

The Role of Strategic Foresight and Scenario Planning in Enhancing Futures Thinking among SMEs: A Dynamic Capability Perspective

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DOI Link: <http://dx.doi.org/10.6007/IJAREMS/v15-i1/27889>

Published Online: 12 March 2026

Abstract

Purpose: This study aims to examine how strategic foresight and scenario planning enhance futures thinking among small and medium-sized enterprises (SMEs) in Malaysia. Drawing upon the Dynamic Capability Theory (DCT), the research conceptualizes strategic foresight as a sensing capability, scenario planning as a seizing and transforming mechanism, and futures thinking as a higher-order strategic competency. The study seeks to explain how these interrelated capabilities help SMEs strengthen adaptability, resilience, and long-term preparedness in uncertain environments. **Design/methodology/approach:** A quantitative, cross-sectional design is adopted, supported by a preliminary qualitative study with SME leaders. Data will be collected through a structured questionnaire from decision-makers in manufacturing and services SMEs. Partial Least Squares Structural Equation Modelling (PLS-SEM) will test the hypothesized relationships. **Findings:** The study is expected to show that strategic foresight and scenario planning both positively influence futures thinking, while

their interaction further strengthens this effect. SMEs that apply structured foresight and scenario planning are anticipated to demonstrate higher adaptability, preparedness, and resilience in uncertain environments. **Research limitations/implications:** The focus on Malaysian SMEs and the cross-sectional design may limit generalizability and causal inference. Future studies should adopt longitudinal approaches or extend the model across regions and industries. **Practical implications:** Findings will guide SME leaders and policymakers in embedding foresight and scenario planning into strategic processes to enhance competitiveness and readiness for future challenges. **Originality/value:** This study offers an integrated DCT-based framework linking foresight, scenario planning, and futures thinking, providing new insights into cognitive and strategic capabilities in SMEs.

Keywords: Strategic Foresight, Scenario Planning, Future Thinking, Small and Medium-sized Enterprises (SMEs), Dynamic Capability Theory (DCT)

Introduction

Small and medium-sized enterprises (SMEs) are the backbone of Malaysia's economic development, representing over 97% of registered businesses and playing a crucial role in job creation, innovation, and value generation (SME Corp Malaysia, 2023). Their impact is especially notable in the manufacturing and services sectors, where they drive regional growth and industrial vitality (Adegbile et al., 2017). However, despite their significant position in the national economy, Malaysian SMEs face increasing challenges in maintaining competitiveness and navigating the complexities of an unpredictable environment. Global economic shocks, technological disruptions, and rapidly changing market demands have heightened the urgency for SMEs to move beyond mere short-term survival and focus on building strategic resilience. The COVID-19 pandemic further exposed their vulnerabilities, as many SMEs were caught off guard by sudden changes and lacked the strategic foresight needed to mitigate future disruptions (Hu & Kee, 2022; Jones, Hutcheson, & Camba, 2021). In this context, futures thinking has emerged as a vital cognitive and strategic competency that enables firms to proactively anticipate change, envision alternative futures, and prepare accordingly (Andersen & Haines, 2023; Dixit et al., 2021). Unlike traditional planning, which is often linear and reactive, futures thinking is forward-looking and adept at navigating uncertainty. It fosters a mindset that supports adaptive behavior, allowing decision-makers to explore emerging trends, challenge existing assumptions, and consider a range of plausible futures (Hajizadeh & Valliere, 2022). However, many SMEs especially in developing economies like Malaysia lack structured frameworks or internal competencies to cultivate this forward-thinking approach (Bianchi & Testa, 2022). Their decision-making processes are frequently limited by constrained resources, owner-centric management, and a tendency to prioritize immediate issues over long-term strategic considerations (Nguyen, Tran, & Truong, 2022).

To address this gap, two interrelated capabilities which are strategic foresight and scenario planning are becoming increasingly important for enabling futures thinking. Strategic foresight involves an organization's ability to interpret weak signals, scan the external environment, and anticipate trends that may impact future performance (Rohrbeck et al., 2015; Schwarz et al., 2020). This capability allows organizations to detect changes early and develop strategies that are both informed and proactive. In contrast, scenario planning enables organizations to explore alternative futures through structured narratives and simulations (Ramírez et al., 2020). It helps SMEs identify strategic opportunities and adjust

their actions based on various scenarios. Together, these practices enhance organizational agility and empower firms to make more informed and resilient decisions amid uncertainty (Fergnani, 2022; Ködding et al., 2023).

