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Strategic Foresight in FinTech: Harnessing Scenario Planning for Future Readiness

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Strategic Foresight in Fintech: Harnessing Scenario Planning for Future Readiness

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Abstract: Strategic foresight is an essential approach for anticipating and preparing for potential developments in a rapidly evolving ecosystem. This white paper explores the critical importance of future thinking and foresight methods in fintech ecosystem. It highlights scenario planning as a powerful tool for strategic foresight in fintech ecosystem. It examines the value of scenario planning for businesses, governments, and regulators, while addressing the challenges and limitations of its application. The paper reviews specific use cases of scenario planning in government and financial institutions, offering insights into how it can further benefit these sectors. Ultimately, the paper calls on stakeholders to embrace future thinking and scenario planning as integral elements of their strategic planning processes.

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1. Fintech ecosystem and disruptive threats

Fintech, short for financial technology, as an emerging technology-enabled innovation affecting many aspects of the financial market such as its infrastructure or financial stability, has received significant attention in both academia and the world of practitioners (Nicoletti, 2017). Its rapid evolution, especially the application of Artificial Intelligence (AI), is a topic of much speculation, yet the vast and complex factors influencing its development are so uncertain that traditional forecasting methods fall short in determining its future trajectory. The uncertain future of fintech and its rapid growth is delivering disruptive action in the financial service market, producing both opportunities and challenges. On one hand, it is modernising financial architectures and driving significant shifts in consumer and market behaviours. On the other hand, it is disrupting established employers, traditional service models, and regulatory frameworks. No stakeholder in the financial service market is immune to the disruptive powers of the rapidly growing changes brought by technology and innovation in this sector (Curtis, 2023).

The complexity of fintech ecosystem is shown in the Figure 1. It is spanning over three dimensions, information technology, financial services and the real economy value processes representing the infrastructure, application, and processes in play for innovation in fintech market (Alt, Fridgen and Chang, 2024). The fintech innovation is characterised by convergence in these three areas. Firstly, the convergence in technology enabling innovation and financial solutions, such as multiple forms of IT (GenAI, distributed ledgers or technological platforms). Secondly, the convergence between the IT solutions and financial services enabling tech driven innovation in financial products, processes, and business models. The example of such financial solution is open banking system, where banks and financial institutions provide secure access to their customers' financial data to third-party service providers through application programming interfaces (APIs). And finally, the convergence between the financial services and the real economy value processes. Embedded financial services such as payments, lending or insurance are helping delivering products and services on e-commerce platforms, representing real threat to traditional financial institutions as customers behaviour changes towards the convenience of using the financial services as part of the software and applications they are using in their daily life.

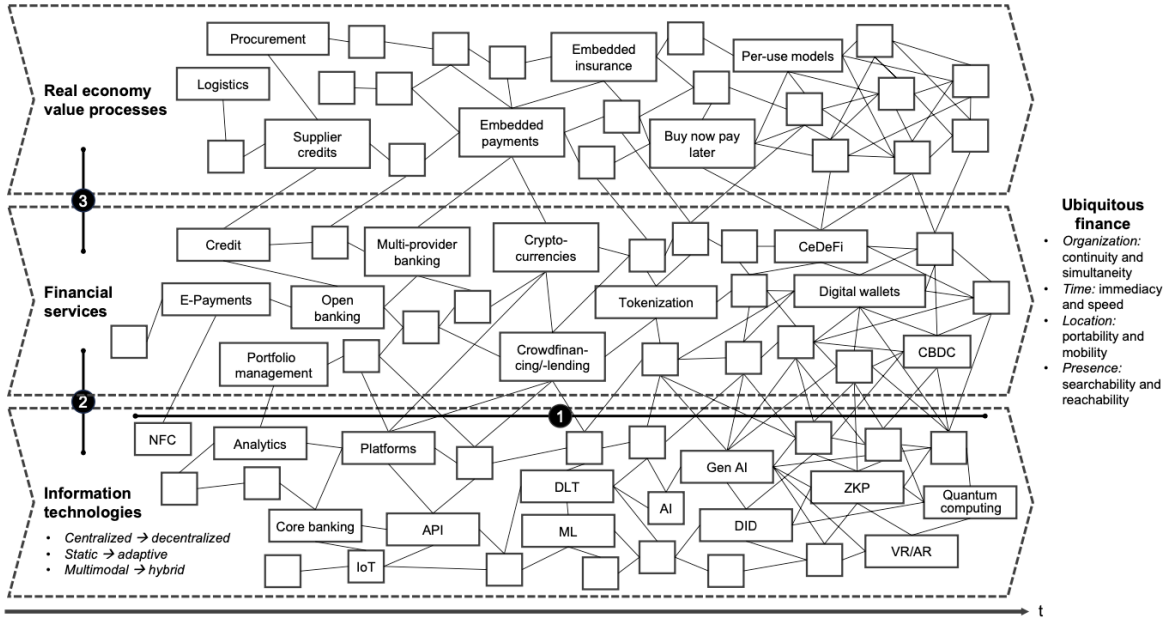


Fig. 1 Ubiquitous finance enabled by three increasing convergences. (Legend: *(1)–(3)* dimensions of convergence; *CeDeFi*, centralized decentralized finance; *BI*, business intelligence; *API*, application programming interface; *IoT*, Internet of things; *DLT*, distributed ledger technology; *ML*, machine learning; *Gen AI*, generative artificial intelligence; *DID*, decentralized identifiers; *ZKP*, zero-knowledge proof; *VR/AR*, virtual/augmented reality)

Figure 1 Financial ecosystem as multi-dimensional levels of IT, financial services, and real economy value processes (Alt, Fridgen and Chang,2024)

The fintech ecosystem introduces several disruptive threats to various stakeholders, reshaping the financial landscape. Fintech companies bypass traditional banks by offering direct-to-consumer services, such as digital wallets, peer-to-peer lending, and payment platforms. New entrants, such as neobanks and payment providers, erode the customer base of traditional banks. They put pressure on the traditional banks revenue due to lower fees, alternative lending platforms, and competitive interest rates (Walker, Nikbakht and Kooli, 2023). Furthermore, traditional financial services are unable to match the agility and innovation of fintech start-ups in areas like user experience and data-driven services. However, this is not a straightforward link between fintech firms disrupting traditional financial services institutions and their business models, but rather more complex, often co-dependent relationship between the tech firms and incumbent financial institutions, sharing the same infrastructure and transforming the financial services ecosystem in a new interdependent coopetition (Larsson *et al.*, 2024).

