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Editorial

Operations management, entrepreneurship, and value creation: Emerging opportunities in a cross-disciplinary context

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ABSTRACT

Cross-disciplinary research at the intersection of operations management and entrepreneurship offers the potential to generate new knowledge leading to tangible value for the firm. Likewise, themes such as the reliance on firm-external partnerships, the strong technology and innovation orientation, and the nurturing of dynamic capabilities, just to name a few, are on the agenda of both 'camps.' However, research at the nexus between the two disciplines is scarce. Over and above synthesizing the insights presented in the papers comprising this special issue, it is our intent to motivate richer and deeper explorations into this promising field of research.

1. Introduction

From an operations management perspective, cross-disciplinary research and practice is a fruitful approach that leads not only to new insights but also results in tangible benefits for firms. As such, scholars have embarked on the adventure to study operations management at the interface to other disciplines (Linderman and Chandrasekaran, 2010), such as human resource management (e.g., Cook et al., 2002), marketing (e.g., Ho and Tang, 2009), or finance (e.g., Kumar and Turnbull, 2008). While research on entrepreneurship has grown substantially over the past decades, inquiries at the intersection between operations management and entrepreneurship are relatively scarce.

What can we learn by investigating the overlap between operations management and entrepreneurship? For both fields, a number of connections and opportunities are implicit. For example, both operations management and entrepreneurship can lead to *new value* creation across and within industry and firm-level boundaries (Aldrich and Fiol, 1994; Busenitz et al., 2000; Balakrishnan et al., 2007). Both entrepreneurship and operations management involve processes but rely heavily upon the ability to innovate and operationalize in a dynamic environment (Gans et al., 2008; Oke et al., 2010). Moreover, operations management and supply chain management can facilitate the creation of sustainable competitive advantage that can lead to new businesses and firm growth-development (Guinan et al., 1998; Lowe and Ziedonis, 2006; Zott and Raphael, 2007). Additionally, value creation in supply chains and entrepreneurial oriented firms increasingly relies on collaborative relationships with other firms (Larson, 1992; Madhok and Tallman, 1998; Wagner et al., 2010). The scientific progress and the current technologies in information management and communications offer opportunities to create and develop new activities based on operations and supply chain management (Fine, 1998; Mendelson, 2000). Finally, the patterns across different global regions with respect to how entrepreneurial firms create, nurture, and deploy new value creation opportunities is of special interest.

Our special issue sought innovative manuscripts that tackle the interrelationship between both disciplines and stimulate new lines of inquiry. We sought a broad range of *theoretically relevant papers that are empirically focused* and investigate the interface between operations management and entrepreneurship. One similarity between the two domains is that both are exemplars of the "scholarship of engagement." That is, theory, research, and practice are often intertwined successfully. During the review process, authors were encouraged to present research that makes significant contributions to both the operations management and entrepreneurship literature. This includes developing and testing core elements of existing theories from both disciplines as well as integrating different theories and contributions that break new ground and have a substantial influence on both fields.

Several suggestions and questions for researchers we thought were interesting and highly provocative to both disciplines, include:

1. From an operations management perspective, how do emerging entrepreneurial firms create efficiencies of scale in the areas of production, distribution, sourcing, and product and service development, especially given their early reliance and interaction with customers, suppliers and alliance partners (Deane et al., 1991; Coombs et al., 2006; Song and Di Benedetto, 2008)?
2. How do entrepreneurial firms weigh the benefits and costs in deciding to outsource their manufacturing processes? What new methods or ways of product/service ordering, delivery, inventory management and risk mitigation can be measured within the supply chain? For example, what are the short term and long term implications of performance measurement schemes in entrepreneurial firms (Wu and Knott, 2006; Zott and Raphael, 2007)?
3. How do operations and supply chain management reinforce firm entrepreneurial orientation and increase the level of performance? How do they relate to proactiveness and innovativeness

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(two dimensions of the entrepreneurial orientation construct; Lumpkin and Dess, 1996; Wiklund and Shepherd, 2003)?

