

A structured literature review of sustainability-focused strategic foresight research

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Abstract

This review examines the development of the agenda on sustainability-focused strategic foresight research since the introduction of the Sustainable Development Goals in 2015. Progress toward achieving the United Nations 2030 Agenda remains off track, underscoring the need for innovative, lateral, and pluralistic approaches to navigate growing global uncertainty. Strategic foresight is conceptualised as an instrumental approach in the global sustainability agenda by the United Nations, governments, organisations and scholars. The existing knowledge infrastructure was analysed in line with an established sustainable development framing architecture. Nine emerging research themes were identified, of which five are classified as key themes aligned with sustainability goals, namely, enhanced innovation, organisational capabilities, sustainability of natural resources, social cohesion and policy development. Four themes support the enabling environments, as capabilities and tools. These are individual cognition, methodological advancements, dynamic capabilities and digital tools. Significant observations are the disproportionate scholarly focus on goals and the consequent prominence of innovation and organisational research. Further, the low emphasis on societal benefit is pronounced and the inequitable geographical concentration is void of developing economies. This literature landscape review provides several opportunities and implications for future research.

Keywords

Strategic foresight, Sustainable development

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Philosophy [Evidence Based management] at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

30 June 2025

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List of abbreviations

SDG – Sustainable Development Goal

UN – United Nations

SLR – Structured Literature Review

GC – Grand Challenges

US – United States

BMI – Business Model Innovation

CSF – Collaborative Strategic Foresight

NPD – New Product Development

ICT – Information Communication Technology

SME – Small to Medium Enterprise

AI – Artificial Intelligence

NRM – Natural Resource Management

EU – European Union

STI – Science Technology Innovation

BRICS – Brazil Russia India China South Africa

1. Introduction

This review integrates theoretical and empirical insights into strategic foresight from the existing knowledge infrastructure, offering guidance to management scholars conducting research that advances sustainable development. In Richard Slaughter's foundational 1997 article, which defines strategic foresight, he discusses the need for strategic foresight as a means of escaping the industrial ideology and Western worldview culture trap, enabling organisations to see the bigger picture concerning human purpose, cultural evolution, and sustainability (Slaughter, 1997). This culture trap is described as the pursuit of economic growth, where human needs are commodified, natural resources are depleted, and trade practices are exploited, leading to a world that is impoverished, polluted, bereft of life, and overwhelmed by technology (Slaughter, 1997). Employing strategic foresight enables a more collaborative approach to the humanitarian, development, and peace nexus (Balthasar, 2024). Within the context of strategic foresight 'need' in sustainability transitions as initially articulated by Slaughter (1997), the intersection with sustainable development fosters an engaging scholarly discussion because strategic foresight can harness transformation and unlock development potential (Balthasar, 2024).

The new world order is increasingly unfamiliar, marked by unknown long-term trends in climate change, global population growth, and unsustainable consumption patterns, referred to as global wicked problems that require lateral thinking introduced by strategic foresight, and not linear solutions (Burrows & Gnad, 2018). The nature of these wicked problems broadens the application of strategic foresight to developing economies (Balthasar, 2024; Mubarak et al., 2025). The world is not on track to achieve the 2030 Sustainable Development Goals (SDG) (United Nations, 2023). Central to achieving the sustainable development agenda is strategic foresight, identified by the United Nations (UN) as part of a quintet of modern skills required (United Nations, 2023). The brief describes fostering strategic foresight as nurturing mindsets through structured methods such as horizon scanning, trend analysis, and scenario development, to imagine desired futures so that better choices can be made today in the face of uncertainty tomorrow (United Nations, 2023).

The time is opportune for a structured literature review (SLR) of this nature because sustainability-focused research is a topical academic and socially imperative conversation that calls for the integration with strategic foresight methodologies (Balthasar, 2024; Sokolov et al., 2019; United Nations, 2023). Against the backdrop of the Agenda for Sustainable Development being adopted in 2015 (United Nations, 2024), the last decade represents a rich and insightful knowledge infrastructure to integrate. The existing literature on strategic

foresight is diverse and intricate due to differing terminology, implications, and varied theoretical frameworks (Haarhaus & Lienen, 2020; Iden et al., 2017). A review of articles from 2000 to 2014, described strategic foresight as a new concept that has seen growth but lacked theoretical progress (Iden et al., 2017). In a recent compelling observation, literature acknowledges the need for superior foresight, but there is a lack of theoretical and empirical accounts of such (Kapoor & Wilde, 2023). Further, reviews in strategic foresight are limited last published in 2017 (Iden et al., 2017). The above arguments support the need for a sustainability-focused SLR on strategic foresight. Further, my review addresses van der Laan's (2021) call for a systematic literature review to define and measure strategic foresight, which I undertake from a sustainable development perspective. The concept diagram is shown in Figure 1, where the construct is strategic foresight and the framing, sustainable development. My review focuses on understanding how the agenda on sustainability-focused strategic foresight research has developed since the introduction of the SDGs in 2015.

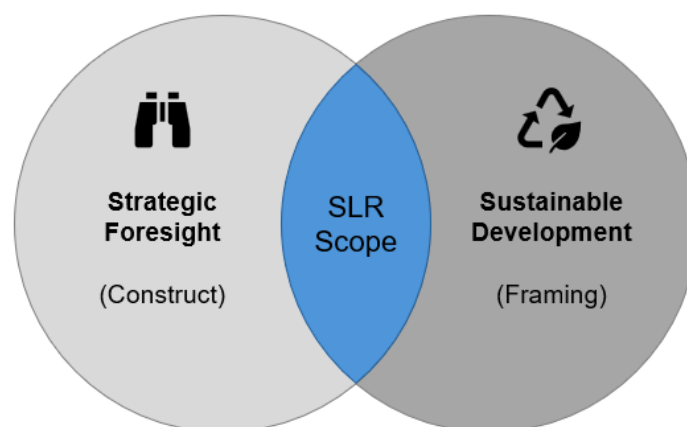


Figure 1: Concept diagram for the SLR

1.1 Conceptualising and defining strategic foresight

Strategic foresight is described as an emerging or nascent field that lacks a coherent theoretical foundation, however, the conceptual proximity of foresight to strategy is acknowledged (Andresen et al., 2022; Iden et al., 2017; Rohrbeck et al., 2015). Rohrbeck et al. (2015) state that the field of futures research has evolved separately from general management discussions, which is unfortunate because opportunities to advance research are lost. Foresight scholars are showing a decreasing tendency to use the theoretical basis of established research streams, and management scholars are losing the opportunity to use empirical insights that emanate from foresight research (Rohrbeck et al., 2015). The observed separation of fields is echoed by van der Laan (2021) stating that strategy and foresight are

two separate concepts, each with its own processes, aims, and assumptions, but seeking to understand how they interact, which is best explained through a basic account of the evolution of strategic foresight.

Foresight studies and practices emerged in the 1950s, through the evolution and adaptation of various methodologies, most commonly scenario analysis (Rohrbeck et al., 2015). Accelerated competition in the 1980s required organisations to foresee technological shifts and future trends, however, increasing globalisation and technological innovations produced big data and more reliance on digitalisation to analyse data (Andresen et al., 2022). This necessitated the inclusion of decision-makers so that critical signals are not overlooked in the analysis, thereby integrating foresight and strategy (Andresen et al., 2022). Put succinctly, strategic foresight is the intersection between strategy and foresight (Moqaddamerad & Ali, 2024).

The term strategic foresight originates from the intercultural field of futures studies, which has roots in the Americas and France, with the former advancing technological forecasting and the latter taking the human approach of intuition (Coates et al., 2010). van der Laan (2021) undertake an extensive study of knowledge contributions from the early work of Richard Slaughter, who defines strategic foresight as follows, “*strategic foresight is the ability to create and maintain a high-quality, coherent and functional forward view and to use the insights arising in organisationally useful ways; for example: to detect adverse conditions, guide policy, shape strategy; to explore new markets, products and services*” (Slaughter, 1997. page 1). Richard Slaughter’s definition is widely accepted, being cited by several authors (Haarhaus & Liening, 2020; Heger & Boman, 2015; Ketonen-Oksi, 2022; Rohrbeck et al., 2015). This scholarly definition supports the idea of foresight creation in all types of applications and contexts (Ketonen-Oksi, 2022), making it suitable for my review because I am synthesising the existing knowledge infrastructure from a range of settings. However, there are various iterations of the definition that are useful to unpack because they demonstrate the interpretative and multidisciplinary nature of strategic foresight, which I find in the literature.

Strategic foresight is defined as an ability, process or activity, with the common intention of influencing strategic decision making to address civilisational, social and organisational challenges (van der Laan, 2021). There is common ground between the van der Laan (2021) framing and the literature where authors often describe strategic foresight as an ability or process to address emerging challenges, tailored to their research subject. For example, strategic foresight is the ability to accurately anticipate the outcomes of a strategy, enabling the pursuit of a superior course of action to gain a competitive advantage (Gavetti & Menon,

2016; Peterson & Wu, 2021). Rhisiart et al. (2015) define strategic foresight as an organisational process that is enhanced by fostering individual learning and cognitive development through implementing pedagogically rich scenario-based methods. And strategic foresight can be defined as a systematic process or ability to understand possible futures, using the insights to create aligned and coherent, forward-view organisational strategies (Haarhaus & Liening, 2020; Iden et al., 2017).

Strategic foresight is conceptualised as applying foresight methods to identify future drivers of change, then assessing the implications to achieve a strategic outcome (Iden et al., 2017). My study framing is sustainable development, which places greater emphasis on the social constructs of value creation. This aligns with Slaughter's (1997) articulation that strategic foresight is needed at a macro level to help solve the civilisational challenge.

1.2 Sustainable development framing

Sustainable development is defined as development that meets the needs of the present without compromising the needs of future generations, being was born out of concern for the deteriorating human environment and natural resources (United Nations, 1987). The principles of sustainable development are three-fold, environmental integrity, social equity and economic prosperity (Bansal & Song, 2017), which are the most significant societal problems globally (George et al., 2016). Grand challenges (GC) refer to these complex, multi-dimensional social and environmental challenges, examples being, climate change, extreme poverty and inequality (Montiel et al., 2021; Scherer & Voegtlin, 2020; Voegtlin et al., 2022). George et al. (2016), define a GC as a barrier, that if removed, would solve societal problems and have a positive global impact. In response to these challenges, the UN adopted 17 goals to be achieved by 2030 (United Nations, 2024). The SDGs are considered the most universal, widely adopted and effective plan to address GCs (George et al., 2016; Montiel et al., 2021).

Management scholars have made significant contributions to guide the achievement of the SDGs. Addressing global societal challenges requires collaboration among private, public, and non-profit organisations, particularly businesses and their associated innovation and transboundary collaborative investments (Montiel et al., 2021; Voegtlin et al., 2022). Green et al. (2024) extend the investment conversation by providing a global geographical framework depicting capital investment needs in the water sector, for social, environmental and economic gain (the sustainable development principles defined by Bansal and Song (2017). George et al. (2016) provide future management research direction by compiling a framework of

questions to address GCs linked to SDGs. The authors do not provide specific constructs for facilitation but advise management scholars to dissect the bigger problems into smaller empirical studies of rigour (George et al., 2016). Strategic foresight is a construct that has been studied to address GCs, examples include the water and energy sectors, aligned to SDGs 6 and 7, respectively (Alizadeh et al., 2016; Morgan et al., 2023; Spaniol & Hansen, 2021). The above discussion reinforces the need for this SLR, to consolidate the fragmented body of existing sustainability-focused strategic foresight literature.

Montiel et al. (2021) provides a theoretical framework that translates the complexity of SDGs into actionable goals using an externality lens, to guide multinational investment strategies. By consolidating the goals into six streams, the authors enable organisations to operationalise global development goals into actionable business strategies aimed at solving GC's (Montiel et al., 2021). The framework thus contributes to the GC research agenda. The fast-changing business environment is characterised by complexity and uncertainty, requiring organising frameworks that inspire foresightful actions (Sarpong et al., 2016), such as the Montiel et al. (2021) framework. My review extends the GC research agenda by seeking to understand strategic foresight in the context of sustainable development. Strategic foresight is an integral part of business strategy (Iden et al., 2017), therefore the developed model, shown in Table 1, offers an appropriate architectural framework of SDG characterisation to analyse the existing strategic foresight knowledge infrastructure.