Regulators face a multifaceted challenge in navigating the rapidly evolving FinTech landscape (Anagnostopoulos, 2018). There may be **regulatory gaps** as innovation in fintech often outpaces the creation of appropriate regulatory frameworks, leading to challenges in oversight. Global fintech operations create jurisdictional and compliance complexities and there is an increase in **cybersecurity threats as** reliance on digital platforms amplifies risks of fraud, data breaches, and systemic vulnerabilities. Furthermore, the emergence of decentralised finance (DeFi) and cryptocurrencies poses risks to traditional monetary systems. While the fintech services dominate the retail market (Curtis, 2023), there is an increase in technological innovation in the regulation (RegTech) providing innovative solutions for the resource intense regulation compliance of retail and corporate banks (Kanojia, Kaur and Bhavya, 2024). Striking the right balance between innovation

and oversight, addressing regulatory arbitrage, managing the complexities of RegTech, and fostering international coordination are critical to ensuring a stable and secure financial ecosystem for customers.

The evolving fintech ecosystem presents both opportunities and challenges, including over-regulation, regulatory arbitrage, reliance on RegTech, and fragmented international frameworks. Traditional planning methods struggle to address these complexities and the uncertainty posed by disruptive technologies and varying regulations. Strategic planning and foresight are essential for anticipating risks, identifying opportunities, and developing adaptive strategies. These tools enable regulators and institutions to move beyond reactive measures, fostering collaboration and resilience in a dynamic environment. By leveraging foresight, stakeholders can ensure sustainable innovation, cohesive policies, and better long-term stability in the rapidly transforming financial landscape, however, surprisingly, as Figure 2 shows less than half of the firms in financial sector use continuous approach to strategic foresight than the top sector – the automobile industry (Schwarz and Wach, 2023).

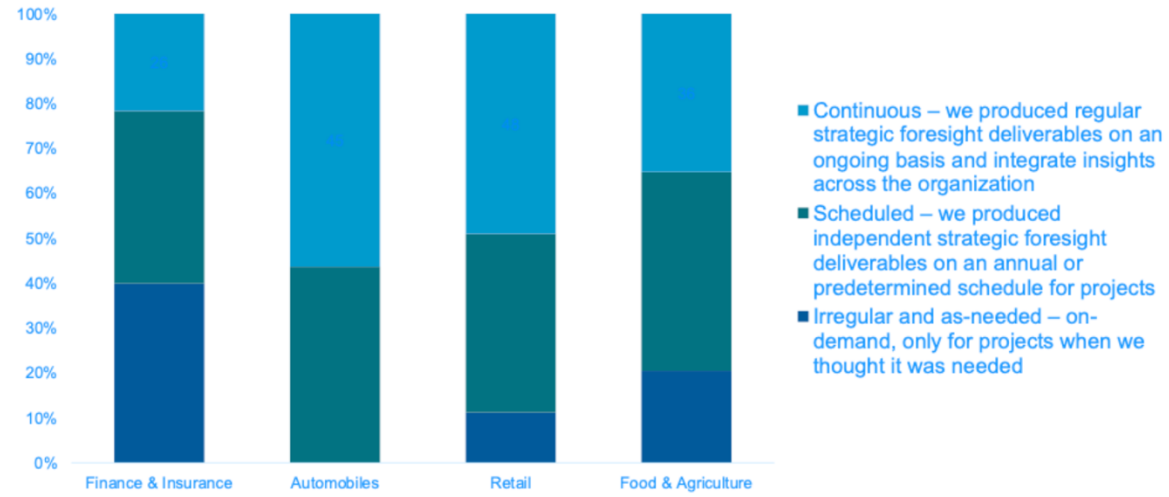


Figure 2 Strategic foresight use by industry (Schwartz and Wach,2023)

This white paper is structured as follows. Section 2 briefly describes what Strategic Foresight is and it introduces some of the foresight methods and tools used by the practitioners in the field of future thinking and foresight. From this, in Section 3, we elaborate further on one particular method for foresight – scenario planning (SP). In this section, we provide an overview of the approach and the different stages required during a SP exercise. In Section 4, we provide several cases of where SP has been adopted by industry and government, including examples from the finance sector. In Section 5, we conclude by describing a call for action for next stages.

2. Strategic Foresight, methods, and tools

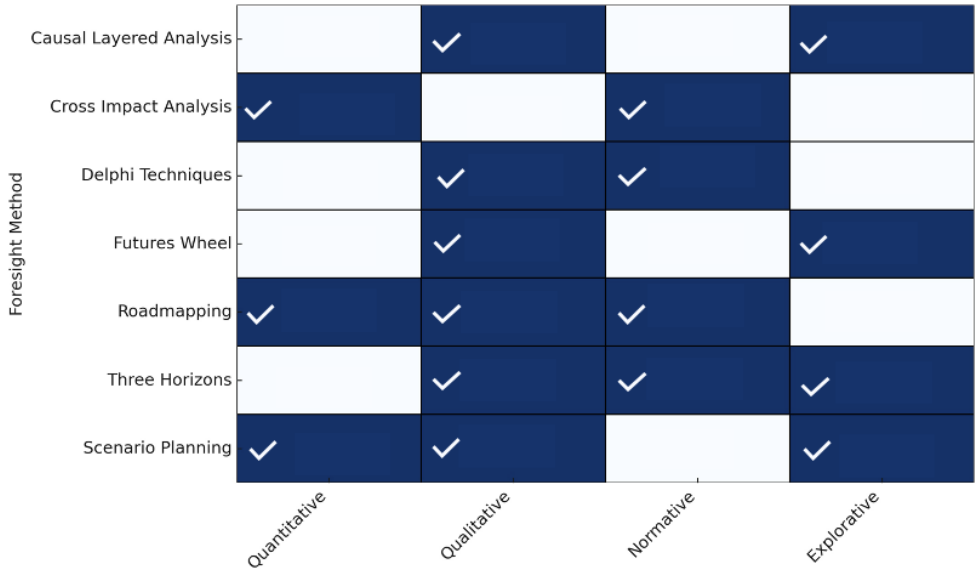
Foresight is a process of trying to anticipate the future. Strategic foresight is a systematic process used by organisations to make sense of change in trends and opportunities, as well as to uncover risks, and challenges, helping organisations better prepare for uncertainty (Rohrbeck and Kum, 2018). Strategic foresight doesn't aim to predict the future precisely but

rather to explore multiple possible futures to enhance strategic decision-making and adaptability. It shifts the focus from forecasting to understanding multiple possibilities, considering various social, economic, political, and technological factors and rare but plausible events (Goodwin and Wright, 2010). Foresight is critical in environments with high volatility, uncertainty, complexity and ambiguity and high impact of the driving forces, helping to navigate the changes in the organisations' environment by considering a broad spectrum of potential futures. The approach focuses on strategic conversation which emphasises flexibility, creativity, and a deeper understanding of the interconnected forces shaping the future, ensuring that organizations remain prepared for a variety of potential outcomes (Van der Heijden, 1996). There are several approaches to foresight and tools used in practice.

