

Rajkumar, Christopher; Stentoft, Jan

## Article

# Harnessing capabilities and practices for sourcing innovation: An exploratory study

Logistics Research

### Provided in Cooperation with:

Bundesvereinigung Logistik (BVL) e.V., Bremen

*Suggested Citation:* Rajkumar, Christopher; Stentoft, Jan (2017) : Harnessing capabilities and practices for sourcing innovation: An exploratory study, Logistics Research, ISSN 1865-0368, Bundesvereinigung Logistik (BVL), Bremen, Vol. 10, Iss. 10, pp. 1-19, [https://doi.org/10.23773/2017\\_10](https://doi.org/10.23773/2017_10)

This Version is available at:

<https://hdl.handle.net/10419/182055>

#### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

#### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>

## Harnessing capabilities and practices for sourcing innovation: an exploratory study

Christopher Rajkumar<sup>1</sup> | Jan Stentoft<sup>1</sup>

Received: 19 February 2017/ Accepted: 27 November 2017/ Published online: 18 December 2017  
© The Author(s) 2017 This article is published with Open Access at [www.bvl.de/lore](http://www.bvl.de/lore)

### ABSTRACT

Sourcing innovation has become prevalent only in the recent years; therefore, researchers address the practice of sourcing innovation using various terminologies and there is no fixed definition in the extant literature for sourcing innovation. While there are several explanations and terms mentioned in the literature for the same concept, this research incorporates all the works related to sourcing innovation and synthesizes them under the umbrella 'sourcing innovation'. This research adopts [87] definition of sourcing innovation as an 'affair between two firms' and broadens it in accordance with today's supply chain relationship perspective. This research paper attempts to propose a boarder definition based on sourcing personnel perspectives and to recommend key dominant capabilities and observable practices that would help in enriching the practice of sourcing innovation based on the extant supply chain management literature. This is an exploratory study that includes five semi-structured interviews accomplished within five Danish firms. As sourcing innovation presents many challenges to organizations, this research not only conceptualizes the notion in terms of practice but also identifies dominant capabilities and observable practices to operationalize it. In consideration of dynamic market environment, this research advocates firms to practice sourcing innovation from dynamic capability perspective so that they could innovate more efficiently through intense strategic collaboration with their supply chain partners. In addition, this form of strategic collaboration would support firms in acquiring win-win innovations and achieving solid growth as well as sustainable competitive advantage. Future research to further validate and test the proposed framework is needed.

**KEYWORDS** Sourcing innovation · strategic sourcing · early supplier involvement · innovativeness · dynamic capability.

✉ Christopher Rajkumar  
cra@sam.sdu.dk

Jan Stentoft  
stentoft@sam.sdu.dk

<sup>1</sup> Department of Entrepreneurship and Relationship Management,  
University of Southern Denmark

### 1. INTRODUCTION

In light of increased competition, innovation has now become crucial for any firms to achieve sustainable competitive advantage [7, 65, 86]. In conjunction with this dynamic and competitive setting, undoubtedly, firms can no longer innovate solely [7, 81, 86, 87]. Therefore, to a great extent, manufacturing firms are increasingly dependent on their key or strategic suppliers to do everything that is not their core capability and innovate effectively [46, 59, 63, 81, 86, 90]. They involve suppliers to accomplish products, to come up with a new process and offer services that are not only of the best possible quality, lowest cost, reduced complexity, but also help them in enhancing their internal and external capabilities. Many firms have begun to understand that acquiring added value in their products, process or services is associated in the supplier network [17] and they could benefit more by partnering with innovative suppliers as well as involving them more in collaborative development of new products, processes or services [46, 81, 109]. Having known the importance of suppliers for innovation activities [86], selecting the right suppliers, managing them effectively and implementing long-term relationship is imperative to leverage supplier's capabilities as well as to cope with dynamic market [6, 20, 32, 64].