4. How do firms identify, attract, and integrate entrepreneurial firms in their supply base? How can they exploit innovative capabilities of entrepreneurial suppliers in early stages of the innovation process (Chesbrough, 2003; Henke and Zhang, 2010)?
5. From a corporate venturing perspective, how do intrapreneurs/innovators create, develop, and deploy new methods to bring new products and services to market? What new facilities, operations, and systems must be in place for an existing firm to benefit from new product/service offerings (Shane, 2000; Kickul and Gundry, 2001; Nassimbeni, 2003; Rodriguez-Pameda et al., 2003; O'Connor and McDermott, 2004)?

We begin by discussing the five articles included in this special issue which touch upon many of these questions. Their findings and the implications and conclusions for researchers and practitioners in both the operations management and entrepreneurship fields are highlighted. We conclude with a number of recommendations for future research and additional areas left unexplored in examining the intersection of operations management and entrepreneurship.

2. Current research – a preview of the articles in this issue

In the first paper entitled "*Alliance diversity, environmental context and the value of manufacturing capabilities among new high technology ventures*," Terjesen et al. (2011) investigate the association between manufacturing capabilities and firm performance in the context of high technology new ventures. Using a sample of 167 UK-based, high technology manufacturing ventures, the authors examine the relationship between those manufacturing capabilities contributing to low operating costs, product quality, and venture performance. They find that venture performance, as reflected in sales growth, return on sales, and return on assets, is predicted by manufacturing capabilities that promote low operating costs and product quality.

The study then examines the hypothesized moderating effects of alliance partner diversity and alliance geographic diversity as well as environmental dynamism and environmental munificence, i.e., contextual factors that may influence ventures' abilities to extract value from their manufacturing-based resources. Defining alliances as "access relationships" that result in research collaborations, joint marketing, and other activities they find that an efficient alliance portfolio provides the desired benefits with minimum costs of redundancy, conflict, and complexity. That is, the value of manufacturing capabilities as measured by the strength of the capability–performance relationship among high technology ventures is contingent upon the alliance and environmental contexts within which those ventures operate. Specifically, alliance partner diversity, alliance geographic diversity, and environmental munificence enhance the capabilities that promote low operating costs while alliance partner diversity, environmental munificence, and environmental stability enhance the capabilities promoting product quality.

Several important issues remain as a result of this study. How much direct responsibility should the firms' managers assume versus how much they can relinquish to possible alliance partners in the development of manufacturing capabilities? What effects, if any, does the venture's proficiency with regard to other value chain activities such as inbound and outbound logistics have on the ability to develop and successfully utilize particular manufacturing capabilities? What are the effects of various technology access mechanisms on the likelihood that young firms will develop valuable manufacturing capabilities? How can young firms develop manufacturing capability profiles that promote firm performance in industries where trade secrets and patents preclude easy access to others' technological know-how?

This study demonstrates that some of the manufacturing capabilities that promote performance in more established manufacturers also do so among young firms. The current research suggests that not only are the manufacturing capabilities contributing to low operating costs and product quality important to young firms' performance, but also are the contexts within which these capabilities are employed of significant practical consideration. Other contextual conditions such as stage in the product life cycle, clockspeed, and size may be examined in future research.

As a fledgling organization, a venture must develop formalized routines and processes to sustain exchanges with the institutional environment. Formalized structures and routines act as a signal of institutional effectiveness. Increased institutional effectiveness translates into greater support from institutional stakeholders. However, this is in contrast to demands of the task environment. Operating in uncertain environments, a venture must have flexible structures to effectively meet the demands of that environment. Ventures able to adapt to changing customer needs and environmental turbulence should be more successful. When the demands of the institutional and task environment are considered jointly, ventures face conflicting demands of increased formalization from institutional environment and increased flexibility from the task environment.

How do ventures mitigate this duality? In Patel's (2011) paper "*Role of manufacturing flexibility in managing duality of formalization and environmental uncertainty in emerging firms*" the author draws on Meyer and Rowan's (1977) argument on de-coupling institutional structures from the technical core. However, unlike Meyer and Rowan's suggestion, ventures cannot engage in such decoupling by treating institutional demands through ceremonial or symbolic processes. To explain how simultaneous structural formality and flexibility of technical core are managed, Patel combines Meyer and Rowan's (1977) argument with Adler and Borys's (1996) 'enabling bureaucracy' argument and proposes the central role of manufacturing flexibility as an enabling factor that could help increase returns from simultaneous engagement in meeting needs of institutional and task environments.

