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Entrepreneurial Competencies as Microfoundations of Business Model Innovation: A Capability-Conversion Framework for SME Innovation Performance

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Abstract

Small and medium-sized enterprises (SMEs) often rely on a small group of senior decision-makers, yet entrepreneurial competency research commonly treats opportunity, relationship, conceptual, and strategic competencies as parallel predictors. This obscures how managerial competence is converted into firm-level innovation outcomes. This conceptual paper develops a capability-conversion framework explaining how these competencies support business model innovation (BMI) and innovation performance. Drawing on Dynamic Capabilities Theory, managerial microfoundations, and Contingency Theory, the framework presents an ordered but recursive process. Opportunity competencies identify commercially relevant changes; relationship competencies provide access to external information and complementary resources; conceptual competencies transform these inputs into alternative business-model configurations; and strategic competencies support their evaluation, selection, resource alignment, and implementation. Their complementary operation enables BMI through the reconfiguration of value creation, delivery, and capture. BMI, in turn, supports innovation performance, while environmental uncertainty is proposed to strengthen this relationship. Seven propositions specify the input, conversion, implementation, complementarity, outcome, and boundary roles in the process. The framework clarifies distinct competency functions, explains their managerial-to-firm-level conversion through BMI, and provides SME owner-managers, support organisations, and policymakers with a basis for diagnosing capability bottlenecks and targeting interventions.

Keywords: Entrepreneurial Competencies, Business Model Innovation, Dynamic Capabilities, Innovation Performance, Environmental Uncertainty

Introduction

Small and medium-sized enterprises (SMEs) commonly operate with limited financial, technological, and managerial resources. As a result, their responses to changes in markets,

technologies, and regulation often depend on the judgement, knowledge, relationships, and resource decisions of a small group of owner-managers and senior decision-makers (Miller & Toulouse, 1986; Lubatkin et al., 2006). Entrepreneurial competencies matter in this setting because managers must recognise commercially relevant developments and turn them into workable organisational responses.

Competence alone, however, does not ensure innovation performance. An SME may identify a promising opportunity or maintain useful external relationships without developing an appropriate value proposition, partnership arrangement, delivery system, or revenue logic. The difficulty lies in moving from managerial knowledge and access to coordinated organisational action. For managers, this distinction is important because poor innovation outcomes may reflect different weaknesses. Some firms fail to recognise relevant changes, while others struggle to obtain resources, reconsider existing assumptions, or implement a selected course of action. Identifying the point of failure would also allow SME support agencies to design interventions that address specific capability gaps rather than relying on general training or networking programmes. This challenge becomes more consequential under environmental uncertainty, when existing assumptions may lose validity quickly and firms face greater difficulty in predicting appropriate responses (Duncan, 1972; Milliken, 1987).

Research on entrepreneurial competencies distinguishes opportunity, relationship, conceptual, and strategic competencies as separate behavioural domains (Man et al., 2002, 2008; Ahmad et al., 2010). Empirical studies nevertheless tend to model these domains as parallel predictors of firm outcomes (Aidara et al., 2021; Sakib et al., 2022). This approach indicates whether individual competencies are associated with performance, but says less about the role each one performs as an SME moves from recognising change to implementing an organisational response.

The issue is especially relevant to business model innovation (BMI). A business model describes the activity architecture through which a firm creates, delivers, and captures value (Amit & Zott, 2001; Teece, 2010; Zott & Amit, 2010). Changing that architecture requires more than recognising an opportunity or obtaining external resources. Managers must interpret available inputs, reconsider established assumptions, develop possible configurations, and commit resources to implementation. Opportunity recognition and network access therefore provide potential inputs whose value depends on their incorporation into a viable business model (Dyer & Singh, 1998; Guo et al., 2017; Zahra & George, 2002).

