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Bridging the Foresight–Action Gap: A Behaviourally Enabled Strategic Foresight Framework (BESF) for SMEs

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ABSTRACT

Small and medium-sized enterprises (SMEs) increasingly operate in environments characterised by technological acceleration, regulatory change, market volatility, sustainability pressures, and shifting competitive conditions. Strategic foresight can strengthen organisational preparedness by enabling firms to identify emerging developments, explore uncertainty, and consider alternative futures. Yet recognising strategically relevant change does not necessarily result in timely organisational response. This conceptual paper addresses this problem by introducing the Foresight–Action Gap, defined as the behavioural and organisational distance between recognising a strategically relevant future development and initiating an appropriate strategic response. Drawing on strategic foresight, behavioural decision-making, digital nudging, managerial attention, and dynamic capabilities, the paper develops a Behaviourally Enabled Strategic Foresight (BESF) framework tailored to the characteristics of SMEs. BESF integrates six functions: sensing, interpretation, anticipation, prioritisation, action, and organisational learning. The framework proposes that context-sensitive digital nudges can reduce specific behavioural frictions within this process while preserving managerial autonomy. Rather than assuming that nudging universally improves decisions, it emphasises friction–intervention fit and organisational context. The paper develops six theoretical propositions and a staged empirical agenda for validating the Foresight–Action Gap and the BESF framework.

Keywords: strategic foresight; digital nudging; SMEs; strategic decision-making; managerial attention; dynamic capabilities; Foresight–Action Gap

1. Introduction

Small and medium-sized enterprises (SMEs) operate within increasingly complex environments in which technological, economic, regulatory, environmental, and societal developments can alter competitive conditions within relatively short periods. Digital technologies and artificial intelligence are reshaping organisational processes and business models, while firms are simultaneously confronted with sustainability transitions, geopolitical uncertainty, new regulatory requirements, and changing customer expectations [1]. Under such conditions, strategic management requires more than the efficient exploitation of existing capabilities. Organisations must also develop the capacity to recognise emerging change, interpret its implications, and determine whether a strategic response is required before that change becomes immediate [2].

This challenge is particularly consequential in the context of SMEs. In the European Union, SMEs represent 99.8% of the total business population [1]. Their capacity to anticipate and respond to structural change therefore has implications beyond the performance of individual firms, affecting employment, innovation, competitiveness, and economic resilience [2]. At the same time, SMEs differ from large corporations in the resources and organisational structures available for long-term strategic analysis. They are less likely to possess dedicated strategy departments, specialist foresight teams, or substantial organisational slack, while strategic and operational responsibilities are frequently concentrated among a relatively small number of decision-makers .

Strategic foresight offers a potentially valuable response to environmental uncertainty. Rather than attempting to predict one predetermined future, foresight involves the systematic exploration of emerging developments, uncertainties, trends, weak signals, and alternative futures in order to improve organisational preparedness and strategic decision-making. The corporate foresight literature has progressively moved beyond a narrow understanding of forecasting toward a broader view in which foresight supports environmental perception, interpretation, innovation, organisational learning, and strategic adaptation [2]. Its value lies not in eliminating uncertainty but in enabling organisations to engage with

uncertainty before emerging developments become unavoidable constraints [5].

Existing evidence suggests that future preparedness can be associated with significant organisational value. Rohrbeck and Kum [3], using a longitudinal design that assessed firms' future preparedness and subsequently examined performance several years later, found that sufficiently future-prepared firms substantially outperformed the sample average. Their findings indicate approximately 33% higher profitability and 200% higher market-capitalisation growth among firms classified as future-prepared [3]. These results were derived primarily from larger organisations and should not be directly generalised to SMEs. Nevertheless, they provide empirical support for the broader proposition that an organisation's capacity to anticipate and prepare for environmental change can be strategically consequential.

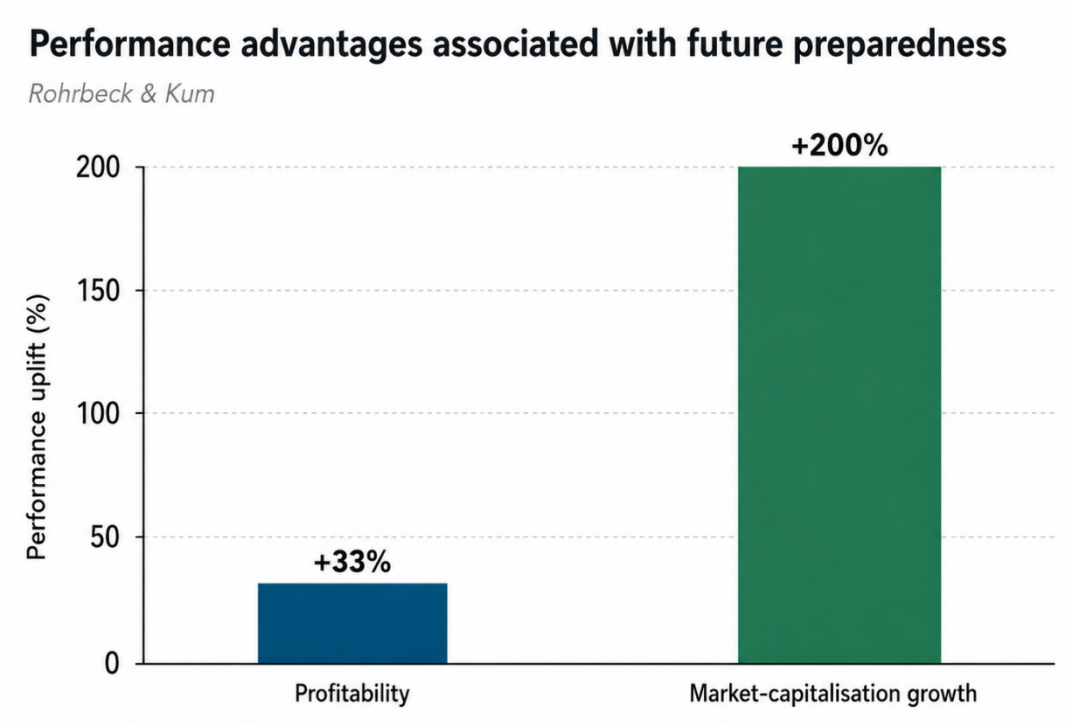


Figure 1. Performance advantages associated with future preparedness.

