

Systematic Idea Generation and Organizational Capabilities for Front-End Innovation Performance in SMEs

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This study seeks to answer two key questions about the front-end innovation: when do idea generation activities involving internal and external partner's payoff, and which organizational capabilities support idea generation activities for achieving high front-end performance?

How and when do small- and medium-sized enterprises (SMEs) benefit most from idea generation activities? The answer is perhaps not as straightforward as one might assume. SMEs are subject to size-related liabilities, which often obstruct their efforts in successfully undertaking front-end activities. The front-end period begins when an idea is recognized collectively in the firm as representing an innovation opportunity, and it concludes with the approval or disapproval of the proposed project. However, due to resource constraints, SMEs struggle with idea generation, especially when they intend not only to encourage influx of new internal ideas, but also to seek external ideas to increase their chances for innovation performance. Thus, possession of systematic idea generation activities within SMEs can be critical for achievement of high front-end innovation performance, which ultimately leads to the launch of commercially successful innovations.

SMEs need the ability to manage and benefit from idea generation involving external partners. Such a notion of collaborative idea generation advocates for firms to stimulate business-based partners' (customers and suppliers) inputs, interaction, and cooperation to generate innovative and valuable ideas. However, capturing more ideas might not lead to better outcomes, and if the inflow of new ideas is not organized and optimized, the benefits from external knowledge during the front-end period might not be realized. Therefore, this study seeks to answer two key questions: 1) When do idea generation activities involving internal and external partner's payoff? 2) Which organizational capabilities support idea generation activities for achieving high front-end performance? To answer these questions, a mixed-method approach was applied which draws on quantitative and qualitative data via a survey and subsequent detailed case studies (see Table 1). The results of this study are based on survey data from 146 Swedish manufacturing SMEs and case studies with multiple respondents from five manufacturing firms.

Table 1. Mixed-method details: type, phases, and procedures

Type of study	Phases	Procedures
Phase I - Quantitative	Data collection	Unity of analysis: SMEs (less than 500 employees) Industry: manufacturing firms in Sweden Response from 146 SMEs
	Data analysis	Factor analysis and hierarchical regression analysis
Phase II - Qualitative	Data collection	Unit of analysis: 5 Large firms Industry: Telecommunication, manufacturing, and packaging Number of interviews 23
	Data analysis	Thematic analysis

[table1-mixed-method-details](#)

Idea generation and front-end innovation performance

Numerous studies acknowledge that idea generation activities are central to a firm's ability to achieve innovation performance. In this regard, customers and suppliers are viewed as providers of novel ideas for innovation. Their inputs offer market information about current and emergent business opportunities. However, accessing these ideas is not enough to achieve high performance. This result suggests that absorption and benefit from external partners' knowledge largely depends upon the presence of systematic idea generation activities. In other words, SMEs with developed systematic routines to effectively undertake idea generation activities can better benefit from internal and external ideas. By doing so, firms can accumulate the knowledge to capture, reshape, modify, and upgrade, thus facilitating the achievement of higher front-end performance. However, the interactive relationship between idea generation activities with external partners and front-end performance is not always positive. The analysis of the survey data indicates that, at different maturity levels of idea generation, activities can lead to different outcomes in terms of front-end performance. Specifically, idea generation activities evolve over three different development maturity levels, and at each level, its effect on front-end performance in terms of transactional costs/benefits varies. To better understand this proposed relationships, a brief explanation is presented about the three maturity levels of idea generation, namely ad-hoc, intermediate, and systematic.