Although these concepts have been widely examined in large corporations and public-sector foresight initiatives, empirical research on how strategic foresight and scenario planning support futures thinking in SMEs is still limited. Furthermore, few studies have investigated the mechanisms through which these capabilities operate, particularly in resource-constrained environments. This is particularly relevant for SMEs in Malaysia, where the push for digital and strategic transformation has not consistently resulted in integrated foresight practices at the firm level.

To frame this investigation, the study utilizes Dynamic Capability Theory (DCT), which highlights a firm's ability to sense, seize, and reconfigure competencies in response to changing environments (Teece, 2007). In this context, strategic foresight is viewed as a sensing capability, scenario planning as a mechanism for seizing and transforming, and futures thinking as the emerging cognitive capacity that reflects strategic adaptability. This theoretical perspective is especially relevant for SMEs, which may lack scale advantages but can compensate through agility, learning, and rapid reconfiguration (Behl et al., 2022; Schwarz et al., 2020). This study contributes to the discourse by extending DCT into the cognitive and behavioral aspects of strategy within SMEs.

This study aims to enhance the dynamic capability theory by illustrating how strategic foresight and scenario planning serve as critical cognitive and strategic abilities that help SMEs effectively navigate environmental uncertainty. Rather than treating these capabilities as abstract or isolated practices, the study positions them as vital processes through which SMEs interpret complex external signals, anticipate change, and formulate informed, proactive strategies. By emphasizing their role in supporting adaptive decision-making within resource-constrained environments, the study provides a nuanced understanding of how dynamic capabilities are activated in SMEs to promote agility, resilience, and long-term strategic preparedness.

Through this theoretical framework and empirical investigation, the study seeks to generate insights that are both academically rigorous and practically applicable. By exploring how strategic foresight and scenario planning interact to foster futures thinking, the research offers actionable pathways for SME managers to improve their strategic readiness. Additionally, it informs policymakers and SME development agencies aiming to integrate foresight capabilities into entrepreneurship training, digitalization initiatives, and long-term national competitiveness strategies.

Literature Review

Dynamic Capability Theory (DCT)

Dynamic Capability Theory (DCT), introduced by Teece, Pisano, and Shuen (1997) and refined by Teece (2007), offers a comprehensive framework for understanding how organizations adapt to changing environments. At its core, DCT defines dynamic capabilities as a firm's ability to sense, seize, and transform in response to environmental turbulence and opportunities. Unlike ordinary capabilities that prioritize efficiency and routine operations,

dynamic capabilities focus on strategic change and innovation, which are essential for sustained competitive advantage.

In the context of small and medium-sized enterprises (SMEs), dynamic capabilities are especially relevant due to the sector's vulnerability to volatility, limited resources, and lack of formal structures. SMEs, particularly in emerging economies like Malaysia, often encounter institutional voids, intense competition, and technological disruption (Behl et al., 2022; Nguyen et al., 2022). These challenges require more than just operational efficiency; they necessitate strategic agility to interpret subtle signals, make timely decisions, and reconfigure internal resources to meet emerging needs. DCT provides a valuable lens for exploring how SMEs cultivate these adaptive capacities.

Within the DCT framework, strategic foresight can be understood as a sensing capability. It enables firms to scan the external environment, identify emerging trends, and anticipate future scenarios that may affect performance (Rohrbeck & Kum, 2018). This aligns with the idea that effective sensing is crucial for recognizing opportunities and mitigating threats. For SMEs, which often rely on rapid responses to changes, strategic foresight is a critical component of strategic formulation.

Scenario planning serves as both a seizing and transforming mechanism. It allows decision-makers to assess multiple strategic options under varying future conditions and to foster strategic flexibility through rehearsed responses (Ramírez et al., 2020). This aligns with Teece's (2007) definition of seizing as the mobilization of resources to capture opportunities, while transforming involves reconfiguring assets and processes to adapt to the external environment. Thus, scenario planning not only aids decision-making in uncertain situations but also encourages learning and cognitive reframing, which are vital for organizational renewal.

Futures thinking, characterized by a long-term preparedness mindset, is increasingly recognized as a higher-order outcome of these capabilities. While DCT has traditionally emphasized structural and process-oriented aspects, recent research has expanded the theory to include behavioral and cognitive dimensions (Schilke et al., 2018). Futures thinking emerges from repeated cycles of sensing and learning, enhancing a firm's ability to anticipate, reflect, and act amid ambiguity. For SMEs, this translates into strategic adaptability which the ability to pivot and evolve in response to environmental demands.

Furthermore, DCT emphasized the importance of learning, path dependency, and managerial intentionality in developing capabilities. In SMEs, where formal research and development structures may be lacking, dynamic capabilities often reside in routines, social capital, and experiential learning. This suggests that even resource-constrained firms can foster strategic foresight and scenario planning capabilities through informal mechanisms such as networking, inter-firm collaboration, and participatory decision-making (Bianchi & Testa, 2022).