Sourcing Innovation (SI) is such an emerging paradigm that highlights how the sourcing function could help the firms to be innovative by actively involving their key or strategic suppliers in creating innovative products, processes or services of next generation [87, 105]. In this context, sourcing

innovation could be explored as a dynamic capability that enables firms in achieving sustainable competitive advantage [49, 95, 105]. [87] says that firms should perceive this sourcing innovation as a strategy in managing lower total cost, lower risk, shorter lead time and flexibility. Likewise, [87] acknowledges this strategic consideration to be significant for firms in this collaborative innovation setting in achieving sustainable competitive advantage. This active, strategic and intense collaboration named sourcing innovation will offer an opportunity for the participating suppliers to have an improved understanding of the consumer's needs as well as the long term objectives of the buying firm [87].

Even though the theories of sourcing and innovation have been there for years, the confluence of these two concepts, termed "sourcing innovation", is eminent only in the recent years. Hence, the authors have merely used the terminology in their contributions and there is a significant lack when it comes to empirical research addressing this term sourcing innovation [75, 80]. Since sourcing innovation is a recent phenomenon, extant literature is still unclear about its conceptualization. Therefore, it is important to gain a nuanced theoretical as well as practical understanding of sourcing innovation by synthesizing current literature.

Against this backdrop, following extant literature, this study envisions sourcing innovation to encompass the four key elements such as strategic level of the sourcing function [5, 21, 61, 88], innovativeness of the focal firm [43, 44, 91, 106], ability of the supplier to innovate, willingness of the supplier to participate in innovation initiatives taken by the focal firm [33, 41, 43, 79], and early supplier involvement in new product development [16, 28, 80, 107]. In summary, this study proposes that if the level of these key dominant capabilities and observable practices is high within a firm, then the level of sourcing innovation would also be considered high in that firm. This paper employs dynamic capabilities approach as the theoretical lens to offer new insights on this recent paradigm sourcing innovation, the active strategic mechanism through which the firms strategize superior performance. This research acknowledges that sourcing innovation is emergent and there seems not to exist robust frameworks for this phenomenon. Therefore, this research aspires to identify dominant capabilities and observable practices for sourcing innovation from extant literature. In addition, attempts to gain knowledge from the sourcing personnel about their perception concerning sourcing innovation and, in effect, answer the following key research questions:

a) What dominant capabilities and observable practices evince the effective practice of sourcing innovation?

b) Are firms utilizing these acknowledged dominant capabilities and observable practices to promote the effective practice of sourcing innovation?

By answering the questions, this research makes an attempt to understand the conceptual domain of sourcing innovation by theoretically and practically defining the various theoretical elements that underpin the complex concept. Additionally, given that a major hindrance to understanding the dynamics of any complex phenomena is in untangling its various components, this research effort would not only facilitate further research on sourcing innovation, but would also help practitioners to better understand the scope of the problems and opportunities associated with sourcing innovation.

The remainder of this paper is structured as follows: The next section presents a brief description of the theoretical background of sourcing innovation with specific emphasis on the observable practices and capabilities of sourcing innovation as highlighted in the extant body of literature as well as the explanation of dynamic capability approach. This is followed by an explanation of the exploratory and interpretative research approach. Subsequently, the findings of this exploratory study are discussed within the context of extant literature. Finally, conclusions including a discussion of the implications, limitations and directions for future research are presented.

## 2. CONCEPTUAL BACKGROUND

This section reviews extant theories and findings from the literature related to the concept of sourcing innovation and the observable practices and dominant capabilities that would drive sourcing innovation among firms. As per [108] recommendation this exploratory study made use of prior research in developing guidance for collecting and analyzing data. In particular, this study adopts dynamic capability as the theoretical lens and details its relevance for firms in perceiving sourcing innovation to achieve sustainable competitive advantage. First, it starts with the review of dynamic capability approach and then, the examination of the relevant findings from the comprehensive literature concerning the perception of sourcing innovation. Later, the review explores the research on the key elements that underpin the theory of sourcing innovation.

