STRATEGIC FORESIGHT FOR COMPANIES

Hugh Grove *, Maclyn Clouse **, Tracy Xu **

* Corresponding author, Daniels College of Business, University of Denver, Denver, USA
Contact details: Daniels College of Business, University of Denver, 2101 S. University Blvd., Denver, CO 80210, USA
** Reiman School of Finance, University of Denver, Denver, USA

Abstract
This paper addresses the critical importance of strategic foresight and offers guidance on how to evaluate its implementation. Strategic foresight is defined by three types of thinking (future, system, and exponential), and the key elements of horizon scanning and scenario planning. As chief executive officers (CEOs) express concerns about their companies' future viability and adaptability to industry changes, strategic foresight emerges as a vital capability. Its structured yet open approach enables the identification and exploration of emerging challenges and opportunities, informing decision-making in uncertain contexts. Effective implementation of strategic foresight entails adopting forward-thinking, horizon scanning, and scenario planning. Scenario planning explores potential futures, while horizon scanning assesses megatrends, weak signals, wild cards, and uncertainties. This paper extends the literature and provides fresh perspectives on how companies can use strategic foresight to identify and address the challenges and opportunities posed by generative artificial intelligence (AI). In particular, the paper emphasizes the ethical dimensions of foresight in the AI context. Drawing insight from the Global Summit on Generative AI (held in San Francisco in April 2023) this paper presents a set of ethical recommendations for effectively navigating AI complexities, including strategies such as red teaming, watermarking, and sandboxing (Li et al., 2023). By cultivating foresight, companies can address emerging trends, navigate uncertainties, mitigate risks, engage their workforce, seek new opportunities, and foster sustainable growth. Hence, it is crucial for the board of directors (BoD) and management to recognize the strategic importance of foresight within the organization and across business sectors.

Keywords: Strategic Foresight, Artificial Intelligence, Red Teaming, Watermarking, Sandboxing

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1. INTRODUCTION

“The future ain't what it used to be.” — Yogi Berra, 1974
“If you fail to plan, you plan to fail”. — Benjamin Franklin, 1790

In a speech at Georgetown University, Washington, DC, on October 6, 2022, Kristalina Georgieva, the managing director of the International Monetary Fund, points out that “we are moving from a world of relative predictability to a world with more fragility, greater uncertainty, higher economic volatility, geopolitical confrontations, and more frequent and devastating natural disasters — a world in which any country (or company) can be thrown off course more easily and more often” (Georgieva, 2022).

Arie de Geus (1990), a retired head of Royal Dutch Shell’s Strategic Planning Group, emphasizes that “managing internal change by foresight, rather than by crisis, is only possible if the change in the environment is seen on time. The ability to learn faster than your competitors may be the only sustainable competitive advantage”.

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While crises like COVID-19, climate changes, and energy shortages require quick response and action, they cannot solely be approached through crisis management. They should be seen as symptoms of deeper shifts and transformations. According to PricewaterhouseCoopers’ (PwC’s) 26th Annual Global CEO Survey (PwC, 2023) and research by the World Economic Forum (Woeflfray & Carvalho, 2023), nearly 40% of chief executive officers (CEOs) do not think their companies will be economically viable in the next decade if they continue on their current path and do not transform. In addition, a staggering 75% of organizations are not prepared for the pace of change within and around their industries, such as renewable energy for the oil and gas industry. These findings should be a wake-up call pushing companies to rethink how they operate, reimagining how they create, distribute, and capture value, not only to survive and thrive but also to address the transformational challenges of the coming decades (Woeflfray & Carvalho, 2023).

However, despite the urgency of the situation, strategic foresight remains an underexplored area in the corporate governance landscape. There is limited research on how to effectively implement strategic foresight in a corporate setting. This paper attempts to fill in the gap by asking the following research question:

**RQ:** How can companies effectively implement and evaluate strategic foresight to identify and navigate emerging challenges and opportunities, with a particular focus on those posed by generative artificial intelligence (AI)?