Despite these insights, empirical studies that operationalize and measure dynamic capabilities in SMEs, particularly those focused on foresight-oriented competencies, are still limited. Existing literature largely emphasizes large enterprises or technologically intensive

sectors, creating a knowledge gap regarding how dynamic capabilities manifest in SMEs, how they are cultivated, and how they contribute to long-term strategic outcomes such as sustainability, innovation, and resilience.

Strategic Foresight in SMEs

Strategic foresight is the systematic process of anticipating and preparing for future developments by scanning the environment, detecting weak signals, and identifying emerging trends. It enables organizations to be proactive rather than reactive, positioning them to act before opportunities or threats fully materialize (Iden et al., 2017). Within the context of Dynamic Capability Theory, strategic foresight is considered a sensing capability because it allows organizations to identify changes in the external environment that may influence future performance (Streit et al., 2021).

In large organizations, strategic foresight is often formalized through dedicated teams, regular environmental scanning, and structured processes for analyzing market and technology trends (Moqaddamerad & Ali, 2024). These firms typically have the resources to invest in data collection, analytical tools, and long-term planning. In contrast, SMEs often adopt foresight practices informally, relying heavily on the experience and intuition of the owner or top management. Resource limitations, the absence of specialized staff, and the pressure to address immediate operational concerns often prevent SMEs from establishing formal foresight processes (Capatina, Bleoju & Kalisz, 2024). As a result, their decision-making tends to be short-term in focus, with limited attention given to systematically exploring long-term scenarios.

Scenario Planning and Adaptive Capacity

Scenario planning is a structured method for developing and exploring multiple plausible futures to strengthen strategic decision-making. It goes beyond forecasting by considering a range of possible outcomes, encouraging decision-makers to challenge existing assumptions, explore uncertainties, and prepare for alternative scenarios (Cordova-Pozo & Rouwette, 2023). This approach enhances adaptability by fostering strategic flexibility and enabling organizations to respond effectively when faced with change.

In the Dynamic Capability Theory framework, scenario planning functions as both a seizing capability, where organizations mobilize resources to act on identified opportunities, and a transforming capability, where strategies and processes are adjusted to align with changing conditions (Curnin, et al., 2022). Larger firms often integrate scenario planning into their strategic cycles, supported by the availability of skilled personnel and access to comprehensive data. SMEs, on the other hand, face obstacles such as limited methodological knowledge, insufficient information, and the perception that the process is overly complex or resource-intensive (Cornelisse & Van Klink, 2024). As a result, the use of scenario planning in SMEs is often restricted to short-term operational concerns rather than long-term strategic positioning.

Future Thinking as a Strategic Competency

Future thinking is a broad cognitive and strategic orientation that extends beyond the specific tools of foresight and scenario planning. It reflects a mindset that actively considers the long-term implications of present actions, challenges entrenched assumptions, and connects day-

to-day decision-making with desired future outcomes (Gold & Jones, 2023). It is as much about cultivating a culture of anticipation and adaptability as it is about applying specific planning techniques (Mesa et al., 2022).

Futures thinking encourages strategic imagination, enabling the envisioning of different possible futures, and develops adaptive capacity by preparing organizations to act effectively in uncertain contexts. For SMEs, this competency is particularly valuable as it allows them to overcome resource limitations through agility, creativity, and rapid response (AlQershi, 2024). However, fostering futures thinking requires intentional leadership commitment, investment in training, and cultural change. Many SMEs remain heavily focused on short-term survival, which can limit the integration of futures thinking into their operations (Habicher, et al., 2021). When combined with strategic foresight and scenario planning, futures thinking enhances the ability of SMEs to navigate uncertainty and achieve sustainable growth (Al-Ghazali et al., 2022).

Research Gaps

Although strategic foresight, scenario planning, and futures thinking have been widely examined in the context of large corporations and public sector initiatives, empirical research focusing on small and medium-sized enterprises remains scarce. This gap is particularly evident in Southeast Asia, where SMEs operate under unique institutional, cultural, and market conditions that may influence the way these capabilities are developed and applied. The limited number of studies addressing SMEs in this region restricts the understanding of how these firms can adapt and remain competitive in increasingly volatile environments.

