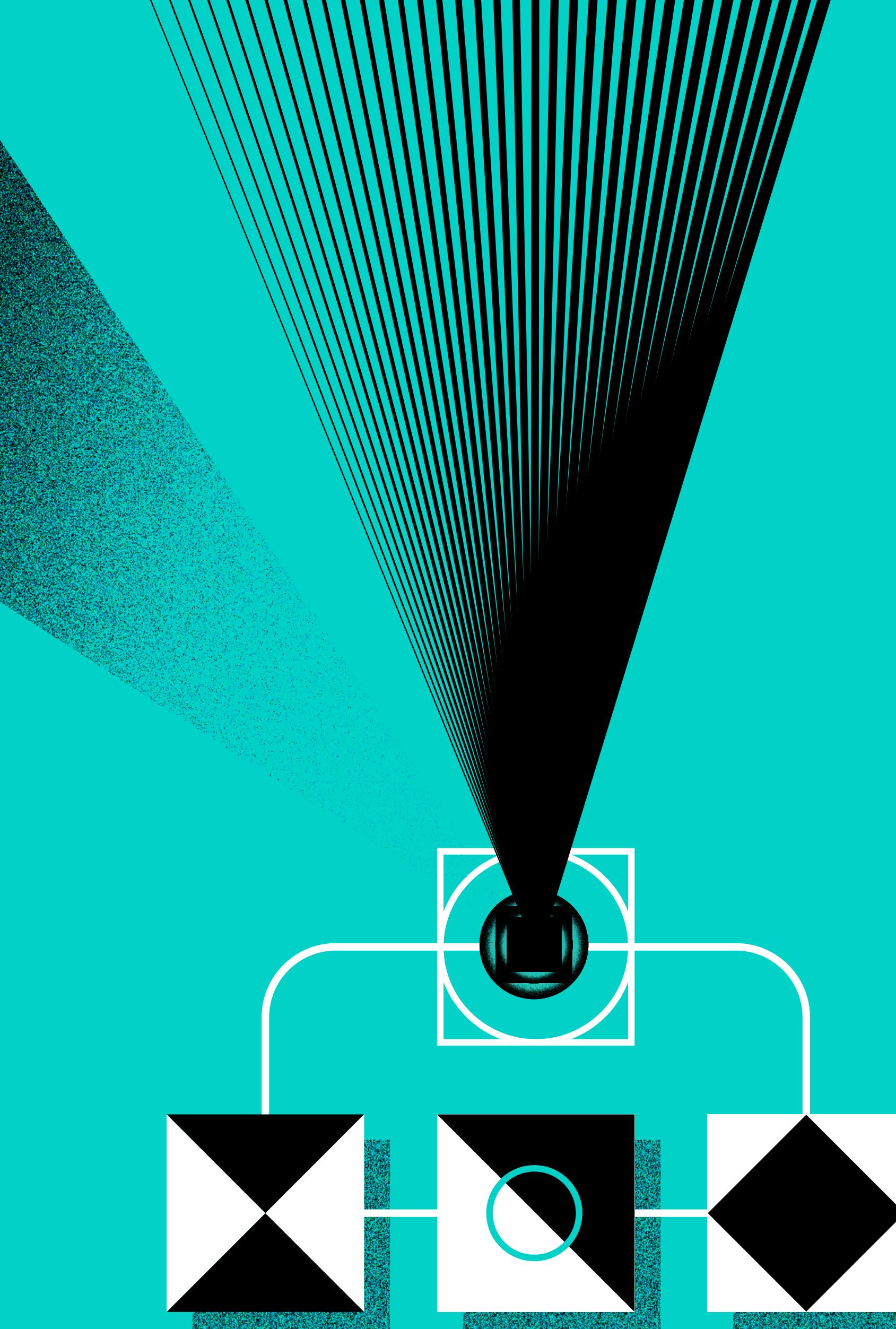
This study found a positive correlation between foresight maturity and firm performance in 70 European multinationals. However, their results cannot be interpreted as causal effects, and they cannot be generalised to the population of multinational firms.