Table 1: The organising sustainable development architecture

	Increasing knowledge	Increasing wealth	Increasing health
Increasing positive externalities	<p style="text-align: center;">Goal 4</p> <p>Quality education - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.</p> <p style="text-align: center;">Goal 9</p> <p>Industry, innovation and infrastructure - Build resilient infrastructure, promote inclusive and sustainable</p>	<p style="text-align: center;">Goal 1</p> <p>No poverty - End poverty in all its forms everywhere.</p> <p style="text-align: center;">Goal 5</p> <p>Gender equality - Achieve gender equality and empower all women and girls.</p>	<p style="text-align: center;">Goal 2</p> <p>Zero hunger - End hunger, achieve food security and improved nutrition and promote sustainable agriculture.</p> <p style="text-align: center;">Goal 3</p> <p>Good health and well-being - Ensure healthy lives and promote well-being for all at all ages.</p>

	industrialisation and foster innovation.	Goal 8 Decent work and economic growth - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	
Reducing negative externalities	Reducing the overuse of natural resources	Reducing harm to social cohesion	Reducing overconsumption
	<p>Goal 6</p> <p>Clean water and sanitation - Ensure availability and sustainable management of water and sanitation for all.</p> <p>Goal 7</p> <p>Affordable and clean energy - Ensure access to affordable, reliable, sustainable and modern energy for all.</p> <p>Goal 13</p> <p>Climate action - Take urgent action to combat climate change and its impacts.</p> <p>Goal 15</p> <p>Life of land - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land</p>	<p>Goal 10</p> <p>Reduced inequalities - Reduce inequality within and among countries.</p> <p>Goal 11</p> <p>Sustainable cities and communities - Make cities and human settlements inclusive, safe, resilient and sustainable.</p> <p>Goal 16</p> <p>Peace, justice and strong institutions - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.</p> <p>Goal 17</p> <p>Partnerships for goals - Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development.</p>	<p>Goal 12</p> <p>Responsible consumption and production - Ensure sustainable consumption and production patterns.</p> <p>Goal 14</p> <p>Life below water - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.</p>

	degradation and halt biodiversity loss.		
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Adapted from three sources (George-Williams et al., 2024; Montiel et al., 2021; United Nations, 2020).

1.3 Academic contribution

The need for strategic foresight, from its earliest conceptualisation and definition, is linked to sustainability (Slaughter, 1997), however the sustainability-focused research angle in strategic foresight remains unexplored, offering a wealth of new information that makes a significant academic contribution. My contribution is two-fold, firstly, framing the existing strategic foresight knowledge infrastructure from a sustainability perspective and secondly, identifying the research gaps. Research in the field of strategic foresight is multidisciplinary and fragmented (Iden et al., 2017). This review contributes academically by presenting a novel, sustainability-oriented synthesis of insights from 52 articles, leading to the development of a conceptual model that illustrates key themes in sustainability-focused strategic foresight research.

Strategic foresight is an under-theorised construct that is not situated in an academic discipline (Iden et al., 2017; Rohrbeck et al., 2015). However, when positioned within a sustainable development framework, the main focus is on innovation and organisational theory, which is a significant observation for management scholars. I observe that research concentrates on sustained competitive advantage, which is influenced by uncertain environments (Haarhaus & Liening, 2020). While this finding is expected because the prominence of strategic foresight since the 1980s is linked to competitive environments (Andresen et al., 2022), the literature undervalues societal benefits, which is a principle of sustainable development (Bansal & Song, 2017). Although this is not a positive observation currently, it offers valuable opportunities for future research. An additional insight for scholars is the uneven geographical distribution of research, which is primarily concentrated in Europe. This offers substantial opportunities for scholars in the developing world.

Haarhaus and Liening (2020) call for the identification of specific strategic foresight procedures that drive strategic flexibility, an organisational capability that supports achieving superior sustainability performance (Gelhard & von Delft, 2016). My review serves as a valuable benchmark for evaluating strategic foresight research in advancing the sustainability agenda, making an important academic contribution.

1.4 Review objective and questions

The objective of this review is to critically examine how the agenda on sustainability-focused strategic foresight research has developed since the introduction of the SDGs in 2015, by synthesising insights from the existing body of scholarly literature, identifying themes and considering implications for future research.

My review questions are formulated in line with guidance from Massaro et al. (2016) who articulate the three questions that should be addressed in an SLR.

1. How has the sustainability-focused strategic foresight literature developed since 2015?
2. What is the critique of strategic foresight within the sustainability framing?
3. What are the implications for sustainability-focused strategic foresight research?

The first question aims to establish the strategic foresight research themes centred on sustainable development and the geographical areas of interest. The second question examines the conceptual nature of sustainability-focused strategic foresight research, providing a synthesis and critique. Question 3 offers insight into the implications for future strategic foresight research related to sustainable development. The purpose of the SLR is to consolidate the fragmented body of literature, identify dominant themes, and highlight existing gaps for future research.

My SLR will argue, in relation to my review question about the development of sustainability-focused strategic foresight research, that although the literature is growing, it undervalues societal benefits and is geographically concentrated in Europe. This limits scholars' understanding of the benefits of strategic foresight for sustainability because only 33% of the literature focuses on sustainability transitions related to natural resources and social cohesion. The main focus, aligned with the organising framework (Table 1), is Increasing Knowledge at 67%, which primarily involves research on innovation and organisational theory. Additionally, 42% of the research is centred on Europe. Furthermore, the outcomes of practices remain understudied and underspecified, highlighting the need for a clearer understanding of the 'how' in implementation (Capatina et al., 2024; Moqaddamerad & Ali, 2024; Schwarz et al., 2023). This matters for theory because as long as the developing field of strategic foresight remains confined to innovation and organisational discussions, it is largely cut off from sustainable development theory, impoverishing the scholarly contribution of both (Balthasar, 2024; Mubarak et al., 2025). If this gap were addressed, scholars would be better equipped to

explore the relationship between strategic foresight and sustainable development on a global scale.

2. Methodology

Anchoring the construct and positioning the perspective has been an iterative process from my initial thoughts to my final review questions because the scope definition and topic modelling phases have been continuously evolving. My initial research idea was focused on strategic foresight within the water sector, concentrating on sustainability strategies. The focus was narrow for a management or social sciences study and would not have made for a successful SLR. The evolution to its current form, strategic foresight focusing on sustainable development, is a socially imperative and aligned conversation that makes a meaningful academic contribution.

This section details the methodological stages of my SLR designed to answer my review questions. When conducting a literature review, it is essential to confirm that the chosen approach aligns with the specific research agenda (Krlev et al., 2025). Systematic reviews play a significant role in evidence-based management because research is systematically and transparently synthesised to enhance the knowledge base and guide policy and practice (Tranfield et al., 2003). The unique methodological process of an SLR is replicability, scientific and transparent details, a comprehensive scope search with minimal bias and providing an auditable trail of analysis (Korica et al., 2017; Rojon et al., 2021; Tranfield et al., 2003). To achieve this granularity, I will detail my analytical research process (Table 2). The topic scope and review questions create a selection bias which I manage by methodically working through the different stages to obtain a representative inventory of articles (corpus) (Krlev et al., 2025; Secundo et al., 2020). The research steps are adapted from Rojon et al. (2021) and Krlev et al. (2025), because their processes are well articulated and methodical. In addition, these authors have undertaken significant research in literature reviews, thus proposing credible methods. Steps 2 and 3, building and sorting the corpus, are further detailed in a research protocol documented by Queiroz et al. (2022) providing a comprehensive structure. The steps I followed are outlined in Table 2, followed by a description.

Table 2: Analytical research process steps to conduct the SLR

Steps	Description
1. Defining the scope, modelling the topic and crafting the review questions.	<ul style="list-style-type: none"> • Review of existing strategic foresight literature, sustainable development literature and the intersection of both. • Understanding SLR methodology, from literature review articles and high-quality SLRs. • Articulating the research scope and crafting the review questions, which inform the search term.
2. Building the corpus. Literature search to establish the corpus.	<ul style="list-style-type: none"> • Databases: Scopus and EBSCO • Publication type: Peer-reviewed academic journals. • Language: English • Date range: from 2015 to the present. • Search fields: Title, abstract and keywords. • Search term: 'strategic foresight'
3. Sorting the corpus. Initial review from distant reading and organising of topics.	<p>Review of title and abstract for relevancy.</p> <ul style="list-style-type: none"> • Inclusion criteria: <ol style="list-style-type: none"> 1. Strategic foresight research aligned to sustainability. 2. Journals rated 3 and above by AJG, and B and above by ABDC. • Exclusion criteria: <ol style="list-style-type: none"> 1. Strategic foresight is not central to the research. 2. Low-rank journals (below the criteria stated above). 3. Conference proceedings, books and/or editorials. 4. Duplicates between databases. <p>Systematically organising articles according to sustainable development streams developed by Montiel et al. (2021) (Table 1).</p>
4. Empirically led analysis.	Data extraction for an initial descriptive review to understand the landscape of the knowledge infrastructure.
5. Theoretically led analysis. An interpretative deduction from close reading.	<ul style="list-style-type: none"> • Structuring the field from a full read of articles, undertaking an in-depth analysis of conceptual theories and themes and a comparison of relationships. • Thematic content analysis through a temporal lens, framed along a modified categorisation of the SDGs (Table 1).
6. Synthesis and implications.	<ul style="list-style-type: none"> • Positioning the concepts within a directional space framework, enabling deduction of future work. • Management scholar relevance is documented. • Limitations and future directions.

Adapted from three sources (Krev et al., 2025; Queiroz et al., 2022; Rojon et al., 2021).

Step 1 involves modelling the topic and establishing scope boundaries through a review of the literature to formulate review questions. Clearly defining the review questions is the most important part of a literature review because it guides the subsequent strategic steps of sample selection for inclusion (Fisch & Block, 2018; Hiebl, 2023).

Building the corpus (Step 2) covers database selections, publication type, language, date range, search terms and fields (Krlev et al., 2025; Queiroz et al., 2022). Scopus is the largest abstract and citation database of peer-reviewed articles in science, technology, medicine, social sciences, and arts and humanities and houses the most reputable and influential journals (Fahimnia et al., 2015). Scopus is also more comprehensive than Web of Science, inclusive of the same dataset, but larger (Fahimnia et al., 2015; Secundo et al., 2020). I searched Scopus first and then EBSCO, which is referenced as a frequently used database (Hiebl, 2023). Scopus was more comprehensive, while EBSCO primarily revealed duplicates, but I did review each entry to ensure I did not miss any relevant articles.

The publication type is academic journals. Journal ratings are a proxy for quality (Rojon et al., 2021). The Academic Journal Guide (AJG or ABS list), published by the Chartered Association of Business Schools (CABS) and the Australian Business Deans Council (ABDC) list, rates journals in the field of business and management. Articles in journals rated 3 and/or B and above, according to AJG and ABDC respectively, were included as an assurance of quality. Further, higher-rated journals are likely to have the most significant impact and contain validated knowledge (Berrone et al., 2023). A notable observation was that most research is published in two journals dedicated to futures studies, *Technological Forecasting and Social Change* and *Futures*, aligning with findings by Rohrbeck et al. (2015) and Iden et al. (2017), which further demonstrates the weak link to general management. Language selection is English, as it is the most prevalent academically. My timeline is 2015 to current, informed principally by the adoption of the Agenda for Sustainable Development in 2015 (United Nations, 2024). Businesses have responded to the adoption of SDGs, and are required to report on sustainability initiatives, which are aligned with investments therefore, the sustainability agenda is becoming more important (Montiel et al., 2021).

