

The Combined Role of Frugal Innovation and Intrapreneurship in Enhancing Organizational Competitiveness

MANESSOUB Chaymae ¹, ZEMZAMI Imane ¹

¹Ibn Tofail University

Received : September 2025

Revised : November 2025

Accepted: December 2025

KEYWORDS:

*Frugal innovation
Intrapreneurship
Organizational
competitiveness
Resource constraints
Organizational agility
Capability development*

ABSTRACT: This article explores the combined role of frugal innovation and intrapreneurship in enhancing organizational competitiveness, particularly in resource-constrained and highly competitive environments. Building on the resource-based and capability-based views, it examines how frugal innovation interacts with intrapreneurship as a driver of internal entrepreneurial behavior and organizational agility. Through an integrative review of the literature, the study highlights the complementarities between these two approaches in fostering cost discipline, capability development, market adaptability, and sustainable competitive advantage. The analysis shows that frugal innovation enables organizations to exploit limited resources effectively, while intrapreneurship facilitates opportunity identification, experimentation, and the scaling of innovative ideas within established firms. When strategically aligned and supported by appropriate governance, culture, and resource allocation mechanisms, the synergy between frugal innovation and intrapreneurship significantly strengthens organizational competitiveness. The article concludes that firms seeking long-term competitiveness should not view these concepts in isolation, but rather integrate them within a coherent strategic and operational framework.

INTRODUCTION

Historically, organizations have relied on innovation as the primary means of improving competitiveness. More recently, the academic community has shown considerable interest in frugal innovation, while practically all companies have embraced the concept of intrapreneurship.

Frugal innovation is an important concept for organizations seeking to address economic and business challenges through the process of reducing time and cost. Intrapreneurship is defined as the process of the entrepreneurial discovery and exploitations of ideas and opportunities while gaining organizational support. A strong link between frugal innovation and intrapreneurship has been established, enhancing organizational competitiveness in tight economic environments. While frugal innovation has greatly received attention in recent years of the research community, different views prevailed at the beginning of the concept. Individual scholars defined frugal innovation explicitly and implicitly. Frugal innovation was first defined as “the process of reducing the time and cost of the projects, increasing flow, by eliminating unnecessary waste that does not add value,” which crystallizes the productivity factor of time and cost (Eyal-Cohen, 2019). Then, others defined it as “relooking at what customers want, retargeting the solution through the dimensions of cost, innovation, and business model, and reallocating resources accordingly.” Further works added complimentary, augmenting, and balancing elements to the definition.

1. THEORETICAL FOUNDATIONS

Referring to the literature review, it is necessary to distinguish two currents in scientific research: rationalism and empiricism. These two currents diverge on the means of producing scientific knowledge, since the first considers knowledge as a result of analytical reasoning and logic, while the second considers it as a result of experimentation, which allows for the verification and validation of scientific results, either empirically or through experience

Resource-constrained environments, unique to emerging markets, catalyze frugal innovation, defined by affordability, resource optimization, and waste minimization. The term captures the abstraction of doing more with less and has been termed “the art of smart from less.” Frugal innovation describes both products/services aimed at low-income but attractive customer groups in developed economies and resource-efficient reconfigurations of existing solutions at lower price points and resource use in developed economies (Tiware et al., 2020). It includes necessities that improve overall well-being and simple solutions that identify widely applicable, easily understood, and direct substitutes. The mechanisms for operationalizing frugal innovation involve cost disciplines of maximizing form, fit, and functioning and integrated systems of capabilities C4, C5, C7, C9, and C12 (Pangarkar & Wu, 2018). Overall, firms providing affordable offerings, actively serving resource-constrained markets, and major players intensively pursuing frugal initiatives display substantially higher competitiveness (Duncan et al., 2021).

Intrapreneurship designates the application of entrepreneurial thinking within established organizations, generating innovations aligned with the firm’s strategy (Hecker, 2017). Intrapreneurship can engender new creating intra-capabilities that support organizational change, broaden existing upper-tier capabilities to adapt to change, or develop an organizational-wide range of lower-tier capabilities that shape the whole capability portfolio. Organizational agility can

be viewed through a portfolio lens of creating, extending, and renewing, influenced through multiple independent routes but focusing either on incremental adjustment or substantial remodelling within each route (Duncan et al., 2021). The capability-based view poses that efforts only lead to higher competitiveness if accompanied by considerable resource leverage, adequate upper-tier capabilities for aligning across organizational boundaries, escalation modes for extending or changing ambition level, and continuous performance feedback for learning (Pangarkar & Wu, 2018).