The wisdom of Yogi Berra, Benjamin Franklin, Kristalina Georgieva, and Arie de Geus resonates in a world characterized by constant change and uncertainty. As the companies face disruptions and crises, it is crucial for the boards of directors (BoD) and management teams to adopt a proactive and strategic approach, acknowledging that the future will not be what it once was. By embracing strategic foresight, adaptability, and transformative thinking, companies can position themselves not only to survive but also to thrive in the decades to come.

The structure of this paper is as follows: Section 2 presents the strategic foresight and literature review; Section 3 outlines horizon scanning for strategic foresight; Section 4 presents foresight for global industrialization; Section 5 presents foresight for using generative AI for human capital development; Section 6 discusses the results considering the research questions and objectives of the study and concludes the paper.

## 2. LITERATURE REVIEW: STRATEGIC FORESIGHT

Foresight is a key strategic capability. It encompasses a range of approaches that help explore, imagine, and anticipate the future in an open yet structured manner (Haarhaus & Linning, 2020; Hamel et al., 2022; Héry & Malenfer, 2020; Nascimento et al., 2021; Rohrbeck & Gemünden, 2011; Scoblic, 2020; Devesa et al., 2021; Volkova & Dominicée-Diasa, 2019). It can help identify and explore challenges and opportunities emerging from multiple signals and drivers of change shaping the future. It can inform decisions and act as a trigger for developing strategic options in a context full of unknowns. By leveraging foresight, companies can better navigate the complexities of the future. Despite its importance, strategic foresight remains an underexplored area in the corporate governance literature (Bootz & Djuricic, 2019; Csedő et al., 2022; Fergnani, 2022; Gordon et al., 2020; Pulsiri & Vatananan-Thesenvitz, 2021; Surinyakietkaew & Petison, 2020). A systematic review conducted by Sharma et al. (2020) focuses on the role of AI in governance, identifying the need for a comprehensive understanding of AI-based applications and the challenges associated with them. In a retrospective analysis, Albahsh and Al-Anaswas (2023) investigate corporate governance in terms of responsibility, transparency, disclosure practices, and risk management to enhance accountability. However, there is no mention of strategic foresight or any other planning. This paper aims to address this gap by examining the crucial role of strategic foresight and its implementation.

Three types of thinking are needed for better foresight (Woeflfray & Carvalho, 2023):

1. **Future thinking:** the ability to embrace uncertainty and to explore, think about, and perceive alternative futures.
2. **System thinking:** the ability to explore the bigger picture, to analyze factors and interactions that could contribute to a possible outcome.
3. **Exponential thinking:** the ability to fully comprehend that something very marginal and/or small today could become very prominent and impactful very quickly.

Fundamental underpinnings of foresight include: 1) the recognition and acceptance that the future is a space of possibilities that cannot be predicted; 2) the need to focus on the long-term; 3) embracing peripheral and systemic views; 4) looking above and beyond; and 5) the inclusion of a multiplicity of perspectives to overcome potential individual and group biases. Two of the most well-known and powerful methods used in strategic foresight are horizon scanning and scenario planning.

Key elements that can be identified through horizon scanning include the following five items (Woeflfray & Carvalho, 2023):

1. **Megatrends:** they drive paradigm shift. While they often take time to form, they have strong, deep, and long-lasting impact, e.g., climate change, urbanization.
2. **Trends:** the gradual and long-term shift in the forces shaping the future of a nation, region, industry, or society, e.g., decentralization of energy grids, increasing use of bio-interfaces, geopolitical fragmentation.
3. **Weak signals:** the first symptoms of change that may become significant in the future. While difficult to see now, they will have a big impact, e.g., ice-free arctic oceans.
4. **Wildcards:** the discontinuities and sudden events with a low probability of occurrence, high impact, and unexpected character, e.g., 9/11, COVID-19.
5. **Uncertainties:** a critical driving force that points or could lead to alternative and contrasting evolutions or implications, e.g., the long-term impact of ChatGPT.

