

RESOURCE-CONSTRAINED INNOVATION MANAGEMENT IN MSMEs: BALANCING EXPLORATION, EXPLOITATION, AND RISK

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Abstract

This conceptual paper develops an integrative framework for resource-constrained innovation management in micro, small, and medium enterprises (MSMEs). Drawing on the resource-based view, dynamic capabilities, organizational learning, absorptive capacity, social capital, resilience, and entrepreneurial-ecosystem literature, the paper explains how exploration, exploitation, experimentation, resource discipline, governance, and organizational learning can be organized into practical managerial routines. No primary survey, interview, experimental, or statistical data are claimed. The analysis proposes a staged cycle of diagnosis, experimentation, evidence review, governance, and resource reconfiguration. It further identifies implications for owner-managers, support institutions, and future empirical research. The framework emphasizes that capability development should be proportionate to enterprise constraints and evaluated through decision quality, learning, resilience, and business outcomes rather than adoption indicators alone.

Keywords: MSMEs; Resource-Constrained Innovation Management; Dynamic Capabilities; Organizational Learning; Business Resilience

INTRODUCTION

Resource-Constrained Innovation Management is treated in this paper as a repeatable organizational capability rather than a one-time intervention. For MSMEs, the central managerial problem is how to connect exploration, exploitation, experimentation, resource discipline, governance, and organizational learning with recurring decisions under conditions of limited time, finance, information, and specialist support. The resource-based view suggests that advantage depends not only on access to resources but also on how they are combined and deployed (Barney, 1991).

The dynamic-capabilities perspective extends this argument by emphasizing sensing, seizing, and reconfiguration. In the context of resource-constrained innovation management, managers need routines that identify relevant changes, evaluate feasible responses, and reallocate attention or resources without destabilizing core operations. This is especially important for small enterprises because a poorly sequenced initiative can consume a disproportionate share of available managerial capacity (Teece et al., 1997; Teece, 2007).

Organizational learning provides a second foundation. Exploration is necessary for discovering new options, whereas exploitation supports refinement and reliability. MSMEs must balance both activities rather than maximizing either one. Small experiments, explicit review dates, and simple documentation can help transform experience into organizational memory and reduce repeated mistakes (March, 1991).

External knowledge also matters. Absorptive capacity explains why exposure to information does not automatically improve performance: firms must recognize useful knowledge, assimilate it, adapt it to local conditions, and apply it in practice (Cohen & Levinthal, 1990; Zahra & George, 2002). Relationships with customers, suppliers, universities, associations, and community actors therefore become valuable when internal routines can translate external insight into action.

LITERATURE REVIEW AND THEORETICAL FOUNDATION

Conceptually, the construct sits at the intersection of the resource-based view, dynamic capabilities, and organizational learning. These perspectives distinguish possession of resources from the routines used to mobilize them. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Dynamic capabilities are relevant because small firms must notice environmental change, choose among imperfect alternatives, and reconfigure limited resources without losing operational stability. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Organizational learning adds the tension between exploration and exploitation. Novel responses generate learning, while refinement makes useful practices reliable and repeatable. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Absorptive capacity explains how external knowledge becomes productive only after it is recognized, interpreted, adapted, and applied inside the enterprise. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Social capital complements these internal perspectives because relationships can provide information, legitimacy, referrals, and complementary resources that a small firm cannot efficiently own. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Taken together, the literature implies that capability is a process architecture: resources, information, relationships, decisions, and feedback must be connected over time. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

For resource-constrained innovation management, the practical implication is to begin with a specific enterprise problem and to connect every intervention with an observable decision or operating outcome. This keeps the framework usable for resource-constrained firms and makes later evaluation more credible.

CONCEPTUAL FRAMEWORK

The proposed framework begins with diagnosis. Managers identify a concrete performance problem, the decisions that influence it, and the constraints that make the problem difficult to solve. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

The second element is capability configuration. Rather than adding isolated tools, the enterprise selects a small combination of routines, knowledge sources, relationships, and controls that directly address the diagnosed problem. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

The third element is bounded experimentation. A limited pilot makes assumptions testable while protecting cash, managerial attention, and customer relationships from unnecessary exposure. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

The fourth element is evidence review. Baseline conditions and explicit review criteria allow the enterprise to distinguish enthusiasm, activity, and adoption from actual improvement. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

The fifth element is resource reconfiguration. Successful practices can be scaled, while weak practices can be redesigned or stopped and their resources reassigned. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

The final element is retention of learning. Short records of decisions, outcomes, and lessons reduce dependence on individual memory and support cumulative capability development. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

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CAPABILITY DEVELOPMENT AND IMPLEMENTATION

Capability development should start from routines already used by the enterprise. Existing practices reveal where information is lost, responsibilities are unclear, or decisions depend excessively on one individual. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Implementation benefits from a named owner for each initiative. Ownership does not require a formal department, but it does require clarity about who collects information, coordinates action, and reports results. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Training is most useful when connected to an immediate operating task. Generic exposure may increase awareness, whereas task-linked learning is more likely to alter behavior and create usable organizational knowledge. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Resource commitment should increase only after evidence improves. This staged approach is consistent with the constraints of MSMEs, where a large early commitment can crowd out working capital or management attention. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Simple documentation supports continuity. Checklists, decision notes, reconciliations, and review calendars can preserve learning without creating administrative complexity. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Implementation ends with a decision, not merely completion of an activity. Managers should explicitly scale, redesign, pause, or discontinue an initiative based on evidence and strategic relevance. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