The implementation of foresight in SMEs remains considerably less developed. Dörr et al. [4], in a recent review of foresight research in SMEs, conclude that the existing knowledge base remains limited and that the extent of foresight implementation among SMEs cannot yet be reliably quantified. Their analysis highlights characteristics that can constrain systematic foresight activities, including limited resources, the absence of

specialised foresight functions, and the multiple roles performed by SME managers and employees. These characteristics suggest that foresight approaches developed primarily for large organisations cannot simply be transferred unchanged to smaller firms.

The broader evidence concerning SME digitalisation illustrates these capacity constraints. The 2025 OECD Digital for SMEs Survey, covering 1,009 SMEs across ten OECD countries, found that 40% identified maintenance costs as a digitalisation barrier, 39% lack of time for training, and 32% hardware costs; only 13% relied on formal training and 6% on expert-led programmes [5]. Although the OECD cautions that the sample is not representative of the entire SME population, the findings illustrate that SME constraints concern not only access to technology and information, but also the time and organisational capacity required to engage with them.

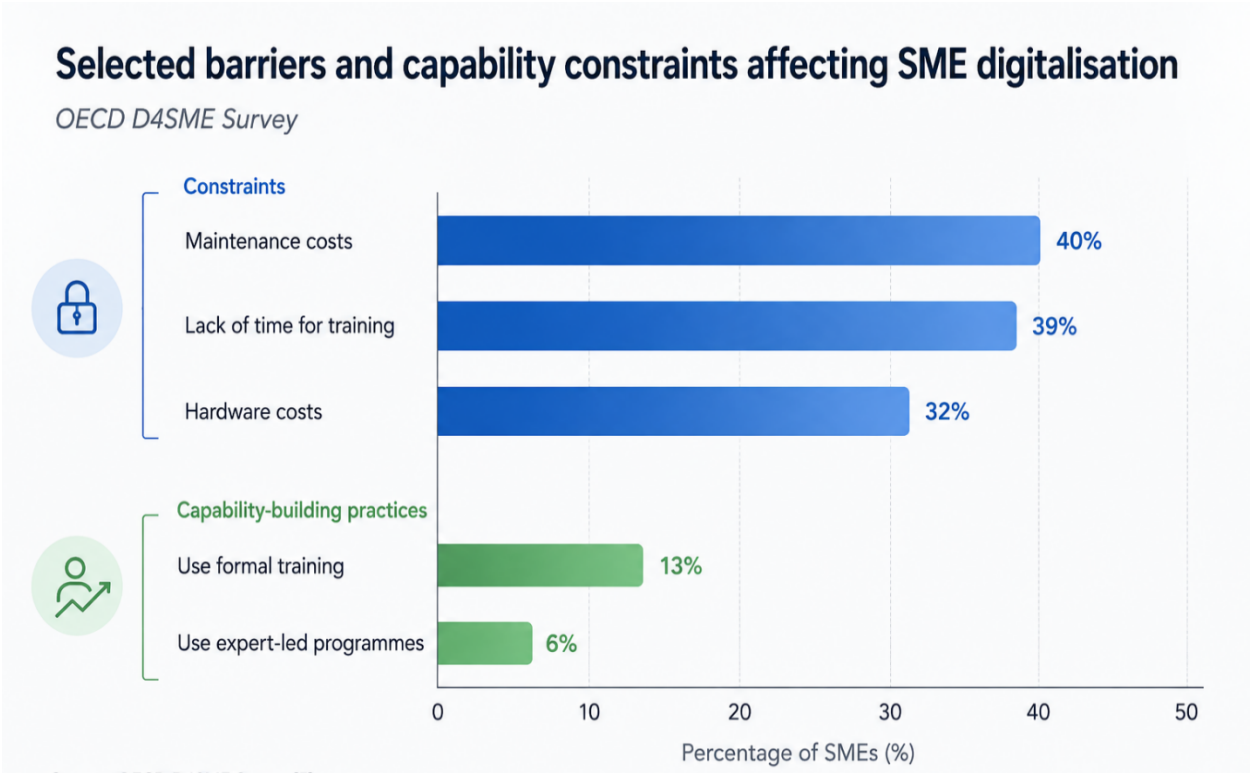


Figure 2. Selected barriers and capability constraints affecting SME digitalisation.

This distinction is central to the argument developed in this paper. The availability of future-oriented information does not automatically lead to strategic action. An SME may correctly recognise that an emerging technology could alter its industry, that regulatory developments may affect operations, or that changing customer preferences could weaken an

existing value proposition while still postponing a meaningful response. Strategically relevant information may fail to receive sufficient managerial attention, remain difficult to interpret in relation to the individual firm, appear too uncertain or temporally distant, or be displaced by immediate operational priorities.

The strategic problem therefore extends beyond the ability to identify change. It concerns the capacity to translate recognition of change into managerial engagement and organisational response. This paper conceptualises the behavioural and organisational distance between these two states as the Foresight–Action Gap. The construct emphasises that several processes intervene between foresight and action: managers must allocate attention to a signal, interpret its implications, evaluate its relative importance, establish a commitment, and eventually mobilise resources or responsibilities. Failure at any of these stages can prevent foresight intelligence from becoming strategic behaviour.

This perspective creates a theoretical opportunity to connect strategic foresight with digital nudging. Digital nudging refers to the purposeful design of elements within digital choice environments to influence users' judgement or behaviour while preserving their underlying freedom of choice [6]. In strategic management, such interventions could support how managers engage with future-oriented information by increasing salience, reducing unnecessary complexity, contextualising implications, prompting reflection, revisiting unresolved issues, or facilitating explicit follow-up. The argument is not that nudging can replace strategic judgement or that digitally mediated interventions inevitably produce better decisions. Instead, digital nudging is conceptualised as a potential behavioural enabling mechanism [9].

Building on this reasoning, the paper introduces Behaviourally Enabled Strategic Foresight (BESF) as an organisational capability through which future-oriented information is systematically identified, interpreted, assessed, prioritised, and translated into strategic action using behaviourally informed digital decision architectures, while subsequent outcomes contribute to organisational learning. The paper addresses three questions: RQ1 asks how strategic foresight and digital nudging can be theoretically integrated to support strategic decision-making in SMEs;

RQ2 asks through which behavioural mechanisms digital nudging can reduce the Foresight–Action Gap; and RQ3 asks under which organisational, managerial, and environmental conditions BESF is likely to be most effective.

The paper makes three contributions. It introduces the Foresight–Action Gap as a mechanism explaining why future-oriented awareness may fail to generate strategic response; extends digital nudging into strategic foresight as an intermediate support for attention, interpretation, prioritisation, and commitment; and develops BESF around the constraints of SMEs. The resulting perspective shifts emphasis from providing more information about the future toward enabling SMEs to use strategically relevant information more effectively.