In fintech, traditional forecasting methods are often used alongside modern techniques like machine learning and AI (Wasserbacher and Spindler, 2022). However, there are a lot 'known unknowns' - uncertainties, which can't be modelled or forecasted based on historic data. Given the rising level of uncertainties in the fintech ecosystem - many of which cannot be quantified with probabilities - strategic long-term planning has become increasingly challenging. The rapidly evolving environment in which businesses, governments, and customers operate further complicates this process, necessitating the use of diverse foresight tools to navigate future developments effectively.

Foresight tools and methodological approaches are used depending on the purpose, inquiry and the types of future insights they produce (Spaniol, 2024). While this paper ultimately proposes Intuitive Logic Scenario Planning (ILSP) as a foresight tool to develop future scenarios in fintech focusing on different focal issues and stakeholders' priorities, it will also provide an overview of several alternative future thinking and foresight tools used in practice. Researchers such as Poli (2018) and Spaniol (2024) have mapped these methods and developed typologies to highlight their distinct characteristics, purposes, and applications. A common way to categorise foresight methods is by contrasting '*qualitative'* and '*quantitative'* approaches, which either use insights of the practitioners and participants or a measurable data input. Another key classification is between '*explorative'* and '*normative'* methods, with the former focusing on potential '*plausible'* future scenarios and the latter on '*desired'* future outcomes. These categorisations provide a structured understanding of foresight methods, aiding practitioners in selecting the most appropriate tools for their needs (Glenn, 2004). Table 1 shows an example of foresight methods and their characteristics.

Table 1 Example of foresight methods and their characteristics. Taxonomy extracted from Glenn (2004)



By understanding the foresight tools characteristics, its advantages and disadvantages, practitioners can decide whether the selected foresight method aligns with the goals and resources of their foresight project. The following section introduces a selection of future thinking and foresight methods as a brief overview of a variety of future thinking and foresight tools used in practitioner field for different purposes, contextual situations, and client's needs.

2.1 Causal Layered Analysis

Causal Layered Analysis (CLA) is a foresight methodology developed by futurist Sohail Inayatullah (1998). The method analyses issues on multiple levels called '*litany'* (surface issues), '*systemic causes', 'worldviews', and 'myths/metaphors'*. It is designed to explore issues, challenges, or trends at multiple levels of depth. This layered approach ensures that scenarios are not just superficial but rooted in deeper social, cultural, and systemic dynamics. The approach offers several advantages, including the ability to explore deeper systemic and cultural factors, challenge assumptions, and apply insights to a wide range of complex issues. However, it also has disadvantages, as outcomes can feel abstract and difficult to translate into action, the process can be resource- and time-intensive, and it requires skilled facilitation. However, the method is suitable for exploring deeply rooted issues and generating transformational scenarios, but it is not suited for a quick, tactical foresight exercises.

2.2 Cross Impact Analysis

Cross-Impact Analysis (CIA) is a systematic foresight method used to explore and understand how different events, trends, or variables influence each other (Salo *et al.*, 2022). By analysing these interactions, it helps to identify potential future outcomes and their likelihoods. The method quantifies the strength and direction of relationships (e.g., probability, numerical weights, or qualitative descriptors). CIA is particularly useful for understanding complex, interconnected systems and building coherent, dynamic scenarios. This approach offers several advantages, including the ability to handle complexity in systems, support consistent scenario development, provide flexibility in both qualitative and quantitative methods, and encourage holistic, systems thinking. However,

it also has disadvantages, such as being data-intensive and potentially lacking complete information, being time-consuming for large datasets, carrying the risk of subjectivity in qualitative assessments, and producing outcomes that may be complex to interpret. However, Cross-Impact Analysis is a powerful foresight tool for systematically exploring the dynamic interplay of factors shaping the future. By understanding these interdependencies, decision-makers can anticipate disruptions, identify opportunities, and design more robust strategies.

2.3 Delphi Techniques

The Delphi Technique method is a widely used foresight technique designed to structure group thinking and facilitate effective communication when reflecting on complex issues. It was invented by T. J. Gordon (2004) for the Millennium Project. It involves gathering insights and predictions from experts through a series of iterative learning rounds - surveys, fostering a process of consensus-building and refinement over time (Belton *et al.*, 2019). This approach offers several advantages, including virtual participation, the promotion of consensus, the ability to handle single or multiple questions, the capacity to bring together a large number of experts, and the anonymity of participants. However, it also has disadvantages, such as being a time-consuming and labour-intensive process that can be expensive, relying on expert availability, requiring participant commitment, and depending on the expertise of contributors for quality outcomes. The Delphi method is particularly valuable for addressing complex, uncertain issues and fostering expert consensus. However, its effectiveness depends on careful facilitation, participant commitment, and managing the inherent challenges of iterative, expert-driven processes.

2.4 Futures Wheel

The Future Wheel, developed by Jerome Glenn (1994), is a qualitative foresight method used to organise and identify the potential impacts and consequences of a specific event or decision. To create a Future Wheel, participants first gather to discuss the chosen topic, which is placed at the centre of a sheet of paper or board. Around the central topic, participants list all direct impacts that arise during the discussion. Next, they examine the potential consequences of each direct impact, forming a second layer of impacts around the first. This process can be repeated multiple times, adding subsequent layers to explore ripple effects further. The result is a visual diagram resembling a wheel, mapping the cascading impacts of the initial topic (Lauttamäki, 2016). This approach offers several advantages, including visual clarity, encouragement of collaboration, the ability to explore ripple effects, ease of understanding, and stimulation of brainstorming. However, it also has disadvantages, such as providing limited depth, posing a risk of overloading the diagram, and lacking quantitative analysis. The Future Wheel is a powerful tool for brainstorming and visually exploring the cascading impacts of decisions or events. However, its effectiveness can be limited by the subjective nature of group discussions and the complexity of mapping interconnected systems.

2.5 Technology Roadmapping

Roadmapping is a foresight method used to outline the future of a specific field, often focusing on technology (Phaal, Farrukh and Probert, 2004; Hussain, Tapinos and Knight, 2017). It generates a timeline of developments for interrelated technologies while incorporating factors such as regulatory and market structures. Roadmapping typically involves creating a graphical depiction that provides a strategic view, helping stakeholders envision the future and make informed decisions about possible pathways. This, often

normative, method not only identifies key drivers of change but also supports policy and strategy formulation. It encompasses various foresight activities, from developing visions to detailed projections of future trends. While there are multiple approaches to roadmapping, the ultimate goal is to chart a clear path forward, enabling alignment of innovation, investment, and planning efforts. This approach offers several advantages, including strategic alignment with visions and goals, identification of key drivers, clear graphical representation of timelines and relationships, and promotion of long-term thinking. However, it also has disadvantages, such as being a resource-intensive process, the risk of oversimplifying unpredictable factors, limited flexibility that may lead to obsolescence, a lack of quantitative detail, and a focus on desired futures that could overlook critical disruptions. Although, roadmapping is a valuable tool for creating a shared strategic vision and identifying pathways for future development it requires careful facilitation and regular updates to remain relevant in dynamic and complex environments.