I defined my search terms by initially querying different combinations of keywords (Secundo et al., 2020) and reviewing several articles for relevance, because in academic narratives, the term strategic foresight is ambiguous and broad (Rohrbeck et al., 2015; van der Laan, 2021). I identified a substantial number of false positives that were not directly relevant to strategic foresight. Ideally, the search aims to be extensive, minimising the number of false positives (identified but irrelevant) and false negatives (relevant but not identified) (Secundo et al.,

2020). Informed by the Iden et al. (2017) and Rohrbeck et al. (2015) approach, I searched 'strategic foresight', which revealed a wealth of research focused on my construct. At this point, I find it appropriate to detail why the focus is on strategic foresight, as opposed to several other similar terminologies. Corporate foresight places significant emphasis on value creation in the form of competitive advantage, focusing on large corporations (Ketonen-Oksi, 2022; Rohrbeck et al., 2015). Managerial foresight is also restrictive, with a narrow focus on a manager's prediction ability to create a competitive advantage (Rohrbeck et al., 2015). Not including corporate foresight and managerial foresight is an informed delimitation because it limits my review scope. The search term 'strategic foresight' supports foresight in varying contexts (Ketonen-Oksi, 2022) and is therefore an informed search term, providing a comprehensive corpus.

Step 3 entails distant reading of the title and abstract for relevance (Krlev et al., 2025) and application of the inclusion and exclusion criteria, contextualised in Step 2. To undertake a credible SLR more than 50 articles are required (Iden et al., 2017; Secundo et al., 2020). Scopus and EBSCO generated a total of 428 articles. Filtering according to the above criteria yielded a corpus of 52 articles. Step 3 also categorises the articles at a high level according to the sustainable development streams in Table 1.

The analysis is undertaken in two steps, 4 and 5, entailing a descriptive overview followed by a detailed thematic content analysis, in line with Iden et al. (2017) and Secundo et al. (2020). Step 4 is empirically led (Krlev et al., 2025) requiring key data to be extracted for an initial quantitative review to analyse the existing literature landscape. This includes the sustainable development characterisation and geographical focus.

Step 5 is the theoretically led analysis, followed by synthesis and implications (Step 6) (Krlev et al., 2025; Rojon et al., 2021). These steps addressing the review questions detail the conceptual nature of strategic foresight themes, offering a synthesis and critique, and informing future implications for management research in the field. This entails the full reading of articles. Rojon et al. (2021) advise that the choice of analysis needs to be defensible and appropriate, and the incorporation of theoretical frameworks needs to be articulated. The appropriate analysis approach is thematic because it is a qualitative analysis method used to identify, describe and organise themes in a large data set (Nowell et al., 2017) and the field is nascent to intermediate (Iden et al., 2017). The thematic analysis will be framed along the six sustainable development streams developed for the implementation of the SGDs by Montiel et al. (2021), introduced earlier in Table 1 (adapted from George-Williams et al., 2024; Montiel et al., 2021 and United Nations, 2020). According to Montiel et al. (2021) the main subdivision

of the SDGs is based on their externality impact. Positive externalities are those where an external benefit is received from an organisation or individual's activity for example, a technological contribution (Capatina et al., 2024; Mubarak et al., 2025). A negative externality imposes external costs from an organisation or individual activity, for example, pollution caused by emerging contaminants (Morgan et al., 2023).

Detailing the thematic analysis

The six-phase thematic analysis framework developed by Nowell et al. (2017) to conduct a robust and transparent thematic analysis is followed. In phases 1 and 2, I developed a codebook in Excel, wherein the initial organising was according to Montiel et al. (2021), as indicated above. The sustainable development framing architecture consists of six streams, as shown in Table 1, which incorporate the 17 SDGs. The initial high-level categorisation of the body of literature involves assigning each article to an SDG based on its research focus, collectively contributing to a specific stream. For example, the total number of articles assigned to SDG 9 (innovation and industry) and SDG 4 (education or learning) together form the Increasing Knowledge stream. This organisational framework (Table 1) was useful for the initial sorting of the fragmented body of knowledge, however, upon in-depth reading of the literature, I observe that it is not sufficiently detailed to capture the thematic depth within two areas, industry and education. For example, Haarhaus and Liening (2020) is investigating the role of strategic foresight in building dynamic capabilities within uncertain environments in organisational contexts. This article is assigned to SDG 9 because it relates to industry, but the core academic narrative centres on dynamic capabilities. A similar observation applies to education or learning, where the initial classification according to Table 1 is SDG 4, contributing to the Increasing Knowledge stream. However, closer analysis reveals that the underlying strategic foresight themes are individual cognition and organisational capabilities. The organising framework (Table 1) works well for the other areas, namely, innovation, sustainability of natural resources and social cohesion, aligning well with the emerging themes from the literature.

The 52 articles covered three streams, namely Increasing Knowledge, Reducing the Overuse of Natural Resources, and Reducing Harm to Social Cohesion (shown in Figure 2). In phase 3 (Nowell et al., 2017), from a deep read I identify and combine emerging themes into narrower categories. Since strategic foresight is a multidisciplinary field, some articles exhibit overlap themes. I reviewed and reassessed categories, for example, I had initially assigned Spaniol & Hansen (2021) to SDG 14 assuming the article related to life below water, when in reality the focus relates to renewable energy at sea. I reassigned the article to SDG 7. I have undertaken

a comprehensive analysis, defining and naming 9 themes, in phase 5 of the thematic content analysis. Phase 6 relates to the integrated reporting thereof, which I present in the Analysis section.

The thematic associations of my construct are anchored in a conceptual diagram developed from an established SDG implementation framework (Montiel et al., 2021) (Figure 3). Figure 3 positions strategic foresight themes in a directional sustainable development space that articulates the academic contributions and creates a novel framework to enable management scholars to seek future potentialities (Krev et al., 2025; Rojon et al., 2021; Secundo et al., 2020).

3. Analysis of findings

The analysis section is presented in two parts, empirically led analysis and theoretically led analysis. The empirical analysis provides a brief overview of the existing knowledge infrastructure landscape. The theoretical analysis goes deeper into the identification of themes.

3.1 Empirically led analysis

Increasing Knowledge (67%), Reducing the Overuse of Natural Resources (12%), and Reducing Harm to Social Cohesion (21%) are the three populated streams as shown in Figure 2. I find strategic foresight research to be concentrated in the fields of innovation enhancement and organisational theory, aligning with Increasing Knowledge. This stream encompasses SDG 9, calling for the fostering of innovation and inclusive sustainable industrialisation. Interestingly, while some studies cite societal considerations (Jeremiah, 2025) the main driver is sustained profitable growth. SDG 4, quality education, also forms part of the Increasing Knowledge stream, to which I assigned articles related to learning. A significant 67% of the articles relate to innovation, industry and to a lesser extent, learning.

In line with my organising framework, the next populated stream was Reducing the Overuse of Natural Resources, making up a low 12% of the corpus. Research in this stream focuses on clean water and sanitation (SDG 6), affordable and clean energy (SDG 7), and the protection of natural resources (SDG 15). The remaining 21% relates to SDG 16, which focuses on promoting inclusive societies, access to justice, and inclusive institutions, assigned

to the Reducing Harm to Social Cohesion stream. My findings demonstrate a large body of multidisciplinary research that can be organised into three sustainable development streams, but the pronounced knowledge gap is evident because strategic foresight research focused on societal goals, which researchers are calling for (Berrone et al., 2023) is limited.

Furthermore, a significant 42% of the research is focused on European countries. The remaining research is spread across global studies (8%), the United States (4%), and China (6%), with countries like Iran, Australia, Brazil, Mexico, Russia, and Bahrain featuring minimally. There is also one study on the BRICS bloc.

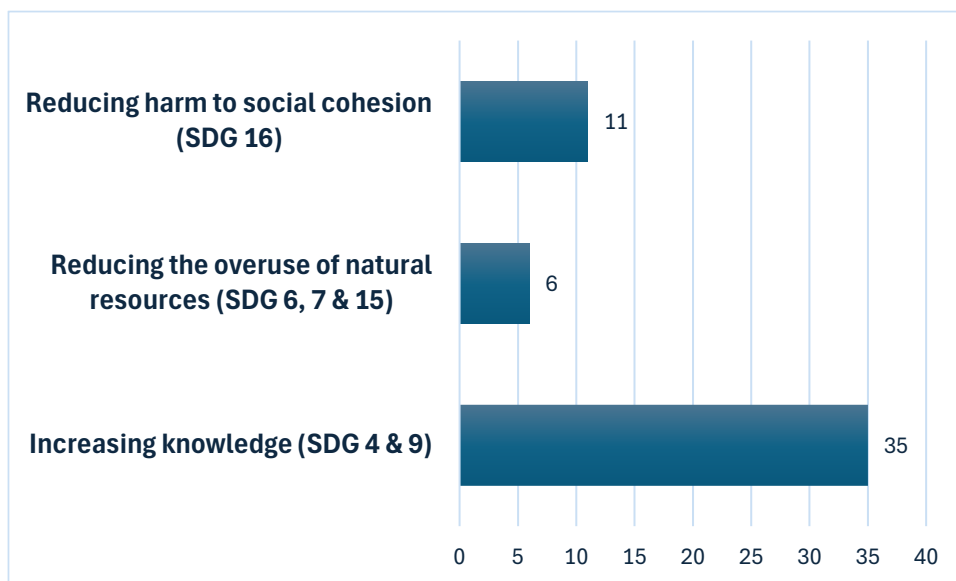


Figure 2: The number of strategic foresight articles aligned to sustainable development streams

3.2 Theoretically led analysis

The primary objective of my review is to understand how sustainability-focused strategic foresight research has developed since the introduction of the SDGs. As described in the methodology section, the corpus was initially organised according to the sustainable development framing architecture (Table 1). While this framework worked effectively for research areas such as innovation, natural resources, and social cohesion, aligning well with emerging themes, it showed limited thematic depth for industry and education. I find the contribution to strategic foresight academia to be more valuable by deepening the narrative beyond the broader industry and education context. In this section, I will analyse the strategic foresight themes that emerged from the three sustainable development streams, namely,

Increasing Knowledge, Reducing the Overuse of Natural Resources and Reducing Harm to Social Cohesion.

From the preceding analysis, it is clear that the most significant academic contribution has been Increasing Knowledge, with a strong emphasis on innovation and industry, which is understood to be because of increasingly uncertain and high-velocity environments. (Haarhaus & Liening, 2020). Many studies focus on an organisational context, but they also explore deeper, more intricate themes that emerge from deep reading, such as methodological advancements and dynamic capabilities. Education or learning as described in the literature, features at micro (Peterson & Wu, 2021) and meso (Burt & Nair, 2020) levels of research. Micro-level learning or knowledge is a strong theme focused on fostering cognition as an individual ability. An interesting emerging theme is the complementary application of digital tools. While AI was imminent, additional recent proposed tools include science fiction (Appio et al., 2025) and business wargaming (Werro et al., 2025). The themes for Increasing Knowledge stream in decreasing prominence are enhancing innovation, individual cognition, methodological advancements, organisational capabilities and digital tools.

The themes from the remaining two more socially conscious streams that align well with the initial organising framework (Table 1) are sustainability of natural resources, social cohesion and policy development. In this section, I will proceed to analyse the nine identified themes. The boundaries between themes are at times fluid and overlap, as expected because strategic foresight is a broad, multidisciplinary field, addressing several research agenda's (Heger & Boman, 2015; Iden et al., 2017).

Theme 1 – Enhancing innovation

Strategic foresight research makes a significant academic contribution to enhancing innovation, driven primarily by the need to remain competitive in increasingly volatile markets. The contextual landscape includes open innovation (Capatina et al., 2024; X. Li et al., 2022; Mubarak et al., 2025), innovation strategies (Ho & O'Sullivan, 2017; Muhlroth & Grottke, 2022), business model innovation (BMI) (Moqaddamerad & Ali, 2024), complementary roles in radical innovations (Tiberius et al., 2021) and design thinking (Schwarz et al., 2023), and the intersection with other themes such as digital tools (Muhlroth & Grottke, 2022) and cognition (Sakellariou & Vecchiato, 2022).