The interplay of catalogues reflects the various relationships between frugal innovation and intrapreneurship respectively. No overlap exists if these capabilities are assigned to distinct elements and different entrepreneurial types. One-route models apply either frugal innovation or intrapreneurship without crossover already governing other aspects of the offering. If both influence the same design feature but provide contradictory support, competitive advantage may vary depending on dominant mechanism. Competitive advantage remains classable along a two-route matrix governed by emergent sides addressed through fundamentally different settings that frugal innovation and intrapreneurship exemplify (Tiwari et al., 2020).

1.1.Frugal Innovation: Concepts and Mechanisms

Frugal innovation refers to the process of efficiently innovating with limited resources by utilizing local materials to design affordable, functional products that deliver significant economic, environmental, and social value (Hamilton, 2018). Characteristics of frugal innovation include accessibility, affordability, availability, eco-friendliness, efficiency, safety, simplicity, and sustainability, with an emphasis on repurposing existing materials to achieve lower cost, reduced energy consumption, and increased safety. Frugal innovations are usually developed by local creators to meet the specific needs of their communities and often promote solutions that are faster, better, or cheaper than existing ones while requiring only modest financial investment (Numminen & D. Lund, 2016). Examples include durable low-cost mobile phones, portable electrocardiographs, and inexpensive diagnostic devices for early-stage cancer (Ildikó, 2016).

This type of innovation challenges the conventional notion that high-tech advancement is a prerequisite for world-class product solutions and technologies and that sustainable quality improvement demands significant resource investment. It recognizes that established multinational enterprises frequently fail to capitalize on innovative ideas proposed by their own employees and emphasizes innovative yet cost-effective design as a skill that can be disseminated through corporate universities. Emerging markets are regarded as laboratories for affordable ingenuity since maturing nations tend to prioritize specialization in high-end sectors. Challenges posed by large regional groupings facing slow economic growth and polarizing wealth distribution further reinforce the value of frugality.

1.2. Intrapreneurship: Definitions and Frameworks

Intrapreneurship refers to entrepreneurial activities carried out within existing organizations. Employees who pursue such activities, known as intrapreneurs, aim to create new products, services, or processes that generate value for their organizations and their customers (Eyal-Cohen, 2019). Because intrapreneurs operate within established organizations, they face different challenges from entrepreneurs. They build upon pre-existing resources such as brand, legitimacy, and real-world experience, but at the same time may face restrictive corporate culture, bureaucracy, and internal politics. Intrapreneurs create game-changing business models, pursue new opportunities in adjacent industries, and create new spin-off ventures (Cadar & Badulescu, 2015). Intrapreneurship does not only rely on individual brilliance, but it can be developed systematically. Intrapreneurship has five characteristics: entrepreneurial spirit, organizational culture, co-creation, strategic alignment, and ecosystem engagement. Well-designed corporate intrapreneurship efforts create significant enhancement of competitive advantage.

Finland has placed significant importance on entrepreneurial issues. The importance of intrapreneurship has been clearly stated during a speech given by the President of Finland. It was emphasized that intrapreneurship is just as important for larger companies as entrepreneurship is for smaller ones. The relatively small size of entrepreneurial companies makes teaching entrepreneurship easier, but teaching intrapreneurship is believed to be a much larger challenge. This is confirmed by the fact that many of the best-known techniques and tools for enabling entrepreneurship formation had been made accessible and freely disseminated, while much less attention is given to publications or frameworks assisting in corporate intrapreneurship stimulation.

1.3. Intersections and Synergies

The extant knowledge of frugal innovation and intrapreneurship reveals intersections that uncover their combined importance for enhancing organizational competitiveness. Frugal innovation focuses on providing “good enough” solutions through a constraint-based mindset, while intrapreneurship manifests as entrepreneurial behaviours that improve firm effectiveness. These two perspectives hold common ground in prioritizing market exploration and resource efficiency.