2.6 Three Horizons

The **Three Horizons method** is a strategic foresight framework used to explore and navigate the transition from the present to the future (Sharpe *et al.*, 2016). It helps identify opportunities for innovation, manage uncertainty, and envision transformational change over time. Horizon 1 (H1) represents the '*Present System'*. It focuses on optimising and maintaining the current dominant systems, which face decline as disruptions emerge. Horizon 2 (H2) represents the '*Transition Zone'*. It centres on experimentation and innovation to bridge the gap between H1 and H3, while managing resistance from existing systems. Horizon 3 (H3) is the *'Emerging Future'*. It visualises a transformational future dominated by new paradigms and visionary ideas, serving as a strategic guide despite its speculative nature. This approach offers several advantages, including balancing short- and long-term thinking, emphasising the importance of disruptive ideas in H2, and providing strategic clarity for systemic transformations. However, it also has disadvantages, such as the complexity of balancing H1, H2, and H3, the speculative nature of H3, the risk of neglecting H2 due to a focus on either maintaining H1 or envisioning H3, and the resource-intensive nature of the analysis. While the Three Horizons method is a versatile and effective tool for managing transitions and envisioning transformative futures, its success depends on skilful balancing of horizons, stakeholder alignment, and the ability to adapt to dynamic and uncertain environments.

2.7 Strategic foresight method design

Strategic foresight method design involves selecting and applying appropriate tools to explore future uncertainties and inform decision-making. Some of the discussed tools are part of the recommended foresight methods in the Government Office for Science Futures Toolkit, which provides policymakers and analysts with guidance on developing foresight projects. The toolkit outlines pathways for using these tools effectively, ensuring they align with the intended purpose of the analysis, whether for strategic planning, policy development, or risk assessment (Figure 3).

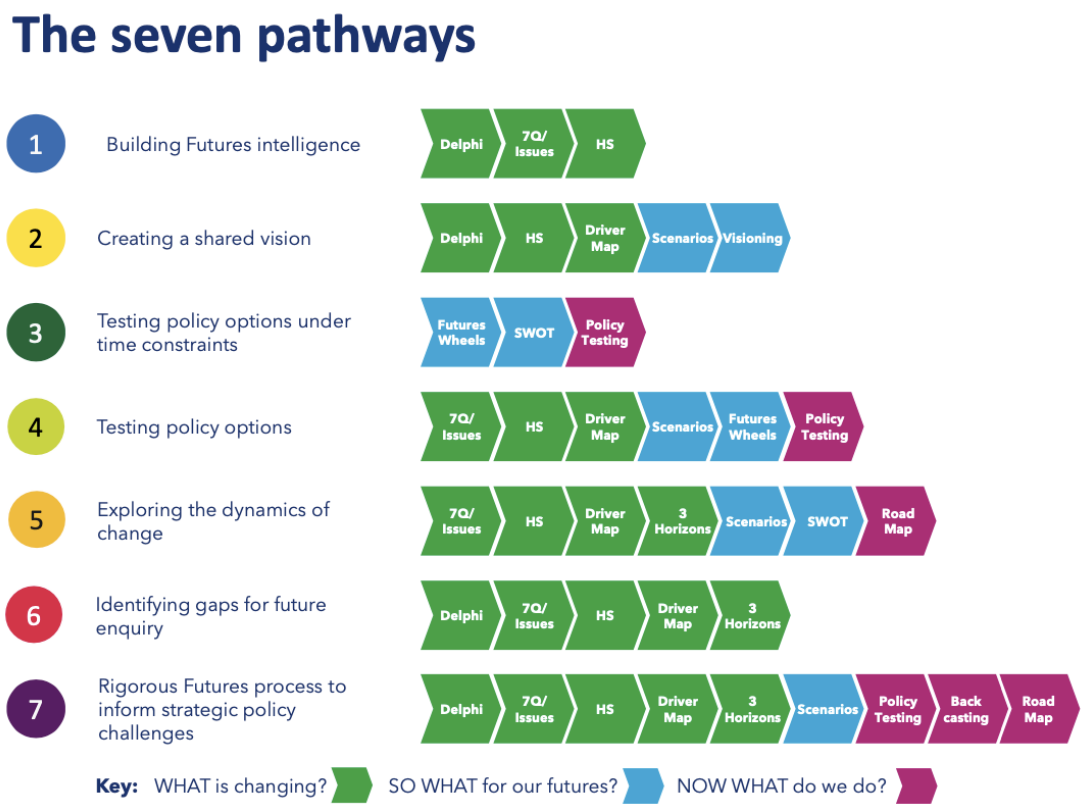


Figure 3 The seven pathways. Source: Government Office for Science, The Futures Toolkit.

All of the methods above can be used as standalone foresight methods, in combinations with each other depending on the purpose of the strategic foresight, or in combinations with SP as introduced in the next section.

3. Scenario Planning

From the potential approaches to future thinking and foresight, SP emerges as a valuable foresight-based strategic tool (Jarzabkowski, Balogun and Seidl, 2007) used to prepare for the future by identifying emerging trends and disruptions that could impact industries, policies, or societies, and that will ultimately impact on organisational decision making. SP is one of the most widely used methodological tools in the futures and foresight field (Spaniol and Rowland, 2019). This white paper proposes the SP approach as the primary foresight method (Cairns and Wright, 2011) for the Financial Regulation and Innovation Lab (FRIL) due to its alignment with the project's goals, the complexity of the financial sector, and the need to navigate uncertainty and rapid innovation.

SP can be a valuable approach for its ability to prepare organisations for uncertainty and complexity. The explorative approach encourages adaptive thinking, enabling firms to pivot their strategies based on deeper understanding of the external environment as a system and its potential evolving circumstances – 'prospective sensemaking'. As such, SP provides a structured framework to assess long-term impacts of decisions in dynamic, complex, and uncertain fintech environment. This method complements traditional forecasting by addressing uncertainties that models alone cannot predict, looking specifically for any 'out of sight knowledge' (Dufva and Ahlqvist, 2015). The participatory and deliberative approach, described as an inclusive practice of future thinking (Pernaa, 2017) and prospective sensemaking - a future-oriented form of sensemaking (Maitlis and Christianson, 2014) - moves beyond simple trend extrapolation. It

promotes a more creative yet methodical exploration of potential futures. The Strathclyde Business School has long history of both academic research and practice (van der Heijden, 2011; Bradfield, Cairns and Wright, 2015; Cairns and Wright, 2018). The SP tool used falls into the school of intuitive logic models and will be introduced next.