I found the literature to be unanimous in its findings that strategic foresight enhances innovation, either directly (Moqaddamerad & Ali, 2024; Mubarak et al., 2025) or inadvertently

as an organisation embarks on an innovation process (Sakellariou & Vecchiato, 2022). Moqaddamerad and Ali (2024) conduct a quantitative empirical study of 146 Finnish companies, examining the direct relationship between strategic foresight and BMI, as well as the mediating effects of sensemaking and learning. This is a significant study because the evidence is empirical, the findings are recent, and it demonstrates the layered and integral nature of strategic foresight research. The authors address the empirical gap in support of the theory that strategic foresight is an enabler of innovation, thereby proving that strategic foresight enhances new business models, facilitates the exploration of technological opportunities, and enhances value creation (Moqaddamerad & Ali, 2024). Furthermore, the results indicate that strategic foresight has a positive impact on sensemaking and learning as mediating mechanisms, which are discussed in the thematic context of cognition. Similarly, in a subsequent empirical study Mubarak et al. (2025) empirically validate from a comprehensive quantitative equation modelling study of 298 technology-based firms in Canada, Lithuania and Sweden, a significant positive relationship between strategic foresight and open innovation. The authors state that strategic foresight is an antecedent of open innovation because it enables an organisation to diversify its innovation outcomes by anticipating emerging environmental changes, thereby allowing for proactive adjustment of its strategies to leverage new technologies, market shifts, and customer needs (Mubarak et al., 2025).

Open innovation is an interesting concept because organisations are cautious of divulging proprietary information, however, due to rapid technological advancements, organisations have seen greater benefit in leveraging external collaboration (Capatina et al., 2024). Open innovation is introduced conceptually in 2022, as collaborative strategic foresight (CSF) (X. Li et al., 2022). The study focuses on two Chinese pharmaceutical organisations that report enhanced innovation following the successful adoption of CSF at both public and private levels, by leveraging external knowledge networks (X. Li et al., 2022). Capatina et al. (2024) report aligned success in the fast-paced deep-tech startup industry's innovation network, quantitatively concluding that external scanning and environmental signals show better correlation to foresight maturity than internal organisational features. These examples further illustrate how strategic foresight promotes innovation.

Strategic foresight also enhances complementary innovation activities such as radical innovations (Tiberius et al., 2021) and design thinking (Schwarz et al., 2023). The study on radical innovations, which are innovations that add considerable value to customers through novel knowledge intensity, is a literature review that positions strategic foresight as an enabler because it boosts creativity, a vital precursor for radical innovations (Tiberius et al., 2021). Schwarz et al. (2023) finds the evolution of strategic foresight and design thinking merges the

present human-centred innovation process with future-oriented perspectives by introducing the anticipatory methods of strategic foresight, such as scenario planning, expert insight and trend analysis. This empirical study, which represented 302 global design thinking professionals, demonstrated that the scope of the innovative design process is enhanced because it considers emerging technologies and societal shifts, resulting in significant project success when strategic foresight is combined with design thinking (Schwarz et al., 2023). This aligns with Capatina et al. (2024) where design thinking, much like deep-tech startups, is a problem-centric concept anchored in the present therefore, it falls short of addressing future challenges, customer needs, and emerging technologies, yet finds complementary benefits when combined with strategic foresight.

Several studies address the relationship between strategic foresight and innovation, of which I have discussed a few pertinent ones above to illustrate the strength of this connection. Many integrate with other smaller themes and will therefore be discussed under the said theme, for example, the enhancement of innovation through the integration of artificial intelligence (AI) and strategic foresight (Muhlroth & Grottko, 2022), I unpack under digital tools. However, an important study that bridges the theme of innovation to cognition is by Sakellariou and Vecchiato (2022), who reconceptualise strategic foresight in the innovative process of new product development (NPD) as an integral cognitive process. Traditional empirical foresight practices such as future-oriented workshops, storytelling, horizon scanning and expert engagement were fundamental in shaping the early stages of NPD, however, this study shows that strategic foresight is more effective within innovation teams when combined with temporal cognitive engagement, because it transcends the existing mental models of past experiences, thus enhancing product innovation (Sakellariou & Vecchiato, 2022).

Theme 2 - Individual cognition

The strong emphasis of cognition in strategic foresight research I deem an important observation because it captures the human approach of intuition, being the French perspective of strategic foresight (Coates et al., 2010). In this section I will discuss the early conception of individual cognition informed by a Brazilian case study (Rhisart et al., 2015), the nature of cognitive predictions (Csaszar, 2018; Rawal et al., 2023), temporality (A. Li & Sullivan, 2022; Moqaddamerad & Ali, 2024; Sakellariou & Vecchiato, 2022; Sarpong et al., 2019) and methodological advancements centred on cognition (Lehr et al., 2017).

The work by Rhisart et al. (2015) is referenced frequently by scholars because it focuses on individual learning and cognition, which was underexplored prior to their study. Strategic

foresight is evolving beyond a structured organisational process to include the value introduced by cognitive individual learning, advancing theory beyond predictive modelling, which in turn influences enhanced organisational foresight (Rhisiart et al., 2015). The study finds that pedagogically rich foresight processes enhance experiential learning, fostering deep cognitive development and improved future mental models (Rhisiart et al., 2015). Csaszar (2018), and Csaszar and Laureiro-Martínez (2018) extend the cognitive contribution discussion to the accuracy of predictions, focusing on the role of strategic representations. I find these related articles to be valuable because there would be little sense in advocating for individual cognition if it were inaccurate or ill-informed.

Strategic foresight, which is the ability to make accurate predictions, is enhanced by a greater breadth of strategic representations described as internal, external or distributed (Csaszar & Laureiro-Martínez, 2018). Internal representations refer to thinking that resides entirely in an individual's brain, external representations are an individual's thinking aided by an external artefact (in strategy, it would be a model such as Five Forces), and distributed representations refer to a set of individuals and possibly artefacts (Csaszar, 2018). Students taking a core strategy course at a US business school predict the success of two start-ups by compiling a list of pros and cons for different categories (for example, competitor landscape), finding that greater directional assessment of impacting factors (breadth) is sufficient to make accurate predictions (Csaszar, 2018). Collective predictions (distributed representations) also align well because 'wisdom of the crowd' cancels out individual errors however, if all individuals are not knowledgeable on a subject, then this does not hold (Csaszar, 2018). Interestingly, the authors find that depth, more pros and cons per category did not contribute to improved strategic foresight. These related studies make a significant contribution to strategic foresight scholarship because they demonstrate the importance of individual cognition, expressed through internal, external, and distributed representations, in making accurate predictions.

The conversation related to improved predictions is further enhanced by the knowledge that it can be learned, but this is contextual as evidenced by Peterson and Wu (2021). Strategic foresight through structured competency models (aligned to external and distributed representations introduced above) in formalised master's programmes demonstrates enhanced academic competencies in alumni, as they consciously utilise future thinking, indicating that strategic foresight can be systematically taught, assessed, and measured (Benavides Rincón & Díaz-Domínguez, 2022). Graduates indicate that their perspectives have widened, considering alternative paradigms and the ability to reframe situations, showing that structured strategic foresight education cultivates competence in individuals and anticipatory abilities (Benavides Rincón & Díaz-Domínguez, 2022). In contrast, in practical applications, it

is observed that strategic foresight tends to decrease with increasing experience (Peterson & Wu, 2021).

The study by Peterson and Wu (2021) is important for a few reasons. It was the only article in the corpus published in a four-star journal, and it challenges the general assumption that greater experience and learning improve prediction accuracy, which improves strategic foresight, as shown by Benavides Rincón and Díaz-Domínguez (2022). In a quantitative study of 314 entrepreneurs across 722 crowdfunded projects involved in advancing the development of their product subtypes, strategic foresight decreases from one project to another (Peterson & Wu, 2021). This observation is because, as the entrepreneur gains experience and seeks to improve a design, it results in unforeseen complexity and interdependency that are beyond the entrepreneur's cognitive ability. (Peterson & Wu, 2021). This study makes a significant contribution to the field of strategic foresight research because it demonstrates its evolution beyond linear learning curves, highlighting the pressing need to consider increasing complexity and cognitive constraints in complex interdependent technological environments (Peterson & Wu, 2021).

At this point in the discussion, a study assessing entrepreneurs' rebounding from bankruptcy is well-positioned because it attempts to understand what happens after failure, which is, in itself, an inability to predict accurately, aligned to Peterson and Wu (2021). Entrepreneurs who recover from bankruptcy often develop strategic foresight, but this process typically occurs late in the recovery stage, as the initial stages are often overshadowed by emotions and reflective learning (Rawal et al., 2023). Their strategic foresight is however individualised, lacking formalised processes within their organisations to identify future opportunities actively, thus limiting their ability to anticipate future market externalities (Rawal et al., 2023). This example demonstrates how the value of strategic foresight is underdeveloped because the rebounding entrepreneurs are not leveraging foresight for its capability to shape the future, as shown by Csaszar (2018) capitalising on strategic representations, or Benavides Rincón and Díaz-Domínguez (2022) as formalised programmes, but instead captures the notion of cognitive complexity (Peterson & Wu, 2021).

A concept that emerges often when scholars refer to individual cognition is that of temporality, focusing on the inhibitions of the past (Li & Sullivan, 2022), the untapped potential of future focus (Sakellariou & Vecchiato, 2022) and the introduction of a novel concept, distentive capability, a cognitive and narrative process engaging all temporal horizons (Sarpong et al., 2019). Managerial hubris, an overestimation of one's ability, is positioned as a negative cognitive bias that undermines strategic foresight by referencing past mental models, thus

narrowing attention to emerging environmental cues (Li and Sullivan, 2022). This study illustrates that the development of strategic foresight is more than formal systems, being shaped by cognitive thinking and impaired by negative cognition such as hubris (A. Li & Sullivan, 2022). In contrast, strategic foresight is more effective when combined with future temporal cognitive engagement (Sakellariou & Vecchiato, 2022), because it transcends the traditional existing mental models of past experiences (Moqaddamerad & Ali, 2024). However, it is the engagement of multiple temporal dimensions that is thought to generate the most value.

Distentive capability engages memories from the past through consciousness of the present and extrapolates visions of the future, strengthening strategic foresight because it induces cognitive processes of imagination (Sarpong et al., 2019), aligning with Sakellariou and Vecchiato (2022). However, it also broadens subsidiary awareness through the three temporal dimensions of past, present, and future (see far and wide) and enables reflection on the past to act and think in new ways for the future (Sarpong et al., 2019). The authors demonstrate, through an analysis of three Steve Jobs' speeches, that a key feature of applying strategic foresight to technological innovation is the process of reflexivity, which enables leaders to think about non-linear patterns and connections, through three cognitive dimensions, perceptual scanning (an understanding of emerging technologies), engaged reflexivity (previous technological disruptions) and perceptual closure (strategic vision) (Sarpong et al., 2019).

In concluding the theme of individual cognition and in laying the context for methodological advancements, the study by Lehr et al. (2017) is an excellent illustrative example. This study designs a seven-step, scenario-based strategising methodology based on meta-cognition, designed to overcome the formal rationality of data processing (a feature of traditional planning exercises). A meta-cognitive perspective is when all relevant insights, such as data, perceptions, knowledge and stakeholder experiences, are considered (Lehr et al., 2017). The authors reference Henry Mintzberg in this regard, who calls for strategic decisions to be about creativity rather than reliance on analysing past data (Gavetti & Menon, 2016; Lehr et al., 2017). Creativity involves overcoming cognitive bounds, which this scenario-based strategising approach achieves by identifying change drivers, overcoming cognitive inertia and enabling participation (Lehr et al., 2017).