In addition, existing research often treats strategic foresight, scenario planning, and futures thinking as separate concepts, with little attention given to how they interact to enhance strategic adaptability. There is a lack of an integrated framework that links these capabilities within a coherent theoretical and empirical model. Without such a framework, it is difficult to explain the combined effect of these practices on organizational resilience and long-term preparedness, especially for resource-constrained SMEs. Addressing these gaps offers the potential to contribute both theoretically and practically by developing a more holistic understanding of how SMEs can leverage dynamic capabilities to navigate uncertainty and achieve sustainable growth.

Preliminary Study

To provide a contextual foundation for this research, a preliminary qualitative study was conducted to examine the extent to which Malaysian SMEs integrate strategic foresight and scenario planning into their strategic decision-making. The aim was to identify existing practices, uncover barriers, and understand perceptions of futures thinking among SME leaders.

Purposive sampling was used to select ten experts from SMEs operating in the manufacturing and services sectors. The participants included owners, managing directors, operations managers, general managers, founders, and chief executive officers, representing a range of industries such as precision engineering, packaging manufacturing, food processing, logistics, hospitality, and technology-based services. Each interview lasted between 45 and 60 minutes and was conducted either face-to-face or via video conferencing. A semi-structured interview

protocol guided the discussions, allowing participants to share their experiences while enabling deeper probing on key topics.

The findings of this study reaffirm the importance of strategic foresight and scenario planning as dynamic capabilities that enhance futures thinking among SMEs. The results align with the Dynamic Capability Theory (Teece, 2007), which conceptualizes firms' abilities to sense, seize, and transform in response to environmental turbulence. The qualitative insights from the preliminary study provide further depth, illustrating how these dynamic processes manifest within real SME contexts.

1. **Strategic foresight** represents the sensing capability through which firms interpret weak signals and anticipate change. Several SME leaders emphasized that while they "*watch the market closely,*" their focus remains limited to "*immediate customer demands and orders,*" with little attention to longer-term scanning. This reactive approach highlights a gap in systematic foresight practice, confirming prior literature that SMEs often rely on informal, intuition-based sensing mechanisms (Rohrbeck & Kum, 2018; Streit et al., 2021). Strengthening strategic foresight, therefore, requires formal structures such as scheduled scanning routines and data-driven monitoring to move beyond short-term responsiveness toward proactive opportunity recognition.
2. **Scenario planning**, as a seizing and transforming capability, enables SMEs to explore multiple plausible futures and design flexible responses. However, participants admitted limited familiarity or application: one respondent shared, "*I've heard of scenario planning but never tried it... I wouldn't know where to start or what data to use.*" This reflects the methodological and resource constraints that prevent SMEs from using structured foresight tools. Similarly, statements like "*We sometimes talk about 'what if' situations, like if fuel prices spike, but it's very informal and not documented*" illustrate a lack of institutionalized scenario thinking. These insights reinforce the notion that while SMEs possess intuitive awareness of uncertainty, they often lack the procedural mechanisms to transform such awareness into strategic readiness (Ramírez et al., 2020; Cordova-Pozo & Rouwette, 2023).
3. The third capability, **future thinking**, represents a higher-order cognitive outcome that integrates the learning derived from sensing and seizing into long-term adaptability. Interviewees expressed awareness of the need for a forward-oriented mindset: "*I think planning for different futures is important, but in hospitality, things change so fast we're always in firefighting mode,*" and "*If someone could guide us on how to do foresight properly, I would be very interested. We need to be ready for the next wave of tech changes.*" These reflections demonstrate that although SMEs recognize the strategic value of anticipatory thinking, they struggle to operationalize it amid environmental volatility and daily operational pressures. This supports the argument that futures thinking is not only a skill but also a cognitive orientation that requires leadership commitment, training, and supportive culture (Gold & Jones, 2023; Mesa et al., 2022).

Collectively, the interview data provide empirical grounding for the study's conceptual model. The recurring themes of short-termism, informal foresight practices, and limited scenario application illustrate the initial stages of capability development within Malaysian SMEs. When viewed through the DCT lens, strategic foresight emerges as the sensing foundation that informs scenario planning (seizing and transforming), which in turn fosters futures thinking as an adaptive mindset. The triangulation between qualitative insights and

quantitative hypotheses (H1–H4) reinforces the model’s theoretical validity and demonstrates how foresight-related capabilities evolve incrementally within resource-constrained environments.

The findings from this preliminary study confirm a clear practical gap between the recognition of the importance of strategic foresight and scenario planning and the ability to operationalize these capabilities in SME contexts. This evidence, combined with the theoretical foundation provided by the Dynamic Capability Theory, supports the need for a full-scale investigation into how these capabilities can be developed to strengthen futures thinking in resource-constrained environments. Therefore, the conceptual framework (figure 1) for this study is created by integrating insights from both the preliminary findings and the Dynamic Capability Theory to explain how strategic foresight and scenario planning can jointly influence futures thinking in SMEs.