2. Theoretical Foundations

The conceptual framework developed in this paper draws on three complementary bodies of literature: strategic foresight, behavioural decision-making and digital nudging, and dynamic capabilities combined with the attention-based view of the firm [10]. These perspectives address different elements of the same strategic challenge. Strategic foresight explains how organisations identify and explore potentially consequential environmental change. Behavioural decision-making explains why relevant information does not necessarily generate timely or consistent managerial responses. Dynamic capabilities provide the organisational logic connecting environmental sensing with adaptation, while the attention-based view highlights the scarce cognitive and managerial resources through which this transition occurs.

2.1. Strategic Foresight and the SME Context

Strategic foresight can be understood as an organisational approach for systematically exploring potential developments in the external environment and considering their implications for present strategic choices. Unlike conventional forecasting, which generally seeks to estimate the most probable development from existing information and historical patterns, strategic foresight acknowledges uncertainty and encourages consideration of multiple plausible futures [2]. Its purpose is not to eliminate uncertainty or predict future events accurately, but to

improve preparedness for developments that could materially affect the firm's competitive position.

The contemporary foresight literature encompasses environmental scanning, weak-signal identification, trend analysis, scenario development, technology monitoring, and the exploration of strategic alternatives [2]. These activities can broaden the range of developments incorporated into strategic decision-making and challenge assumptions embedded in current strategies. Importantly, the value of foresight extends beyond information acquisition. Rohrbeck and Schwarz, using evidence from 77 large multinational firms, identify mechanisms including enhanced perception of environmental change, improved interpretation and response, influence on organisational actors, and organisational learning. Foresight therefore creates value when future-oriented information becomes incorporated into interpretation, communication, learning, and strategic response [7].

This distinction is especially relevant for SMEs. Much of corporate foresight research has focused on organisations with comparatively sophisticated strategy functions and access to greater financial, analytical, and human resources [4]. SMEs frequently operate under different conditions: dedicated foresight departments are uncommon, formal planning structures may be less developed, and strategic responsibility is often concentrated among managers who simultaneously perform operational roles. Future-oriented activities therefore compete with immediate organisational demands for managerial attention and resources [9].

The SME context creates a paradox. Smaller firms may have strong reasons to anticipate environmental change because a limited resource base can reduce their ability to absorb unexpected technological, regulatory, or competitive disruptions. Yet the same organisational characteristics can make systematic foresight difficult to sustain. An SME-oriented interpretation of foresight should therefore emphasise relevance, selectivity, and usability rather than comprehensiveness alone [13]. The objective is not necessarily to expose managers to the largest possible number of signals and scenarios, but to help them identify which developments potentially matter, understand why they matter, and determine whether further strategic attention is justified.

2.2 Behavioural Decision-Making and Digital Nudging

The assumption that improved information automatically produces improved strategic decisions is difficult to reconcile with established behavioural research. Managers make decisions under conditions of bounded attention, limited time, uncertainty, and incomplete knowledge. Tversky and Kahneman demonstrated that judgement under uncertainty is influenced by heuristics such as availability, representativeness, and anchoring [8]. These behavioural characteristics are especially relevant to strategic foresight because future-oriented information is often ambiguous, unfamiliar, probabilistic, and temporally distant.

Digital nudging provides a potential conceptual bridge. Weinmann et al. [6] define digital nudging as the use of design elements within digital choice environments to influence behaviour while maintaining freedom of choice. Digital interfaces are not behaviourally neutral: the order, prominence, framing, complexity, defaults, reminders, and presentation of possible actions can influence attention and engagement. For this paper, digital nudging is interpreted as behaviourally informed digital decision architecture rather than as a mechanism for steering managers toward predetermined strategic choices.

Different barriers imply different behavioural requirements. A strategically important signal may be overlooked among competing information, understood poorly because of technical complexity, considered relevant but too distant to merit attention, or prioritised without generating explicit commitment. Mirsch et al. similarly emphasise the need to understand the decision context, behavioural objective, and user characteristics before designing a digital nudge [9]. Applied to strategic foresight, salience may support attention, simplification and framing may support interpretation, reflection prompts may challenge short-term assumptions, and reminders or commitment mechanisms may support follow-through. The strategic evaluation of uncertainty, risk, resource availability, and organisational fit nevertheless remains the responsibility of the manager.

2.3 Dynamic Capabilities, Foresight and Managerial Attention

Dynamic capabilities theory provides a broader organisational explanation of how firms respond to changing environments. Teece conceptualises dynamic capabilities around sensing opportunities and threats, seizing

opportunities, and transforming or reconfiguring organisational resources and activities. Competitive adaptation therefore depends not only on possessing valuable resources, but also on recognising environmental change and mobilising an appropriate response [10].

Strategic foresight has a strong relationship with sensing. Environmental scanning, weak-signal identification, trend analysis, and scenario exploration expand the organisation's capacity to detect developments before their consequences become fully established. Schwarz et al. consequently conceptualise corporate foresight as a potential microfoundation of dynamic capabilities [11]. Empirical research also supports this relationship: Haarhaus and Liening associate strategic foresight with capabilities related to strategic flexibility and decision rationality under environmental uncertainty [12].

Nevertheless, sensing does not ensure successful seizing. A firm can recognise a disruptive technology without investigating it, identify a market opportunity without allocating resources, or anticipate regulation while postponing preparation. The attention-based view of the firm provides an explanation for this transition. Ocasio argues that organisational behaviour depends partly on how firms distribute and channel the limited attention of decision-makers [13]. What organisations address therefore depends not only on the objective significance of an issue, but also on whether it receives sufficient managerial attention within existing decision processes.

This perspective is particularly important for SMEs, where managerial attention can constitute a concentrated strategic resource. When a small number of managers are simultaneously responsible for operations, customers, employees, financing, innovation, and long-term strategy, emerging developments compete with immediate demands. Integrating strategic foresight with dynamic capabilities and the attention-based view therefore identifies an important theoretical space between environmental sensing and strategic response. This intermediate space is the central focus of the Foresight–Action Gap developed in the next section.

Table 1. Theoretical Foundations of Behaviourally Enabled Strategic Foresight

Theoretical perspective	Central focus	Contribution to BESF
Strategic foresight	Exploration of emerging change and alternative futures	Provides future-oriented intelligence and anticipation.
Behavioural decision-making	Judgement under bounded attention and uncertainty	Identifies cognitive and behavioural frictions.
Digital nudging	Behaviourally informed design of digital choice environments	Supports attention, interpretation, reflection, commitment, and follow-up.
Dynamic capabilities	Organisational adaptation to environmental change	Connects sensing with strategic mobilisation and transformation.
Attention-based view	Allocation of scarce managerial attention	Explains why strategically relevant issues may fail to enter the managerial agenda.