This paper therefore addresses the need for a process explanation of how different entrepreneurial competencies are combined and converted into firm-level innovation outcomes. Drawing on Dynamic Capabilities Theory, managerial microfoundations, and Contingency Theory, it develops an ordered but recursive capability-conversion framework. Opportunity and relationship competencies provide relevant market and resource inputs. Conceptual competencies transform these inputs into possible business-model configurations, while strategic competencies support their evaluation, selection, resource alignment, and implementation. Their complementary operation enables BMI, which contributes to innovation performance, while environmental uncertainty is proposed to strengthen the BMI–innovation performance relationship. The framework is intended to help

owner-managers identify where innovation efforts stall, support organisations design stage-specific capability programmes, and policymakers direct assistance towards the capability bottlenecks that constrain SME adaptation.

Conceptual Approach

This model-based conceptual paper integrates research on entrepreneurial competencies, dynamic capabilities, BMI, and environmental uncertainty to clarify constructs and develop the theoretical process logic rather than estimate relationships from new data (Jaakkola, 2020). It is a theory-building synthesis, not an exhaustive systematic review.

The analysis first identifies the limitation of parallel-predictor models, then assigns each competency a process function, and finally explains how their connection enables BMI and innovation performance. Propositions 1 and 2 specify opportunity and resource inputs; Propositions 3 and 4 specify interpretation and implementation; Proposition 5 specifies complementarity; Proposition 6 links BMI to performance; and Proposition 7 states the environmental boundary condition.

The ordering is functional rather than strictly chronological. SMEs may revisit information, relationships, alternatives, and priorities as feedback emerges. The synthesis focuses on studies that define or apply opportunity, relationship, conceptual, and strategic competencies, research linking managerial cognition and social capital to dynamic capabilities, and work examining BMI as a mechanism of SME adaptation and performance. These streams were compared to identify the immediate function and organisational output associated with each competency.

Theoretical Foundations

Dynamic Capabilities and Managerial Microfoundations

Dynamic Capabilities Theory explains how firms renew resource configurations under change. Dynamic capabilities concern the organisational processes and capacities through which firms integrate and reconfigure resources under changing conditions (Teece et al., 1997; Eisenhardt & Martin, 2000). Teece (2007) further groups these activities into sensing, seizing, and transforming. Sensing identifies and interprets opportunities; seizing selects responses and commits resources; transforming renews assets, routines, and business models.

In SMEs, a small managerial group often controls attention, relationships, and resource deployment, making the connection between managerial judgement and organisational action especially direct.

Entrepreneurial competencies are not themselves firm-level dynamic capabilities. Strong opportunity or conceptual competencies may produce no organisational change if the resulting possibilities are not selected, resourced, and implemented. The framework therefore focuses on the conversion of managerial abilities into patterned firm action.

Microfoundational research explains this conversion through individual attributes, interactions, and processes (Felin et al., 2012). Opportunity and conceptual competencies shape cognition; relationship competencies mobilise social capital; and strategic

competencies draw on managerial human capital and resource orchestration (Adner & Helfat, 2003; Helfat & Martin, 2015). BMI embeds these inputs in the activity system.

No single competency is expected to be sufficient within the proposed process: opportunity identification without interpretation, networking without assimilation, conceptual reframing without strategic selection, or strategy without opportunity sensitivity is unlikely to produce a coherent business model response.

Contingency Theory and Environmental Uncertainty

Contingency Theory holds that performance depends on fit between organisational choices and context (Donaldson, 2001). Environmental uncertainty arises from insufficient information and difficulty predicting change (Duncan, 1972; Milliken, 1987), including changes in demand, technology, competition, regulation, supply, or finance.

Uncertainty can increase the value of flexible business models, but it can also reduce forecast reliability and raise implementation costs. BMI should therefore create stronger performance benefits when it improves adaptive fit rather than merely adding novelty.

Existing evidence suggests that the role of environmental turbulence may vary across settings (Bashir et al., 2023). The framework nevertheless proposes a positive average moderating effect because reconfigured models can shorten feedback cycles, diversify resource access, and improve responsiveness.

Core Concepts

Entrepreneurial Competencies

Entrepreneurial competencies are integrated knowledge, skills, abilities, and behaviours that enable owner-managers to perform venture tasks (Man et al., 2002, 2008). Unlike static traits, they can be expressed, assessed, and developed.