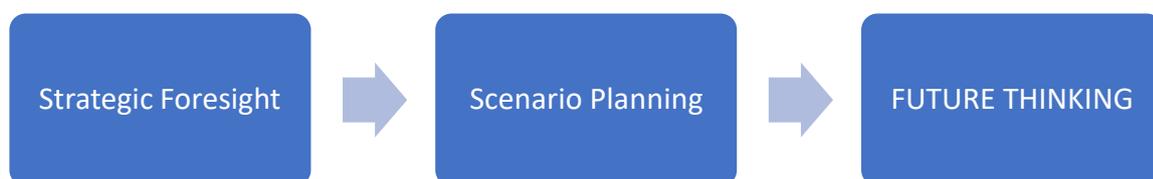


Figure 1: conceptual framework

As shown in Figure 1, strategic foresight represents the sensing capability, enabling firms to identify weak signals, emerging trends, and future market shifts. Scenario planning serves as both a seizing and transforming capability, allowing organizations to develop and evaluate multiple plausible futures and translate insights from foresight into actionable strategies. Futures thinking is positioned as a higher-order outcome of these dynamic capabilities, reflecting an organization’s cognitive and strategic preparedness to navigate uncertainty.

The model proposes that strategic foresight and scenario planning each have a direct positive influence on futures thinking, suggesting that these two capabilities independently enhance firms’ readiness for future challenges. Furthermore, strategic foresight is expected to positively influence scenario planning, as the insights derived from environmental scanning and trend interpretation form the basis for developing robust scenarios. Finally, the interaction between strategic foresight and scenario planning is hypothesized to have a synergistic effect on futures thinking, implying that firms integrating both capabilities achieve a stronger anticipatory and adaptive orientation than those relying on either in isolation. This integrated framework therefore illustrates how SMEs can cultivate cognitive and strategic agility through a dynamic interplay of sensing (foresight), seizing (scenario planning), and adapting (futures thinking).

Hypothesis Development

Strategic Foresight and Future Thinking

Strategic foresight allows decision-makers to actively scan the business environment, identify emerging trends, and interpret weak signals before they escalate into significant opportunities or threats (Iden et al., 2017; Streit et al., 2021) In SMEs, where resources are limited, the ability to anticipate changes can significantly enhance readiness for future challenges. The preliminary study revealed that SME leaders who engaged in even basic forms of environmental scanning demonstrated a greater inclination toward long-term thinking

compared to those who did not (Moqaddamerad & Ali, 2024; Carayannies et al., 2025). This supports the expectation that higher levels of strategic foresight will be associated with stronger futures thinking. Therefore,

H1: Strategic foresight positively influences futures thinking in SMEs.

Scenario Planning and Future Thinking

Scenario planning helps organizations explore and prepare for multiple plausible futures, thereby reducing vulnerability to uncertainty (Cordova-Pozo & Rouwette, 2023; Curnin, et al., 2022; Cornelisse & Van Klink, 2024). By rehearsing different outcomes, SMEs can develop a more adaptive mindset and be better positioned to respond to unforeseen changes. The preliminary study showed that while formal scenario planning was rare, leaders expressed a strong interest in using such methods to broaden their strategic options. This suggests that incorporating scenario planning would strengthen the futures thinking capacity of SMEs by encouraging them to anticipate and plan for varied possible futures. Thus,

H2: Scenario planning positively influences future thinking in SMEs.

Strategic Foresight and Scenario Planning

Strategic foresight provides the inputs such as trend data, environmental signals, and early warnings, that make scenario planning more robust and evidence-based (Moqaddamerad & Ali, 2024; Capatina, Bleoju & Kalisz, 2024). Without foresight, scenario planning risks being speculative rather than grounded in emerging realities. The preliminary interviews indicated that SMEs lacking structured foresight struggled to imagine diverse future scenarios, relying instead on narrow operational projections. This supports the expectation that strategic foresight serves as an important precursor to effective scenario planning. Thus,

H3: Strategic foresight positively influences scenario planning in SMEs.

Strategic Foresight, Scenario Planning and Future Thinking

While strategic foresight and scenario planning can each enhance futures thinking independently, their combined effect is expected to be greater than the sum of their parts (Gold & Jones, 2023; Mesa et al., 2022). Strategic foresight equips SMEs with the knowledge and insights needed to detect relevant changes, while scenario planning transforms those insights into actionable strategic narratives (AlQershi, 2024). The preliminary study suggested that leaders who engaged in environmental scanning but did not use scenario planning often lacked structured ways to translate insights into strategies, and those with limited foresight found their scenario discussions superficial. This indicates that the synergy between the two capabilities is likely to generate a stronger futures-oriented mindset. Therefore,

H4: The interaction between strategic foresight and scenario planning positively influences future thinking in SMEs.