3. The Foresight–Action Gap in SMEs

Strategic foresight can increase an organisation's capacity to identify and interpret emerging developments, yet recognition of change does not necessarily lead to strategic response. Between the identification of a potentially consequential development and the initiation of organisational action lies a set of managerial processes involving attention, interpretation, prioritisation, commitment, and resource allocation. The central argument of this paper is that these intermediate processes deserve explicit consideration when examining the strategic value of foresight in SMEs.

3.1. Conceptualising the Foresight–Action Gap

This paper introduces the Foresight–Action Gap as the behavioural and organisational distance between recognising a strategically relevant future development and initiating an appropriate strategic response. The construct distinguishes between the existence of future-oriented intelligence and the organisational capacity to mobilise around that intelligence. Identification of a relevant signal is only an initial condition for strategic action. An SME may become aware of an emerging technology but remain uncertain about its implications for existing capabilities; management may understand a regulatory development while considering its implementation horizon too distant to justify investment; or a shift in customer behaviour may be recognised without generating a decision concerning experimentation or adaptation.

The gap is therefore not conceptualised as a single moment at which managers either act or fail to act. It reflects a sequence of potential discontinuities. Following recognition of a strategic signal, sufficient attention must be allocated, its implications interpreted in relation to the organisation, its relative importance assessed against competing priorities, and an explicit commitment translated into implementation. A breakdown in any of these processes may prevent foresight intelligence from becoming strategic behaviour.

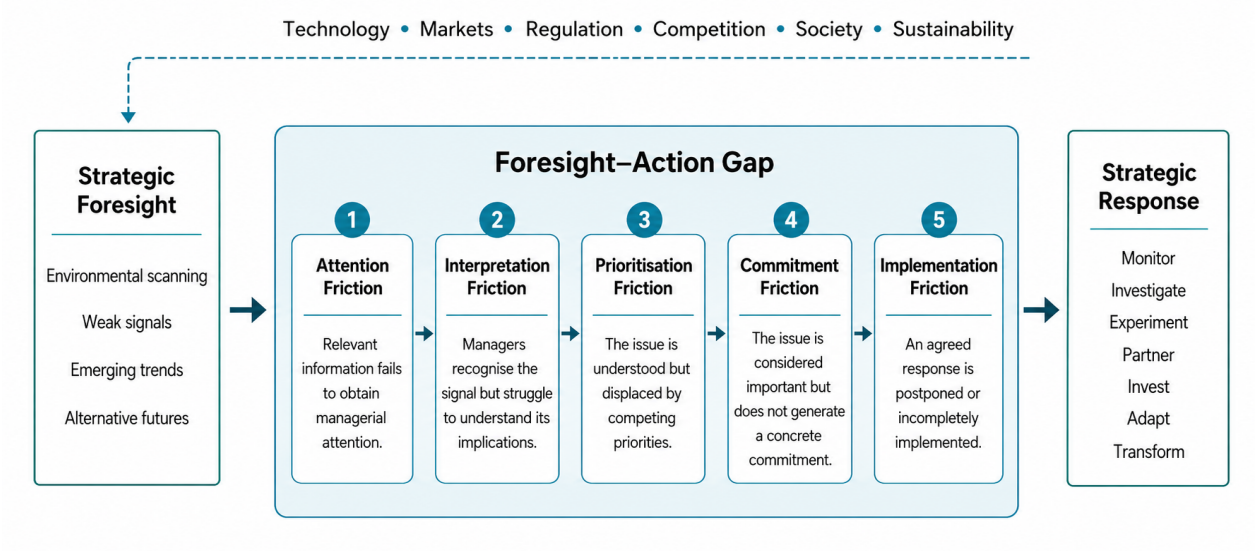


Figure 3. Conceptualisation of the Foresight–Action Gap between strategic foresight and strategic response in SMEs. (Author's illustration)

3.2. Managerial Attention and Information Overload

The first source of friction concerns managerial attention. The attention-based view establishes that decision-makers possess limited attentional capacity and that organisational behaviour depends partly on which issues enter and remain within managerial attention structures [13]. This issue is especially relevant for SMEs, where strategic and operational responsibilities are frequently concentrated among relatively few individuals [4]. Emerging developments must compete with customers, employees, sales, financing, and operational difficulties. A development that may significantly affect the organisation in three years can therefore receive less attention than an operational issue requiring resolution this week.

Information abundance can intensify the problem. Eppler and Mengis describe information overload as a condition in which information-

processing requirements exceed the capacity available to process them effectively [14]. Overload can arise from information volume and complexity, task requirements, organisational conditions, individual capabilities, and information technologies themselves. A digital foresight platform capable of identifying hundreds of technological, regulatory, competitive, and societal developments may therefore create extensive environmental coverage while simultaneously increasing cognitive burden. For SME-oriented foresight, the objective should not be simply to maximise information acquisition, but to improve the identification and communication of information with plausible strategic relevance.

3.3. Exploration, Exploitation, and Temporal Prioritisation

A second source of friction arises from competition between present organisational requirements and uncertain future opportunities. March's distinction between exploration and exploitation provides an established theoretical basis for this tension [15]. Exploration involves search, experimentation, discovery, and engagement with new possibilities, whereas exploitation emphasises refinement, efficiency, implementation, and the use of existing knowledge and capabilities. Strategic foresight is closely associated with exploration because it requires organisations to devote present attention to developments whose eventual consequences remain uncertain. SMEs must simultaneously exploit existing products, customers, technologies, and revenue-generating activities.

Temporal distance reinforces this tension. Many foresight issues possess potentially substantial long-term implications while generating weak short-term urgency. Research on managerial short-termism highlights the difficulty organisations face when actions desirable over longer horizons conflict with present incentives or pressures [16]. For SME decision-makers, this may be reflected in repeated postponement of an issue whose strategic importance is acknowledged but whose consequences are not yet immediate [24]. The existence of the Foresight–Action Gap therefore does not necessarily imply that managers have failed to understand the future; they may understand it while repeatedly deciding that more immediate priorities require attention first.