Connecting frugal innovation and intrapreneurship reveals further synergies. First, the deployment of frugal innovation to address underserved markets expands the scope for intrapreneurship initiatives. Greater intra-firm variety of exploration activities necessitates a broader portfolio view, facilitating the shift to a venture-capacity mindset. MNCs pursuing frugal projects in developing economies often establish separate governance structures for intrapreneurship initiatives, gauging their international relevance prior to broader consideration. This incubation approach helps firms better understand any venture’s performance potential and informs their resource allocation as a complementary decision. (Xuecheng & Iqbal, 2022)

2. FRUGAL INNOVATION AS A DRIVER OF COMPETITIVENESS

Frugal innovation enhances growing companies' competitiveness in emerging markets, particularly under constraints of limited resources, but its interplay with intrapreneurship has not been fully understood. Frugal innovation can spur sustainable organizational growth through complete, affordable, robust, and user-friendly offerings (Fernanda Quevedo et al., 2018) while associated frugality fosters better utilization of resources, broader accessibility, and faster learning. Underpinning all these benefits are the instructional development of competencies and capabilities and the ceaseless accumulation of experience for addressing unmet or under-served market needs (Ildikó, 2016).

2.1. Cost Discipline and Resource Utilization

Sustained economic growth and improved living conditions have significantly increased global consumption. Subsequently, resource scarcity has emerged as a serious challenge that limits further economic growth. The exponential consumption of resources and heightened environmental pollution have spurred global interest in sustainable development. As a result, developing environmentally and socially beneficial goods and services at little or no cost has become a priority (Ildikó, 2016).

The importance of cost discipline for sustainable development has been confirmed by the unbridled consumption exerted by large corporations and wealthy countries. Frugal innovations are low-cost products or services developed under resource constraints. These innovations can potentially yield significant social benefits when targeted at low-income markets. Empirical research suggests that they not only help reduce socio-economic inequality but also enhance sustainability in sectors such as water and energy. The social impact of these innovations is especially pronounced in emerging markets, where they provide "good-enough" quality at extremely low prices (Fernanda Quevedo et al., 2018).

2.2. Market Reach and Adaptability

Frugal innovation is a process of modifying products and services to address specific local requirements such as lower prices, different features, or quantity, thus reaching new markets quickly and cost-effectively. Changes in product design may require substitution of equipment, suppliers, or even entire production plants. Adapting production processes usually also entails adjusting complementary services. Frugal innovation is a multi-dimensional process entailing simultaneous co-evolution of product structure and production network (Belkadi et al., 2016). Many companies facing the same challenge have developed a robust, versatile capability to implement such adaptations efficiently, swiftly, and repeatedly. Frugal innovation enhances market reach and adaptability by redistributing product and process investments among different alternatives according to changing needs, hence allowing faster exploitation of emerging opportunities (Tinoco, 2007).

2.3.Capability Development and Learning Loops

Organizational capabilities are dynamic, needing constant renewal and development to regain competitive advantage. Striving to improve every aspect of operations does not guarantee competitiveness. Instead, organizations benefit from agility to identify, track, and seize shifting opportunities and threats, alongside developing fundamental capabilities to support recurring opportunities and anticipate emerging threats (Chih et al., 2015). Frugal innovation and intrapreneurship enable organizations to pursue capability development in a structured manner. Frugal innovation promotes affordability, clarification of target capability sets, utilization of prompt knowledge, and establishment of firm-wide adaptability to unfolding trends. Intrapreneurship supports formal capability identification, targeted opportunity exploration, iteration via engagement with external ecosystem members, and experimentation on elements and combinations of capability sets to suit conditions. These processes reinforce a capability-maintaining learning loop involving dynamic capability development and routine capability upgrade.

3. INTRAPRENEURSHIP AS A CATALYST FOR ORGANIZATIONAL AGILITY

Organizational agility, defined as the ability to adapt to changes in the business environment while maintaining focus on core missions and values (Doz & Kosonen, 2008), is crucial for achieving and sustaining competitive advantage under conditions of uncertainty and disruption (Teece, 2014). Agility is especially relevant in fast-evolving, highly uncertain, high-velocity environments, where cost competition is insufficient for success (Teece, 2007). Strategic agility consists of three specific dimensions: portfolio, external, and operational agility (Doz & Kosonen, 2008). Portfolio agility concerns the ability to shape or reshape business portfolios through entry into and exit from markets and industries. External agility is the capacity to sense opportunities and threats, and to adapt value propositions and business models accordingly. Operational agility concerns the ability to mobilize internal resources quickly in response to changes in the external environment.