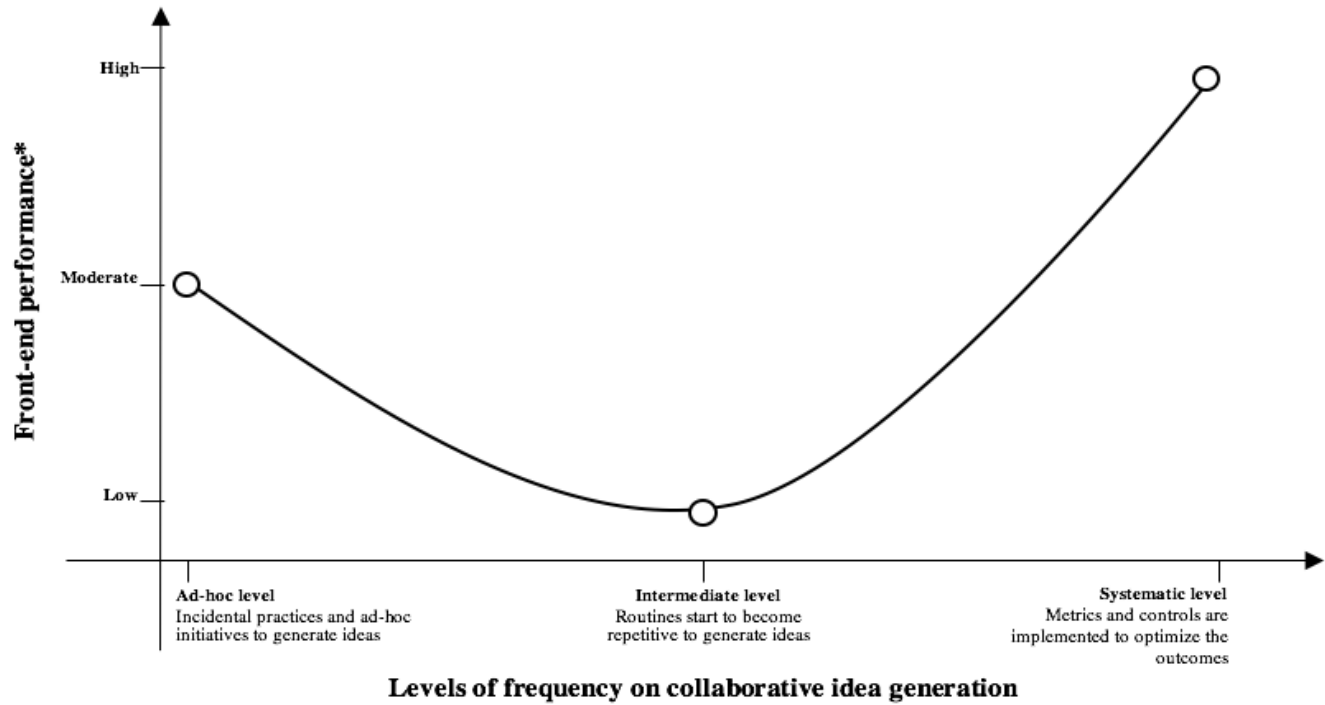
At the *ad-hoc level*, SMEs operate at below par with practices and informal initiatives to capture new ideas (e.g., through frequent but unsystematic interaction with customers). Input from customers and suppliers is captured largely through informal and unplanned interactions; therefore, the transaction costs for obtaining those ideas are low, and there is a manageable cost/benefit ratio. Specifically, the ad-hoc level of idea generation activities were found to result in moderated performance.

At the *intermediate level*, the innovation performance diminishes as transaction costs largely outweigh the gains from externally oriented idea generation activities. This occurs because SMEs begin to develop, pilot, and deploy repeatable procedures to capture and refine new ideas. The effort to create, train, and implement the systematic activities of idea generation require significant investments in time and resources, which hampers performance. Moreover, increased intake of ideas but moderate level of internal practices leads to increased transactional costs, which diminishes front-end performance.

By contrast, the final maturity level, known as the *systematic level*, is the most preferred position for high-performing SMEs. During systematic levels, SMEs have developed internal tools such as software platforms (e.g., for crowdsourcing) to help managers to control, coordinate, and integrate external contributions in a structured manner. Such formalized routines empower SMEs to efficiently control and manage the flow of internal and external ideas. Moreover, with time and repetitive occurrence, SMEs build a repository of knowledge for idea generation, which facilitates the understanding and refinement of new ideas.

In summary, *the returns from idea generation activities with external partners pay off most when SMEs have high systematic internal procedures for idea generation*. This is mainly because benefits then greatly outweigh costs when SMEs can reap the benefits of organizational routines to improve performance. On the other hand, idea generation during the intermediate level should be avoided, as this period is characterized by high transactional and coordination costs, which challenge firms to fully reap the benefit of external knowledge input. Figure 1 summarizes the relation between different levels of frequency on collaborative idea generation and the effect on front-end performance.

Figure 1. The influence of frequent collaborative idea generation on front-end performance



* Front-end performance refers to the SMEs aptitude to generate competitive advantage, anticipate next waves of innovation, delivery strategic objectives and balance product portfolio through different levels of systematicness

figure1-influence-frequent-collaborative-idea-generation

Distinctive organizational capabilities, systematic idea generation activities, and front-end performance

Interviews with high-performing SMEs revealed insights into the front-end key challenges and mitigation strategies as well as certain patterns related to distinct organizational capabilities. More specifically, three capabilities were found to empower SMEs in their pursuit of benefiting from systematic idea generation and achieving high front-end performance. Below, these capabilities, sub-components, and underlining activities are presented and explained.