3.4. Different Forms of Foresight–Action Friction

The proposed construct can be differentiated according to the point at which the translation of foresight into action becomes interrupted. Five forms of friction are particularly relevant: attention friction, interpretation friction, prioritisation friction, commitment friction, and implementation friction. These forms are analytically distinct because they imply different causes and therefore different potential interventions. A mechanism intended to increase visibility may support attention but be insufficient where managers already recognise the issue and face difficulty committing resources. Additional information may reduce interpretation uncertainty in some circumstances while worsening information overload in others.

Table 2. Forms of Friction Within the Foresight–Action Gap

Form of friction	Description	Illustrative managerial situation
Attention friction	A strategically relevant signal fails to receive sufficient managerial attention.	An emerging technology is identified but lost among competing information and operational demands.
Interpretation friction	Managers recognise the signal but cannot determine its organisational implications.	A regulatory development is known, but its effect on the business model remains unclear.
Prioritisation friction	The issue is understood but displaced by more immediate priorities.	A market shift is acknowledged but remains outside the active strategic agenda.
Commitment friction	The issue is considered relevant but does not generate an explicit next step.	Management agrees that a technology should be investigated but assigns no responsibility or review date.
Implementation friction	A strategic response is agreed upon but not completed.	A pilot or strategic review is repeatedly postponed because of operational pressures.

3.5. Reframing the Strategic Foresight Problem

The concept of the Foresight–Action Gap challenges an implicitly informational interpretation of foresight effectiveness. If the principal limitation facing SMEs were insufficient knowledge about emerging change, the appropriate response would primarily involve stronger environmental scanning and access to additional information. Once attention, interpretation, temporal prioritisation, commitment, and implementation are recognised as potential sources of friction, information provision alone becomes insufficient.

This reframing has two consequences. First, the strategic value of foresight should be evaluated not only by whether relevant developments are identified, but also by the extent to which they progress through the managerial decision process. Second, interventions intended to strengthen SME foresight should address the particular mechanism preventing movement from awareness toward response. Digital nudging becomes theoretically relevant at this point because behaviourally informed digital environments can alter the presentation, salience, contextualisation, timing, and follow-up of information without determining the strategic choice itself.

4. Behaviourally Enabled Strategic Foresight: The Proposed Framework

The preceding discussion suggests that improving the availability of future-oriented information is only one component of effective strategic foresight. For SMEs, the strategic value of foresight also depends on whether relevant information receives attention, can be interpreted in relation to the individual firm, is prioritised relative to competing demands, and ultimately results in an organisational response. To address these intermediate mechanisms, this paper proposes Behaviourally Enabled Strategic Foresight (BESF).

BESF is defined as an organisational capability through which strategically relevant future-oriented information is systematically identified, interpreted, anticipated, prioritised, and translated into strategic action using behaviourally informed digital decision architectures, while subsequent outcomes contribute to organisational learning. The framework does not propose digital nudging as an alternative to foresight methods or managerial judgement. Rather, it introduces behavioural decision architecture as an enabling layer within the foresight process.

4.1. The Structure of Behaviourally Enabled Strategic Foresight

The BESF framework conceptualises strategic foresight as comprising six interrelated functions: sensing, interpretation, anticipation, prioritisation, action, and learning. These functions should not be understood as a rigid sequence through which every issue must progress. Foresight is iterative, and managers may revisit earlier assessments as new information emerges.

Distinguishing the functions is nevertheless useful because different behavioural frictions can become dominant at different points.

Sensing concerns the identification of developments that may have strategic relevance. Environmental scanning, trend analysis, weak-signal identification, and technology monitoring are primarily associated with this function. For SMEs, the behavioural challenge is often determining which elements of a large information environment warrant consideration. Information overload and limited attention can reduce the usefulness of extensive scanning. Selective filtering and salience may therefore support sensing by increasing the visibility of potentially relevant developments without requiring managers to process the entire external information environment.

Interpretation concerns the translation of an external development into organisation-specific meaning. Recognition that a technology, regulation, or market trend exists does not explain how it may affect customers, capabilities, costs, products, or the business model. Moqaddamerad and Ali [18] find that sensemaking and organisational learning play sequential mediating roles in the relationship between strategic foresight and business-model innovation, indicating that foresight information must be interpreted and organisationally processed before it contributes to strategic outcomes. Behaviourally informed digital support at this stage may include simplification, contextual framing, and comparative information, provided uncertainty is not obscured.

Anticipation concerns consideration of how relevant developments might evolve and what alternative future conditions could imply for the firm. Scenario processes encourage decision-makers to engage with uncertainty rather than rely on a single expected trajectory, and research indicates that participation can develop foresight capabilities and organisational learning [17]. Comprehensive scenario exercises may impose substantial time and expertise requirements on SMEs [4]. BESF therefore also allows for lightweight reflection prompts or focused scenario questions that challenge linear assumptions without claiming to replace formal scenario planning.

Prioritisation addresses the fact that SMEs cannot respond to every future development. Signals differ in potential impact, urgency, uncertainty, and organisational relevance. Managers must determine which issues require

immediate consideration, which justify exploration, and which should continue to be monitored. Digital architecture may support this through transparent ranking, comparison, and relevance framing. Prioritisation is especially important because a foresight system that treats every signal as urgent is likely to recreate the information-overload problem it seeks to reduce [28].

Action concerns the conversion of strategic attention into an explicit organisational response. Depending on uncertainty and maturity, the appropriate response may consist of continued monitoring, additional investigation, internal discussion, experimentation, partnership development, investment, or adaptation. Commitment-oriented nudges can support follow-through by encouraging managers to identify a next step, assign responsibility, or establish a review point. These mechanisms do not determine what the response should be; they reduce the likelihood that an issue considered important remains without ownership or follow-up.

Learning closes the process by incorporating previous assessments and responses into subsequent decision-making. Foresight should not be evaluated solely according to whether a prediction proved correct. Organisations can learn by examining how signals evolved, which assumptions influenced earlier interpretations, whether responses were initiated at an appropriate time, and whether experiments generated useful information [25]. Scenario research identifies organisational learning as a key source of foresight value, while evidence connecting foresight, sensemaking, learning, and business-model innovation further supports this recursive mechanism [18].