Rohrbeck, R., & Kum, M.E. (2018). Corporate foresight and its impact on firm performance: A longitudinal analysis. *Technological Forecasting and Social Change*, (129), 105-116.

Evaluating foresight is key for accountability, but more importantly, it constitutes an investment in credibility and the profession's impact. Mutual learning will raise capacity and the probability the decision makers apply insights from future research.

Van der Steen, M., & Van der Duin, P. (2012). Learning ahead of time: how evaluation of foresight may add to increased trust, organizational learning and future oriented policy and strategy. *Futures*, 44(5), 487-493.

**How foresight affects
decisions is what needs to
be monitored first.**



Foresight as a catalyst for action

Arho Suominen

//

Effective foresight turns future visions into strategic actions

Foresight is crucial for businesses, especially in a volatile business environment. Senior management and the board of directors are responsible not only for today's success but also for future success. It is important to distinguish between foresight as a mere activity and foresight as a core capability and competence.

Seeing foresight as an organizational competence, rather than just a set of tools or nice-to-know information, is essential for strategy and innovation. It helps envision better, desired futures and take actions in the present to make them happen. The future is what we make of it; we can only create what we can envision, and our visions of the future are in continuous competition.

That said, futures are not spawned by visions alone do. Foresight must drive actions; it must fuel decision-mak-

ing. It must inform us what decisions we should make today to achieve our desired future. The value of foresight lies in shifting decision-making from the short-term to a focus on all horizons of the future. This includes near-term forecasts, short-term modelling, and long-term foresight, not forgetting Moonshots at the far end of the spectrum. Effective foresight should deliver actionable insights for each horizon of the future.

One of the significant challenges in implementing foresight is overcoming cognitive barriers within organizations that hinder the perception of weak signals. Foresight can counter these biases and guide decisions, emphasizing the need for a future-oriented mindset and tools to prioritize business goals. This shift in mindset is critical for fostering a culture of continuous improvement and innovation, but it also challenges our assumptions.