Table 2. Summary of the capabilities, sub-components, and underlining activities

Capability	Sub-components	Underlining activities
Partner management capability	<ul style="list-style-type: none"> • Relational managerial • Partners knowledge 	<ul style="list-style-type: none"> • Identify willing partners to support the implementation of idea management programs • Develop incentives to sustain the influx of new ideas • Conduct collaborative interactions to motivate the influx of new ideas
Project management capability	<ul style="list-style-type: none"> • Project champion • Effective communication expertise 	<ul style="list-style-type: none"> • Build an internal multidisciplinary committee to evaluate new ideas • Implement training programs to help partners to insert new ideas • Develop support material to promote how partners can monitor the development of new ideas • Engage in joint exploration projects to evaluate problems and conceptual solutions
Alignment capability	<ul style="list-style-type: none"> • Internal fit • External fit 	<ul style="list-style-type: none"> • Encourage new ideas aligned with the product portfolio and roadmap • Support employee visits to commercial fairs to stimulate sensemaking • Motivate employees to constantly evaluate competitors' products

table-2

Leading SMEs have developed *partner management capabilities* to effectively manage relationships with new and existing business partners. This capability refers to a firm's ability to develop and utilize interorganizational relationships for gaining access to various information held by external partners. It is typically represented by two sub-dimensions: relational managerial and partners' knowledge, which encourage partners to constantly contribute to the influx of new ideas and opportunities. When established, partner management capability helps small firms to actuate several levers; for example, stimulate creative thinking, develop mutual understand about the idea, reduce uncertainty, and accelerate idea clarification.

Project management capability is the ability to initiate, plan, execute, control, and complete projects through achieving specific goals and meeting specific success criteria. Such success largely depends upon individuals and groups jointly taking responsibility to drive the implementation of systematic levels of idea generation activities. This capability is characterized by utilizing detailed plans about who, when, and how individuals will interact to develop and evaluate new ideas.

Alignment capability is a firm's ability to achieve fit between ideas and internal/external requirements. The alignment capability is composed of two dimensions: internal fit and external fit. While internal fit concerns the match between emergent ideas with the firms' strategy and internal operation (e.g., product portfolio alignment), external fit relates to the match with external environmental (e.g., technological trends, new regulations).

And so what? Managerial implications

SMEs are typically constrained by size-related limitations, which often hinder their effort to convert new ideas into successful innovation outcomes. To overcome such restrictions, *the findings from the present study encourage SMEs to work on two fronts: to stimulate repetitive collaborative idea generation with external partners and to establish distinctive capabilities to operate on systematic levels of idea generation.* These general insights lead to three specific implications.

First, SMEs can achieve high front-end performance by regularly performing collaborative idea generation. However, systematic procedures should be viewed as an important prerequisite before entering into collaborations with external partners. Second, among other factors, partner management capability is a vital competence to stimulate the influx of new ideas into collaborative idea generation initiatives. Through the appropriate management of partner relationships,

SMEs can motivate customers and suppliers to constantly contribute innovative ideas and thereby increase their chances of successful developments. Third, intermediate levels of frequency on idea generation should be avoided during collaborative idea generation with customers and suppliers. Intermediate levels of frequency are characterized by high transactional and coordination costs, which may make it difficult to fully reap the benefits of external knowledge received. While SMEs cannot circumvent this level, they can shorten it by making dedicated investments in the quick building of sufficient levels of systematic idea generation routines.

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For more reading connected to this topic please see:

Gama, F., Amboni, N., Alpersted, G. D. & Moraes, M. C. (2016). The front end as a process: the case of a multinational Brazilian firm. *Gestão & Produção*, 23(3), pp. 459-472.

Gama, F., Rönnberg Sjödin, D. and Frishammar, J. (2017). Managing inter-organizational technology development: project management practices for market- and science-based partnerships. *Creativity and Innovation Management* (in press).

Parida, V., Gama, F., Wincent, J. & Frishammar, J. (2016). Integrating Resources and Capabilities for Improved Front-End Operational Competitive Advantage. Paper presented at 5th World Conference on P&OM, Havana, 6-10 September 2016.