Ageas Group, a Belgian insurance company, recently developed a **Think2030 Horizon Scan**
project as a response to the significant changes occurring in a wide range of domains (Woeffray & Carvalho, 2023): 1. **No-brainers:** short-term impactful trends that should be embedded in the current business plans. 2. **Speed-ups:** trends evolving faster than thought, which may demand immediate action. 3. **Observatory:** trends with considerable impact, but only to materialize mid/long term.

4. **Parking:** trends with very low impact on the insurance industry.

A recent example of both the no-brainers and speed-ups trends in the insurance industry was the decision by the two largest homeowner policy providers in California, State Farm, and Allstate, to discontinue offering any new homeowner insurance policies there. Climate change with recurring wildfires was a prominent factor in those decisions.

The second most well-known and powerful method used in strategic foresight is scenario planning. Scenarios are simulations of possible futures but are not predictions. They often articulate horizon-scanning trends, megatrends, weak signals, wildcards, and uncertainties in stories about the future. Scenario planning helps protect companies in an unpredictable future environment, serving as lighthouses into the future, and helping educate stakeholders on potential changes and their implications.

Royal Dutch Shell has been a pioneer in corporate foresight, having developed scenarios for more than five decades to guide the generations of Shell executives in exploring possible futures. In its scenario work, Shell asks “What if?”, considering developments that may be only remote possibilities to push its thinking. Shell goes way beyond traditional energy outlooks and tends to include a broader set of drivers, looking at trends in the economy, politics, and the broader society.

There are two critical elements to building strategic foresight successfully in companies. First, it needs to be championed by the top leadership and decision-makers. Top management support means fostering a culture of democratized foresight throughout the organization, with an engaged workforce. Companies need this not only to survive and thrive but to address the transformational challenges of the coming decades. It is not just about the future. It is also about helping companies do what they can and should do here and now (Woeffray & Carvalho, 2023).

To successfully cultivate strategic foresight within companies, it is essential to have strong support from top leadership and decision-makers. Fostering a culture of democratized foresight throughout the organization involves navigating the uncertainties and challenges in the modern era (Arokodare & Asikia, 2020; Hamel et al., 2022; Scoblic, 2020; Devesa et al., 2021; Volkova & Domineice-Diasa, 2019).

### 3. HORIZON SCANNING FOR STRATEGIC FORESIGHT

A key element in horizon scanning for strategic foresight lies in the identification and analysis of uncertainties. It is a critical driving force that points or could lead to alternative and contrasting evolutions or implications, e.g., the long-term impact of ChatGPT, Bing Chat, and Bard. A survey conducted by consulting firm Oliver Wyman (as cited in Sorkin, 2023), in May 2023 encompassing 4,491 white-collar workers across eight industries, revealed that 39% of those who use generative AI tools said they had done so without their employer’s knowledge in the last three months. While the white-collar industry average was 39%, the four highest industries were all just over 40% in order of magnitude: education, retail, media & telecom, and government & administration. The lowest four were just under 40% in order of magnitude: manufacturing, energy, financial services, and technology. There are uncertainties and risks if workers use these tools without training, such as sharing private company data or not understanding that AI tools can produce inaccurate work. For example, a lawyer recently cited made-up court cases in a legal brief (Sorkin, 2023).

However, there is also AI potential. In a June 2023 report by McKinsey, it was estimated that generative AI could add $2.6 trillion to $4.4 trillion to the global economy (Chui et al., 2023). This research looked at 63 use cases for generative AI across 850 occupations, finding that 60% to 70% of all work tasks could be automated by currently available technology. Ana Krecic, the Chief Knowledge Officer of Oliver Wyman Group think tank, said: “Employee interest, especially amongst the younger generations, is likely ahead of many of their managers. Some organizations are leading, and some are catching up, but it takes time for best practices to evolve across different industries” (Sorkin, 2023).