### 2.1 Dynamic Capability Approach

Dynamic capability approach has realized greater importance in the recent years. This theory is a clear extension of the resource based view of the firm [15, 22, 95, 105, 110]. Moreover, this approach enhances resource based view by providing the firms the ability to employ their knowledge and resources

towards achieving competitive advantage across different market environments [95, 105, 100, 54].

Teece, Pisano and Shuen originated a primitive framework in the year 1997 and later more theoretical papers have extended as well as explained in various aspects the model of dynamic capabilities [30, 105].

Resource based view can be considered only if the selected firm setting is static and in today's dynamic market environment, unfortunately, the theory of RBV could not be assigned to this unstable market setting [15]. As a result, dynamic capabilities approach is employed for such dynamic environments to acknowledge sustainable competitive advantage. This in turn helps the firms to continuously strengthen their functional and strategic capabilities to address the constant changes in their dynamic environment [42, 100]. [15] has mentioned that the most distinct benefits of dynamic capabilities absolutely depend on its early and effective adoption to achieve long-term competitive advantage [30]. Additionally, [100] have stated that in order to sustain the competitive advantage in today's dynamic environment, firms need to consistently build up their resources and capabilities accordingly to the dynamic settings.

[30] argues that development of innovative products, process and services, strategic understanding, and collaboration are the attributes of dynamic capability. [56] acknowledges that the dynamic capability includes certain extensive elements such as sensing, seizing and transforming/reconfiguring opportunities, capabilities, supplier integration abilities as well as the capacity to acquire new knowledge for continuous innovation (i.e., organizational learning) [94, 100, 110]. Concisely, "dynamic capabilities are strategic tasks, supply chain partners exchange their own resources and capabilities to integrate or recombine them to form new value of competitive advantage", [22: 175].

## 2.2 Sourcing Innovation

The concept of sourcing innovation has gained importance only in recent years. As a result, there is some confusion in the terminology and authors adopt diverse terminologies with distinct descriptions for sourcing innovation: "innovation sourcing [57], innovative sourcing, sourcing external innovation [87], sourcing practices and innovation [105], knowledge sourcing and innovation [96], sourcing external knowledge for innovation [47], innovation-related sourcing [95] and global sourcing and innovation [25]" [72: 168]. In addition, though authors discuss the concept of sourcing innovation, there is a need for empirical research focusing on the theoretical operationalization of sourcing innovation as well as its role in achieving competitive advantage [75, 80].

The most commonly used definition of sourcing innovation describes it as "an affair between two firms which increasingly results in substantial growth for both firms" [87]. Following [95], our research interprets sourcing innovation as a capability that could help firms to collaborate, shape as well as reconstruct the internal and external competences to address the needs of rapidly changing markets. As mentioned earlier, [87] claim that the sourcing function focusing on innovation actively involves its supply chain partners in the innovation efforts taken by the focal firm so as to develop the products and services of the next generation [69]. Above all, it is noticed as a larger network level competency that allows firms to effectively utilize the relationship with external partners in their innovation developments [74]. Accordingly, this paper will adopt the definition of sourcing innovation as "an operative engagement or commitment among firms through which they both can achieve substantial progress and confidence on each other to be innovative" [72: 173].