Theme 3 – Methodological advancements

There is a wide range of strategic foresight methods, most commonly, environmental or horizon scanning, scenario planning, roadmapping and the Delphi method (Haarhaus &

Liening, 2020; Heger & Boman, 2015; Iden et al., 2017). These methods can be one-dimensional, resulting in organisations becoming myopic to external trends and knowledge (Heger & Boman, 2015), or multifaceted as I demonstrate in this thematic discussion. I introduce information, communication, and technology (ICT) systems, hybrid systems, and a novel meta-cognition approach, as well as less efficient approaches. The section concludes with a brief discussion of strategic foresight measurements.

A key insight from a methodological perspective is the use of strategic foresight to support long-term energy strategies by the Iranian Government, because it directly relates to SDG 7 and is comprehensive and granular enough to be implemented in other government sectors globally (Alizadeh et al., 2016). The authors develop an integrated scenario-based approach that incorporates robust planning and other strategic foresight methods under a technique called the Global Business Network (Alizadeh et al., 2016). In short, they initially establish driving forces within the sector, sourcing information from experts and literature, which informs scenarios using the Delphi method. The Delphi method has inefficiencies when dealing with interrelated driving forces which are countered by a cross-impact analysis, following this, robust planning establishes which strategies are most robust (Alizadeh et al., 2016). Strategic foresight in government and policy formulation involves multiple actors (Reilly-King et al., 2024), therefore the proposed methodology serves as a collaborative governance mechanism that can be applied in other government institutions.

Several studies advocate for information and communication technology (ICT) type systems to strengthen and standardise strategic foresight methodologies. One such system was implemented for the German Federal Armed Forces, advancing strategic foresight methodology by creating a visual ICT system that integrates different foresight methods, such as horizon scanning, with expert opinions from geographically dispersed sources (Durst et al., 2015). The system has proven successful in several global strategic foresight projects, for example, Peace Operations 2025 and The Future of Mobility 2030 (Durst et al., 2015). Another ICT approach is networked foresight, a concept introduced by the European Institute of Innovation and Technology, which has over a hundred partners from industry, academia, and research institutions that create a large participatory knowledge base by collaborating diverse expertise across a network (Heger & Boman, 2015). Similarly, Ho and O'Sullivan (2017) make the case for strategic foresight smart systems that go beyond the traditional linear forecasting approach by incorporating structure and multi-stakeholder exercises. Raford (2015), on the other hand, through an interesting and comprehensive multi-case-based study, advocate for a hybrid online and in-person setting, suggesting better participatory engagement, which I will unpack further because two cases relate to SDGs.

The study evaluated five online platforms, including, Futurescaper, the impact of climate change on the UK government, and SenseMaker scenarios, the impact of financial uncertainty on government public services, against a base case being a traditional face-to-face scenario planning process (Raford, 2015). The study finds that the central area of influence within online platforms was at the early stages of scenario planning, which is promising because a wide variety of forces and factors are identified at this initial stage (Raford, 2015). The base case demonstrated a few dominant personalities influencing the direction of the discussion, thereby creating a bias in the scenario outcomes, however, it showed more robust engagement in the later stages, suggesting that a hybrid approach might be more effective (Raford, 2015). The findings of this study are important for sustainability-focused academia because they empirically test a methodological approach involving sustainable development cases.

A study well positioned to discuss now is the meta-cognition scenario-based strategising approach introduced earlier because it develops a novel seven-step approach to undertake the actual scenario planning (Lehr et al., 2017). The uniqueness of this methodology lies in the last stage, which culminates in a novel matrix referred to as the Parmenides Matrix that plots scenario robustness against goal-based efficacy, serving as a comprehensive visual representation (Lehr et al., 2017). This enhances the ability to make informed decisions and facilitates deeper discussion to identify the optimal strategy. In contrast, if strategic foresight is not executed in line with tested methodologies, it can lead to inefficiencies, such as inaccurate timing (Nemeth et al., 2018). An analysis of the Hungarian military's strategic foresight process, retrospectively, found that after the data analysis stage, the interpretation of insights was lacking and alternate futures were not explored because the analysts used evidence-based methods rather than interaction-based methods (Nemeth et al., 2018). This resulted in accurate timing despite predicting the Russian confrontational foreign policy and the European migration crisis. Timing matters significantly for governments, especially the military, who need to know whether to prepare for an occurrence now or a decade from now (Nemeth et al., 2018).

Further advancements in the field relate to the measurement of strategic foresight. Haarhaus and Liening (2020) develop quantitative empirical scales for strategic foresight, with the fundamental dimensions being environmental scanning, scenario planning, expert-based knowledge, a supportive organisational culture, and the formal organisation of foresight activities within the organisation. A recent study develops a six-stage foresight framework model operationalised as a reflective-formative construct, comprising framing, scanning, forecasting, visioning, planning and acting (Moqaddamerad & Ali, 2024).

Theme 4 - Organisational capabilities

A significant volume of strategic foresight research is contextual within organisations that integrate with other themes. This thematic discussion focuses on research that enhances organisational capabilities, such as the organisational structure, the uniqueness of small and medium enterprises (SMEs) and organisational knowledge.

Studies concur that institutionalising strategic foresight within an organisation requires both an organised structure and an enabling culture (Haarhaus & Lienen, 2020). In a study of three UK-based software companies, relational organising structures foster strategic foresight capabilities in lower-level innovation teams, referring to the triadic influence of individual, organisational and contextual organising practices that foster strategic foresight (Sarpong & Maclean, 2016). Strategic foresight develops as a socially constructed practice where its creative emergence depends on the transformational character of the organising regime, in simple terms, the organising architecture, wherein the approach is not confined to top-level planning (Sarpong & Maclean, 2016). Aligned with the findings, a contrasting study revealed that the suppression of middle managers by introducing rigid organisational practices dissipates strategic foresight (Sarpong & Hartman, 2018). Middle managers are key contributors to strategic foresight because of their integrative role between operational and strategic levels (Sarpong & Hartman, 2018), therefore organisations need to ensure that their structures enable bottom-up contributions. This ideology is theorised by Andresen et al. (2022), who establish an integrated strategic foresight framework, referred to as foresight as emergence, conceptualised as a continuous, ongoing emergent process that integrates agents from the shop floor to the C-suite.

In reviewing the literature I observed that structural discussions focused primarily on large organisations, whereas 90% of businesses worldwide are SMEs which contextualises the significant social and economic impact of this industrial cluster (Ketonen-Oksi, 2022). Based on a single case study of a small Finnish-owned company, the authors express an urgent need for the adoption and institutionalisation of strategic foresight in SMEs because the information is forecast-based and the foundation of futures orientation resides in individuals with short-term financial objectives (Ketonen-Oksi, 2022). The development of a foresight system requires consideration of different levels of ambition and objectives at both the individual and organisational levels. A possible solution is networked foresight (introduced earlier), where SMEs who are hesitant to invest in complex and expensive tools, showed greater creation potential because they benefit from a comprehensive networked solution (Heger & Boman, 2015).

The final organisational capability concept for discussion is that of organisational knowledge or learning. In a case-based study of a Scotch whiskey producer, foresight emerged from 'unlearning', which involves letting go of rigid past experiences and overcoming traps such as competency and myopia (Burt & Nair, 2020). The business context in this case was characterised by high price sensitivity and tax and duty concerns (Burt & Nair, 2020), which refer to external factors that an organisation needs to develop internal capabilities to address. In a conceptual study, the integration between knowledge management and strategic foresight is shown as mutually reinforcing moving beyond silo practices to address complex socio-economic challenges (Nascimento et al., 2021).

Theme 5 - Dynamic capabilities

It is within the context of uncertain environments that dynamic capability theory finds conceptual proximity with strategic foresight (Haarhaus & Liening, 2020; Heger & Boman, 2015). Dynamic capabilities are an organisation's ability to evaluate, obtain, integrate and reconfigure its internal and external resource base, in response to rapidly changing environments, to attain a sustainable competitive advantage (Heger & Boman, 2015). Haarhaus and Liening (2020) findings are significant because they quantitatively and empirically prove that strategic foresight is an antecedent of selected dynamic capabilities, namely strategic flexibility and decision rationality, in uncertain environments, from a global study of 79 managers involved in strategic foresight. Many strategic foresight studies are case-based, therefore, an empirical study of this nature holds value, having been cited by several authors. A further theoretical contribution is empirical evidence that the contextual variable, environmental uncertainty, is positively related to strategic foresight, which means that the higher the degree of environmental uncertainty, the higher the levels of strategic foresight (Haarhaus & Liening, 2020).

Interestingly, the authors parallel or deduce environmental uncertainty within an organisation from individual uncertainty. Individual uncertainty occurs when an individual lacks sufficient information to make accurate predictions due to their inability to distinguish between relevant and irrelevant data (Haarhaus & Liening, 2020). Environmental uncertainty is the inability of managers to understand their organisational environment due to its complexity (Haarhaus & Liening, 2020). Peterson and Wu (2021) find that individual strategic foresight decreases as uncertainty increases, which contrasts with the Haarhaus and Liening (2020) finding related to environmental uncertainty. This can be explained by the concept of collective wisdom

cancelling out individual errors discussed by Csaszar (2018) in their assessment of accurate predictions from strategic representations.

Other authors align with Haarhaus and Liening (2020) in an organisational context. Strategic foresight is positioned as a dynamic capability that enhances internal knowledge and integrates external knowledge through open innovation (Mubarak et al., 2025). In a study of deep-tech startups, strategic foresight, as a managerial capability, is a multilayered capability, aligned to dynamic capabilities (Capatina et al., 2024). Heger and Boman (2015) in their study of a networked system supporting strategic foresight, refer to the dynamic capability approach of involvement in partnerships and alliances.

Theme 6 - Digital tools

The use of digital tools to support or enhance strategic foresight is not a new concept, finding relevance in various ICT systems that I engaged with in the methodological theme (Durst et al., 2015; Heger & Boman, 2015; Ho & O'Sullivan, 2017; Raford, 2015). The focus now is concepts such as AI, science fiction and business wargaming.

Strategic foresight is advancing through the integration of AI. Organisations have untapped potential to explore vast volumes of data, anticipating technological disruptions earlier than manual processing, thus taking advantage of opportunities and informing their innovation strategies earlier than their competitors (Muhlroth & Grottke, 2022). In a case study of three emerging technologies, namely, Bitcoin/blockchain, 3-D bioprinting and edge computing, AI enabled the detection of these technologies prior to their publication. The ability to detect emerging technologies at an early stage assists organisations to predict future change and because strategic foresight methods process large volumes of data, often manually, the integration of AI is said to be significantly beneficial (Muhlroth & Grottke, 2022).

Jeremiah (2025), makes a similar deduction but at an individual level, shifting strategic foresight from being conceptualised as a purely human cognitive process to a synergistic human-AI relationship. Informed by a literature review, the authors find entrepreneurs use AI for strategic foresight and innovation, wherein AI can predict multiple future scenarios, enabling entrepreneurs to explore multiple strategic routes (Jeremiah, 2025). The study refers to the human-AI dyad, where the AI tool is an extension of the human's abilities in that it collaborates in decision-making processes, merging human intuition with data-driven predictions (Jeremiah, 2025). Casting my mind back to the definition of strategic foresight as an ability, this study implies that AI is an extension that enhances human ability. Empirical

testing of this proposed human-AI dyad, in contrast to Peterson and Wu (2021) findings, where strategic foresight as an entrepreneurial ability decreases with increasing complexity, is an implication for future research.

The creativity of science fiction is harnessed not only for entertainment but also as a resource for innovation and strategic foresight (Appio et al., 2025). The authors align the concept with strategic foresight as an enrichment, because science fiction is characterised by futuristic, imaginative stories that harness creativity and address ethical and social concerns (Appio et al., 2025). Business wargaming is an aligned concept that simulates dynamic environments, enabling various role-playing scenarios (such as competitors), and translates contextual simulations into strategic narratives (Werro et al., 2025). Although the conceptually rising role of AI-driven analytics in enhancing strategic foresight activities towards data-rich strategic predictions is evident, it lacks empirical testing.

Theme 7 - Sustainability of natural resources

Despite the widespread application of strategic foresight in various contexts, there is a limited focus on research specific to sustainability transitions within natural systems. This is a significant academic gap in the literature. Totalling six articles, two focus on energy, three on water cycle management and one on natural resource management (NRM).