Table 3. Components of the Behaviourally Enabled Strategic Foresight Framework

BESF function	Central managerial question	Principal behavioural challenge	Potential digital support	Intended outcome
Sensing	Which developments may be strategically relevant?	Attention scarcity and information overload	Selective filtering and salience	Strategic awareness
Interpretation	What might this development mean for the firm?	Complexity and unclear relevance	Simplification, contextualisation, and framing	Strategic understanding

Anticipation	How might the issue develop under alternative conditions?	Short-term orientation and existing assumptions	Reflection prompts and lightweight scenarios	Future-oriented consideration
Prioritisation	Which issues deserve attention or resources?	Competing priorities and limited capacity	Ranking, comparison, and relevance framing	Strategic focus
Action	What organisational response is appropriate?	Inertia, weak commitment, and postponement	Commitment prompts, responsibility allocation, review scheduling	Deliberate strategic response
Learning	What can be learned from previous assessments and actions?	Fragmented feedback and organisational memory	Feedback and structured review mechanisms	Adaptive learning

4.2. Context-Matched Rather Than Universal Nudging

A central assumption of BESF is that digital nudging should not be treated as universally effective. Existing empirical research demonstrates substantial heterogeneity in nudge effectiveness. Hummel and Maedche's quantitative review found statistically significant effects in 62% of the treatments examined and reported a median effect size of approximately 21%, while showing substantial variation across categories and contexts [19]. Mertens et al., in a large meta-analysis of choice-architecture interventions, reported an overall small-to-medium effect of Cohen's d = 0.43, again accompanied by considerable heterogeneity [20].

These findings argue against assuming that adding more nudges to a foresight system necessarily improves strategic decisions. Within BESF, the relevant question is whether the intervention corresponds to the friction affecting the decision process. Salience is theoretically appropriate when relevant information is overlooked, but may provide little value when managers already recognise an issue and cannot interpret its implications. Repeated reminders may support follow-through after a commitment has been established but may simply increase notification burden where relevance remains unresolved. BESF therefore proposes friction–intervention fit as a fundamental design principle: the behavioural intervention should address an identifiable obstacle and be proportionate to the uncertainty and significance of the underlying issue.

4.3. Managerial Autonomy and the Role of Digital Decision Support

The incorporation of nudging into strategic management also requires a boundary between decision support and decision substitution. Foresight concerns uncertain developments for which there is rarely a single objectively correct response. A digital system may identify increasing salience, provide structured information, or prompt reconsideration, but it should not imply certainty where uncertainty remains or conceal reasonable alternatives. Managerial autonomy is therefore a central design requirement of BESF. Behavioural interventions should increase engagement with strategically relevant information while leaving evaluation of trade-offs and final resource allocation to decision-makers [32]. Technology is positioned as an enabler of strategic attention and engagement rather than an autonomous strategic decision-maker.

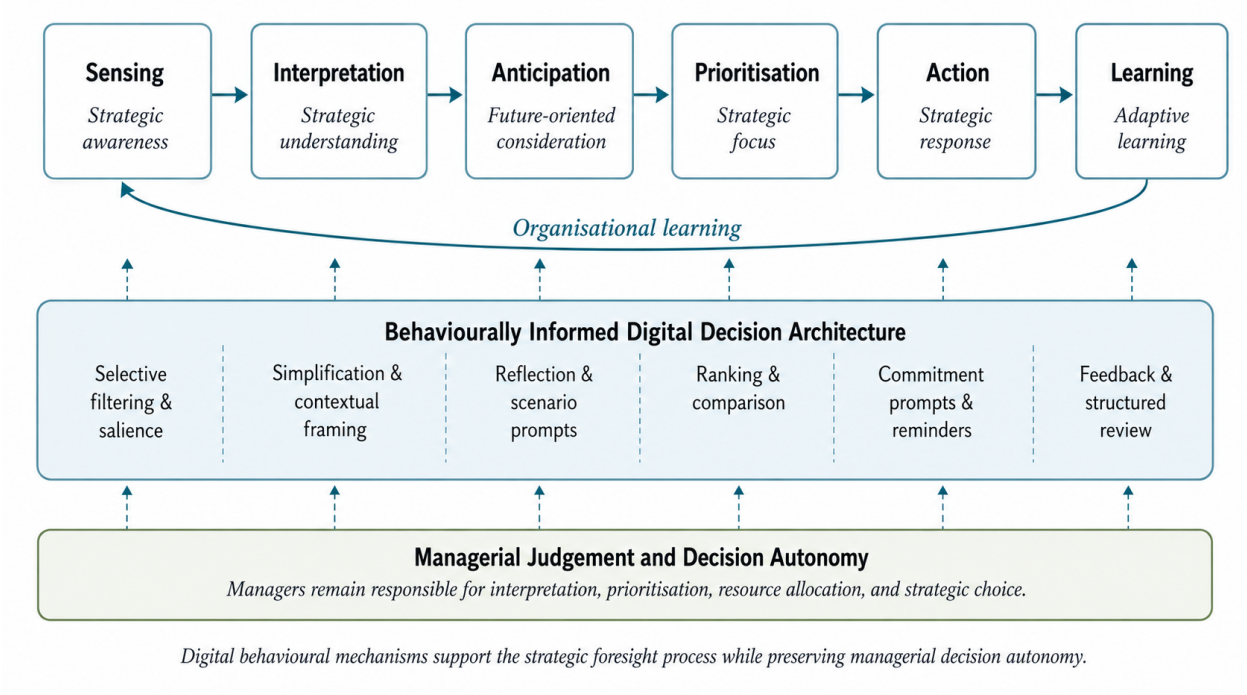


Figure 4 The Behaviourally Enabled Strategic Foresight (BESF) framework for SMEs. (Author's illustration)

5. Contextual Conditions and Theoretical Propositions

BESF does not assume that behaviourally informed foresight will operate uniformly across SMEs. Firms differ in digital capability, foresight experience, managerial cognition, available resources, and exposure to environmental change. The same intervention may support strategic

engagement in one organisation while creating little value or additional information burden in another. BESF should therefore be understood as a context-dependent capability rather than a standardised set of digital nudges.

5.1. Digital and Foresight Maturity

The first contextual condition concerns digital and foresight maturity. Eurostat reports that in 2025 approximately 71% of EU SMEs had reached at least a basic level of digital intensity, compared with 96% of large enterprises [21]. Digitally mediated decision support is therefore increasingly feasible, but digital readiness cannot be assumed across the SME population. A digitally advanced SME may be capable of personalised dashboards and integrated signal monitoring, whereas a less mature firm may require simpler strategic alerts or review prompts.