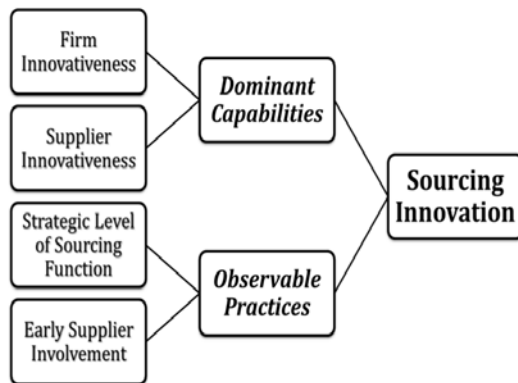
While there are numerous practical examples of sourcing innovation, a few are illustrated in this paragraph. First, Volvo Car collaborated with its supplier Delphi Automotive to generate RACam integrated radar and vision system [26]. This technology integration is helping Volvo to provide optimal value to customers by enabling safety features including adaptive cruise control, lane departure warning, forward collision warning, as well as autonomous braking for pedestrians and vehicles. Second, The early involvement as well as continuous efforts of BMW's for Borg Warner's 3 stage turbocharger system (R3S) developed the basis of intense collaboration partners resulting in a system that advances turbo sealing, performance, charge cooling, emissions and airflow management [10]. Third, the Kraft's Food Group collaborated with their supplier Sonoco Products Co. to create rotogravure printed flexible package that revolutionized the packaged food industry [84].

The above examples clearly convey the notion that an intense collaboration among manufacturing firms and their suppliers could lead to continuous superior performances. Besides, sourcing innovation, without doubt, is a practice of finding new ways to collaborate intimately and innovate efficiently with the existing supply base so as to achieve sustainable competitive advantage [87]. In summary, the best-performing firms encourage their suppliers to innovate on their behalf and in fact, they do not make any assumptions about their suppliers before involving them in the innovation process. They recognize, collaborate and innovate together for long-term success.

### 2.3 Observable practices and dominant capabilities of sourcing innovation

As mentioned earlier, the existence of sourcing innovation among firms could be demonstrated through dominant capabilities and observable practices. Based on an extensive review of literature, strategic level of sourcing function, firm innovativeness, supplier innovativeness and early supplier involvement are identified as key dominant capabilities and observable practices that represent the practice of sourcing innovation [21, 79, 87].

Figure 1 Dominant capabilities and observable practices of Sourcing Innovation



A brief review of the recognized key dominant capabilities and observable practices underpinning the concept of sourcing innovation is next presented.

#### 2.3.1 Strategic level of sourcing function

The role of the sourcing function in firms has shifted from a support into a more strategic function [2, 6, 8]. Accordingly, the term strategic level of sourcing function is an active approach that helps in organizing the supply base through recognizing as well as selecting the right suppliers considering long-term strategic partnerships to enhance the overall firm performance [6, 32, 50, 85, 92]. On the other hand, when the sourcing function is involved in the strategic initiatives (such as innovation), the buying firms will not only select the right suppliers, but also manage them strategically and realize competitive advantage [2, 21, 50]. Strategic level of sourcing function is an antecedent in building long-term strategic relationship with the key suppliers and increasing the firm performance [32, 85, 92].

To better understand the influence of strategic level of sourcing function, [21] mentions that the performance of the sourcing function need to be measured in terms of its contributions to the firm's innovation success. More importantly, the sourcing professionals require training on strategic elements of competitive strategy and cross-functional training [6, 21 50]. In other words, the priority of the sourcing function has moved from cost reduction to overall performance of the firm – i.e. performance aspects

such as innovation, flexibility, quality, etc. [50, 105]. Therefore, in today's competitive setting, supplier relationships should not be based solely on cost reduction [92]. Alternatively, relationship with suppliers must go further than mere price negotiation and should rather focus on other performance capabilities such as innovation [21].

The importance of strategic level of sourcing function is not only selecting the right suppliers but also the appropriate evaluation of the selected key strategic suppliers to determine greater impact on overall firm performance to challenge the dynamic market [50, 85]. Accordingly, the strategic level of sourcing function should systematically understand and analyze the firm's business approach, key resources, market, and the various risks associated with them. Above all, it is an organized exercise that leads to sustainable growth as well as increases the firm's value [2, 32].

#### 2.3.2 Firm innovativeness

As mentioned earlier, nowadays innovation has become the most essential driver of sustainable competitive advantage [3, 7, 39, 63, 65, 86, 97]. Innovative firms will have unique innovativeness traits that distinguish them from other non-innovative competitors [37, 52, 67, 76].