Using a sample of 167 high technology manufacturing firms in the United Kingdom, Patel uses moderated polynomial regression to help answer the following research questions: (i) does simultaneous increase in formalization and environmental uncertainty lead to enhanced performance? (ii) does the presence of manufacturing flexibility further increase performance with increased formalization and environmental uncertainty? Patel finds support for the role of manufacturing flexibility as an enabler in managing duality of the demands of institutional and task environment. This prompts a debate to a higher level by suggesting that task level phenomena can have institutional level consequences.

The findings contribute to the intersection of operations management and entrepreneurship disciplines. Adler et al. (2009) proposed the idea of productivity dilemma, the tension between efficiency and innovation in operations management. In the context of new ventures, Patel (2011) finds that manufacturing flexibility and formalization could co-exist and enhance operational performance. He also extends his analysis to include the contingency influences of size and age in the context of new ventures.

These findings make new contributions to the entrepreneurship literature. Despite the fact that the role of the technical core was proposed by Thompson (1967) more than 40 years ago, the operational aspect of the firm has been overlooked until now. However,

ventures may not treat operations as a tactical area of the firm, but must manage it in the institutional environment. Thus, these findings, rather than advocating independent pursuit of operational capabilities, link current entrepreneurship theories by accommodating needs of institutional environment. Future research in this area could delve deeper into the task environment and integrate the product-process matrix design considerations of Hayes and Wheelwright (1979). In particular, do mass customization (Pine, 1992) strategies offer a perfect medium to manage this duality of structure and flexibility?

Little has been known about how co-opetition behaviors affect a manufacturer's knowledge acquisition in supply chains, and still less is known about how a partner's entrepreneurship interacts with co-opetition factors to change the efficiency of knowledge acquisition. Li et al.'s (2011) paper "*Co-opetition, distributor's entrepreneurial orientation and manufacturer's knowledge acquisition: evidence from China*" contributes to this subject by investigating the relationship between the co-opetition factors, distributor's entrepreneurial orientation, and manufacturer's knowledge acquisition. To do so, the authors collected dyadic data from manufacturer–distributor supply chains in China's household appliance industry by mail survey methods. Subsequent analysis demonstrates that co-opetition factors of cooperation, constructive conflict and destructive conflict have different and interactive effects on the manufacturer's knowledge acquisition, therefore highlighting the importance of the new co-opetitive perspective in supply chain studies. This study also indicates that the distributor's entrepreneurial orientation plays an important moderating effect on the co-opetition–knowledge acquisition linkage, thus highlighting the value of blended research across the domains of supply chain management and entrepreneurship. This study provides implications on managing co-opetition relations with supply chain partners of different entrepreneurial orientation in order to promote the level of knowledge acquisition from the supply chain cooperation. One can speculate that what is true at the downstream level, i.e., the facilitating role of the distributor's entrepreneurial orientation is likely to have a similar facilitating role played by the key supplier's entrepreneurial orientation in the upstream level. However, it would be better if this speculation were empirically verified via a focused future research study. Also, while the Li et al. (2011) paper focuses on knowledge acquisition processes, it is just as important to understand knowledge dissemination mechanisms, both upstream to and downstream from the focal firm. This would facilitate a supply chain-wide view of knowledge acquisition and knowledge development mechanisms that could potentially influence firm performance. Further richness to these findings could come from the contextual studies that jointly examine the upstream contingency influence of supplier's entrepreneurial orientation and the downstream contingency influence of distributor's entrepreneurial orientation on the relationship between knowledge acquisition and firm performance.

In Song et al.'s (2011) paper "*Resources, supplier investment, product launch advantages, and first product performance*," the authors investigate how entrepreneurial firms can build their resources and experience with suppliers to create a position in the marketplace and gain competitive advantage. They discuss literature from both the operations management and entrepreneurship fields to link how a new firm can use internal and external resources to achieve positional advantages of product innovativeness, supplier involvement in production, as well as product launch quality. Internal resources include financial resources for R&D and marketing and the experience of the founding team, and external resources include supplier investment.