Four domains are focal. Opportunity competencies identify and evaluate market, customer, technological, and regulatory possibilities. Relationship competencies build and mobilise external ties. Conceptual competencies analyse, reframe, and generate alternatives. Strategic competencies set direction, prioritise, align resources, and coordinate implementation.

The focal level of entrepreneurial competencies is managerial, centred on the owner-manager or small senior management group whose decisions materially shape the SME's business model. Employees, advisers, and partners are relevant only insofar as their inputs are incorporated into organisational decision-making, while BMI and innovation performance remain firm-level constructs.

The domains remain analytically distinct because each performs a different function and is associated with a different immediate process output.

Business Model Innovation

A business model links value propositions with activities, resources, partners, channels, and revenue mechanisms (Amit & Zott, 2001; Teece, 2010, 2018; Zott & Amit, 2010). BMI involves deliberate, non-trivial change to key elements or their architecture (Foss & Saebi, 2017).

BMI differs from product or process innovation: a new offering may fail without suitable channels, pricing, or partnerships, whereas reorganisation of an existing offering may create value. Here BMI is a specific organisational manifestation of transforming, not a complete dynamic capability.

Innovation Performance

Innovation performance refers to the firm-level market, technological, operational, and competitive outcomes generated through innovation activities, including the market results of new offerings, technological and process advancement, innovation project efficiency, and advantages over competitors (Saunila, 2016; Wang et al., 2024).

Competencies improve inputs and decisions, but performance emerges only when BMI changes activities in ways that customers, partners, or operations recognise as valuable.

Capability-Conversion Framework and Proposition Development

Stage One: Opportunity and Resource Inputs

Opportunity Competencies as the Initiating Sensing Mechanism

Business model change begins when managers notice a discrepancy between the current model and a possibility or threat. Opportunity competencies direct attention to customer needs, technologies, regulation, competitors, and new resource combinations, thereby supplying the sensing input for later design.

Recognition is necessary but not sufficient (Ardichvili et al., 2003). A possibility becomes relevant to BMI only when managers connect it to value creation, delivery, or capture; opportunity competencies therefore define the problem to which a redesigned model may respond.

Consistent with this distinction, opportunity recognition influences SME performance through BMI rather than automatically (Guo et al., 2017).

Proposition 1: Opportunity competencies provide the opportunity input for business model change by enabling managers to identify and evaluate commercially relevant changes in customer needs, technologies, markets, and regulation.

Relationship Competencies as External Information and Resource Input

SMEs rarely possess all knowledge and resources needed for BMI. Relationship competencies mobilise customers, suppliers, technology providers, financiers, advisers, and distributors to obtain market information, expertise, legitimacy, facilities, and distribution access. They expand the input base for sensing and seizing.

The value of these inputs depends on relevance, non-redundancy, assimilation, and coordination. Absorptive capacity determines whether external knowledge is recognised and applied (Zahra & George, 2002; Miroshnychenko et al., 2021), while effective BMI may require partners to alter roles, interfaces, risk, or resource commitments.

Interfirm value therefore depends on complementary resources and governance, not the existence of ties alone (Dyer & Singh, 1998).

Proposition 2: Relationship competencies perform an input function in the business model innovation process by expanding access to external information and complementary resources.

Stage Two: Cognitive Conversion and Strategic Implementation

Conceptual Competencies as Input Transformation and Alternative Generation

Opportunity and resource inputs do not specify a new model. Conceptual competencies interpret their implications, challenge assumptions, combine information, and generate alternative configurations of value creation, delivery, and capture.

Managers may, for example, reinterpret declining sales as evidence for access-, service-, or outcome-based models rather than only a promotion problem. Conceptual competence widens the solution space.

Established business models create dominant assumptions that constrain attention. Managerial cognition therefore affects whether firms explore alternative arrangements or defend existing ones (Osiyevskyy & Dewald, 2015).