Specifically, firm innovativeness relates to the ability of a firm to exploit new ideas, e.g. by developing innovative products, and the willingness of the focal firm to invite other firms to improve their competences, successively achieving lower costs, and sustain market performance [3, 37, 39, 67, 76]. This capability helps the firm to enhance their (1) knowledge about the changing market condition, (2) efficiency to identify and exploit opportunities, and (3) power to respond to the market growth [37, 43, 67, 76]. Thus, innovative firms continuously demonstrate innovative actions over time [35, 37, 52, 104].

[98] believes that the time of implementation of an innovation defines the innovativeness of a firm [27]. Furthermore, innovative firms place increased emphasis on effective knowledge management, cost reduction, superior quality products and increased services [39, 76]. Even though a firm employs innovation earlier than others, it will not always exhibit similar performance for all other innovations. Therefore, [24] says that appropriate measures of innovativeness should be based on the acknowledgment of different innovations. [9] state that innovative firms always encourage new concepts, risk-taking activities, value shifts, as well as innovative techniques to address the needs of the new market [37, 39, 76]. In addition, [3] indicates that the innovativeness of a firm is at superior level if firms involve themselves in an intense inter-organizational relationship for innovation process.

Above all, [35] mentions that firm innovativeness is itself a significant dynamic capability which helps the

firm to continuously learn and determine the dynamic market condition to achieve sustainable competitive advantage.

### 2.3.3 Supplier innovativeness

As mentioned earlier, innovation is no longer the outcome of a single firm; instead, firms need to collaborate with their suppliers to be innovative and create innovative products of the next generation [13, 66, 79, 81, 87]. Supplier innovativeness is the innovative capability of a supplier to build and implement new ideas, innovative techniques, as well as advanced process and investments in new products, processes and services [13, 45, 66]. [1] mention that supplier innovativeness is nothing but organizational learning which continuously allows the firms to acquire, disseminate and use new knowledge for collaborative innovation process. Supplier innovativeness enhances the relationship capability which allows them together to organize strategic mechanism to realize innovation and value [1].

A well-known fact from the above description, suppliers has now become an important source of product, process and service innovations. For that reason, firms should possess the ability to select the right suppliers who can understand the demands in the innovation process as well as those who can willingly work together with them to develop innovative solutions [4, 18, 51, 77, 79]. On the other hand, the selected suppliers should be able to help the buying firm in their pursuit for innovation, especially by collaborating in activities of new product development and continuous enhancement of existing products, processes and services [13, 14, 66, 77, 82]. [41] state that the buying firm should carry out a systematic assessment of its suppliers so as to gain additional benefits from the suppliers' innovativeness [18, 77]. [11] claims that the degree of supplier innovativeness could be recognized through preliminary assessment process and supplier evaluation process, which in turn, will help in increasing the innovation capability of the buying firms [66].

[12] claims that supplier innovativeness evidently allows the buying firm to strengthen their abilities to respond appropriately to the needs of the market which in turn benefits them with higher revenues [4, 13, 23, 43]. Above all, supplier innovativeness, with no doubt, enhances the firm's overall performance along with cost, delivery, flexibility, innovation and product development [4, 13, 14, 82].

#### Early supplier involvement

Firms understands the importance and benefits of involving their supplier early in the design phase is a strategic decision which leads to continuous efficiency, superior performance and competitive advantage [53, 78, 83, 89]. Early supplier involvement is an innovative collaboration in which

the buying firm integrates their suppliers in the early stages of the new product development as well as other innovation initiatives [16, 46, 78, 82, 83, 86, 103]. The desire of exercising early integration of suppliers, as well as the practice of open innovation among firms, has become prevalent only in the recent years [80, 82]. This approach encourages both the buyer and supplier firms to work closely together along with sharing of knowledge as well as sharing risks associated with the manufacturing of products, carrying out processes and delivering services [86, 103, 112]. Furthermore, early supplier involvement provides suppliers with an opportunity to actively participate in all key stages of new product development [103].