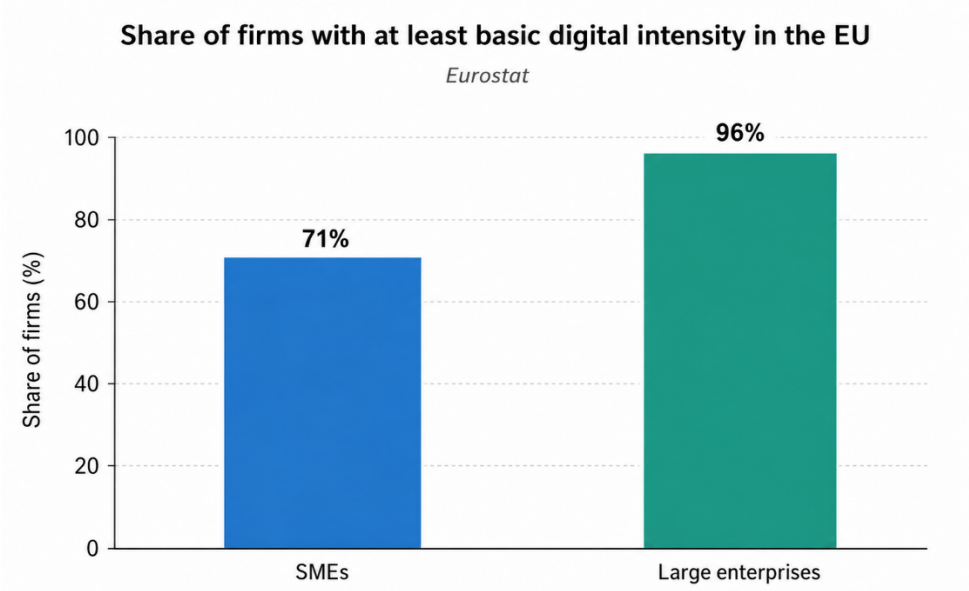


Figure 5. Share of firms with at least basic digital intensity in the EU.

5.2. Managerial Cognition and Organisational Resources

Managerial cognition represents a second condition. External developments do not possess self-evident strategic meaning; they are interpreted through managers' assumptions, experience, knowledge, and mental models. Tripsas and Gavetti, in their analysis of Polaroid's response to digital imaging, show how managerial cognition can influence organisational search, capability development, and inertia even where significant technological knowledge exists [23]. Two SME managers can

therefore encounter the same signal and draw different conclusions regarding relevance, urgency, and response.

Organisational resources impose an additional boundary. Digital nudging may help a manager recognise, interpret, or revisit an issue, but it cannot create financial resources, technical expertise, or personnel that the organisation lacks. The Foresight–Action Gap may arise from behavioural friction, but it may also persist because a firm recognises the appropriate response while lacking the capacity to implement it. BESF is therefore expected to be most useful where behavioural or decision-process frictions constitute a meaningful part of the gap.

5.3. Environmental Dynamism

Environmental dynamism provides a further contextual condition [35]. Eisenhardt and Martin argue that dynamic capabilities take different forms in moderately and highly dynamic markets, with rapidly changing environments placing greater emphasis on experiential and iterative processes [24]. Environmental dynamism has competing implications for BESF. Rapid technological, market, or regulatory change increases the value of timely sensing and reassessment, but it also increases the number and speed of potentially relevant signals. If every development produces an alert or recommendation, the behavioural layer can itself become a source of overload. Under highly dynamic conditions, selectivity and prioritisation become especially important [36].

5.4. Theoretical Propositions

The preceding arguments allow the conceptual relationships underlying BESF to be expressed as six theoretical propositions.

P1. Higher levels of strategic foresight capability increase an SME's capacity to identify strategically relevant emerging opportunities and threats. This proposition reflects the sensing role of foresight and its relationship with dynamic capabilities [2,7,12].

P2. Strategic sensemaking strengthens the translation of foresight-generated information into the strategic prioritisation of emerging opportunities and threats in SMEs. Recognition alone is insufficient; foresight information must acquire organisation-specific meaning before it can influence response [18].

P3. Managerial attention scarcity, information overload, short-term operational pressures, and organisational resource constraints increase the Foresight–Action Gap in SMEs. These conditions can interrupt the movement of information through the strategic decision process [8,15,16].

P4. Context-appropriate digital nudging strengthens the translation of foresight-generated insights into managerial engagement and strategic action in SMEs. The proposition concerns engagement and follow-through rather than assuming that nudging directly improves the substantive quality of the strategic choice [6,10].

P5. The effectiveness of digital nudging in reducing the Foresight–Action Gap increases when the intervention is aligned with the relevant behavioural friction and the SME's digital, managerial, and organisational context. This proposition follows from the substantial heterogeneity observed in the nudging literature [19,20].

P6. Organisational learning from previous foresight assessments and strategic responses strengthens subsequent foresight capability and the SME's capacity to respond to environmental change. BESF therefore conceptualises foresight as an iterative capability rather than a one-off analytical exercise [17,18].

Table 4. Summary of the Theoretical Propositions

Proposition	**Proposed relationship**	**Principal theoretical foundation**
P1	Strategic foresight capability strengthens identification of strategically relevant emerging opportunities and threats.	Strategic foresight; dynamic capabilities
P2	Strategic sensemaking strengthens translation of foresight information into strategic prioritisation.	Sensemaking; organisational learning
P3	Attention scarcity, information overload, short-term pressures, and resource constraints increase the Foresight–Action Gap.	Attention-based view; behavioural decision-making
P4	Context-appropriate digital nudging strengthens translation of foresight insights into managerial engagement and strategic action.	Digital nudging; behavioural decision architecture
P5	Digital nudging becomes more effective when the intervention matches the relevant friction and organisational context.	Friction–intervention fit; contingency perspective

Proposition	Proposed relationship	Principal theoretical foundation
P6	Learning from previous foresight assessments and actions strengthens subsequent foresight capability.	Organisational learning; dynamic capabilities

6. Discussion and Implications

The BESF framework extends foresight research by focusing on the processes through which future-oriented information becomes strategic action. It does not challenge environmental scanning, scenario development, or established foresight practices; instead, it argues that their strategic value depends partly on what happens after relevant information has been identified. For SMEs, managerial attention, interpretation, prioritisation, commitment, and implementation can constitute important constraints between awareness and response.

The first theoretical contribution is the Foresight–Action Gap. Existing research links strategic foresight with organisational learning, strategic flexibility, business-model innovation, and firm performance . The present framework adds an intermediate perspective by distinguishing foresight intelligence from the processes required to convert it into strategic behaviour. A signal can be detected without receiving sufficient attention, understood without being prioritised, or prioritised without generating commitment. This provides a mechanism for explaining why organisations possessing relevant future-oriented information may nevertheless respond late.