The immediate output of conceptual competence is a set of plausible configurations rather than an implemented business model.

Proposition 3: Conceptual competencies transform opportunity and resource inputs into alternative business-model configurations by enabling managers to reframe problems, combine information, and develop different value-creation, delivery, and capture logics.

Strategic Competencies as Selection, Resource Alignment, and Implementation

Strategic competencies move the process from alternatives to commitment. They evaluate fit, prioritise initiatives, allocate scarce resources, communicate choices, and align employees and partners, linking seizing with transforming.

Because SMEs cannot pursue every alternative, managers must compare configurations against capabilities, timing, risk, and resource limits. Value depends on how resources are structured and leveraged, not simply possessed (Sirmon et al., 2007).

Implementation also requires coordination across responsibilities, revenues, information, and control; otherwise alternatives remain proposals.

Proposition 4: Strategic competencies convert business-model alternatives into an implemented configuration by enabling managers to evaluate strategic fit, select among alternatives, align resources and priorities, and coordinate implementation.

Complementary Capability Conversion

The competencies form an ordered but recursive process: opportunity and relationship competencies provide opportunity and resource inputs; conceptual competencies convert them into alternatives; strategic competencies select and implement a configuration. The sequence connects attention, access, interpretation, choice, and action (Teece, 2007; Sirmon et al., 2007; Helfat & Martin, 2015).

This differs from parallel-predictor models because the contribution of each competency depends on the others. External inputs need interpretation, concepts need selection, and strategy must remain informed by valid opportunities (Adner & Helfat, 2003; Felin et al., 2012; Helfat & Martin, 2015).

Feedback from experimentation or outcomes may reveal new information, missing resources, or revised priorities, returning the SME to earlier stages without altering the functional roles.
Proposition 5: The complementary operation of the four entrepreneurial competencies enables business model innovation by converting opportunity and resource inputs into a coherent and implementable business-model configuration.

Business Model Innovation as an Organisational Manifestation of Transformation
When the selected configuration is implemented, managerial attention, judgement, relationships, and resource decisions become embedded in the firm's activity system. Changes to the value proposition, customer interface, partner arrangement, operations, or revenue logic make competence observable as firm-level BMI.

This explains inconsistent direct competence-performance effects: managerial strengths create value only when the business model commercialises and deploys them coherently.

BMI is therefore an organisational reconfiguration through which connected competency functions influence outcomes. Prior SME research similarly treats BMI as a mediator of opportunity recognition or entrepreneurial orientation (Guo et al., 2017; Ferreras-Méndez et al., 2021), and its performance effects may operate through capability, growth, and efficiency (Latifi et al., 2021).

Proposition 6: Business model innovation positively influences innovation performance by reorganising how SMEs create, deliver, and capture value and thereby improving the commercialisation and organisational use of innovation.

Environmental Uncertainty as a Boundary Condition
The performance value of BMI depends on context. Stable conditions may reward an established model, whereas uncertainty weakens assumptions and increases the value of flexibility, diversified access, and rapid reconfiguration.

Redesigned interfaces can accelerate customer feedback; modular partnerships can add capabilities without irreversible investment; and flexible channels or revenue mechanisms can sustain commercialisation during disruption.

Uncertainty may still amplify errors and coordination costs. The framework therefore predicts a positive average moderating effect, particularly when BMI improves adaptive fit rather than merely increasing complexity.

Proposition 7: Environmental uncertainty positively moderates the relationship between business model innovation and innovation performance, such that the relationship is stronger under higher environmental uncertainty.

Proposed Conceptual Framework

Figure 1 summarises the process. Opportunity and relationship competencies supply inputs; conceptual and strategic competencies convert them into an implemented configuration; BMI then supports innovation performance, while environmental uncertainty moderates that link and feedback can reactivate earlier stages.

Unlike a conventional four-arrow model, Propositions 1–4 specify differentiated functions, Proposition 5 connects them, and BMI provides the cross-level mechanism between managerial competencies and firm outcomes.