Integrating suppliers at a very early stage of product development can enable firms to not only acquire access to the supplier's design capabilities, but also enhance their new product development competency [86, 107]. Moreover, early supplier involvement enhances the ability to manage the relationships built on behavior and outcome as well as the risks of outsourcing [16, 29, 58, 86, 112].

Involving suppliers at an early stage reduces the cycle time of new product development, while enhancing the quality of the product as well as cost performance [46, 78, 83, 99, 103]. Above all, early supplier involvement provides transparency with regards to the end product in the initial stages of product development. It also helps the buying firm to intimately monitor the activities of their suppliers in the earlier stages of product development.

The studies presented thus far provide evidence that there is a substantial as well as growing amount of research surrounding the operational factors that represent sourcing innovation; however these studies do not focus explicitly on sourcing innovation activities. Therefore this study aspires to initiate specific research initiatives that build on the knowledge related to the concept of sourcing innovation precisely.

## 3. METHODOLOGY

This study is an initial effort aiming the exploration of the key dominant capabilities and observable practices of sourcing innovation. Accordingly, this paper adopts a qualitative research approach given its exploratory nature. While there are various strategies in qualitative research, this paper utilizes exploratory study [108]. This approach is specifically relevant for this paper as it attempts to (1) gain a deeper understanding by examining first-order factors, (2) validate the learnt theory as well as (3) extend or refine theory which has not been deeply explored till now [19, 31, 40, 102, 108]. This study employs multiple cases so as to explore and generalize the findings in a detailed manner and provide more

robustness in the generated insights [108]. The conceptual framework presented in Figure 1 lends guidance to this empirical research. Following [31] suggestion, this research was developed without any specific hypotheses so as to maintain theoretical flexibility.

Based on extensive literature review, an interview guide was designed focusing on the notion of sourcing innovation as well as the chosen key elements as identified in the extant body of literature. The data for this study were gathered primarily from five key manufacturing firms in Denmark through semi-structured interviews and the data were collected specifically from the focal firms (focal firm perspective). Certainly, sourcing innovation is an emerging concept among firms and since this is an exploratory study; our research has tried first to study the nature of sourcing innovation among five firms. This study focused specifically on manufacturing firms due to the belief that the concept of sourcing innovation is more relevant for such firms [Eg. 87, 105]. In order to eliminate any industry bias, multiple industries were sampled. Specifically, the selected Danish firms were from industrial, food, electrical, wind turbine, and maritime industry. The various criteria that were considered while selecting the firms are presented in Table 3; this table was emailed to the respondents for confirmation purposes. All the respondents were selected from the sourcing department because of their in-depth knowledge about the role of the sourcing function as well as their direct involvement in creating not only innovative products, but also an innovative organization. In particular, the title of the respondents were chief procurement officer (Company A), vice president of strategic sourcing (Company B), global sourcing director (Company C), global sourcing manager (Company D) and procurement manager (Company E). Overall, the interviews helped to gain opinions and insights from the sourcing executives who play a key role within sourcing [108].

As a first step of contact, a short one-page summary along with details of this study was emailed to experts of the selected firms. After receiving their consent to participate, the interview guide was emailed to all the respondents prior to the interview. The interview guide that was sent to the respondents prior to the discussion is presented in Appendix 1. The interview guide focused on the definition of sourcing innovation from a pragmatic perspective as well as the key dominant capabilities and observable practices – strategic level of sourcing function, firm innovativeness, supplier innovativeness and early supplier involvement. The questions were adapted from different empirical research papers (See Appendix 1). Additional questions about the respondent's background and their experience in the field of sourcing were also asked in the beginning of each interview. The interviews mostly lasted between

50 and 75 minutes per interview. All interviews were audio-recorded and then transcribed to guarantee accuracy and reliability [102, 108].