3.1 Intuitive Logic Scenario Planning Context

The Intuitive Logic Models school represent a popular school of developing scenarios (Bishop, Hines and Collins, 2007). Its origins are associated with Royal-Dutch Shell company and was popularised by many of the foresight practitioners from its strategic planning department (Wack, 1985; Van der Heijden, 1996; Schwartz, 1998; Bradfield *et al.*, 2005). This methodology relies on qualitative data to develop future scenarios, aiming to identify possible yet plausible disruptive changes and long-term discontinuities through the participative engagement of experts. This method potentially provides most flexibility and creativity in exploring future scenarios and encourages discussion among stakeholders on adaptation and resilience under various scenarios. However, the method is often criticised for its lack of quantitative reliability and the potential expert judgement biases, which require a skilled facilitator team (Crawford, 2021).

Exploring future and foresight for financial regulation and fintech ecosystem is critical to help guide stakeholders including regulators in recognising shifts in markets, technology, and consumer behaviour that may introduce risks or opportunities (Aysan and Nanaeva, 2022). SP allows stakeholders to approach these issues differently by fostering long-term and flexible thinking. Unlike traditional regulatory methods, which focus on existing frameworks and incremental adjustments (Anagnostopoulos, 2018), SP encourages stakeholders to imagine multiple plausible futures including disruptive developments like digital currencies or global fintech evolution. It helps the stakeholders identify emerging risks and opportunities in a structured, yet creative way, enabling them to prepare for uncertainty and act proactively rather than reactively. The urgency of developing resilience and adaptability in market, policy and regulation in the increasingly uncertain world is pushing strategic foresight to the forefront of agile decision-making and governance (Umbach, 2024). For financial institutions and regulators, integrating foresight into strategy can lead to a more resilient approach to navigating the future (Jaroonvanichkul, 2023).

The SP method was identified as the best fit for the foresight project with FRIL based on criteria, such as, the methods' ability to handle complexity; the ability to engage variety of stakeholders; and its flexibility and adaptability to explore the dynamic environment of fintech ecosystem. While analysing current trends provides a useful foundation for predicting resource needs and planning actions with relative certainty, the future of the fintech ecosystem and financial regulation will also hinge on critical uncertainties—some with potentially extreme impacts. These include shifts in regulatory frameworks, such as the introduction of the Consumer Duty, advancements in AI, evolving consumer behaviours, and competitive dynamics between traditional financial institutions and emerging fintech firms. Preparing for these uncertainties requires a strategic approach that embraces flexibility and anticipates disruptive changes.

For instance, regulators, and risk and compliance professionals may seek to stay ahead of advancements in regulatory technology by exploring future possibilities. They may examine how key drivers of change influence alternative future scenarios and consider how these scenarios could impact current financial regulations and governance. Questions such as "What actions will regulatory bodies need to take under various scenarios?" and "Will the current regulatory

frameworks sufficiently address the challenges of emerging technologies?" become crucial. For the organisations in FinTech Scotland, understanding how various regulatory frameworks might evolve in response to innovations like blockchain, AI in finance, or global economic changes will help in shaping adaptive policies and strategies.

3.1 Intuitive Logic Scenario Planning Method

ILSP aims to develop, collaboratively, multiple plausible scenarios based on critical uncertainties in the external environment of the organisation, upon which organisation has no control and which may be most impactful on organisation's focal issue in the future. The ILSP process activities are illustrated in the Figure 4 as a three distinctive phases, pre- workshop, workshop, and post-workshop phase, where the pre-workshop phase focuses on the defining the purpose of the SP project and the SP project design, the workshop phase includes usually 2-day participative workshop activities, and the post- workshop phase represents the transition from creating the alternative future scenarios to their use for the identified purpose in organisation.

Figure 4 Scenario planning process activities.

The scenario developmental phase includes series of activities with the aim to identify key driving forces, explore uncertainties as an alternative future concern, and develop a range of scenarios that depict alternative future end states based on the most impactful uncertainties. In addition to developing future alternative scenarios, the participation in the SP workshops offers practical insights for industry experts, firms, and policymakers through the deliberative practice of prospective sensemaking, organisational learning, and knowledge creation (Dufva and Ahlqvist, 2012).

While SP can provide valuable insights, it also poses several challenges and limitations. One major challenge is its complexity, as developing and analysing multiple scenarios can be resource intensive. The SP design comprises of three areas of essential factors to consider in

the pre- workshop phase: people-based factors, process design factors and intentional benefits factors (Figure 5).

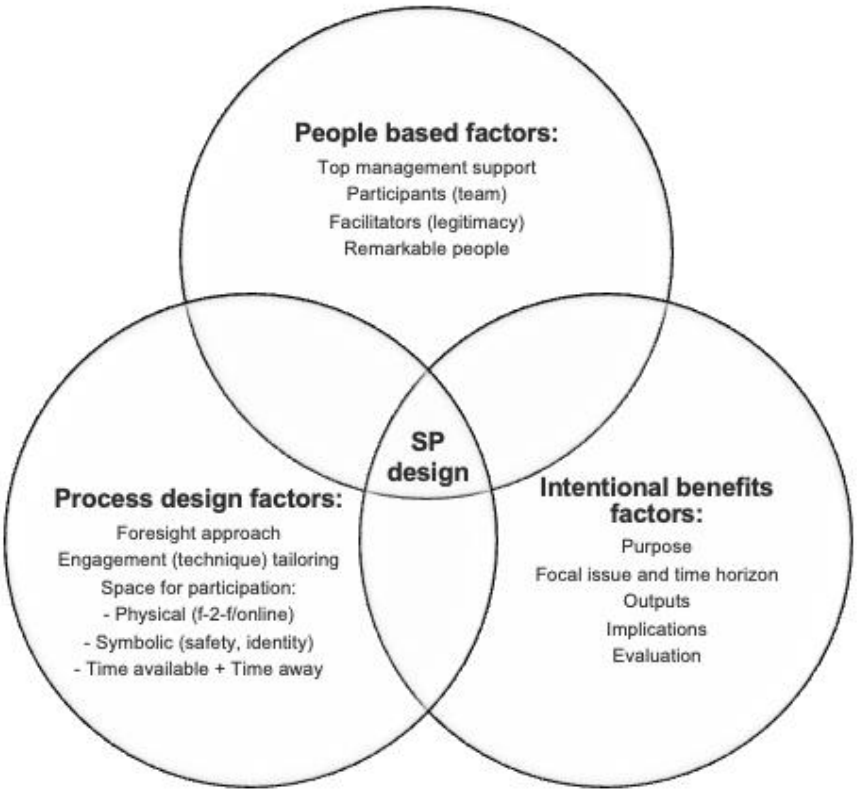


Figure 5 SP design factors based on ILSP method.