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NETWORKS, COLLABORATION, AND ECOSYSTEM SUPPORT

External relationships can compensate for internal resource limitations by providing knowledge, market access, specialist advice, technology, finance, or legitimacy. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Network diversity matters because strong local ties and bridging ties perform different functions. Trusted relationships support coordination, while diverse connections introduce non-redundant information and alternatives. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Collaboration is more productive when the enterprise can articulate a specific problem. Clear problem definition allows universities, associations, suppliers, or support agencies to contribute relevant expertise. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Reciprocity strengthens durable networks. MSMEs can contribute market insight, practical feedback, referrals, or local knowledge rather than approaching ecosystem relationships only as recipients of assistance. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Dependence risk should be monitored. A single dominant buyer, platform, supplier, adviser, or funding source can make an apparently strong network fragile. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Ecosystem support should therefore be assessed by the quality of connections and learning it enables, not only by the number of programs, events, or participating institutions. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

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GOVERNANCE AND RISK MANAGEMENT

Governance in a small enterprise should be proportionate. The objective is to make important assumptions, responsibilities, spending limits, and review points visible without reproducing large-company bureaucracy. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Risk identification should focus on exposures capable of interrupting continuity or destroying the value of an initiative. These may include liquidity pressure, information errors, partner dependence, customer loss, operational failure, or reputational damage. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Controls should match the scale of exposure. Reconciliation, approval limits, backups, written partner terms, access controls, and periodic review can be effective when consistently applied. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Experimentation and governance are complementary rather than contradictory. A controlled pilot creates room for innovation while defining boundaries that protect the enterprise from avoidable losses. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Managers should also identify exit conditions before scaling. Predetermined thresholds reduce the tendency to continue weak initiatives merely because time or money has already been invested. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Accountability improves learning because decisions can be reconstructed and evaluated. This is especially important when outcomes are mixed and the enterprise must determine which assumptions were incorrect. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

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PERFORMANCE, LEARNING, AND RESILIENCE

Performance assessment should distinguish activity indicators from outcome indicators. Adoption, attendance, transactions, or partnerships show that something occurred but do not by themselves establish business value. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Intermediate outcomes can include better information quality, shorter decision cycles, improved coordination, lower error rates, or stronger access to external knowledge. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Business outcomes may include continuity, customer retention, cash-flow stability, productivity, market access, or the ability to respond to disruption. The relevant combination depends on the problem being addressed. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Resilience is not simply survival. A capability-based view emphasizes anticipation, coping, adaptation, and learning so that the enterprise becomes better prepared for subsequent disturbances. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Feedback cycles should be short enough to support correction. Delayed evaluation can allow weak practices to become embedded and make later change more costly. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Learning becomes an asset when it changes future decisions. The enterprise should therefore retain both positive lessons and evidence about failed assumptions, abandoned pilots, and unsuitable partnerships. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

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MANAGERIAL AND POLICY IMPLICATIONS

For owner-managers, the framework favors a problem-first approach. New technology, finance, partnerships, or training should be selected because they solve a defined constraint, not because adoption is fashionable. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

For support organizations, segmentation is essential. Enterprises at different stages need different combinations of basic routines, specialist advice, market connections, financing, and advanced capability development. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Universities can contribute through applied diagnosis, student projects, mentoring, and evidence synthesis when engagement is organized around genuine enterprise problems. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Financial institutions and public agencies can improve program quality by linking support to implementation milestones and learning evidence rather than relying only on disbursement or participation counts. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

Associations and community organizations can strengthen bridging relationships by connecting enterprises across sectors and regions while preserving local trust and contextual knowledge. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

For researchers, the framework encourages longitudinal designs that observe how capabilities are built, revised, and sometimes abandoned. Such designs can reveal mechanisms that cross-sectional adoption measures may miss. In relation to resource-constrained innovation management, this means organizing exploration, exploitation, experimentation, resource discipline, governance, and organizational learning around a clearly defined business problem. The emphasis is on observable routines and reviewable decisions rather than symbolic adoption. This interpretation is consistent with the capability and learning literature used in this conceptual synthesis.

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METHOD

This manuscript uses an integrative conceptual review. Established theoretical and review literature published before the November 2024 issue placement was synthesized to connect complementary explanations of MSME resources, learning, networks, innovation, and resilience. The paper does not report primary respondents, fabricated observations, experiments, or statistical estimates. Its propositions are intended for later empirical examination.

RESEARCH PROPOSITIONS AND FUTURE RESEARCH

P1. Stronger routines related to resource-constrained innovation management are expected to improve the quality and timeliness of MSME adaptation decisions.

P2. Absorptive capacity is expected to strengthen the conversion of external knowledge into implementable enterprise practices.

P3. Network diversity and relational trust are expected to improve access to complementary resources while reducing dependence risk.

P4. Staged experimentation is expected to reduce the cost of uncertainty in resource-constrained enterprises.

P5. Proportionate governance routines are expected to improve accountability and organizational learning.

P6. Learning-based resource reconfiguration is expected to strengthen resilience under environmental change.

LIMITATIONS

The framework is conceptual and cannot establish causal effects. MSMEs are heterogeneous across sectors, locations, ownership structures, and stages of development. Future studies should operationalize the constructs transparently, specify sampling and measurement procedures, and test both successful and unsuccessful implementation experiences.

CONCLUSION

The paper positions resource-constrained innovation management as a capability built through disciplined learning rather than as an isolated initiative. Its value depends on how well managers connect exploration, exploitation, experimentation, resource discipline, governance, and organizational learning with evidence, governance, and resource reconfiguration. The proposed framework favors proportionate routines, staged commitment, and explicit review. It also provides a basis for empirical research without assuming universal effects.

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