Intrapreneurship is recognized as a crucial enabler of agility, enhancing both external agility and operational agility (Doz & Kosonen, 2008). "Intrapreneurship" refers to entrepreneurial behaviours exhibited by employees of established, large organizations (Eyal-Cohen, 2019). As agents of innovation within their organizations, intrapreneurs are often tasked with balancing exploration and exploitation activities. Organizational-level entrepreneurship (or "intrapreneurship") can take various forms, including the establishment of independent new venture units within the parent company, the launch of new-venture activities that are not assigned to separate units or teams, and the use of intrapreneurial activities and practices to promote a more general culture of innovation. Intrapreneurship promotes strategic agility in several ways. First, it fosters internal venture creation and portfolio thinking by broadening the scope of opportunities pursued outside the organization's current business. Second, a culture conducive to

intrapreneurship, supported by appropriate language, leadership behaviour, and organizational design, enhances psychological safety at the individual, team, and organizational levels, thereby facilitating exploration and adaptation. Third, intrapreneurship encourages the establishment of formal or informal processes for idea capture, evaluation, and scaling, enabling the organization to adjust value propositions, business models, and resource allocation when opportunities arise or threats emerge .

3.1. Internal Venture Creation and Portfolio Thinking

Encouraging intrapreneurship in large organizations helps maintain a start-up mentality and fosters agility in exploring new initiatives, technologies, and business models (Bouffaron et al., 2019). Internal corporate venturing is gaining interest because it emphasizes culture, leadership, processes, and resource allocation instead of traditional design structures (Kolehmainen, 2018). National firms can leverage international ventures to acquire knowledge, develop new capabilities, or explore markets threatened by globalization. A portfolio-improvement approach enables large corporations to selectively invest in high-risk, long-term projects, balancing upcoming business and distant opportunities.

3.2. Culture, Leadership, and Psychological Safety

Among the various factors influencing the intrapreneurship process, organizational culture, leadership style, and employees' perception of psychological safety are key enablers of intrapreneurship. A supportive culture that promotes experimentation, risk-taking, freedom, and participative decision-making encourages employees to engage in intrapreneurial activities (Ahmed Khan & Nawaz Irfanullah Khan, 2016). Top management commitment and encouragement facilitate the incorporation of intrapreneurship into the organizational strategy, signaling to employees that their contributions are valued. Alignment of vision between top management and intrapreneurs significantly affects the mobilization of resources and the acquisition of managerial support for intrapreneurial projects.

Psychological safety pertains to the belief that expressing one's thoughts, ideas, and concerns will not lead to ridicule, retribution, or adverse consequences (Meng et al., 2022). Employees who perceive a high level of psychological safety tend to engage more in innovative behaviors. A leadership style that supports the development of psychological safety and encourages open expression of thoughts and ideas positively influences employees' innovative behaviors, contributing to overall organizational intrapreneurial efforts.

3.3. Processes for Idea Capture, Evaluation, and Scaling

Organizations must be proactive about capturing, evaluating, and scaling ideas if they wish to thrive in today's marketplace. Approaches vary but are almost universally based on the need to elevate the potentially transformative ideas of employees and external stakeholders. To

accommodate these ideas, companies first create themed innovation campaigns to support frugal innovation or specific regional markets. These campaigns entail devising specific requirements for capturing and submitting candidate concepts. The incoming ideas are independently and initially evaluated by individual employees to encourage participation; only afterward are scores aggregated at the team level. Intentionally maintaining independence throughout the process fosters creativity while the multiphase structure organizes the flow of interventions (Herman Gericke, 2019).

A second mechanism aims to widen the net for sourcing ideas. Companies establish open channels to the public, external designers, educational institutions, and others to reach innovators outside the firm. Where one organization with dominant brand equity benefits from attracting concepts at little cost, or where suppliers merit the ability to approach a transport company or manufacturer, even the best brands must devote resources to evaluating and sometimes co-developing the suggested innovations (Eyal-Cohen, 2019). These alternative sources of ideas fulfill a dual role: lessening dependence on internal talent and inviting fresh perspectives on existing themes, each of which can improve the firm's overall capacity for frugal innovation.