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Generative AI is a type of artificial intelligence system capable of generating text, images, or other media in response to prompts. Generative AI models learn the patterns and structure of their input training data and then generate new data that has similar characteristics. It has the potential to transform industries and society, but responsible design and collaboration among stakeholders are critical. The World Economic Forum sponsored an April 2023 conference, “Responsible AI Leadership: A Global Summit on Generative AI,” to guide experts and policymakers in developing and governing generative AI systems responsibly. Over 100 thought leaders and practitioners participated and created 30 recommendations in the three categories of Responsible development, Open innovation, and Social progress. These 30 action-oriented recommendations aimed to navigate AI complexities and harness its potential ethically. By implementing them, a more innovative, equitable, and prosperous future can be shaped while mitigating associated risks (Li et al., 2023).

These 30 recommendations are intended for a broad spectrum of stakeholders, ranging from AI developers to policymakers and users. The objective is to foster accountable and inclusive processes for AI development and deployment, thereby enhancing trust and transparency as generative AI systems continue to proliferate. Three categories are used for these 30 recommendations (Li et al., 2023):

I. Responsible development and release of generative AI
1. Establish precise and shared terminology.
2. Build public awareness of AI capabilities and their limitations.
3. Focus on human values and preferences.
4. Encourage alignment and participation.
5. Uphold AI accountability with rigorous benchmarking and use case-specific testing while exploring new metrics and standards.
6. Employ diverse red teams.
7. Adopt transparent release strategies.
8. Enable user feedback.
9. Embed model and system traceability.
10. Ensure content traceability.
14. Develop comprehensive, multi-level measurement frameworks.
15. Adopt sandbox processes.
16. Adapt to evolving landscape of creativity and intellectual property.

II. Open innovation and international collaboration
17. Incentivize public-private research coordination.

19. Support responsible open innovation and knowledge sharing.
20. Enhance international collaboration on AI standards.
21. Establish a global AI governance initiative.

III. Social progress
22. Prioritize social progress in generative AI development and adoption.
23. Drive AI literacy across society.
24. Foster holistic thought approaches in AI-driven environments.
25. Steer generative AI’s transformative impact.
26. Incentivize innovation for social good.
27. Address resource and infrastructure disparities.
28. Promote generative AI expertise within governments.
29. Increase equitable access to AI in developing countries.
30. Preserve cultural heritage.

4. FORESIGHT FOR GLOBAL INDUSTRIAL STRATEGIES

Foresight plays a crucial role in the development of future global industrial strategies. Recent years have been very challenging with COVID-19, climate change, wars, hunger, and a global energy crisis. These challenges are all symptoms of long-term, underlying megatrends which constitute a key element and strategy of horizon scanning. To foster sustainable economic growth, there are five main future industrial strategies (Muller, 2023):

1. Building resilience and sustainability into industrial supply chains. Recent crises have highlighted the need to balance efficiency with some degree of local or regional flexibility. Countries and companies need to build and support domestic production and service capacities. Fairness, resilience, and sustainability throughout entire supply chains are needed.
2. Enabling technology adoption, transfer, and diffusion. The world is in the midst of the Fourth Industrial Revolution. Advanced technologies are completely changing how goods are manufactured, how services are provided, how people work, and even how people consume products. Real-time monitoring, connected devices, and machine learning are turning the factory floor and service operations into self-optimizing systems, continuously improving efficiency and productivity. The successful adoption of advanced technologies will depend on the development of capabilities and supporting infrastructure. Future industrial strategies should foster innovative industrial environments.
3. Creating the workforce of the future. Technological advances will not replace human skills, but they will change the mix of skills required by manufacturers and service providers. Insufficient skills development is cited as one of the biggest obstacles to firm performance across multiple industries and company sizes. Solutions include improving links between employers and training providers, expanding on-the-job training, and broadening the demographic base of the workforce. Human capital continues to underpin industrial
productivity, which can be a source of well-paid, rewarding work.

4. **Expediting decarbonization and advancing climate action**. Resilience depends on environmental sustainability and avoiding the worst impacts of climate change. A green industrial strategy is critical in addressing climate change by decoupling economic growth from carbon-intensive activities. There are international initiatives to hasten the shift away from fossil fuels in manufacturing by reducing energy waste and switching to greener fuels and promoting markets for low-carbon industrial products, such as green steel and cement.