Three main research questions guided this study: (1) How do the new venture's internal and external resources affect the first product's positional advantages (product innovativeness, supplier involvement in production, and product launch quality)? (2) How do the first product's positional advantages relate to the first product performance? (3) How does market potential moderate the relationship between the first product's positional advantages and performance? They tested a theoretical model based on Day and Wensley's (1988) competitive advantage theory using data from 711 entrepreneurial firms over a 6-year timeframe. A Heckman two-equation method was performed using the full information maximum likelihood procedure to correct the potential sample selection bias that may result from the 215 incomplete first product development projects in the sample.

Their findings suggest that it is advantageous for a new venture to include major suppliers in production of the first product. However, while product launch quality maybe important for the first product performance, market potential positively moderates the relationship of product launch quality and product performance. That is, an entrepreneurial firm should increase its product launch quality when market potential is high for its first product. Their results demonstrate a number of traditional perspectives in the entrepreneurship and operations management literature. To begin:

1. "The execution of high quality launch is much more, not less, important than developing a highly innovative product.
2. The new venture's effort to develop a highly innovative first product has either insignificant effects or negative effects on product margin and sales growth when market potential is low. Increasing product innovativeness decreases product margin and sales growth when market potential is low. These findings challenge the "more is better" in terms of product innovativeness (Read et al., 2009; Schoonhoven et al., 1990; Song et al., 2008; Timmons and Spinelli, 2008).
3. Both the size of founding team and the prior start-up experience of founders lead to lower product launch quality.
4. After control for founding team's characteristics (prior start-up experience, R&D and marketing experience), R&D and marketing budgets do not increase product innovativeness."

While the operations management literature has shown the effects of supplier integration in new product development, the authors claim that their research is one of the first to examine the effects of supplier specific investment as well as supplier involvement in product development on the new firm's first product performance. They conclude that when the market is small, an entrepreneurial venture team should pay attention to product launch and that devoting resources is a better strategy than more investment in innovation. In such cases, increasing product innovativeness decreases sales and margins. However, when market potential is high, product innovativeness is more important. Notwithstanding market size, the authors find that supplier involvement in production is valuable to the new firm both in terms of initial product sales and profit as well as to the level of future supplier engagement. The authors also find that it is not necessarily team size that is crucial to success but rather the assembling and composition of the founding team. As an extension, it might be useful to know what happens if the suppliers are themselves entrepreneurial firms. Will the liability of newness of firms in these contexts that affect customer firms also extend to supplier firms?

In the paper by Goodale et al. (2011), "*Operations management and corporate entrepreneurship: the moderating effect of operations control on the antecedents of corporate entrepreneurial activity in relation to innovation performance*," the authors investigated the moderating effects of operations control variables (i.e., risk control and process control formality) on the relationships between the

antecedents of corporate entrepreneurship and innovation performance. As they begin their discussion, they emphasize the inherent differences and perceptions that operations control and corporate entrepreneurship may be two opposite ends of a spectrum. As they indicate, corporate entrepreneurship is aimed at taking the firm in new directions whereas operations control is aimed at channeling and overseeing actions on a strict and formal basis. Thus, it would be interesting to examine how operations control variables interact with corporate entrepreneurship activity to determine innovation and organizational performance.

In their study of 177 firms within a diversity of industries, they tested the effect on innovation performance of several known antecedents of corporate entrepreneurship using the Corporate Entrepreneurship Assessment Instrument (e.g., Hornsby et al., 2002). These included management support, work discretion/autonomy, rewards/reinforcements, time availability, and organizational boundaries. The moderating effects of operations control variables were included on the relationships between the antecedents of corporate entrepreneurship and innovation performance. Their results demonstrated that only two of the five antecedents to corporate entrepreneurship (managerial support and organizational boundaries) have main effects on innovation performance with moderate significance. However, each of the five antecedents interacts significantly with one or both of the operations control variables to influence innovation performance suggesting that the combination of operations control attributes with the organizational antecedents to corporate entrepreneurship has a significant influence on innovation performance.