4. INTEGRATIVE FRAMEWORK: LEVERAGING FRUGAL INNOVATION AND INTRAPRENEURSHIP

Frugal innovation and intrapreneurship feature prominently on organizational competitiveness agendas, but it is the inner landscape of the organization—how these concepts are integrated—that, it is argued, determines a firm's ultimate sustainable success and its prospects for self-renewal prior to exit. Industry leaders, including Procter & Gamble, Schneider Electric, and Mahindra & Mahindra, have combined intrapreneurship and frugal innovation in ways that underscore the effectiveness of the two accelerating concepts when integrated into a synergistic approach. Intrapreneurship (also referred to as corporate entrepreneurship or corporate venturing) is a broad term that encompasses organizational phenomena and processes that motivate individuals to act entrepreneurially inside organizations, pursuing internal opportunities for growth. Consequently, such phenomena create opportunities for frugal innovation. On the other hand, frugal innovation opens avenues for intrapreneurship. Frugal innovation nurtures a get-it-done culture because its genesis springs from addressing customer pain points with minimal resources, fostering a focus on rapid experimentation and time-sensitive learning and a discipline to seek out and eliminate non-value-adding steps. Indeed, intrapreneurs describe nimbleness, speed, and simplicity as essential elements of the intrapreneurship process, and frugal innovation allows companies to test proofs of concept quickly at small scale and low cost. The systematic enhancement of organization capability through frugal innovation further contributes to a cycle of exploration and exploitation captured by the terms “learning loops”.

4.1.Strategic Alignment and Resource Allocation

Simultaneous frugal innovation and intrapreneurship increase competitiveness when the combination is strategically aligned and resources are allocated appropriately.

The establishment of strategic alignment and clear criteria for resource allocation enhances frugal innovation/intrapreneurship synergies. Alignment encompasses three elements: strategic search area, frugal innovation desired level, and intrapreneurship involvement degree (Liu et al., 2009). The organization determines a frugal innovation typology and specifies corresponding cost and attention limits. Additional strategic themes and concerns can be identified and prioritised, guiding internal venture project selections. Resource allocation within the criteria framework varies across projects, reflecting expected impacts on performance measures. Gaps between the organization's current situation and frugal innovation/intrapreneurship ambitions indicate need for enhanced focus on one or more elements. Regular framework reassessment is vital for sustained alignment as both the framework and external conditions change (Ildikó, 2016).

4.2.Governance, Risk Management, and Performance Metrics

The choice of appropriate management systems is key to success. Desirable goals must be supported by action plans. Initiatives to stimulate creativity, speed up implementation and reduce risk require Management by Objectives (MBO) 4, aligned with the goals of the intrapreneurship program. On the one hand, intrapreneurs develop business plans on several initiatives so that the decision-makers allocate resources to promising projects and reallocate where required. On the other hand, the implementation of frugal innovation involves operating under strict budget constraints, which the application of several principles allows to mitigate: aim for easy execution, combine elements, shorten time to market, extract maximum value from existing projects, avoid organisational disruptions, obtain insights from R&D investments, and apply what has been mastered previously to avoid re-invention (Manuel Ferreira Calado et al., 2019). The importance of financial performance is confirmed by a study conducted with informal companies, where financial performance still dominates the objectives of the entrepreneurial managers (Pirinen, 2016).

4.3.Collaboration Across Boundaries and Ecosystem Engagement

Frugal innovation and intrapreneurship often entail collaborative activities outside a firm's traditional boundaries. A network-centric view underscores the significance of a company's ecosystem, encompassing not just suppliers, customers, and competitors, but also institutional bodies (Ferdinand & Meyer, 2017). This perspective extends beyond traditional cooperative arrangements to embrace open innovation, user-driven innovation, and the notion that innovation is an interfirm process (Julie Ney, 2008). Frugal innovation collaboration relies on co-creation and co-design between users and suppliers, emphasizing obligatory linkages with low-income communities (Battisti et al., 2018). A broad spectrum of outside actors and stakeholders can

augment or complement internal ventures, spurring fresh ideas and entrepreneurial impetus through various collaborations. Engaging in inter-organizational activities not only widens the pool of relevant concepts but also encourages creative perspectives, fostering an entrepreneurial mindset and behaviour within the firm that fuels intrapreneurship.