The second contribution is the integration of strategic foresight and behavioural decision architecture. Digital nudging has largely developed within information-systems and behavioural research . BESF extends this logic into strategic management by proposing that digital interventions can support specific stages of engagement with foresight information. The contribution is not a claim that nudges automatically improve decision quality. Instead, their value is expected to depend on whether they are aligned with identifiable forms of friction, consistent with the heterogeneity documented in the nudging literature.

The third contribution is the positioning of BESF within the transition between sensing and seizing in dynamic capabilities theory [10]. Strategic

foresight contributes to sensing by expanding the firm's ability to identify opportunities and threats, but sensing becomes strategically valuable only when recognised developments influence subsequent choices. BESF adds a behavioural layer to this transition by examining how managerial attention and digital decision architecture affect movement from environmental recognition toward strategic mobilisation.

The SME context shapes the managerial implications. BESF should not be interpreted as a simplified copy of large-corporation foresight systems. It starts from constrained managerial time and resources, implying that SME-oriented foresight should prioritise selectivity over information volume. It also recognises that an appropriate response need not involve immediate investment: monitoring, targeted investigation, small-scale experimentation, and partnership development can provide proportionate ways to engage with uncertain developments. Such graduated responses allow SMEs to institutionalise future-oriented thinking without treating every signal as a major resource commitment [38].

For digital foresight system design, four principles follow. Systems should prioritise firm-specific relevance; distinguish between attention, interpretation, prioritisation, commitment, and implementation frictions before selecting interventions; limit intervention frequency to avoid notification fatigue; and preserve uncertainty and contestability rather than presenting algorithmic classifications as definitive conclusions.

A further implication concerns temporal calibration. Signals with distant horizons may require periodic reflection rather than frequent prompts, whereas developments approaching a decision threshold may justify more structured review [27]. Matching intervention intensity to the maturity, urgency, and uncertainty of a signal could help SMEs maintain future-oriented issues within managerial attention without converting foresight into a continuous stream of alerts. This temporal sensitivity is consistent with the broader BESF principle that behavioural support should remain proportionate to the strategic problem being addressed.

The use of behavioural mechanisms also raises ethical questions. Digital nudging becomes problematic when system architecture obscures alternatives, conceals the objective of an intervention, or manipulates users toward outcomes that do not reflect their interests. Meske and Amojo

emphasise ethical safeguards that distinguish legitimate nudging from manipulation [25]. This is especially important in foresight because future-oriented information is uncertain. BESF therefore conceptualises digital technology as decision-support infrastructure rather than decision substitution: it should facilitate attention and deliberation while maintaining transparency and managerial control [42].

7. Future Research and Empirical Validation

The BESF framework is conceptual and requires empirical validation. Future research should examine whether the proposed mechanisms can be observed, whether the Foresight–Action Gap can be measured reliably, and under which organisational conditions different behavioural interventions become effective. A multi-method programme is appropriate because BESF combines organisational capabilities with behavioural mechanisms.

A first priority is operationalising the Foresight–Action Gap. Because the construct is introduced here, no established measurement instrument exists. Qualitative interviews with SME decision-makers could refine the boundaries of attention, interpretation, prioritisation, commitment, and implementation friction and identify recurrent situations in which relevant information fails to progress toward action. The findings could support item generation and scale development using established procedures for content validity, reliability, and construct validation [26].

A second stage could use a multi-firm SME survey to examine relationships among strategic foresight capability, sensemaking, the Foresight–Action Gap, digital decision support, responsiveness, organisational learning, digital maturity, and environmental dynamism [27]. Such a design could test P1–P6 and relevant moderators. Because many constructs might otherwise be measured from the same respondent, procedural and statistical remedies for common-method variance should be considered, including multi-informant or temporally separated designs where feasible.

Experimental research is particularly important for evaluating the behavioural component. Experimental vignette methodology can present managers with realistic strategic situations while manipulating elements of the digital decision environment [27]. Participants could receive the same

foresight signal under conventional presentation, salience, contextual framing, reflection, or commitment conditions. Experiments could also manipulate the behavioural friction itself. For example, under information overload, a salience intervention could be compared with an unrelated reminder; friction–intervention fit predicts that the aligned intervention should generate stronger engagement.

A final stage should examine BESF in real organisational settings over time. A longitudinal field study could record whether signals are reviewed, prioritised, assigned for investigation, connected with strategic responses, and revisited. Such data would reveal where the process loses momentum and allow the Foresight–Action Gap to be studied through observed behaviour rather than retrospective perceptions. Together, qualitative construct development, survey validation, experiments, and field studies would move BESF from conceptual development toward measurement, causal testing, and practical validation.

Table 5. Proposed Empirical Validation Agenda for BESF

Research stage	Method	Primary objective	Main elements tested
Stage 1	Qualitative interviews and scale development	Define and validate the Foresight–Action Gap	Attention, interpretation, prioritisation, commitment, and implementation frictions
Stage 2	Cross-sectional SME survey	Examine relationships between BESF constructs across organisations	P1–P6 and contextual moderators
Stage 3	Experimental vignette study	Establish causal effects of digital behavioural interventions	Digital nudging mechanisms and friction–intervention fit
Stage 4	Longitudinal field study	Examine foresight-to-action behaviour and learning over time	Strategic follow-through, organisational learning, and evolution of BESF capability

8. Conclusion

This paper develops a conceptual framework for understanding how SMEs may translate strategic foresight into strategic action under conditions of limited managerial attention and organisational resources. Foresight can strengthen the ability to recognise emerging opportunities, threats, and

alternative futures, but relevant information does not automatically influence behaviour. The central challenge is therefore not simply whether SMEs possess foresight, but whether they can convert foresight-derived intelligence into timely organisational responses.

The paper introduces the Foresight–Action Gap as the behavioural and organisational distance between recognising a strategically relevant future development and initiating an appropriate response. Attention, interpretation, prioritisation, commitment, and implementation represent potential points of friction. Building on this concept, BESF integrates strategic foresight with behaviourally informed digital decision architecture across six functions: sensing, interpretation, anticipation, prioritisation, action, and organisational learning.

Digital nudging is positioned as a supporting mechanism rather than a substitute for managerial judgement. Its potential contribution lies in reducing specific forms of friction through context-sensitive mechanisms while preserving autonomy and uncertainty. The framework therefore emphasises alignment between the behavioural barrier, the intervention, and the organisational context rather than universal nudge effectiveness. Future research should determine whether the Foresight–Action Gap can be operationalised as a multidimensional construct and whether BESF can develop into a measurable organisational capability. Ultimately, the strategic value of foresight depends not only on identifying possible futures, but also on engaging with them before they become unavoidable realities.

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