Strategic foresight finds successful application as a planning tool for the Iranian energy sector by assessing the robustness of scenarios and informing policy (Alizadeh et al., 2016), as discussed earlier. Similarly, Spaniol and Hansen (2021) leverage strategic foresight methodology to develop knowledge and forecast trajectories for the electrification of seas, contributing to a sustainable blue economy. This study assesses the feasibility of powering sea activities entirely by renewable energy, providing viable offshore electrical charging and eliminating greenhouse gas and carbon emissions. The authors confirm that strategic foresight methodology expands existing knowledge and identifies insightful configurations that can be achieved in the electrification of the seas. (Spaniol & Hansen, 2021).

Regarding water cycle management, strategic foresight is employed to inform strategic decision-making and determine future wastewater treatment technologies and conditions that will limit the release of emerging contaminants within the European Union (EU) (Morgan et al., 2023). The roadmap structure is arranged in four layers, wherein the first layer relates to policy objectives citing the rising awareness of contaminant removal and associated SDGs, and the second layer incorporates climate change impacts on water resources, another element of

sustainability transitions (Morgan et al., 2023). The foresight exercises reveal that circular economy solutions should be strengthened (Morgan et al., 2023), echoed by Dua (2024) and Bourdin and Jacquet (2025). In a study of circular economy adoption in the oil and gas sector, focusing on the Gulf, Middle East and North Africa, the author mentions the challenging trajectory towards sustainability, advocating for strategic foresight (Dua, 2024). Similarly, Bourdin and Jacquet (2025) suggest that strategic foresight plays a crucial role in achieving a circular economy, serving as a strategic lever in transitioning towards sustainable development.

In a less successful application of Russia, Ukraine, and Belarus, the lack of strategic foresight is cited, specifically in sustainable urban drainage systems, where the focus is on short-term goals (Shkaruba et al., 2021). However, a foresight exercise was undertaken prior to develop long-term scenarios and strategies for the Russian water sector towards 2030 (Proskuryakova et al., 2018). The authors employ a combination of foresight methods presenting four alternative trajectories for the water sector that may be applied to countries with a water sector comparable to Russia (Proskuryakova et al., 2018). Multiple actors, including international donors drive water cycle management, therefore, the integration of strategic foresight is thought to be important (Green et al., 2024).

At times, strategic foresight is employed but not deemed effective. In an analysis of how NRM organisations in Australia utilise strategic foresight, the authors find that socio-cultural and environmental contexts challenge foresight interventions because government policies constrain the outcomes of foresight results (Alexandra & Wyborn, 2023). There is a deep-seated preference for evidence-based decision making and less participatory approaches (Alexandra & Wyborn, 2023), which does not capitalise on the multi-disciplinary and beneficial nature of strategic foresight. This is concerning, given that NRM relates to sustainability transitions such as water allocations, forestry, and agriculture (Alexandra & Wyborn, 2023).

Theme 8 - Social cohesion

There is an emerging theme of humanity and togetherness, evident from a few sources of the literature. Social cohesion is perhaps best articulated through the conceptual framing of strategic foresight in the African humanistic philosophy of Ubuntu, which postulates that integrating Ubuntu into everyday practices enhances relational pluralism, thereby encouraging foresightful actions (Sarpong et al., 2016). Ubuntu is a philosophy that prescribes human behaviour in a way that fosters togetherness regardless of race, class or wealth (Sarpong et al., 2016). I have observed that research by this author focuses on the integration and

contribution of employees at lower organisational levels in the strategic foresight process (Sarpong & Hartman, 2018; Sarpong & Maclean, 2016), contextualising their conceptual work around Ubuntu, which centres on inclusion.

Two studies make a significant contribution to advancing social cohesion, which aligns well with the sustainable development agenda that my research is seeking to unpack. The first reconceptualises strategic foresight as an instrument of transformative development in fragile contexts (Balthasar, 2024), and the second shifts strategic foresight theory from the predominant competitive technological focus to a societal technological focus (Sokolov et al., 2019).

Fragile contexts have several interpretations, however in the context of the study it refers to societal areas that are failing to meet the SDGs (Balthasar, 2024). The authors argue that contexts of fragility belong to the universe of uncertainty rather than risk because of the unpredictable nature of fragility (Balthasar, 2024). Strategic foresight is well developed for uncertain environments (Haarhaus & Liening, 2020), therefore Balthasar (2024) advocates for the integration of strategic foresight and fragility to unlock the required development potential. They present a compelling argument to shift the perception of fragile contexts from one of deficiency to one of inherent opportunity (Balthasar, 2024). This study extends the scope of strategic foresight in uncertain environments, usually described by technological and competitive unpredictability to social advancements. Similarly, Sokolov et al. (2019) demonstrate the role of strategic foresight in facilitating multilateral governance in science, technology and innovation (STI) across the economically disparate BRICS nations, enabling inclusive regional voices for diverse socioeconomic development agendas.

The identification of STI priorities within BRICS for multilateral engagements is traditionally conducted through expert consultations and foresight-like exercises, which can be viewed as subjective and non-replicable, where stronger nations have a louder voice (Sokolov et al., 2019). The authors propose a novel replicable quantitative method, including bibliometric analysis, identifying STI priorities that respond to GCs (Sokolov et al., 2019). The criteria for selection of priorities are responses to global challenges, which the BRICS members identify as water resources, climate change, environmental protection and exploration of minerals (Sokolov et al., 2019). This methodology contributes to strategic foresight scholarship by expanding its role into development agendas of emerging geopolitical contexts.

Theme 9 - Policy development

Policy development is classified as an emerging theme because I found a small number of articles discussing strategic foresight and policy development, primarily focused on Europe, except for one inconsequential study on China's cybersecurity policy (Z. Li et al., 2022). The role of strategic foresight in policy development is best described in a literature review of six articles focused on sociocultural and sociopolitical contexts (Reilly-King et al., 2024). The authors advocate for the value of strategic foresight in international development co-operation, where there is a fundamental need for these worlds to collaborate and rethink the Western-dominated approaches to foresight (Reilly-King et al., 2024). This aligns with the call made by Slaughter (1997) in his 1997 publication discussed in the introduction. There is a significant emphasis on challenging existing linear futures that perpetuate systemic inequalities, which dominate international development cooperation practices. The world is connected through global challenges, which are reflected in the boundless, interconnected nature of the SDGs, requiring new thinking and collective action by policymakers (Reilly-King et al., 2024). This can be achieved by breaking down silos and engaging across geographies (Reilly-King et al., 2024). This is a recent conceptual article, wherein the call is promising for future collaborative research that merges strategic foresight and sustainable development through policy formulation.

The corpus reflected five articles published in 2024 focusing on strategic foresight and policy development in the EU (Gadbled et al., 2024; Lorenzani, 2024; Noonan, 2024; Sus, 2024; Umbach, 2024). Policymakers in Europe face significant challenges because of the growing instability of their geopolitical neighbourhood, compounded by global uncertainty (Burrows & Gnad, 2018). The authors advise European leaders to develop a credible future narrative based on a deep understanding of the drivers of change, citing strategic foresight as a valuable tool for developing realistic policies and robust strategies (Burrows & Gnad, 2018).

Strategic foresight is pivotal to political decision-making, facilitating governance in a highly unpredictable geopolitical region such as Europe. This is evident from the significant number of EU policy-related articles published in 2024. Collectively the studies highlight a conceptual shift from strategic foresight being used as a planning tool to an embedded organisational capability, contributing to governance in complex political systems. There are three strategic foresight approaches to EU policy, namely, visionary planning that entails long-term visions for strategy implementation, policy guiding that informs policy decisions in the medium term and operational, adapting current policies in the short term to address future uncertainties (Gadbled et al., 2024). The study by Umbach (2024) bears relevance because it references

strategic foresight within the 'Better Regulation' framework, which focuses on the UN's SDGs, advocating for the establishment of strategic foresight across EU governance.

3.3 Conclusion of the thematic analysis

In engaging with the current academic literature and conscious of the sustainable development framing architecture (Table 1), I identified nine strategic foresight research themes of varying intensity. I found that while a significant volume of literature is structured around organisations, in many instances case studies, the underlying themes are deeper narratives. Prominent themes are enhancing innovation, individual cognition and method development. The intermediate themes are organisational capabilities, dynamic capabilities, sustainability of natural resources and social cohesion. Themes of narrow focus, which I understand to be in the growth phase are digital tools, and policy development.

4. Synthesis of the literature review

My review objective is to understand how sustainability-focused strategic foresight research is developing. After reviewing the existing knowledge infrastructure, I observe the most significant findings to be high levels of research focused on industry and fostering innovation, low levels of research dedicated to societal benefit, and a geographical concentration of research within Europe. This suggests that the opportunities arising from the extensive and successful application of strategic foresight research, as evidenced in the analysis section of this review, are far from making a significant impact on society and sustainable development in emerging economies. I identified nine themes in the analysis section, which, upon synthesis, are divided into five key sustainability-focused research themes and four supporting themes within the enabling environment. The five key sustainability-focused research themes, identified from the adopted organising framework developed by Montiel et al. (2021) (Table 1), in order of decreasing centrality are, enhanced innovation, organisational capabilities, sustainability of natural resources, social cohesion and policy development. The four supporting themes emerged from deep reading, providing a comprehensive narrative of the existing literature. They are individual cognition, methodological advancements, dynamic capabilities and digital tools. These themes are abilities or tools that support the five key sustainability-focused themes.

I have conceptually synthesised the themes, illustrating how they fit together in the context of sustainable development, as shown in Figure 3. The themes are depicted in decreasing centrality, and the associated SDGs are shown in parentheses. In this section, I analyse the concept model and discuss the conceptual gaps. I then explore some pertinent critiques of strategic foresight research, which lead to emerging implications for future research. I also unpack the contribution this review makes to academia and the effectiveness of the research process.

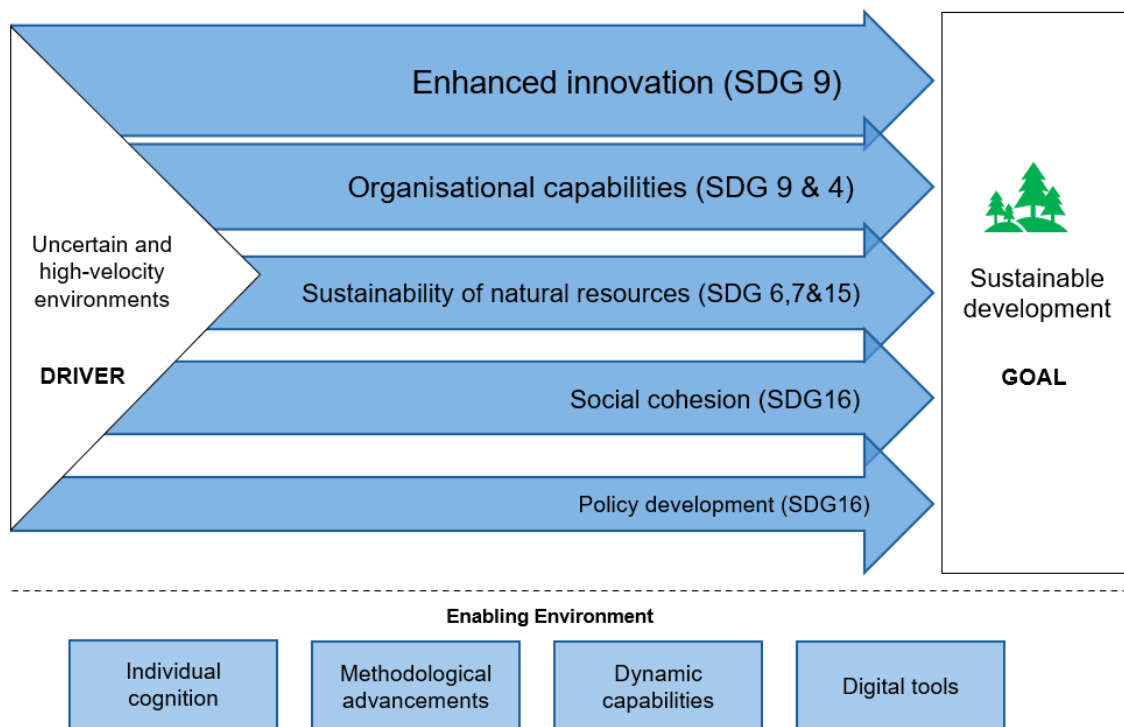


Figure 3: Conceptual framing of sustainability-focused strategic foresight research themes