The data was subsequently transcribed using tables (see Table 1 and Table 2) to compare the theory and practice of sourcing innovation as well as to make appropriate modifications along the way [31]. Additionally, descriptive reports were prepared based on the recorded interviews for an explorative analysis. Subsequently, conclusions were made from the analysis pertaining to the conceptual framework presented in Figure 1. Finally, the practical implications of sourcing innovation were formulated based on the derived conclusions.

#### 4. PRESENTATION OF FINDINGS

This section presents the interpretation of the five exploratory cases. As mentioned in the methodology section, firms from different industry were selected so as to avoid industry bias. Four of the five selected companies were globally established except LAMBDA A/S, which was a European based company. To examine the prevalence of sourcing innovation, our research included both large companies and SMEs. More importantly, since sourcing innovation centralizes the intense relationship among firms [87], we made sure that the buying firm has a strong collaboration with their key suppliers while selecting them for this exploratory study. In subsequent subsections, the summary of the cases are provided. Specifically, each exploratory case description starts with short background information and then continues explaining the facts realized through interviews on the four key elements of sourcing innovation.

##### 4.1 Company 1: ETA A/S

ETA is a global industrial manufacturer of various products and services with over 20,000 employees. The respondent from this company had been with the company for more than five years. However, he had over 20 years of experience working within the field of sourcing. He has been responsible for traditional procurement including category management, supplier selection and the global sourcing function.

According to him, there are various challenges that are very vital today in the field of sourcing such as supply performance, too many suppliers who are very small, and the alignment between the business units (since there are many segments). Therefore, ETA has dedicated sourcing personnel and they are integrated as part of the project teams which in turn result in optimized supply chain performances. Moreover, ETA involves the sourcing personnel in the firm's strategy development process and the performance of sourcing function is measured in terms of cost reduction, no. of suppliers, on-time delivery, payment charge, procurement performance measures (PPM),

etc. However, the sourcing personnel are not given any formalized training on the elements of strategy and competitive advantage. Instead, an annual competence assessment is done to identify whether there are any gaps. If any gaps are identified, then the sourcing personnel are given appropriate training.

ETA has many suppliers. ETA requires them to do everything that is not a core competency of their company. The respondent also mentioned that “if firms don’t have the right degree of outsourcing then they are too vulnerable in terms of fluctuation in the market”. Therefore, ETA needs suppliers to have stability in the market. Additionally, he also indicated that it is always better to involve suppliers while developing new products considering that they are the ones who have to live with the design as well as produce best possible quality at the lowest possible cost. In fact, the ETA suppliers are extremely willing to participate during the new product development and the sooner they are engaged, the more chances of winning the business. Suppliers are selected based on the existing supplier list based on segmentation. Additionally, ETA also performs technical assessment at the supplier site whenever a new part is given to them for development. When it comes to evaluating their suppliers, ETA assesses them based on quality, strategic fit, cost performance, on-time deliver performance, etc.

The respondent confirmed that they are trying to involve their suppliers before the design is frozen; however, historically the suppliers are integrated only after the first draft of the design is completed. While the respondent acknowledged the importance of having suppliers involved much earlier during the product development, he also highlighted the various downsides in involving them early (e.g., if invited early, suppliers try to lock ETA in with their specific designs).

ETA is also facing difficulty towards adapting to new trends from outside as it takes a long time to develop a new product. In other words, they are generally not very good at adapting to the changes in the industry. Additionally, ETA is also not good at working closely with their supplier, creating value together, and incorporating their suppliers much earlier in new product development.

#### **4.2 Company 2: BETA A/S**

BETA is a company that provides electrical solutions for wind turbines with about 1,000 employees. The respondent was with this company for more than 4 years; he also had over 6 years of experience in the field of sourcing. But when it comes to the broader field of supply chain management, his experience spans almost 20 years. His responsibilities include supplier selection, supplier relation, negotiation and category management.