CONCLUSION

Although frugal innovation and intrapreneurship are distinctly different phenomena, synergies between them may allow organizations to better navigate increasingly turbulent, competitive business environments and enhance overall competitiveness. Frugal innovation, defined as the reduction of material costs through more efficient processes, less expensive resources, or use and recycling of inexpensive components, enables the development of affordable, usable products at low cost (Xuecheng & Iqbal, 2022). Intrapreneurship creates conditions that promote and leverage internal innovation by decentralizing decision-making through empowerment, transforming leaders into catalysts for innovation, providing formal and informal platforms for idea generation, and wider dissemination of innovative ideas (Eyal-Cohen, 2019). The combination of frugal innovation and intrapreneurship allows companies to address multiple strategic uncertainties simultaneously, linking incremental and radical innovation while remaining sensitive to economic, social, and technical factors. Growth orientation and willingness to adopt emerging technologies provide further incentives to pursue this route. Organizations engaging in frugal innovation without adequate intrapreneurial support may find their activities constrained by bureaucratic controls, discouraging the pursuit of innovative ideas. Similarly, intrapreneurship can stimulate experimentation at the early stages of innovation development, while frugal innovation encourages ongoing exploration as well as selective new venture investment. By addressing challenges associated with resource scarcity, market constraints, and other factors, director-level intrapreneurs merit special attention from top management seeking to leverage the synergies between frugal innovation and intrapreneurship. Frugal innovation and intrapreneurship introduced independently can yield beneficial effects; however, the alignment of their implementation and articulation of a shared innovation vision considerably enhance their contributions to organizational agility and overall competitiveness.

REFERENCES

- Eyal-Cohen, M. (2019). *Innovation Agents*.
- Hecker, A. (2017). *The Intrapreneurial Nature of Organizational Innovation: Toward a New Process Model*.
- Hamilton, C. (2018). *Black Americans Past and Present Created Frugal Innovations and Embraced Circular Economy Principles: The Marketing Dilemma*.

- Numminen, S. & D. Lund, P. (2016). Frugal energy innovations for developing countries – a framework.
- Ildikó, M. (2016). A frugal innováció.
- Cadar, O. & Badulescu, D. (2015). Entrepreneur, Entrepreneurship and Intrapreneurship. A Literature Review.
- Xuecheng, W. & Iqbal, Q. (2022). Managerial Networking and Frugal Innovation: Situational Leadership Perspective.
- Fernanda Quevedo, M., Silkina, N., & Rapp, T. (2018). Analysis of the Relationship between Frugal Innovation and Sustainable Development.
- Belkadi, F., Buergin, J., Kumar Gupta, R., Zhang, Y., Bernard, A., Lanza, G., Colledani, M., & Urgo, M. (2016). Co-Definition of Product Structure and Production Network for Frugal Innovation Perspectives: Towards a Modular-based Approach.
- Tinoco, J. (2007). Accomplishment Of Dual Focus In Exploration And Exploitation: The Influential Role Of The Customer Relationship Management .
- Chih, W. H., Huang, L. C., & Yang, T. J. (2015). Innovation Management in Services Industries: The Impacts of Innovative Capacity and Transformative Learning.
- Bouffaron, P., Weil, B., Le Masson, P., & Denis-Remis, C. (2019). Re-inventing corporate innovation through incubation. The VINCI Leonard case study.
- Kolehmainen, M. (2018). Towards internal corporate venturing in a mature manufacturing firm : Case: MacGregor.
- Ahmed Khan, Z. & Nawaz Irfanullah Khan, A. (2016). The Leadership and Innovation: Prospects and Challenges.
- Meng, L., Li, T., Yang, M., & Wang, S. (2022). A Study on the Influence of Authoritarian-Benevolent Leadership on Employees' Innovative Behavior From the Perspective of Psychological Perception—Based on Fuzzy Set Qualitative Comparative Analysis.
- Herman Gericke, M. (2019). Humans in the focus for outstanding innovation.
- Liu, J., Baskaran, A., & Li, S. (2009). Building Technological-innovation-based Strategic Capabilities in a Textile Company in China: a Dynamic Resource-based-view.
- Manuel Ferreira Calado, J., Gomes Requeijo, J., Abreu, A., & Dias, A. (2019). Management of innovation ecosystems based on six sigma business scorecard.
- Pirinen, K. P. (2016). Standardoidun tuotehallinnan omaksuminen organisatorisena innovaationa.
- Ferdinand, J. P. & Meyer, U. (2017). The social dynamics of heterogeneous innovation ecosystems : Effects of openness on community–firm relations.
- Julie Ney, C. (2008). Ecodesign. as an Innovation-friendly Competence-enhancing Process.
- Battisti, S., Giugliani, E., Prikladnicki, P., & Traverso, P. (2018). Entrepreneurial actions towards the success of exponential technologies.