There are also reservations towards the SP method, as the inherent unknown and uncertain future means that scenarios may fail to capture all possible outcomes. There is a possibility that the scenario building outcome may be affected by participants bias, for example towards desirable future. Cognitive bias can influence SP process, as the perspectives of those creating the scenarios can lead to skewed or incomplete views of future possibilities. Furthermore, implementing insights from SP into actionable strategies can be challenging for organizations, limiting its practical effectiveness. The next section will look at the value of scenarios in the fintech ecosystem and examples of foresight activities across various stakeholders in the financial sector.

4. The Value of Scenarios for FinTech Ecosystem

SP project should start with a comprehensive understanding how the scenarios will be used. The clients intended use will determine the purpose of the foresight project which consequently determine the foresight method design. The value for the client is not only in the process of creating scenarios but also in its consequent use (Lyytimäki *et al.*, 2013; Elsawah *et al.*, 2020).

4.1 Purpose of scenarios and policy making

The first important issue in development and use of scenarios is the clarity of the purpose. Clarity and strategic fit in the aims and the purpose of the SP is essential to develop effective SP project (Ramirez, McGinley and Rissanen, 2020). Given the wide range of purposes and applications that scenario analysis can fulfil for client such as financial institutions or policy makers, it is crucial to carefully design and select scenarios that align with the intended objectives. IPBES, an independent intergovernmental body, shows the cycle of four major policy making phases of *'agenda setting'*, '*design'*, *'implementation'* and '*review'* against the types of scenarios suitable to answer the questions policy makers would be searching in each phase (Figure 6).

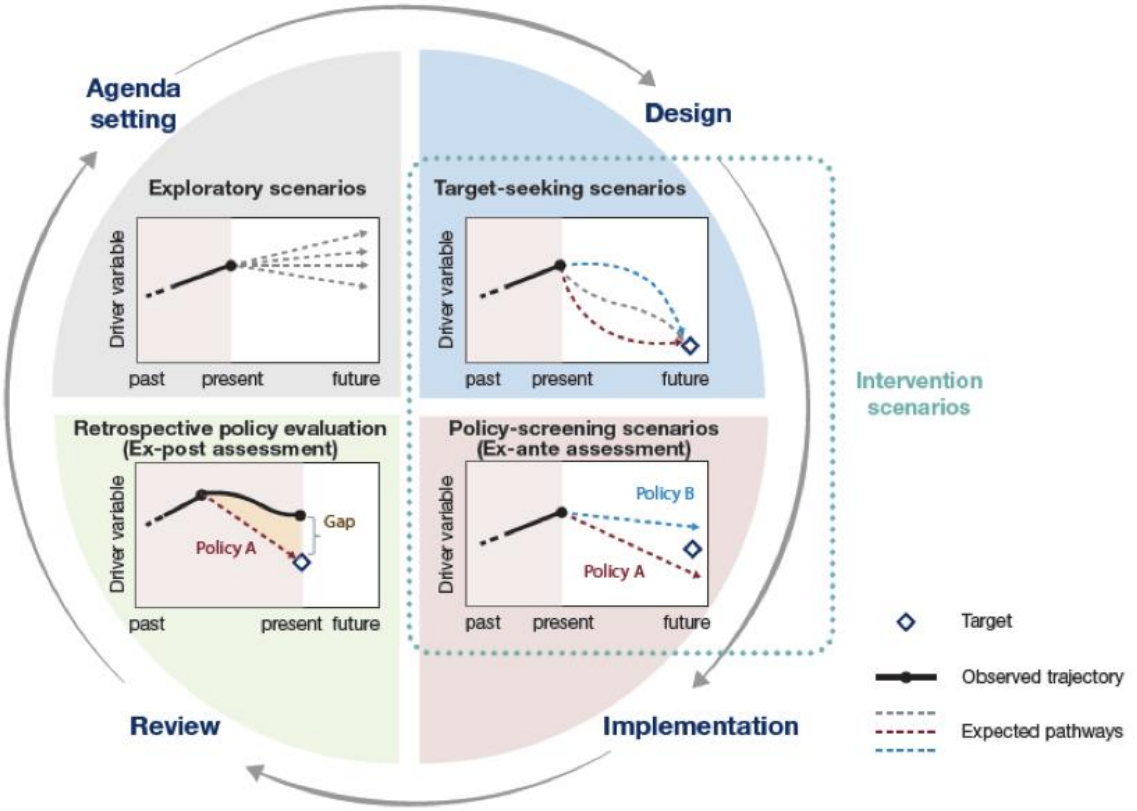


Figure 6 Types of scenario development approaches based on the intended purpose and policy phase. Source: (IPBES, 2016)

Even the policy cycle has been widely criticised as much more non-linear and messy process (Volkery and Ribeiro, 2009), this framework shows each corresponding scenario type illustrated as a graph with the characteristic changes over time, starting with the identification of driving forces. In the '*exploratory scenarios'*, dashed lines indicate various plausible futures, often shaped by narrative storylines (Fenton-O'Creevy and Tuckett, 2022). *'Target-seeking scenarios'* (*or 'Normative scenarios')* feature a diamond symbolising an agreed-upon future target as a desirable future, with coloured dashed lines representing the alternative pathways to reach it. In SP these are developed through a method of '*backcasting'* (Wright and Goodwin, 2009; Kishita, Höjer and Quist, 2024). Similar to explorative scenario building, backcasting scenarios still differ from the predictive

forecasts as they do not seek to predict the likely future but instead explore the possible pathways towards the desirable visions of the future (Tuominen *et al.*, 2014). *'Policy-screening scenarios'* (or "ex-ante scenarios") use dashed lines to depict different policy options under consideration. The pathways evaluate the feasibility and implications of different policy interventions. Finally, in *'retrospective policy evaluation'* (or "ex-post evaluation"), a solid black line shows the observed trajectory of a previously implemented policy, which is compared against dashed lines representing scenarios that could have achieved the intended target.

A recent report from The Centre for Climate Change Economics and Policy and The Grantham Research Institute on Climate Change and the Environment confirms that the clarity of purpose is still a debated issue of the use and the development of scenarios. Täger and Dikau's report (2023) was developed for the central banks and financial supervisors to better prepare for the impacts of climate change. The report discusses the importance of understanding the purpose of the SP project in the context of financial sector. It proposes a framework to align the purpose of the scenario development with the outcomes based on four dimensions, scenario narratives, granular details based on sectoral, temporal, and spatial granularity, relevant model specificities and recognised uncertainties. Well defined scenario analysis then may be used for either strategy and planning, such as a support for organisational resilience, prioritisation of efforts, communication and engagement, or policy implementation in central banking, financial supervision and in the financial sector.