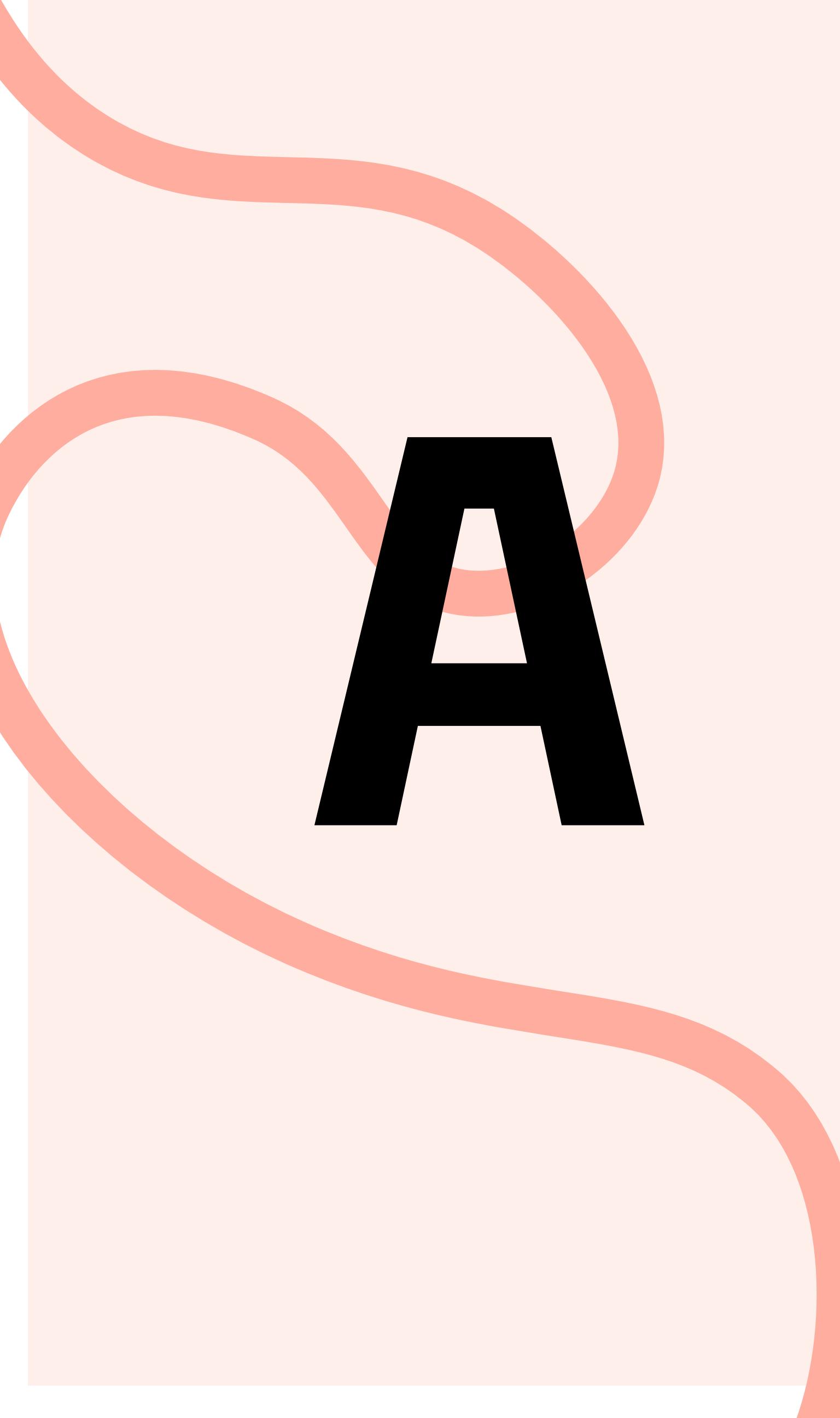
Building foresight capability requires people who are functionally positioned to make an impact. The rationale for foresight varies over time and between organizations. Today's volatile business environment calls for foresight units closely aligned with strategy, while at other times, foresight drives innovation. Form follows function, and truly leveraging foresight requires understanding the specific goals for which this capability is being employed.

In summary, foresight is essential for navigating complex business environments, overcoming cognitive biases, and fostering innovation. Industry leaders engage in foresight daily, if only by contemplating the path to steer their organization. Foresight as an organizational capability transforms sporadic glimpses of the future into a tool for driving action.

Endnotes

- 1** Bennett & Lemoine, 2014
- 2** Lawrence et al., 2022
- 3** Sardar, 2010; Sardar & Sweeney, 2016
- 4** Sardar, 2010
- 5** Huuhanmäki et al., 2022
- 6** e.g. Rohrbeck, 2010; Rohrbeck & Kum, 2018
- 7** e.g. Schwarz, 2023; De Geus, 1997; Bazerman and Watkins, 2004; Day & Shoemaker, 2004; McKay & McKierman, 2004; Seidl & van Aaken, 2009; Kahneman, 2011; Foss et al., 2023
- 8** Day & Schoemaker, 2004
- 9** McAllister, 2013
- 10** Hopp et al. 2018
- 11** Arora & Belenzon, 2023
- 12** Jordan et al., 2018
- 13** The Economist, 2019
- 14** Hijosa, 2021
- 15** ARPA-H, 2024
- 16** The organisational culture model of VTT has been developed to support various business transformations, such as the transition from product sales to service business (e.g. Nuutinen & Lappalainen, 2012; Airola et al., 2013)
- 17** Boardman, 2021
- 18** Klein, 2023
- 19** Liebl & Schwarz, 2010
- 20** Liebl & Schwarz, 2010, p. 318.
- 21** Hofmann, 2015
- 22** Voros, 2003, 2017
- 23** Halttunen et al., 2023
- 24** Halal et al., 2022
- 25** Bloom & Van Reenen, 2010

Acknowledgements

A large, bold, black letter 'A' is positioned on the left side of the page. It is partially overlaid by a thick, light red curved shape that forms a large circle and a smaller inner circle, creating a layered effect.