Methods

Research Design

This study adopts a quantitative, cross-sectional research design to test the relationships between strategic foresight, scenario planning, and futures thinking among SMEs in Malaysia. The research framework was developed based on the Dynamic Capability Theory and further refined using insights from a preliminary qualitative study with ten SME experts. The quantitative approach enables statistical testing of hypotheses and allows the findings to be generalized to a broader SME population within the targeted sectors.

Population and Sampling

The target population for this study comprises SMEs in Malaysia operating in the manufacturing and services sectors, as defined by SME Corp Malaysia. These sectors were selected due to their economic significance and their exposure to competitive pressures, market volatility, and technological change, making them suitable contexts for examining futures-oriented capabilities.

A purposive sampling method will be employed to ensure respondents are in a position to provide relevant and informed responses. The selection criteria are as follows:

- I. The respondent must hold a position at the owner, founder, director, senior manager, or equivalent decision-making level. The respondent must be directly involved in strategic planning, business development, or long-term decision-making processes.
- II. The enterprise must have been in operation for at least three years to ensure that it has an established track record and exposure to external market changes.

These criteria ensure that the responses are obtained from individuals with the authority, experience, and strategic oversight necessary to comment meaningfully on their organization's foresight and planning practices.

*Sample Size Determination Using G*Power*

The required sample size for the study was determined using G*Power software. The research model contains two predictors which are strategic foresight and scenario planning in predicting futures thinking. Following Cohen's (1988) guidelines, the effect size was set to medium ($f^2 = 0.15$), with the desired statistical power set at 0.95 to minimize the risk of Type II errors. The significance level (α) was set at 0.05.

The G*Power analysis indicated that a minimum of 107 respondents is required to detect a medium effect size with two predictors at the desired power level. To account for possible non-responses or incomplete data, the target sample size will be increased more than 107 respondents. This oversampling will ensure robust statistical analysis and enhance the reliability of the results.

Data Collection

Data will be collected through a structured questionnaire adapted from established scales in the literature, modified for relevance to SMEs. The questionnaire will consist of four sections: (i) demographic and organizational information, (ii) measurement of strategic foresight, (iii) measurement of scenario planning, and (iv) measurement of futures thinking. All construct items will be measured on a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

The questionnaire will be distributed electronically to SME leaders through industry associations, business networks, and direct email invitations. Follow-up reminders will be sent two weeks after the initial distribution to improve participation rates.

Measurement of Variables

Strategic foresight will be assessed through items measuring environmental scanning, identification of emerging trends, and the integration of foresight into decision-making processes. Drawing upon validated instruments from Rohrbeck and Kum (2018) and Streit et al. (2021), respondents will rate statements such as "Our company regularly monitors technological, market, and regulatory trends" and "Insights from foresight activities are

incorporated into our strategic planning.” These items capture the sensing dimension of Dynamic Capability Theory and have been empirically supported in foresight-related research.

Scenario planning will be assessed through items measuring the creation of multiple plausible futures, evaluation of strategic responses, and use of scenarios in planning. The scale items are adapted from Ramírez et al. (2020) and Cordova-Pozo and Rouwette (2023), with example statements such as “We develop several alternative scenarios to anticipate possible future environments” and “Scenario outcomes are used to guide our strategic and operational decisions.” These measures capture the seizing and transforming mechanisms within the dynamic capability framework.

Futures thinking will be measured through items assessing long-term orientation, strategic adaptability, and readiness to act in uncertain contexts. The construct builds on validated scales from Gold and Jones (2023), Mesa et al. (2022), and AlQershi (2024), including statements such as “We actively consider the long-term implications of our strategic choices” and “Our organization is prepared to adjust its strategies in response to emerging future challenges.” These items reflect the higher-order cognitive dimension of dynamic capabilities. All items will be rated on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The adapted scales will undergo expert validation and pilot testing with SME leaders to ensure contextual relevance and clarity. Construct reliability and validity will be evaluated through PLS-SEM, confirming internal consistency (Cronbach’s $\alpha \geq 0.70$), convergent validity (AVE ≥ 0.50), and discriminant validity (HTMT < 0.85).

Data Analysis

Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS software will be applied to analyze the data. The analysis will proceed in two stages: first, evaluating the measurement model for internal consistency reliability, convergent validity, and discriminant validity; and second, testing the structural model to assess the hypothesized relationships between variables. Bootstrapping with 5,000 resamples will be used to evaluate the significance of path coefficients.