4.2 Value for Businesses and Private Companies

Businesses across many industries could gain value from SP by learning to navigate uncertainty and prepare for the future. Kees van der Heijden summarises how organisation can cope in turbulent world by (Van der Heijden in Kahane, 2012,p.xi):" 1) systematic diagnosis of the situation and its context; 2) network development to enable self-reinforcing coping behaviour; 3) personal identification with the project." Strategic foresight contributes to the first point while the last two points highlight that organisation is made out of people and therefore individuals are a central part of coping with uncertainty influencing the outcomes with their personal identity and value systems.

One of the most quoted examples of SP method embedded in strategic foresight from the business sector is the Royal Dutch/Shell company (Shell, 2025). The company has used SP since the 1970s to navigate the volatile energy market, helping it to anticipate and adapt to major industry shifts (Van der Heijden, 1996). SP enhances the organisation strategic planning by enabling companies to develop flexible strategies that remain adaptable and therefore effective under different potential future outcomes. By identifying risks and uncertainties, SP also improves risk management, allowing businesses to create contingency plans and reduce exposure to potential disruptions. Additionally, SP fosters innovation in companies by revealing new opportunities for growth and development as a response to the emerging market conditions. Finally, SP strengthens decision-making, providing a broader context that leads to more informed and resilient business choices.

Many industries from various sectors such as financial services or pharmaceutical firms have adopted SP to enhance strategic planning and risk management (Ringland, 2010). Scenarios are often publicised as narrative scenarios. In this example from consultancy firm on the future of open banking, Four potential scenarios for the future of open banking, the global management consulting firm based their scenarios on their work with an array of financial institutions (Kearney, n.d.). In this case, they envisioned a variety of potential end states for the impact of 'open banking' in their

four scenarios revealing how the European Union retail market could shift in the future (see Figure 7).

Figure 7 Source: A.T. Kearney analysis (Kearney,n.d.).

By considering the diverse future end states, the financial institutions can evaluate their options, anticipate potential impacts by scrutinising the operating market conditions using further foresight methods such as horizon scanning (Rowe, Wright and Derbyshire, 2017), and strategise accordingly as the market evolves in time. Additionally, scenario modelling can help assess how various factors may influence value drivers in retail banking, enabling financial institutions to take proactive measures to protect or enhance their value.

4.3 Government, Regulators, and the Impact on Financial Institutions

Both governments and regulators have previously utilised SP to anticipate and prepare for future regulatory challenges. The UK government recognises the Futures, Foresight and Emerging Technologies (Government Office for Science, n.d.) analysis as valuable approach to strengthening the government futures thinking not only in policy, but also in strategy development, risk analysis, and organisational development. Foresight projects provide evidence to policymakers to help them create policies that are more resilient to the future.

School of International Futures (2021) highlights effective sustainable foresight in government as a foresight ecosystem built on key features observed in other countries. This approach emphasises future-oriented, adaptable, and long-term thinking, which is essential for policymaking in today's uncertain world (see Figure 8). According to their report the foresight ecosystem is nested in the government and socio-cultural contexts. This ecosystem is enabled through a set of capability features that can be considered at all

levels: at the system level, the department, team, or individual levels, to help build and sustain the foresight ecosystem.

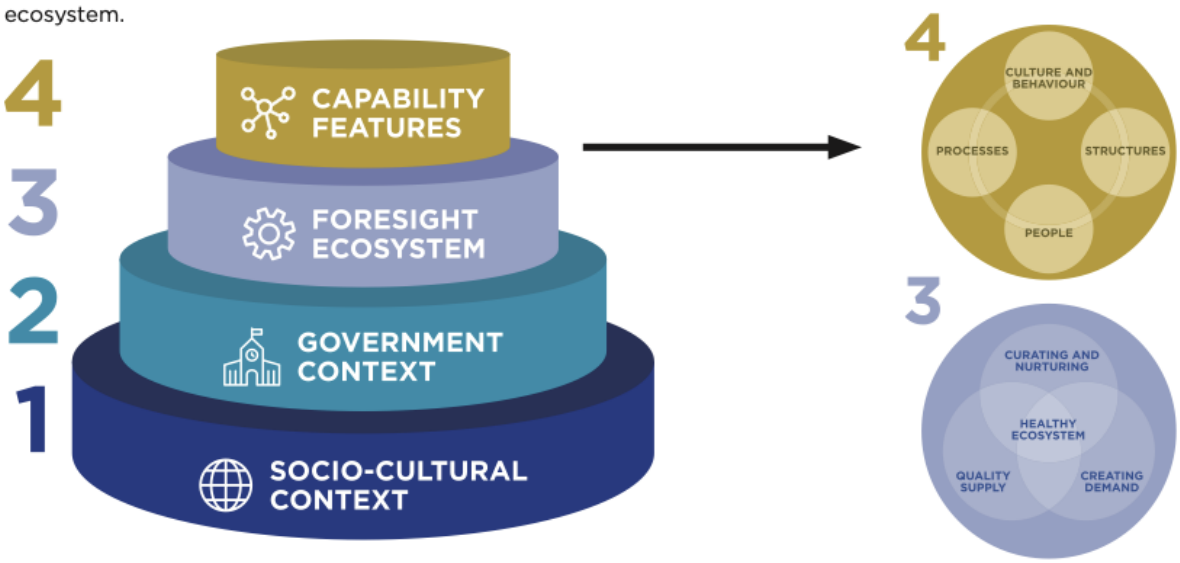


Figure 8 Source: School of International Future report (2021)

Similarly, both government regulators and financial institutions could greatly benefit from SP by improving their ability to anticipate and navigate future uncertainties in several instances. Firstly, SP could enhance their regulatory preparedness by allowing regulators to foresee potential challenges and develop proactive measures that ensure oversight of the financial regulation landscape. Secondly, it strengthens financial stability by assessing potential economic shocks and devising contingency plans that mitigate risks. Furthermore, it encourages identification of future opportunities for fintech development and supporting them with regulatory frameworks that foster growth an innovation. Therefore, SP can be a powerful tool for facilitating collaboration among regulators, large financial institutions, and fintech companies, enabling them to collectively address emerging challenges and ensure a resilient financial ecosystem.

However, Priebe, Veit and Warnke (2025) concluded that the fact that the governments have foresight units and dedicated budgets does not necessarily result in their proactive and forward-looking policy-making. As in Lyytimäki et al. (2013) study where the authors emphasised that in sustainability assessments and indicators designed to support evidence-based policy-making, scenarios may not always be '*used*' as intended. Instead, they can be overlooked (*'non-used')* or even misinterpreted (*'misused')*. Furthermore scenario users in the public sector can face more difficult challenges in establishing the client, framing the purpose of the engagement, and gaining the participation of the all the relevant parties (Volkery and Ribeiro, 2009).