A

This guidebook wouldn't be here without the extraordinary support and contributions from so many individuals and organizations.

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And last but not least, thank you to all the case companies for your openness and willingness to be part of this cutting-edge foresight research.

Thank you all for your incredible support and contributions.

References

- Airola, M., Nuutinen, M., Lappalainen, I., & Valjakka, T. (2013). Arvioimalla oivallukseen: Opas matkalle palvelukulttuuriin. VTT.
- Ansoff, H.I. (1990). Implanting strategic management. Prentice-Hall.
- Arora, A., & Belenzon, S. (2023). The changing structure of American innovation. NBER Reporter, (1), 8-11.
- ARPA-H. (2024). Program and “What if...” poster series. <https://arpa-h.gov/news-and-events/posters>
- Balarezo, J. D., Foss, N. J., & Nielsen, B. B. (2023). Organizational learning: Understanding cognitive barriers and what organizations can do about them. *Management Learning*.
- Battistella, C. (2014). The organisation of Corporate Foresight: A multiple case study in the telecommunication industry. *Technological Forecasting and Social Change*, 87, 60-79.
- Bazerman, M., & Watkins, M. (2004). Predictable surprises: The disasters you should have seen coming and how to prevent them. Harvard Business School Press.
- Behar, A., & Hlatshwayo, S. (2021). How to implement strategic foresight (and why). International Monetary Fund.
- Bennett, N., & Lemoine, G. J. (2014). What a difference a word makes: Understanding threats to performance in a VUCA world. *Business Horizons*, 57(3), 311-317.
- Bloom, N., Van Reenen, J. (2010). Why do management practices differ across firms and countries?. *Journal of Economic Perspectives*, 24 (1), 203-24.
- Boardman (2021). Ennakointi päätöksentekoketjussa: Boardman-osaamisverkoston kootut näkemykset.
- Bryar, C., & Carr, B. (2021). Working backwards: Insights, stories, and secrets from inside Amazon. St. Martin's Press.
- Buder, F. (2021). The value of foresight in a VUCA world: Results from a survey of organizational foresight capacity.
- Carleton T. & Cockayne, W. (2023). Building moonshots: 50+ ways to turn radical ideas into reality. Wiley.
- Carleton, T., Cockayne, W., & Tahvanainen, A. (2013). Playbook for strategic foresight and innovation. Tekes.
- Day, G.S., & P.J.H. Schoemaker. (2004). Driving through the fog: Managing at the edge. *Long Range Planning*, 37(2). 127–142.
- Day, G. S., & Schoemaker, P. J. (2005). Scanning the periphery. *Harvard Business Review*, 83(11), 135.
- de Geus, A. P. (1997). The living company. Harvard Business School Press.
- Drucker, P. F. (1959). Long-range planning—challenge to management science. *Management Science*, 5(3), 238-249.
- The Economist. (2019, December 31). What sci-fi can tell us about the future. *The world in 2020*.
- Eller, E., Hofmann, R., & Schwarz, J. O. (2020). The customer foresight territory. *Marketing Review St. Gallen*, 37(3), 12-19.