5. **Integrating sustainability as a core business goal**. Businesses should think beyond shareholders and consider the needs of all stakeholders, including local communities, customers, workers, and future generations. A range of improvements to current practices is needed. These include the use of technology to boost worker safety and well-being, as well as exploring new forms of business ownership and governance. Governments also have a role to play in ensuring that industrial policy incentivizes responsible practices in sourcing, production, service provision, and waste management.

It should be a fiduciary duty of the BoD, as well as management, to ask questions about the company’s strategic foresight. One example concerns the foresight of this fourth global industrial strategy for sustainable economic growth, concerning advancing climate action. Liv Watson, the former chair of the Formats Working Group of the European Financial Reporting Advisory Group’s (EFRAG) Project Task Force on Corporate Standards Reporting Directive (PTF-CSRD), has listed five questions that management and BoD should ask about climate risk. These questions should motivate a company to advance climate action: "Are your own or your suppliers' physical locations going to flood in the future? Are you in a place where there’s been drought and water running out? Are you living in a place where the raw materials can’t supply your business's needs anymore? To what extent can ecosystems and natural resources sustain the economic development and profitability that you’re expecting on your balance sheet? Are there political issues or geopolitical conflicts that could disrupt your long-term strategic plans or operations?“ (Butcher, 2023).

### 5. FORESIGHT FOR USING GENERATIVE AI FOR HUMAN CAPITAL DEVELOPMENT

This foresight elaborates the third global industrial strategy of creating the workforce of the future. Generative AI is being used to develop the key human capital skills of problem-solving, self-management, working with people, and technology use and development. Generative AI can continue to help develop the forecasted top ten skills of 2025 (Muller, 2023):

1. Analytical thinking and innovation.
2. Active learning and learning strategies.
3. Complex problem solving.
4. Critical thinking and analysis.
5. Creativity, originality, and initiative.
7. Technology use, monitoring, and control.
8. Technology design and programming.

### 6. CONCLUSION

Strategic foresight is a critical tool for companies to proactively identify emerging trends and potential risks, develop plans to mitigate the threats and capitalize on the opportunities, and ultimately enhance their long-term success. It can help BoD and management teams make better decisions about the future of the company. However, there are a number of research gaps in the literature on the role of strategic foresight in corporate governance.

First, while there is ample theoretical literature discussing the importance of strategic foresight, there is a dearth of empirical studies that delve into how BoD and top-level management teams actually integrate foresight into their decision-making processes. There is limited research on the specific mechanisms and organizational structures required for effective foresight adoption.

Second, there is a lack of research on the assessment of the long-term impact of strategic foresight on corporate performance and sustainability. Researchers should explore the correlation between the depth of foresight integration and financial performance, risk mitigation, and overall resilience. Conducting longitudinal studies to monitor the performance of companies over extended periods would be valuable.

Third, the ethical dimensions of strategic foresight within corporate governance warrant further investigation. The role of foresight in navigating ethical dilemmas, especially in contexts involving advanced technologies like AI, remains understudied. Examining the alignment of foresight practices with corporate social responsibility and ethical frameworks can provide valuable insights into how companies can navigate the complex ethical challenges of the modern business landscape.

Addressing these gaps will contribute to a more comprehensive understanding of how strategic foresight can be effectively leveraged within corporate governance structures.

This study underscores the critical importance of strategic foresight in the corporate landscape and invites a thoughtful reflection on how companies are positioning themselves for future preparedness. Strategic foresight involves a multifaceted approach encompassing exploration, orientation, innovation, visioning, and strategy. It hinges on two pivotal elements: unwavering support from top management and the decentralization of foresight practices across the organization, transforming foresight into a company-wide skill, capability, or even a cultural imperative.

Strategic foresight is needed now since almost 40% of CEOs do not think their companies will be economically viable a decade from now if they continue their current path without transformation. Strategic foresight is also needed since about 75% of organizations are not prepared for the pace of change within and around their industry, such as the development of renewable energy for the oil and gas industry. Such data should help push companies to use strategic foresight in reassessing how they operate, reimagining how they create, distribute, and
capture value. By doing so, companies can not only survive and thrive but also effectively address upcoming transformational challenges (Gordon et al., 2020).