Based on their results, the authors make a number of interesting implications and conclusions. They assert that, "the exhibition of operations control is not antithetical to the interests of corporate entrepreneurship; it is inherent to those interests. As such, observations to the effect that control is the enemy of successful innovation are naïve." However, the influence of the operations control variables on the association between factors that stimulate innovation performance outcomes should not be generalized as being either positive or negative. That is, the direction of the moderating effects depends on the type of operations control variable and organizational antecedent to corporate entrepreneurship being tested. For instance, risk control had a negative moderating effect on the relationship between time availability and innovation performance but a strongly positive moderating effect on the relationship between organizational boundaries and innovation performance. Thus, as the authors comment that "it is important to understand the specific processes through which innovation of potential or known desirability is encouraged while innovation of more questionable desirability is discouraged." Additional research is needed to further investigate the implications for innovation performance and the adoption of various control foci within operations control systems. It is interesting to note that both Patel (2011) and Goodale et al. (2011) address the tension between formal control versus flexible structures, albeit, under different contextual conditions, using different theoretical lens and using data from two different regions (USA and UK). As can be seen in the next section, this paper is an example which falls under the 'Comparative Lens' genre of future research opportunities.

3. Directions for future research on the intersection of operations management and entrepreneurship

The synthesis of the papers comprising this special issue shows that scholars have taken the path to explore the nascent links between operations management and entrepreneurship and that some significant contributions to the field have been made. Since it is our intent to prompt, nudge, and encourage richer and deeper explorations into this promising and important interdisciplinary field of research, we attempt to identify additional important research opportunities. In this light we synthesized several overlapping OM areas with an entrepreneurship lens that can be considered 'hot topics' offering future research opportunities (Table 1).

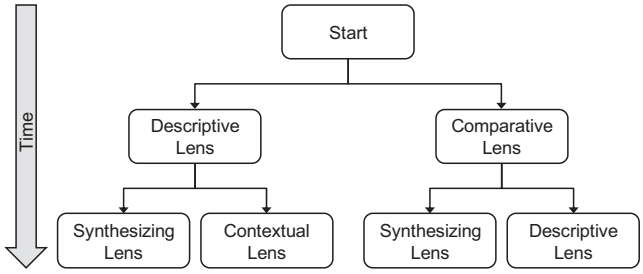

Fig. 1. Inter-relationships among thematic approaches.

In this section, we offer a conceptual analysis of whether the operations management domain knowledge synergizes, complements, or presents itself as a conflict in worldviews. To pursue this initiative, we have suggested a sequence in Fig. 1. First, we list an interesting set of research questions and then suggest that these questions can be grouped along the lines indicated in Fig. 1.

1. How do entrepreneurs develop and implement supply chain strategies when there may be no trade-offs in ensuring quality, rapid delivery, and speed to market/industry? Are the supply chain strategies in entrepreneurial firms different based on industry clock speed (Fine, 1998; Souza et al., 2004)?
2. How do entrepreneurs develop partnerships that create outsourcing opportunities and needed support functions as the firm grows (in the areas of software development, information services, distribution, process technology, and overall operations maintenance; Menor et al., 2002; Youngdahl et al., 2008)?
3. Within innovation systems, is it possible to examine entrepreneurial development, economic development, or technology development as a value chain and what can we learn from supply chain management, sustainability and other process management skills (Fisher, 1997; Linton et al., 2007)?
4. How does operations management contribute to strategic renewal? How are renewal processes facilitated? How do these processes relate to venturing? What kind of tools do entrepreneurial firms deploy and how do these tools work (methodologies) in these firms (Dobrev and Barnett, 2005; Youngdahl et al., 2008)?

As can be seen from this sample of research questions, the initial set of questions that hold promise are of the Descriptive Lens ilk. The typical research questions in this group seeks to understand the "what" and "how" of phenomena. On a parallel level, research questions that compare the effectiveness of established paradigms in one region to the utility of these paradigms in another region is a camp that we refer to as Comparative Lens studies. When the available sets of research studies start to accumulate in the Descriptive and Comparative Lens camps, the next logical undertaking should be to pursue studies that synthesize in a critical way. This is typically done via a meta-analysis. On a similar vein, contingency studies can be pursued. This is by no means a definitive trajectory that researchers ought to take, nor is the sequence set in stone. It is suggested as one way to cumulatively understand research at the interface between entrepreneurship and operations management.