The dashed stages are theoretical groupings, not higher-order constructs or statistical paths; future tests should measure the intermediate inputs and outputs directly.

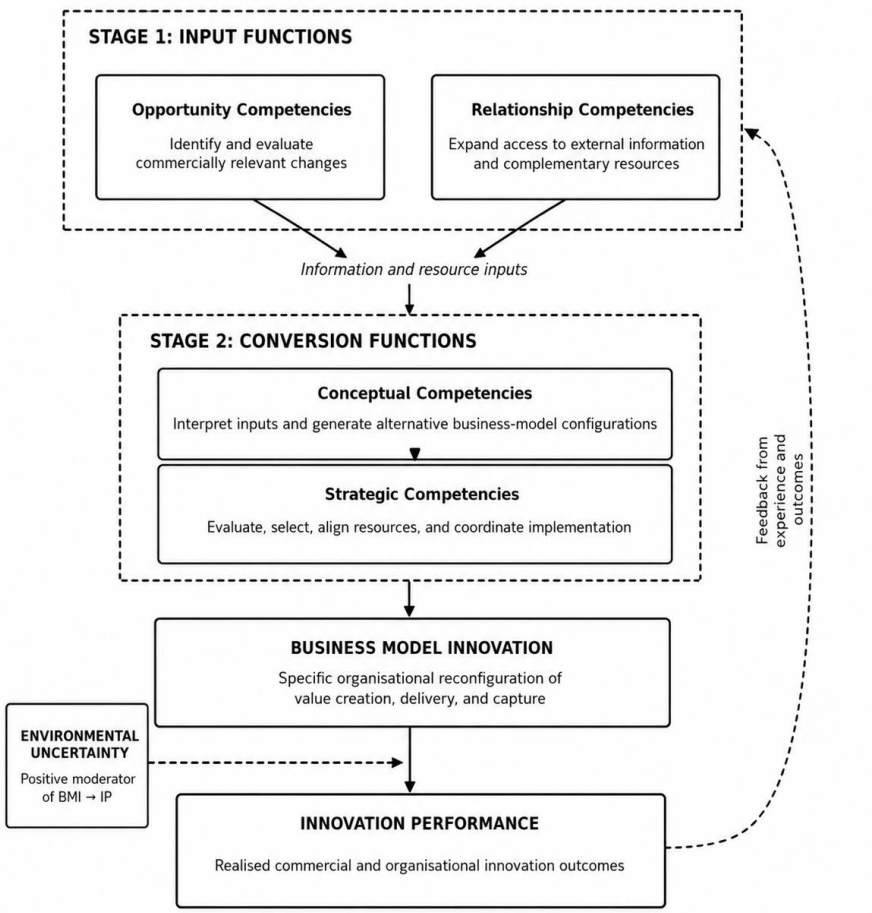

Figure 1. Entrepreneurial competency capability-conversion process framework

Note. The stage labels denote theoretical process categories rather than latent constructs.

Table 1

Functional and process mapping of entrepreneurial competencies

Element	Process function and immediate output	Dynamic capability role	Underlying mechanism	Key qualification
Opportunity competencies	Identify and evaluate commercially relevant changes; produce opportunity input	Supports Sensing	Managerial attention and opportunity interpretation	Recognition does not ensure conversion or implementation
Relationship competencies	Access external information and complementary resources; produce resource input	Provides Input to sensing and seizing	Managerial social capital	Value depends on relevance, non-redundancy, assimilation, and coordination
Conceptual competencies	Interpret inputs and generate alternative business-model configurations	Supports the transition from sensing to seizing	Managerial cognition	Alternatives require strategic evaluation and selection
Strategic competencies	Evaluate and select alternatives, align resources, and coordinate implementation	Supports Seizing and transforming	Managerial human capital and resource orchestration	Implementation must remain opportunity-sensitive and coherent
Business model innovation	Embed the selected configuration in value creation, delivery, and capture	Organisational manifestation of transforming	Activity-system reconfiguration	Performance depends on implementation quality and environmental fit

Discussion

Theoretical Contributions

The framework's first contribution is construct differentiation. It specifies what each competency does in business model change instead of treating all four as equivalent direct antecedents. This changes the interpretation of entrepreneurial competencies from independently valuable attributes to interdependent managerial functions whose value depends on their position within the conversion process.