- Halal, W.E., Garretson, J. & Davies, O. (2022). Updating strategy for a high-tech world: constant change from the bottom up and the outside in. *Foresight*, 24(1), 37-54.
- Halttunen, M., Lehenkari, J., & Seisto, A. (2023). Puurakentamisen edelläkävijät - kohti tulevaisuuskestää rakentamista. Policy brief.
- Heger, T. & Boman, M. (2015). Networked foresight -The case of EIT ICT Labs. *Technological Forecasting and Social Change*, 101, 147-164.
- Hijosa, C. (2021, September 1). The entrepreneurs. Monocle radio show. <https://monocle.com/radio/shows/the-entrepreneurs/516/play/>
- Hofmann, R. (2015). Visionary competence for long-term development of brands, products, and services: The trend receiver concept and its first applications at Audi. *Technological Forecasting and Social Change*, 101, 83-98.
- Hopp, C., Antons, D., Kaminski, J., & Salge, T. O. (2018). The topic landscape of disruption research – a call for consolidation, reconciliation, and generalization. *Journal of Product Innovation Management*, 35(3), 458-487.
- Huuhanmäki, J., Komonen, P., Kurki, S. (2022). The impact of foresight based on the company interviews. Presentation at STRA4 Research seminar 12th September 2022.
- Jordan, P., Mubin, O., Obaid, M., & Silva, P. A. (2018). Exploring the referral and usage of science fiction in HCI literature. In *Design, user experience, and usability: Designing interactions: 7th International Conference, DUXU 2018, Held as Part of HCI International 2018, Las Vegas, NV, USA, July 15-20, 2018, Proceedings, Part II* 7 (pp. 19-38). Springer International Publishing.
- Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.
- Klein, G. A. (1999). *Sources of power: How people make decisions*. MIT Press.
- Klein, M. (2023). The META trending trends: 2023. <https://zine.kleinkleinklein.com/p/meta-trends-2023>
- Komonen, P., & Jacobson, S. (2023). Citizens envisioning life in 2040: A qualitative corporate foresight study in London. *Futures & Foresight Science*, e175.
- Lawrence, M., Janzwood, S., & Homer-Dixon, T. (2022). What is a global polycrisis. Cascade Institute, Technical paper, 4.
- Liebl, F., & Schwarz, J. O. (2010). Normality of the future: Trend diagnosis for strategic foresight. *Futures*, 42(4), 313-327.
- Malmelin, N., Pihlajamaa, M., & Komonen, P. (2021). Building a future-proof company – Four cornerstones of transformative corporate foresight. *The European Business Review*. (March-April 2021).
- McAllister, I. (2013). What is Amazon's approach to product development and product management? Quora.com.
- MacKay, R. B., & McKiernan, P. (2004). The role of hindsight in foresight: refining strategic reasoning. *Futures*, 36(2), 161-179.
- Monteiro, B., & Dal Borgo, R. (2023). Supporting decision making with strategic foresight: An emerging framework for proactive and prospective governments. *OECD Working Papers on Public Governance* (No. 63). OECD Publishing.
- Munroe, R. (2014). *What if?: Serious scientific answers to absurd hypothetical questions*. Dey Street Books.

- Nuutinen, M. & Lappalainen, I. (2012). Towards service-oriented organisational culture in manufacturing companies. *International Journal of Quality and Service Sciences*, 4(2), 137–155.
- Rohrbeck, R. (2010). Corporate Foresight: Towards a maturity model for the future orientation of a firm. Physica-Verlag.
- Rohrbeck, R., & Gemünden, H. G. (2011). Corporate foresight: Its three roles in enhancing the innovation capacity of a firm. *Technological Forecasting and Social Change*, 78(2), 231-243.
- Rohrbeck, R., & Kum, M.E. (2018). Corporate foresight and its impact on firm performance: A longitudinal analysis. *Technological Forecasting and Social Change*, (129), 105-116.
- Ruff, F. (2015). The advanced role of corporate foresight in innovation and strategic management – Reflections on practical experiences from the automotive industry. *Technological Forecasting and Social Change*, 101, 37-48.
- Sardar, Z. (2010). Welcome to postnormal times. *Futures*, 42(5), 435-444.
- Sardar, Z., & Sweeney, J. A. (2016). The three tomorrows of postnormal times. *Futures*, 75, 1-13.
- Schein, E. H. (1985). *Organizational culture and leadership: A dynamic view*. Jossey-Bass.
- Schwarz, J. O. (2023). *Strategic foresight: An introductory guide to practice*. Routledge.
- Seidl, D., & Van Aaken, D. (2009). Anticipating critique and occasional reason: Modes of reasoning in the face of a radically open future. In *Handbook of research on strategy and foresight*. Edward Elgar Publishing.
- Valkokari, K., Paasi, J., Apilo, T. & Nuutinen, M. (2023). Building a variety of futures through networked foresight. in ISPI Connects Salzburg – The Sound of Innovation. In *ISPI Connects Salzburg: Sound of Innovation*. Lappeenranta University of Technology
- Van der Duin, P., Heger, T. & Schlesinger, M.D. (2014). Toward networked foresight? Exploring the use of futures research in innovation networks. *Futures*, 59, 62-78.
- Van der Steen, M., & Van der Duin, P. (2012). Learning ahead of time: how evaluation of foresight may add to increased trust, organizational learning and future oriented policy and strategy. *Futures*, 44 (5), 487-493.
- Vecchiato, R. (2012). Environmental uncertainty, foresight and strategic decision making: An integrated study. *Technological Forecasting and Social Change*, 79(3), 436-447.
- Voros, J. (2003) A generic foresight process framework. *Foresight*, 5, (3), 10-21.
- Voros, J. (2017). Big history and anticipation: Using big history as a framework for global foresight. *Handbook of anticipation: Theoretical and applied aspects of the use of future in decision making*, 1-40.
- Webb, A. (2017). The flare and focus of successful futurists. *MIT Sloan Management Review*.