Table 1
Potential cross-disciplinary research opportunities at the intersection of operations management and entrepreneurship.

OM interface area	Key themes	Enabling theory/dominant perspective	Representative research questions
1. Supply chain strategy and entrepreneurship	• Efficient supply chain vs. responsive supply chain • Lean vs. agile supply chain	• Competitive strategy • Operations strategy • Fisher's SC strategy matrix • Learning curve	What are the contextual factors that prompt entrepreneurs to design efficient supply chains over responsive supply chains? Are there contexts of successful deployment of efficient and responsive supply chains for successful entrepreneurs? How do supply chain strategies change over time with firm growth and development?
2. Supply chain network design and entrepreneurship	• Outsourcing during the new venture phase • Centralization vs. decentralization • Supply chain integration vs. disintegration • Supply chain orchestration (3PL, 4PL) • Global footprint of entrepreneurial firms	• Transaction cost theory • Resource-based view • Dynamic capabilities • Resource dependence theory • Network embeddedness • Comparative advantage of nations	How do outsourcing frameworks prevail within entrepreneurs looking for competitive advantage? Is the verticals perspective (industry specific institutional environments) more pertinent to entrepreneurial success as opposed to the horizontal perspective (value chain integration)? Are entrepreneurial firms more inclined to outsource to logistics service providers and let them orchestrate and operate their supply chains? Do entrepreneurial firms or new venture firms need more operational slack to survive? If so, under which conditions? How do entrepreneurs seek to globalize? What is the role of speed in the expansion of markets and operations?
3. Interfirm relationships and entrepreneurship	• Relationship management with entrepreneurial firms • Supplier innovation • Supplier development	• Institutional theory • Relational view • Social capital theory • Relationship life cycle • Open innovation	Do social interaction ties with suppliers and service providers play a more important role in entrepreneurial firms than in established firms? Are relationship connectors that support partnerships similar for established and new venture firms? How can firms identify, integrate, and leverage the capabilities of innovative, entrepreneurial suppliers?
4. Service operations and entrepreneurship	• Managing capacity and demand • Effectiveness and efficiency in the delivery of services • Managing the service encounter • Yield management	• Market and customer orientation • Service quality • Service–profit chain	How can new venture firms improve customer experience while increasing operational efficiency? How should value delivery systems be adapted to new venture firms? How do entrepreneurial firms build customer orientation strategies given that they face duality of constraints – lack of prior customer interaction experiences and scarce resources? What drives productivity and service quality improvements in entrepreneurial firms?
5. Sustainability and entrepreneurship	• Green value chains • Reverse supply chain • Ecological footprint • Corporate social responsibility within entrepreneurship	• Stakeholder theory • Corporate social responsibility perspective • Triple bottom line perspectives	Are there unique nuances to green value chain perspectives in an entrepreneurial environment? What are the common green value chain best practices that are pursued by entrepreneurs? Because new venture firms are not restricted by established facilities, equipment, production technologies, etc. do they have advantages to operate sustainably?
6. Risk management and entrepreneurship	• Risk mitigation tools for entrepreneurs • Business continuity decisions for entrepreneurs • Interdependencies • Risk–return tradeoff	• Risk management processes • High reliability theory • Normal accident theory • Complex systems theory	Do entrepreneurs engage in investing in risk mitigation tools? If so, what is the format (template) for these tools? What are the characteristics of business continuity adaptive frameworks that entrepreneurs deploy and invest in high risk environments?
7. Behavioral operations and entrepreneurship	• Human behavior in OM • Leadership characteristics • Employee motivation • Reward schemes	• Entrepreneurial orientation • Cognitive psychology (heuristics, biases) • Leadership theory • Motivation theory • Group dynamics	How do "strong" entrepreneurs with entrepreneurial traits influence human behavior in operations management? Given that entrepreneurial firms tend have few employees and given the high risk that these firms may fail in their nascent years, how are employees motivated to perform to their peak ability? What reward schemes are appropriate for employees in the entrepreneurial climate?
8. Performance measurement and entrepreneurship	• Assessing operational effectiveness and efficiency • Analytics for evaluating operational activities in entrepreneurial firms • Design of performance measurement systems	• Performance measurement frameworks • Systems theory • Decision theory • Agency theory	What are the performance design criteria for analyzing successful entrepreneurship? In what manner (if any) do the precepts of accepted performance measurement schemes such as balanced scorecard, TCO, SCOR model, etc. have to be modified in order to better fit into an entrepreneurial environment? Are the agency theory effects in entrepreneurial firms steeper than in regular firms given that the likelihood of high failures in a relatively short duration?