Second, it provides a process and cross-level explanation: managerial cognition, social capital, and orchestration are connected through BMI, which embeds their combined effects in the firm's activity system. The cross-level explanation also avoids treating managerial competence and firm-level dynamic capability as equivalent constructs.

Third, it clarifies that relationship competencies expand access to external information and complementary resources rather than producing BMI by themselves. Variation in the relevance, non-redundancy, assimilation, and coordination of these inputs helps explain why relationship competency measures may show uneven effects across SMEs.

Fourth, it positions environmental uncertainty as a moderator of the BMI–innovation performance relationship. The performance benefits of BMI under uncertainty are expected to be greater when redesign improves flexibility and adaptive fit.

Practical Implications

Managers can diagnose weak innovation performance by locating the failed conversion: sensing may be poor, external inputs unavailable, assumptions unchallenged, or resources misaligned.

Support programmes should therefore go beyond networking events by connecting SMEs to non-redundant expertise and helping them absorb knowledge and coordinate experimentation.

Capability development should be matched to the point at which the conversion process breaks down. Customer discovery and market scanning can strengthen opportunity competence; selective network mobilisation can improve relationship competence; scenarios and experimentation can develop conceptual competence; and prioritisation, milestones, and coordination can strengthen strategic competence.

Under uncertainty, managers should favour designs that shorten feedback, preserve channel and partner flexibility, and avoid irreversible commitments. The framework therefore suggests evaluating interventions against the specific conversion bottleneck they are intended to address—for example, whether they improve opportunity identification, access to non-redundant resources, the development of viable business-model alternatives, or progress in implementation—rather than relying on programme participation alone.

Future Empirical Validation

Empirical tests should represent the sequence rather than regress BMI simultaneously on four competencies. Propositions 1–4 require measures of the four entrepreneurial competencies and their corresponding process outputs: opportunity input, external resource input, alternative generation, and implementation.

Proposition 5 can be tested through serial indirect effects, interactions, process tracing, cases, or configurational methods that capture complementarity and feedback.

Proposition 6 requires temporal evidence that BMI precedes innovation performance; Proposition 7 requires a BMI-by-uncertainty interaction with conditional-effect analysis.

Multi-informant designs can separate managerial competencies from firm-level BMI and outcomes.

Measurement should retain distinct competency domains and process outputs; the dashed stages should not be modelled automatically as reflective higher-order constructs.

Limitations and Future Research

The framework focuses on four competencies, omitting commitment, organising, and learning competencies that may condition implementation.

Functional roles overlap in practice: relationships may prompt reframing, strategy may reveal opportunities, and evaluation may require orchestration.

Although the framework specifies a forward relationship from BMI to innovation performance, innovation outcomes may also reshape managerial cognition, network access, and subsequent opportunity sensing.

The framework treats environmental uncertainty as an aggregate construct, although market, technological, regulatory, and supply uncertainty may favour different responses.
The SME focus may limit generalisation to larger firms, where distributed authority can delay conversion.

Conclusion

The capability-conversion framework explains SME innovation as an ordered but recursive process rather than four equivalent competency effects. Opportunity competencies direct attention to relevant change; relationship competencies expand access to external information and complementary resources; conceptual competencies generate alternative business-model configurations; and strategic competencies select, resource, and implement a configuration. Their complementary operation enables BMI.

BMI embeds managerial inputs in value creation, delivery, and capture and becomes the immediate antecedent of innovation performance. Environmental uncertainty is expected to strengthen this relationship. This effect is theoretically more likely when the redesigned model improves flexibility and adaptive fit rather than merely adding novelty or complexity. For SME owner-managers, support organisations, and policymakers, the framework offers a practical basis for matching capability-building interventions to the stage at which business-model change is failing.

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