Glossary

BANI defines the operating environment as brittle, anxious, non-linear and incomprehensible.

Consumer futures cone is a multi-level approach for understanding changes in consumption.

Corporate foresight is a company's systematic process for anticipating and preparing for future market and industry changes, enabling firms to detect change drivers, interpret their consequences and inform and ignite future-oriented actions.

Customer foresight is the proactive identification and anticipation of future customer needs, preferences, and trends to drive innovation.

Desirable future is a future state aligning with societal, organizational or business values, goals, and aspirations, promoting overall well-being or success.

Disruptive innovation: An innovation that challenges established incumbent businesses.

Ethnography is a qualitative research method for an in-depth study of people and cultures.

Foresight is the systematic exploration and anticipation of future possibilities to inform present decisions and strategic planning.

Future customer is an individual or a customer segment whose emerging needs and preferences will shape market trends and demands.

Futures studies is the interdisciplinary exploration of potential futures to inform strategic decision-making and policy development.

Future radar is a tool for detecting, aggregating and concisely visualizing early signals of emerging trends, opportunities, and threats.

Futures: One of the foundational principles of futures studies is that futures are multiple.

Futures literacy is a dynamic capability of an organisation that relies on organisation-wide anticipatory capabilities and participation.

Fuzzy front end describes the often ambiguous and uncertain starting point of the innovation process, in which opportunities are identified and concepts are developed.

Hard sci-fi is a subgenre of science fiction grounded in scientific accuracy and technical fact.

Megatrend: A broad change trajectory on a global scale. Moonshots are big ideas that aim for big impact.

Multi-Level Perspective (MLP) model analyzes socio-technical transitions across niche innovations, socio-technical regimes, and socio-technical landscapes.

Networked foresight describes practices in collaborative future-oriented thinking involving diverse stakeholders to enhance strategic planning and innovation.

Organisational culture emerges as groups navigate external pressures and internal dynamics. Some cultural norms operate at a subconscious level based on past lessons. While culture evolves, it often remains resistant to external influence.



PESTEL/PESTLE is a framework for identifying political, ecological, social, technological, economic, and legal change factors.

Plausible future is a potential future scenario that is credible and logically consistent – but not necessarily the most probable - based on current trends and knowledge.

Polycrisis: A complex global situation where multiple systems are interconnected in a way that threatens our prospects.

Postnormality: A situation characterized by high levels of complexity, uncertainty, chaos, and contradictions.

Radical innovation brings about transformative changes in how businesses operate and redefines industries.

Scenario method is a strategic tool for creating diverse, plausible future narratives to guide decision-making.