Ethical Considerations

Ethical approval will be obtained from the Jawatankuasa Etika Penyelidikan Manusia (JEPeM) Pejabat Pengurusan dan Kreativiti Penyelidikan, Universiti Sains Malaysia prior to data collection. All participants will be provided with an information sheet outlining the study’s objectives, the voluntary nature of participation, and their right to withdraw at any time without penalty. Confidentiality will be maintained, and all data will be stored securely and used solely for academic purposes.

Findings

This study is expected to confirm that strategic foresight and scenario planning play a significant role in enhancing futures thinking among SMEs. It is anticipated that both capabilities will demonstrate positive and meaningful relationships with futures thinking, and that they may also reinforce each other when applied together. The findings are expected to show that SMEs which adopt structured foresight practices and use scenario planning

systematically are better prepared to anticipate, adapt to, and capitalise on future opportunities and challenges.

The study is also expected to contribute to the academic literature by deepening the understanding of how these two capabilities work in practice within SMEs, an area that has received limited empirical attention. It will provide insights into the ways foresight and scenario planning can be operationalised in resource-constrained environments and how they can be aligned to strengthen futures thinking.

From a policy perspective, the findings are anticipated to provide evidence to support the inclusion of foresight and scenario planning in SME capacity-building programmes, training initiatives, and development strategies aimed at improving long-term competitiveness.

Discussion and Conclusion

Theoretical Implications

This study contributes to the advancement of the Dynamic Capability Theory (DCT) by extending its traditional process-based understanding toward the cognitive and behavioral dimensions of strategy, particularly within the context of small and medium-sized enterprises (SMEs). While DCT has been conventionally applied to explain how firms sense, seize, and transform resources in response to environmental change (Teece, 2007), the current study positions strategic foresight as a sensing capability, scenario planning as a seizing and transforming mechanism, and futures thinking as a higher-order cognitive outcome emerging from these dynamic processes. This conceptual extension enriches DCT by demonstrating that adaptability and resilience are not merely functions of tangible routines and resources, but are also shaped by the cognitive orientation, anticipatory mindset, and learning capacity of decision-makers. In doing so, this study bridges the gap between dynamic capabilities and futures-oriented cognition, emphasizing that the ability to think strategically about future possibilities constitutes a vital source of sustainable competitive advantage, especially for resource-constrained firms.

Furthermore, this research integrates strategic foresight and scenario planning into a unified dynamic capability framework, providing theoretical clarity on how these interrelated capabilities interact to strengthen organizational adaptability. Prior studies often examined foresight and scenario planning independently, but the present study argues that their combined effect yields a more profound influence on futures thinking than their individual contributions. Strategic foresight equips SMEs with the capacity to detect early signals and interpret emerging trends, while scenario planning translates those insights into actionable strategic narratives that guide decision-making under uncertainty. The synergistic relationship between these capabilities demonstrates that sensing and seizing mechanisms are mutually reinforcing, collectively enhancing the firm's ability to transform and adapt. This integrative perspective contributes to the refinement of DCT by illustrating how cognitive and processual capabilities interact dynamically to generate higher-order strategic outcomes.

A further theoretical contribution lies in positioning futures thinking as a higher-order dynamic capability that encapsulates a firm's long-term preparedness and strategic adaptability. Traditionally, DCT has focused on structural mechanisms such as routines and reconfiguration processes. By conceptualizing futures thinking as the cognitive manifestation

of dynamic capabilities, this study expands the theory's microfoundations to include the mental models, reflective learning, and anticipatory reasoning that underpin strategic change. This shift from processual to cognitive dimensions offers a more nuanced understanding of how dynamic capabilities operate within the human and organizational cognition of SMEs. It highlights that foresight-driven thinking enables firms not only to adapt to change but to anticipate and shape it, marking an evolution in how DCT explains firm-level strategic agility.

In addition, by grounding the theoretical model in the SME context of an emerging economy, this study contributes to the contextualization of DCT. Much of the prior literature on dynamic capabilities has been developed based on large corporations with abundant resources and formalized strategic structures. In contrast, this study demonstrates that SMEs can cultivate dynamic capabilities through informal learning, experiential knowledge, and intuitive decision-making, compensating for the lack of financial or technological resources. This contextual insight underscores that dynamic capabilities are scalable and context-sensitive, and their development in SMEs depends on managerial cognition, social capital, and the willingness to engage in futures-oriented practices rather than on structural sophistication alone.