The fintech ecosystem contains many uncertain driving forces which could be implicated in the complex and dynamic environment of the fintech landscape shown earlier, making it challenging to predict exactly how the sector will evolve in the coming years. While some driving forces may be identified as having higher perceived probability – called *'trends'*, other driving forces may be perceived as having high uncertainty of their future outcomes. Both the trends and the uncertainties may significantly influence the sector future trajectory. While it may be easier for the stakeholders to anticipate changes brought by trends, the uncertainties remain

open to the outcomes and require careful consideration for alternative outcomes.

For example, The Future of Financial Future Advice and Wealth Management (Chalmers *et al.*, 2024) report provides details on the future of the wealth advice and financial management sector to the financial advisors and other stakeholders. However, the report focuses only on the overarching market trends in the sector linking future technology as an innovative lever of future development, offering no identification and exploration of the uncertain factors which may impact the market and its stakeholders. This is where SP could offer systematic analysis to complement the reports future thinking and deepen the understanding of the potential future development in this sector. In addition to the technological advancements in the report, systematic analyses of the future using SP as a strategic tool would offer integration of wider system driving forces. The list of the driving forces could draw for example on regulatory environment, consumer adoption and trust, cybersecurity, competitive dynamics in the fintech sector, global political climate, or environmental and social governance considerations.

The focus on trends in the previous report on The Future of Financial Future Advice and Wealth Management is in contrast with the Immersive Technologies Foresight paper by Digital Regulation Cooperation Forum (DRCF, 2023). This explorative foresight paper focuses on specific emergent technology in the financial sector, financial regulation and consumer protection and it has identified many future uncertainties. The paper identifies uncertainties which surrounds various aspects of immersive technologies such as how payments within the financial sector might evolve and the regulatory implications that will depend on their adoption and development.

A key uncertainty is the extent to which different immersive technologies will progress, such as whether investment in Augmented Reality (AR) will outpace Virtual Reality (VR). The evolution of device designs also remains unpredictable, with future immersive technologies potentially incorporating headsets, enhanced glasses, contact lenses, or entirely new innovations. This uncertainty is further compounded by the unclear interactions between immersive technologies and other emerging trends, including Web3, the Internet of Things (IoT), AI, neural interfaces, and quantum computing. Additionally, the trajectory of personalization in future digital services remains uncertain. Similarly, the form that payments will take in immersive environments and the infrastructure supporting financial activities are still evolving, making regulatory considerations for the Financial Conduct Authority (FCA) highly dependent on the direction of these developments and their adoption. The paper concludes that the high degree of uncertainty in this specific case makes it difficult, and perhaps premature, to develop a detailed roadmap or set of next steps, recommending the DRCF member regulators to continue to monitor developments in this technology.

The FCA actively engages in forward-thinking initiatives, as evidenced by its Future Horizons Conference held in 2017 and its published papers on future developments. The conference included a set of imaginary narratives presented as videos based on expert papers on future thinking and foresight in the financial sector. One such paper, the Future of Financial Sector 2020-2030 (Gamble, 2017) report shows an example of narrative scenarios in the financial sector. It developed four scenarios which look at the possible development of the future based on political economy perspective and its effect on financial markets...

The four scenarios outlined in the paper were '*ordo-liberal'*, '*social liberal'*, '*national protectionist'*, and '*red/green'*. The author emphasises that the future will likely incorporate elements of all four, though not in

equal measure. Furthermore, that the current political conditions make some scenarios more probable than others and these circumstances can shift over time. Such as the recent event of the Brexit referendum vote and the election of Donald Trump would have brought renewed attention to the national protectionist scenario.

	Ordo-liberal	Social-liberal	National-protectionist	Red/Green
Governance	Sovereignty	Interdependence	Sovereignty	Interdependence
Trade/capital	Open	Open	Closed	Closed
Migration	Closed	Open	Closed	Open

Figure 9 Political economy scenarios (Gamble, 2017)

In this foresight analysis, the scenarios were then used to evaluate the broader impact of the proposed alternatives on financial services, with a particular focus on the City of London and its global role, Regulation and Financial innovation.

Impact on	Ordo-Liberal	Social-Liberal	National-Protectionist	Red/Green
The City of London	Off-shore status maintained	International role maintained but subject to tighter regulation	Rebalancing of the economy Industrial strategy	Rebalancing of the economy Green New Deal
Regulation	Permissive Light touch	Permissive International rules	Restrictive National Priorities	Restrictive Social Priorities
Financial Innovation	Market led	Market led	National Investment Bank	Green Finance

Figure 10 Scenario Impact Analysis (Gamble, 2017)

The foresight exercise conducted in 2017 explored future narratives spanning from 2020 to 2030. However, as of 2025, shifting trends and emerging uncertainties have pushed these narratives forward, making the original scenarios appear too static and potentially outdated. This highlights the need for strategic foresight to be a dynamic and ongoing process rather than a one-time effort. Future thinking and foresight must be continuously refined to remain relevant, prompting some authors to seek more adaptive scenario-building approaches that can better support flexible and responsive policymaking (Ariza-Álvarez, Soria-Lara and Aguilera-Benavente, 2023).

The last section of this white paper will encourage stakeholders from across the financial sector to take a proactive stance on the deeper analysis of the fintech ecosystem, its driving forces, and the systematic anticipation of the future.

5. Engage, Collaborate and Take Active Approach

The participation in SP fosters collaboration and input from diverse stakeholders, which is crucial in a field like financial regulation where multiple actors - governments, regulators, financial institutions, and innovators - have different perspectives. Through this participatory process, both partnerships, Financial Regulation and Innovation Lab and FinTech Scotland can build a shared understanding of future challenges and opportunities. Engaging diverse stakeholders from across the fintech ecosystem helps to ensure that the scenarios are relevant, realistic, and actionable. By adopting future thinking and SP, stakeholders can navigate the complex landscape of fintech ecosystem with

greater confidence. SP as part of strategic planning advances the commitment to a future where the fintech ecosystem thrives on innovation, resilience, and proactive adaptation to change.

In an era of unprecedented change, embracing future thinking and SP in the inter-organisational setting such FinTech Scotland is not just an option but a necessity for stakeholders in the fintech ecosystem (Bowman, 2016). This white paper strongly recommends the government, financial institutions, and financial regulation bodies to continue integrating SP into their strategic planning frameworks ensuring the financial sector and the regulatory environments show the capacity to be adaptive and forward-thinking. For the financial institutions the paper recommends SP to enhance their strategic planning, risk management and innovation. And finally, for the fintech companies we propose an opportunity to leverage SP to anticipate not only the market trends, but also the uncertainties in consumer demands and technological advancements. Under the umbrella of institutions such as FinTech Scotland and the FRIL, we can collectively embrace these strategic foresight approaches, to build a resilient, innovative, and inclusive financial future.

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