Sensemaking is the process of interpreting and understanding complex information to inform strategic decisions and actions.

Strategic foresight is the application of a systematic approach to anticipating future trends to inform and guide long-term strategic planning.

Vision: A desired future goal that requires action to become a reality.

VUCA is a definition for the operating environments, meaning volatile, uncertain, complex and ambiguous.

Weak signal is an early, subtle indicator of emerging trends or changes that may signal future developments.

What if? prompts are a classic foresight technique that starts an imaginative exercise by asking “what if?”.

Wild card: An unpredictable and rare event that has significant consequences and occur suddenly and unexpectedly.

Writers



Dr. Tiina Apilo is a Senior Scientist on the VTT's Corporate Foresight and Strategy research team. Her areas of interest include corporate foresight, innovation ecosystems, and leveraging new technologies for business opportunities.

Dr. Tamara Carleton is an award-winning professor, industry advisor, and author of radical innovation and strategic foresight. She is the CEO of Innovation Leadership Group and UNESCO Chair in Anticipatory Leadership for Innovative and Better Futures.

Dr. William Cockayne is a techno-optimistic leader with a passion for transforming science fiction into reality. For twenty years, he taught students at Stanford University how teams imagine, invent, and ship the future.

Matthias Deschryvere is an innovation economist and Senior Scientist at VTT analysing the role of innovation activities and technologies for the competitiveness of firms. He is interested in the past and future.

Dr. Maarit Halittunen is a Senior Scientist in the VTT Future Customer research team. Her research interests include customer and user experience, corporate foresight and organisational development and renewal.

Juuli Huuhanmäki is a Research Scientist at Corporate Foresight and Strategy team at VTT. Her interest and research focus on foresight and sustainable business development.

Dr. Kirsi Hyttinen is the Research Team Leader of VTT's Future-proof societies. She supports decision-makers to have concrete means to understand the future needs, design proactive policies and to lead impacts in the fields of innovation and sustainable society.

Dr. Kalle Kantola works as the Vice President of VTT's Foresight and Data Economy research area. He has created his career in business - technology interface and has a wide experience of business development in various industries.

Pauli Komonen is a Senior Scientist on VTT's Corporate Foresight & Strategy team. He specialises in various areas of corporate foresight, including radar methodologies, consumer foresight, and trend analysis.

Dr. Sofi Kurki is a Senior Scientist on the VTT's Corporate Foresight and Strategy research team. She is focused on understanding how foresight can be developed as a systemic competence of an organisation.

Dr. Maaria Nuutinen is a psychologist and Senior Principal Scientist at the Corporate Foresight and Strategy team at VTT. Her areas of interest include innovation practices, foresight, social sustainability, and business transformation.

Dr. Jaakko Paasi is a Principal Scientist at VTT's Corporate Foresight & Strategy research team. His interests focus on business – technology interface, especially on radical innovations developed and commercialized in ecosystems.

Dr. Matti Pihlajamaa is a Senior Scientist at VTT. He combines approaches from business management and policy studies to craft pathways to a more sustainable economy and society.

Jyri Rökmänen is a Research Scientist on VTT's Corporate Foresight & Strategy team. He is interested in applying foresight and strategy approaches to concrete business challenges.

Dr. Anu Seisto is the Research Team Leader of VTT's Future customer research. Her research focuses on the combination of foresight and human-centric approaches especially in the field of sustainability transition.

Professor Arho Suominen is a Research Professor on Strategic Foresight at VTT. His interest focuses on technological emergence, foresight and the intersection of strategy and future's knowledge

Dr. Antti-Jussi Tahvanainen is the Research Team Leader of VTT's Corporate Foresight & Strategy team. Trained as an applied economist, his professional enthusiasm is rooted in strategic foresight, industrial and RDI policy, industrial renewal and global business ecosystems.

Dr. Katri Valkokari works as a Research Manager in the Foresight and Data Economy research area at VTT. Her areas of interest are interorganizational collaboration in innovation, foresight, and business development.

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