By synthesizing insights from strategic management and futures studies, this research also establishes a theoretical bridge between two domains that have traditionally evolved in parallel. Foresight and scenario planning are repositioned here not merely as planning tools but as strategic capabilities embedded in the firm's learning and adaptation processes. This integration advances theoretical discourse by linking anticipatory cognition from futures studies with adaptive strategic processes from management theory, thus offering a cross-disciplinary framework for understanding how firms convert abstract foresight into tangible strategic advantage.

Therefore, the study provides a foundation for measuring and operationalizing intangible cognitive capabilities within the DCT paradigm. By conceptualizing strategic foresight, scenario planning, and futures thinking as empirically measurable constructs, the study responds to ongoing theoretical calls for operational frameworks that capture the "soft" dimensions of dynamic capabilities. This measurable integration allows future scholars to test, compare, and refine the model across contexts and sectors, contributing to the ongoing development of DCT as a robust, empirically grounded theory of strategic adaptability.

Practical and Social Implications

The results of this study are expected to provide actionable insights for two main groups which are SME leaders and policymakers.

For SME leaders, the findings will highlight specific actions that can be taken to embed strategic foresight and scenario planning into day-to-day business operations. First, SMEs can begin by establishing structured environmental scanning routines. This involves setting aside dedicated time on a regular basis such as monthly management meetings to review market trends, competitor activity, technological developments, and changes in customer preferences. Second, scenario planning sessions can be scheduled quarterly or biannually, during which the leadership team develops multiple plausible futures based on different combinations of market, technological, and regulatory changes. These scenarios should not

remain as theoretical exercises but should be translated into concrete action plans, such as contingency budgets, diversification strategies, or innovation initiatives. Third, foresight and scenario planning outputs should be integrated directly into decision-making processes. For example, when evaluating a new market opportunity or product development idea, SMEs should assess its feasibility under different scenarios rather than relying on a single, static forecast. Over time, these practices will help SMEs build a more proactive, adaptable, and resilient organisational culture.

For policymakers and SME development agencies, the study will underscore the value of incorporating foresight and scenario planning into official SME development strategies. One way to achieve this is by developing practical toolkits that guide SMEs through each step of the process, from identifying signals of change to developing and testing scenarios. Training programmes can be designed to be hands-on and case-based, allowing SME leaders to apply the concepts to their own businesses during the sessions. Additionally, government grants or incentives could be introduced for SMEs that demonstrate a commitment to implementing structured foresight and scenario planning practices. Policymakers could also consider integrating these capabilities into broader digital transformation initiatives, ensuring that SMEs see them as essential components of long-term competitiveness rather than optional extras.

By taking these steps, SME leaders will be better equipped to anticipate disruptions and respond strategically, while policymakers will have a concrete framework to strengthen SME resilience at the national level.

Limitations and Suggestions for Future Research

This study aims to generate meaningful insights into how SMEs can strengthen their futures thinking by incorporating strategic foresight and scenario planning into their organizational processes. The anticipated confirmation of these relationships will provide both theoretical contributions to the understanding of SME strategic capabilities and practical guidance for their application.

Several limitations should be acknowledged. First, the study focuses on SMEs in the manufacturing and services sectors in Malaysia, which may limit the generalizability of the findings to other industries or national contexts. Future research could expand the sampling frame to include diverse sectors or cross-country comparisons to enhance external validity. Second, the use of a cross-sectional research design captures data at a single point in time. While this design is appropriate for establishing baseline empirical relationships and identifying emerging patterns among strategic foresight, scenario planning, and futures thinking, it constrains causal inference. Cross-sectional designs remain valuable in exploratory contexts such as this, where empirical evidence is scarce, as they provide an essential foundation for subsequent longitudinal inquiry (Schilke et al., 2018). Nevertheless, given the evolving nature of foresight and futures-oriented capabilities, future studies could adopt longitudinal or mixed-method approaches to observe how these dynamic capabilities develop and interact over time (Behl et al., 2022).

Third, the study relies on self-reported data collected from single respondents within each SME. Although procedural remedies such as respondent anonymity, clear construct

definitions, and scale validation will be employed to minimize common method bias, the possibility of perceptual bias cannot be entirely eliminated. Future studies could address this limitation by using multi-respondent data, triangulating survey findings with qualitative insights, or employing objective performance indicators.

Finally, future research could examine additional variables that may influence or moderate the relationship between strategic foresight, scenario planning, and futures thinking—such as organizational culture, leadership orientation, or stakeholder engagement mechanisms. These extensions would deepen the theoretical and practical understanding of how dynamic capabilities shape SME competitiveness and resilience in volatile environments.

Acknowledgement

This work was supported by the Fundamental Research Grant Scheme (FRGS/1/2020/USM/01/1/4), Ministry of Higher Education, Malaysia

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