To assess whether your company is implementing strategic foresight, answer the following questions and be ready to address any areas where the answer is “No” to improve strategic foresight in your company: Does your company apply the future, system, and exponential thinking? Does your company use the two most well-known and powerful strategic foresight methods of horizon scanning and scenario planning?

Horizon scanning is a cornerstone of strategic foresight. Does your company assess megatrends, other trends, weak signals, wild cards, and uncertainties? Does your company identify and categorize these four major types of trends: no-brainers, speedups, observatory, and parking? The goal is to ensure comprehensive awareness of the forces that may shape the future and make informed decisions accordingly. Concerning scenario planning, Royal Dutch Shell has been a pioneer in corporate foresight, which has been developing scenarios for more than five decades to explore potential futures. Does your company follow the Shell approach of asking “What if?”, considering developments that may be only remote possibilities? Does your company go beyond traditional energy outlooks and encompass a broader set of drivers, looking at trends in the economy, politics, and the broader society, as Shell does?

Concerning strategic foresight, does your company build future preparedness through these items: exploration, orientation, innovation, visioning, and strategy? Does your company have the two critical elements to build strategic foresight successfully within the organization: strong support from top management and leadership, as well as the decentralization of democratizing foresight across staff? Is there strategic foresight being practiced both centrally and decentralized, and being approached as an organization-wide skill, capability, or even culture?

A key element in horizon scanning for strategic foresight is assessing uncertainties which is a critical driving force that could lead to alternative and contracting evolutions or implications, e.g., the long-term impact of generative AI using ChatGPT, Bing Chat, and Bard. The Global Summit on Generative AI has produced 30 action-oriented recommendations aimed at navigating AI complexities and harming its potential ethically. These recommendations are intended for a broad spectrum of stakeholders, ranging from AI developers to policymakers and various users. They are grouped into three major categories: 1) reasonable development and release of generative AI, 2) open innovation and international collaboration, and 3) social progress. Does your company employ any/many/all of these 30 recommendations? Does your company even know the strategies such as red teaming, watermarking, and sandboxing for generative AI?

Foresight is essential for developing global industrial strategies. Strategic foresight includes the key element of horizon scanning to identify underlying megatrends. Recent megatrends include climate change, wars, hunger, and a global energy crisis. These long-term challenges need to be considered in trying to achieve sustainable economic growth. Does your company consider these major future industrial strategies: building resilience and sustainability into supply chains; enabling technology adoption, transfer, and diffusion; creating the workforce of the future; expediting decarbonization and advancing climate action; and integrating sustainability as a core business goal? Concerning the workforce, generative AI is helping to develop human capital skills of problem-solving, self-management, working with people, and technology use and development by focusing on ten forecasted, key skills. Does your company use generative AI to enhance its human capital?

How did you answer all these questions? Is your company engaging in any strategic foresight initiatives? Will your company start or continue to develop strategic foresight? Alternatively, does your company just focus on short-term profits for shareholders and increasing value for executive stock options?

Strategic foresight serves as a paramount tool in navigating the complex and uncertain landscape of the future. It is crucial for the BoD and management to recognize the strategic imperative of building foresight within the organization and across various business sectors. By cultivating foresight, companies can effectively anticipate and address emerging trends, navigate uncertainties, adapt to evolving market dynamics, identify and mitigate potential risks, cultivate an engaged workforce, capitalize on new opportunities, and foster sustainable growth. This strategic capability is vital not only for survival and success in the coming decades but also for effectively addressing the transformational challenges that lie ahead.

Our paper is limited to a fundamental analysis of the implementation of strategic foresight in a corporate setting. Future research could empirically investigate the impact of strategic foresight on company performance. Additionally, conducting case studies to examine and extract best practices for effectively implementing strategic foresight, particularly in the context of navigating emerging challenges and opportunities, would be a valuable direction for further exploration.

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