4.1 The puzzle and its missing pieces

The development of sustainability-focused strategic foresight research is examined through five key research themes, with enhanced innovation emerging as the most prominent focus, while policy development appears least emphasised. This observation translates to a pronounced focus on SDG 9, which relates to industry and innovation (67% of the corpus). This focus is understood to stem from the emergence of strategic foresight in recent years, aligning with uncertain and high-velocity environments where sustained competitive advantage is the central concern (Haarhaus & Liening, 2020). I observe that the driving

vertical for strategic foresight implementation in all contexts is uncertain or volatile environments, which includes fragile contexts (Balthasar, 2024). While sustainability transitions in natural resources and the promotion of social cohesion are critical themes due to their direct contribution to societal well-being, they remain comparatively underdeveloped within the current body of research. A significant gap in the body of literature is the disproportionate focus on the SDGs, where only 6 out of 17 goals feature. This implies that strategic foresight research is inequitable when viewed from the perspective of sustainable development. Regarding the support themes, four form the core enabling environment, with individual cognition and methodological advancements being the most well-established, followed by dynamic capabilities and digital tools, which is conceptual. My observations make a significant contribution to the field because they articulate the current state of the literature and identify the gaps for future sustainability-focused research. Further, on a positive note, while many authors have grappled with theoretically anchoring strategic foresight (Iden et al., 2017; Rohrbeck et al., 2015) it is evident from my observations on the centrality of SDG 9 that sustainability-focused strategic foresight research is grounded in innovation and organisational theory.

From the perspective of global or grand challenges, uncertain environments as a driver does not capture the urgency for societal benefit, which is evident from many studies being driven by technological or competitive uncertainty. I identify this as a significant research gap, in that strategic foresight, while multidisciplinary, remains driven by sustained innovation advantages that do not necessarily lead to broader social benefits. Balthasar (2024) represents a small fraction of research that brings the sustainability agenda into focus by stating that fragile contexts parallel uncertain environments, advocating for the implementation of strategic foresight in societal areas that are failing to meet the SDGs. The 2023 UN policy brief that cites strategic foresight in its quintet of skills, is seeking dynamic climate change modelling, safe water trending, predictive analytics for natural disasters and detection of social tension risks (United Nations, 2023). I find that strategic foresight research, in the main, is not aligned with the UN agenda, except for the EU, which is making strides in its policy development to detect geopolitical tensions in its neighbourhood. Noting that the explicit inclusion of strategic foresight by the UN is recent (2023) I am optimistic that the research landscape will evolve with improved focus on sustainability-focused strategic foresight research, in the coming years.

The literature exhibits a pronounced disproportion in its coverage of the SDGs, with limited scholarly attention dedicated to natural resource-related themes (12%), and social cohesion and policy development (21%). Research on natural resources (SDGs 6, 7 and 15), including

water and sanitation, energy, and NRM, lacks narrative depth, except for one study where strategic foresight is employed to assess the robustness of scenarios for the energy sector (Alizadeh et al., 2016). This study is comprehensive and aligns well with the sustainability agenda, making it suitable for adoption by other organisations. However, the other studies are not as detailed and focused, demonstrating a significant gap in knowledge creation. Research related to social cohesion and policy development is also limited, residing within SDG 16, which addresses peace, justice, and strong institutions. Out of 11 articles, only one is a quantitative empirical study that assesses the allocation of STI projects within the BRICS bloc and actively discusses the misgivings of traditional foresight methods, such as expert consultation, which favour the most powerful and influential voices (Sokolov et al., 2019). Policy development is primarily focused on the EU. Although research in the field of sustainable development for societal benefit is not absent, it remains limited and geographically inequitable. This is particularly noteworthy given that strategic foresight is especially well-suited to addressing complex and uncertain contexts (Haarhaus & Lienen, 2020). Strategic foresight is a reframing process that generates multiple, alternate, plausible futures from an understanding of the drivers of societal change (Reilly-King et al., 2024) therefore its application to the sustainability agenda is opportune but underutilised.

Additionally, the existing literature is geographically fragmented, with a predominant focus on Europe, which accounts for 42% of insights. The historical development of foresight in Europe dates to the 1950s (Gadbled et al., 2024), which explains its prevalence in scholarly research. The reinvigoration around the 1980s and 1990s is attributed to the increased crisis in the ecosystem surrounding the EU (Gadbled et al., 2024), as echoed by Burrows and Gnad (2018) in their focused study on Europe. This pronounced concentration of research in Europe suggests that strategic foresight is not being operationalised for meaningful benefit in the developing world, which faces significant exposure to GCs. This is important because fragile contexts require investment from the developed world and must demonstrate long-term strategic planning (Green et al., 2024). The positive aspect pertains to the long-term embedding of strategic foresight within Europe, which demonstrates its utility and serves as a model for the rest of the world to learn from. This is particularly evident in the study by Rhisiart et al. (2015), commissioned by the Brazilian government to enhance the country's future strategic capabilities, which was conducted by authors from the United Kingdom and France.

The limited application of strategic foresight to developmental contexts, as I observe, is echoed by scholars. Balthasar (2024) proposes a repositioning of fragile contexts from risk to uncertainty to reframe the application based on a broader theoretical foundation because there is a lack of strategic foresight theory in development contexts, thus the transformative potential

of strategic foresight remains underutilised. Aligned sentiments are expressed by Sakellariou and Vecchiato (2022), who argue that the conceptual framework they developed for foresight practices and techniques should be replicated in other industries and geographical locations, because contributions to strategic foresight theory require broader applicability and testing. This identified conceptual gap is confirmed by Mubarak et al. (2025), who state that strategic foresight often focuses on large corporations in developed countries, creating a contextual gap when extrapolating to smaller or less-resourced contexts or environments. This finding has significant implications for future research, which, combined with the UN's 2023 report, emphasises that strategic foresight is a valuable mechanism in developing economies (United Nations, 2023). These findings make a significant contribution to sustainability-focused strategic foresight, informing future research implications.

The argument above, that the literature undervalues sustainability-focused research with societal benefits and geographical equity, highlights the most significant findings. There are additional nuances in the literature that complete the synthesis and substantially contribute to the academic narrative.

4.2 The critique of strategic foresight and implications for future research

Traditional strategic foresight methodologies are critiqued for their distinct linear temporality, cognitive limitations, evidential focus versus participatory engagement, and the subjectivity of expert consultation (Alexandra & Wyborn, 2023; Sarpong et al., 2019; Sokolov et al., 2019). Strategic foresight should be perceived as temporal reflexivity, where the past, present, and future are continuous narratives rather than distinct sequential stages (Sarpong et al., 2019). Focusing solely on one temporal frame disregards the intertwined nature of time, resulting in missed opportunities (Sarpong et al., 2019). In a study examining STI projects within BRICS that are developed through traditional foresight techniques, predominantly expert consultation, the primary critique lies in the subjectivity of prioritising multilateral development agendas influenced by the more powerful nations (Sokolov et al., 2019). Given that the BRICS bloc comprises of disparate nations, this subjectivity can advance the global agendas of dominant economies under the pretext of being participatory (Sokolov et al., 2019). A significant critique of strategic foresight is the predominant expert insight approach that introduces bias when considered in isolation (Schwarz et al., 2023). In an Australian study of NRM, government organisations demonstrate rigid policies and a preference for entrenched evidence-based decision making, where socio-cultural and environmental contexts challenge these traditional foresight interventions (Alexandra & Wyborn, 2023). The direction of future research

advocates for participatory approaches that are integrative and institutionalised at a meso level, where sustainability priorities are identified during the policy development stage prior to national and international levels (Alexandra & Wyborn, 2023; Sokolov et al., 2019). This narrative leads to a discussion of 'how', which many articles raise as a critique.

Strategic foresight research lacks established frameworks for implementation and quantitative research methods as most approaches are qualitative, typically involving case studies and conceptual arguments (Capatina et al., 2024; Moqaddamerad & Ali, 2024; Schwarz et al., 2023). There is limited integration and systematic application of strategic foresight in practice and research, in areas such as design thinking (Schwarz et al., 2023), innovation (Moqaddamerad & Ali, 2024) and knowledge management (Mubarak et al., 2025), leading to a scarcity of conceptual frameworks that would enhance application. Many of these concepts are studied in isolation, resulting in fragmented understandings that limit comprehensive insights into the role of strategic foresight in various ecosystems (Mubarak et al., 2025). A study of the fast-moving consumer goods industry concluded that while strategic foresight enabled a rewarding creative process, it will be short-lived and episodic if not institutionalised into sustainable strategies (Sakellariou & Vecchiato, 2022).

There is limited empirical validation leading to a conceptual gap regarding the exact mechanisms of how strategic foresight influences innovation (Mubarak et al., 2025). While Mubarak et al. (2025) use validated strategic foresight dimensions, they do not study how these dimensions are developed or institutionalised. Further, strategic foresight is often focused on internal capabilities, advocating for the value of external networks and knowledge sharing (Mubarak et al., 2025) but the practical integration of external insights and managing matters such as intellectual property is not fully explored (X. Li et al., 2022). The bottom line is that there remain procedural challenges to ensure transparency, reduce cognitive bias, and avoid overreliance on mathematical models (Lehr et al., 2017). Future research calls for the establishment of integrated frameworks that capture the multilayered influence of industry and society.

The critical role of individual-level cognition is often overlooked because foresight processes do not recognise the value of participatory mechanisms that stimulate participants' cognition, foster collective intelligence, and enhance future literacy (Rhisart et al., 2015). However, such participatory workshops must be well facilitated to avoid divergent rather than congruent views, as the quality of the outcome depends on the experience and exposure of the individuals (Sakellariou & Vecchiato, 2022). What remains underexplored is how individual learning translates to improved strategic foresight. Peterson and Wu (2021) challenge the

notion that learning from experience yields better strategic foresight, arguing that increased knowledge generates new uncertainty, which lowers cognitive ability. Individuals also focus on past mental models, which fosters a negative cognitive bias that hinders the potential for strategic foresight (A. Li & Sullivan, 2022; Rawal et al., 2023). Future research can explore the transition of informal foresight into systematic, embedded processes and mechanisms to help entrepreneurs navigate unforeseen interdependencies (Peterson & Wu, 2021; Rawal et al., 2023). I find it is within this context that the conceptual work regarding AI finds relevance. While AI can enhance efficiency, human judgment and an understanding of the contextual environment are essential for effective strategic foresight (Muhlroth & Grottke, 2022). Jeremiah (2025), who proposes the human-AI dyad, cautions against the negatives, pointing out that the broader challenge is whether humans will harness the potential of AI for societal benefit, rather than accentuating existing divides for economic gain. Empirical research is required to understand how AI-enhanced strategic foresight impacts an organisation's performance and to clarify the balance between automation and human processes (Muhlroth & Grottke, 2022).