4. Conclusion

All articles included in our special issue contribute to both the operations management and entrepreneurship fields. They are particularly relevant in how they address new issues and challenges encountered by new and existing firms that investigate the interrelationship between both disciplines and provoke novel lines of inquiry. The research on the overlap between operations management and entrepreneurship are relatively scarce and thus, the editors sought and accepted papers that were empirically focused and theoretically relevant. Although much work remains, it is our hope that research that emphasizes the cross-disciplinary opportunities and their context will continue.

In particular, the editors are concerned about the problem of context and generalizability of these and future papers – the contextual lens. Specifically, we note that the issue of economic context was often not considered. Rather, entrepreneurship is often thought of as a global phenomenon in some undefined but quasi-capitalist setting. As Baumol et al. (2007) point out, there are several issues to be considered here.

First, there is a considerable difference between 'replicative' entrepreneurs, those who produce or sell a good or service that is already available through other sources and who generally undertake starting the new business as a financial means of support and those 'innovative' entrepreneurs who engage in commercial activities based on a new product, service or method of production or delivery. While the former group clearly has benefits in terms of poverty alleviation and is a means for those with little capital, education or experience to earn a living, it is clearly the latter group that is of interest to economic growth. It is also this latter group that provides the greatest challenges.

Nonetheless, operations management may hold the key to designing the best means to improve the efficiency of 'replicative' entrepreneurs through supply chain management techniques. Further, the diffusion of these types of new ventures would benefit from OM's advances in relationship management and supplier innovation.

Second, it is clear that one of the advantages of large firms is the ability to harness economies of scope and scale that smaller 'innovative' entrepreneurial firms cannot. Is there an optimal mix of large firms and smaller entrepreneurial firms? More specifically, can large firms and smaller entrepreneurial firms find comparative advantages to exploit? Must entrepreneurial firms inevitably give way to larger firms once product uniformity, ease of use, and cost issues begin to dominate? Or, do institutional issues such as the ease of entering and exiting a business, the personal ability to benefit from being an innovative entrepreneur, and the absence of disincentives (rent-seeking behavior) determine the level and growth of entrepreneurial activity?

Third, it is also the case that measuring entrepreneurial success simply by growth in sales, assets, employees or some other metric makes generalizability difficult when the economic context is not considered. The structural inflexibility in the labor markets in continental Europe and Japan makes it difficult for entrepreneurial firms to react swiftly to changing conditions in their markets leading to a stifling of growth. OM is uniquely positioned to examine these types of questions from the view of operational efficiency, customer service, and the analyses of risk management processes. An interesting study would be a cross-country study that controls for such factors and examines the effect, if any, on growth, efficiency, and the optimal exit strategies for entrepreneurs.

Finally, given the strong basis of the role of human behavior in operations management, much more can be done in the field of examining how innovative entrepreneurs interact not just with suppliers and customers but also with bureaucracies in the form of government officials and administrators and the economic policies they enforce. At what point, do 'innovative' entrepreneurs seek out more favorable economic conditions? For example, the reduction of corporate income tax to 12.5% is often recognized as an important factor (in conjunction with labor reform) in Ireland's recent entrepreneurial boom. Similar concerns exist with respect to the protection and enforcement of intellectual property rights and government's willingness to have open trade borders that lead to the greater diffusion of innovation and the enhancement of competitive pressures to ensure domestic innovation continues.

In the end, the intersection of entrepreneurship and operations management is about value creation. The innovative entrepreneur has the vision of a new product, service or method of production or delivery. Operations management provides the best practices for the entrepreneur to reach his/her goal within the environment while recognizing the opportunities and constraints that exist. Co-operation between the two should lead to fewer failures and more and faster successes.

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