Strategic foresight associated with cognitive processing in the existing literature, is typically examined at the individual level. However, in innovation-driven initiatives (and sustainability), it is often team-driven, comprising individuals with diverse thinking and cultural influences (Sakellariou & Vecchiato, 2022). Consequently, research into cognitive processing within teams will yield greater insights into the fundamental elements of strategic foresight (Sakellariou & Vecchiato, 2022). This aligns with the shortcoming identified by Sarpong et al. (2019), where distinctive capability places significant emphasis on a visionary leader (Steve Jobs) to illustrate their concept, acknowledging that they do not account for the role of the team in co-producing the strategic foresight narrative. Moqaddamerad and Ali (2024) aptly refer to cognitive and structural inertia, where mental models and organisational structures can inhibit the successful implementation of strategic foresight. Sustainability-focused strategic foresight necessitates forward thinking and the avoidance of mental traps rooted in the past or present by facilitating cognitive visions of future potentialities (Sakellariou & Vecchiato, 2022). Structural inertia favours top-down privilege, neglecting relational practices and marginalising the contributions of lower-level employees (Sarpong & Hartman, 2018; Sarpong & Maclean, 2016). Future work involves gaining deeper insights into softer aspects such as, temporal cognitive techniques, informal interactions, reflexivity, and organisational culture and structures that either shape or suppress the creative potential of strategic foresight (Mubarak et al., 2025; Sakellariou & Vecchiato, 2022).

Many studies overlook the contextual environment, which is increasingly turbulent and uncertain driven by competition, unpredictability and rapid rates of change that influence the success of strategic foresight activities (Haarhaus & Liening, 2020). Balthasar (2024) consider fragile contexts as societies with uncertain futures, effectively positioning strategic foresight for its role in managing uncertainty and providing opportunities for diverse future scenarios. The authors critique prior applications of strategic foresight in peace and development, being used for constitution building or institutional reform, but remaining risk prediction and mitigation-focused (Balthasar, 2024). Risk thinking is based on past experiences translating to linear projections of the future, whereas fragile contexts are inherently unpredictable, therefore, the paradigm shift from risk to uncertainty shifts short-term actions to long-term futures (Balthasar, 2024). However, this conceptual positioning of strategic foresight in fragile contexts requires empirical testing to support the author's theorising.

4.3 Effectiveness of the research process

This section provides a reflexive assessment of the learnings, evaluating the strengths and weaknesses of the process, articulating the implications and reflections for future research improvement.

The research idea has been developing over many months, grounded in strategic foresight and focusing on sustainable development. As a water professional, I am deeply passionate about the sector and sustainability in general. George et al. (2016) echoes the UN Secretary-General (of 2014), "*There is no plan B because there is no planet B*" (page 1893), emphasising the importance of scholarly work in solving social problems. It was important for me not to digress from the importance of societal influence in my review.

A strength is the extensive groundwork and consultations I have undertaken to conceptualise my construct and focus, and to develop the research process. I have several categories of articles, namely strategic foresight (and the like, for example, foresight), sustainable development, SLR methodologies and examples of SLRs. In reviewing this vast body of credible knowledge, I gained significant insight into the theoretical concepts of strategic foresight and sustainable development, as well as successful SLR methodologies. This enabled me to frame the scope and show clear construct clarity, focusing on a single construct within an appropriately specified perspective, which I believe is a strength of this review. This clarity then enabled me to clearly define my review questions which is the most important part of a literature review because it guides the subsequent steps of sample selection for inclusion

(Fisch & Block, 2018; Hiebl, 2023). In addition, my review questions are formulated from scholarly guidance (Massaro et al., 2016; Secundo et al., 2020) further strengthening the first step of my analytical research process (as per Table 2).

The extensive groundwork also resulted in a comprehensive corpus, which is a strength. Initially, I tested many different terminologies for future studies because strategic foresight is an ambiguous term in academia (Rohrbeck et al., 2015). However, after detailed readings and gaining a deeper understanding of related terminology, such as corporate foresight and managerial foresight, I aligned with other scholars and searched for 'strategic foresight' (Iden et al., 2017; Rohrbeck et al., 2015). This is important for scholarship and my review because strategic foresight in the context of sustainability cannot be limited to large organisations, as is common with corporate foresight, or to individual ability, which is synonymous with managerial foresight. I reviewed 428 articles, excluding those from low-quality journals and a few false positives where strategic foresight appears minimally (once or twice). This means I have ensured a comprehensive corpus, which validates the insights I have derived.

My review has made a significant academic contribution to the field of strategic foresight. I developed a conceptual model of the existing literature that illustrates the emerging themes positively impacting sustainability-focused strategic foresight research. The model highlights the disproportionate focus on SDGs, which has important implications for future research. Furthermore, the observation that most studies focus on Europe is a noteworthy discovery. This also presents opportunities for scholars in the developing world, where sustainability imperatives are crucial (Balthasar, 2024).

A weakness has been the inability to anchor the construct from a range of scholarly articles theoretically. A literature review published in 2017 described strategic foresight as an emerging concept in the growth phase (nascent to intermediate), proposing a strategic management anchor (Iden et al., 2017). This is a long-standing scholarly conversation that cites strategic foresight as a nascent field that lacks theoretical grounding (Rohrbeck et al., 2015). However, when viewed from a sustainability perspective, the predominant focus is innovation and organisational theory. This observation is considered a strength and significant for management scholars. Another strength is the credible SDG implementation framework (Montiel et al., 2021) that guided the initial categorisation and coding of the fragmented body of literature, enabling the structured identification of themes.

5. Future research and conclusion

This review aimed to understand how the agenda on sustainability-focused strategic foresight research has evolved since the introduction of the SDGs in 2015. In examining the existing knowledge infrastructure, I identified nine strategic foresight themes, of which five are considered key research themes because they relate to SDGs, and four are foundational support themes, serving as tools or capabilities. The five key themes are, enhanced innovation, organisational capabilities, sustainability of natural resources, social cohesion and policy development. The support themes are individual cognition, methodological advancements, dynamic capabilities and digital tools. The most pronounced findings are three-fold, one, a disproportionate focus on the SDGs, wherein only 6 of 17 goals feature, and the prominence of SDG 9, which involves innovation and industrialisation. Two, the low scholarly focus and depth of research related to societal benefit and well-being. Three, the geographical centrality of sustainability-focused research in Europe. Beyond these principal findings, I have also conducted a deeper critique of the finer nuances in the literature. My extensive analysis and synthesis have identified research gaps, leading to a series of future implications. I outline a series of research questions below, primarily aimed at scholars in the developing world and emerging economies.

Future research questions should consider:

- How to conduct a strategic foresight programme aligned to sustainable development, and quantitatively measure the success of the effort, in an emerging or developing economy?
- Does strategic foresight enable the achievement of sustainable development, measured by the SDGs and informed by empirical evidence?
- What are the cognitive mental model techniques, and shifts, over time, that translate to quantifiable strategic foresight outcomes?
- How do strategic foresight methods shape power in international policy development of disproportionate nations?
- How can organisations institutionalise multilayered strategic foresight, especially cognitive elements, into innovation practices to enable sustainability?
- How can strategic foresight activities be integrated and operationalised into organisational structures, and what enables or constrains this institutionalisation?
- How effective is strategic foresight in fragile contexts, from empirical testing?
- How does AI-enhanced strategic foresight influence an organisation's performance?

The relevance of management scholarship lies in the synthesis and operationalisation of sustainability-focused strategic foresight research. The theoretical and practical significance emanates from examining the existing strategic foresight knowledge infrastructure, extracting themes, synthesising relationships, and identifying conceptual gaps for future research. My main findings from current academic discussions, framed within the sustainable development framework, reveal an unequal distribution of strategic foresight research. The dominant themes related to sustainable development are enhanced innovation and organisational capabilities. Research focusing on societal benefits is limited, as indicated by less prominent themes such as the sustainability of natural resources, social cohesion, and policy development. Additionally, four enabling environment themes were identified, offering a deeper narrative and a comprehensive view of the current knowledge infrastructure on strategic foresight. The review holds theoretical significance by redefining the potential of strategic foresight as a key tool for pursuing the sustainable development agenda.

A novel conceptual model is developed, illustrating the current significance of various contributing strategic foresight themes alongside supporting themes (Figure 3). This represents a substantial contribution to the field because it guides management scholars by highlighting research gaps. Out of the 17 SDGs, 11 remain under-researched, and some goals that are represented lack research depth. Moreover, most studies focus on Europe. The disparity in scholarly attention to the SDGs and geographic focus offers valuable insights and opportunities for future research, making a significant contribution to sustainability-focused strategic foresight research.

Rojon et al. (2021) found SLRs in management studies are aimed at academic audiences. The authors emphasise the link to practice opening conversations with management and creating opportunities for collaboration (Rojon et al., 2021), described as collective intelligence by Krlev et al. (2025). The practical value of strategic foresight in organisations is not appreciated or understood by management because it may be perceived as abstract, and the return on investment may not be tangible or clear (Haarhaus & Liening, 2020). Within the context of bridging the practice gap, future research holds significant promise.

In the face of environmental uncertainty, paralleled to fragile contexts (Balthasar, 2024), strategic foresight is conceptualised as a set of techniques and activities that enhance the dynamic capabilities of organisations to persist in uncertain and changing environments (Haarhaus & Liening, 2020). GCs are characterised by complexity and uncertainty (Berrone

et al., 2023). Vecchiato (2012) argue that foresight efforts in strategy formulation are about preparing managers to make informed decisions, rather than predicting the future. Decision-making by entrepreneurs is highlighted by Kapoor & Wilde (2023) and Peterson & Wu (2021), who studied forecasting behaviour and project complexity respectively.

Limitations

Research limitations include incomplete scoping, specifically inaccurate keywords, a limited or inaccurate time period, and limited search sources (Fan et al., 2022). I have adequately addressed these research limitations. I undertook extensive groundwork to ensure informed keywords, because strategic foresight is a term with ambiguous connotations in academia (Rohrbeck et al., 2015). Following deep reading and an appreciation for the difference in similar terminology such as corporate foresight and managerial foresight (as indicated in the methodology section), I aligned my key words with other scholars and searched for 'strategic foresight' (Iden et al., 2017; Rohrbeck et al., 2015). The time period is informed by the introduction of the SDGs in 2015, therefore the review period is from 2015 to the present. I searched Scopus, which is referenced as a comprehensive database (Fahimnia et al., 2015), and EBSCO, only to find that EBSCO primarily contained duplicates. It follows that my search sources are comprehensive. However, while every endeavour has been made to ensure validity and clarity of terminology, time period and search sources, the nature of literature reviews introduces some level of bias.

A uniqueness of SLRs is the requirement to detail the search process to a reproducible level of granularity (Fisch & Block, 2018), but balanced by the depth of analysis as cautioned by Rojon et al. (2021). Undertaking a comprehensive analysis lies in the integrity of the final corpus, similar to not having a representative sample for a field experiment, it follows that the conclusions will not be credible (Rojon et al., 2021). In SLRs the role of researcher judgement is considered, and the justification of every choice and process transparency lends credibility (Rojon et al., 2021; Tranfield et al., 2003). My approach ensures reproducibility and granularity. However, strategic foresight research is heterogeneous by nature (Iden et al., 2017), therefore, despite aligning to other scholars in the field (Iden et al., 2017; Rohrbeck et al., 2015), the search term 'strategic foresight' could have been limiting. For example, studies show emerging parallel sustainability themes, namely, the use of scenarios, a strategic foresight technique, adopted for uncertain environments (Haarhaus & Liening, 2020), proved successful in building a sustainable food system to enable decision-making in the face of future adversity (Agyemang et al., 2022). This article is not part of the corpus because strategic

foresight is not a term in key search fields, but it employs a strategic foresight technique. Therefore, while every endeavour has been made to ensure accuracy, comprehensiveness, reproducibility, and granularity, this review has limitations in that specific strategic foresight methods were not explored separately. This is because strategic foresight methods are not clearly defined, therefore it is not practically possible to undertake a comprehensive, reproducible, and informed search.

The study may face limitations in generalisation and theme identification. A SLR by its very nature is intended to minimise bias from the requirement of method granularity, analysis and transparency (Krlev et al., 2025; Tranfield et al., 2003). I employed a credible organising framework developed by Montiel et al. (2021) for the initial analysis. However, due to the multilayered nature of sustainability-focused strategic foresight research, in which a single article may explore several themes, there may be subjectivity in assigning these themes.

In conclusion, the existing knowledge infrastructure related to sustainability-focused strategic foresight research presents significant academic gaps, especially in societal benefits and developing economies, thereby offering fertile opportunities for future research.

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