The respondent said that although the sourcing department is still small in the company, their

sourcing function as a whole has improved great in many aspects in the recent years. The sourcing personnel in BETA are involved heavily in the firm’s strategy development process; moreover, as a whole organization, they are much more focused on strategic aspects. Meanwhile, the sourcing personnel works together with other functions (sales and engineering) on cost initiatives. Performance of the sourcing function is measured on standard key performance indicators (KPIs). No specific training on the elements of strategy and competitive advantage are given to the sourcing personnel; instead, they participate in various strategy seminars. On the other hand, newly employed sourcing personnel are given one year training focusing on strategy.

BETA might not have all competences and expertise in everything; therefore, they need suppliers who have complementary competences and expertise to sustain in the market. The respondent also mentioned that BETA is much better while doing innovation in-house. However they are still learning to work along with suppliers on innovation efforts. In addition to performing a formalized pre-assessment at the supplier’s venue, BETA also visits and audits the suppliers’ factories. When it comes to evaluating their suppliers, BETA first demands their suppliers to send them a self-assessment report which includes details pertaining to commercial aspects (e.g., cost, on-time delivery, etc.). The category manager also does a two-page supplier performance report that includes procurement performance measures (PPM), on-time delivery, past performance in terms of volume and projected future performance in terms of volume, among other things. More specifically, the first page presents the improvements made compared to the assessments and the second page explains the agreement on the actions compared to the figures. If they are out of scope, then some specific actions that need to be done together with their suppliers will be included in this report. The respondent mentioned that this report is very clear and easy to understand. Additionally, the respondent also said that when it comes to quality, the suppliers are very much controlled.

BETA is not much into involving their suppliers early during product development. According to the respondent, “the earlier we involve the suppliers, the more design influence we can have”. Consequently, BETA is not integrating the suppliers before the design is frozen. The respondent also mentioned that there are challenges in involving suppliers early during the product development such as intellectual property rights and most of the times suppliers provide an already known solution.

BETA is much stronger in following new trends and they are also quite fast in adapting to new ideas. In general, they are very good in adapting to the



changes in the market and although they focus on quality and strategy, their major focus is still on cost reduction.

#### **4.3 Company 3: THETA A/S**

THETA is a global wind turbines manufacturing company with more than 12,800 employees. The respondent was with the company for over 12 years. He has been responsible for logistics, procurement, core competences, identifying innovation partners and global sourcing activities.

According to the respondent, there is a huge difference in the field of sourcing within this industry now compared to 10-15 years ago. For instance, some years back, OEMs did not have the size to do everything themselves; so there has been a lot of supplier involvement. But today, it has developed much more and has moved to the next level where they have started to involve strategic suppliers much earlier in the product design phase and there is an increased awareness towards the core competences. THETA highly involves the sourcing function in the firm's strategy development process. It is more like a cross-functional topic that starts from product and market down to different strategies. The sourcing department, along with the sales department, identifies the market opportunities and then the product is developed for that particular market need. Mostly, all the market intelligence topics will be merged into the overall firm strategy. THETA provides a lot of training to the sourcing personnel established at different levels. The personnel are evaluated annually to identify the needs, and then based on these needs; trainings are allocated to the personnel. Overall, the training has a huge level of focus on developing strategic suppliers.

THETA is good at doing innovation in-house; however they do collaborate with many suppliers as the suppliers could support to reduce complexity and overall cost. The suppliers are very often selected from their established supply base. They focus more on core competences of the suppliers as well as a cost reduction perspective while selecting them. After selecting the supplier, normally, they give a limited volume of order to the suppliers and subsequently execute a detailed inspection. Additionally, they also have a dedicated team which includes a commodity team and commercial team purchaser, a quality person, an engineer, and a procurement engineer. This dedicated team will inspect the new suppliers and make the decision to shortlist them. The suppliers are predominantly short listed based on their capabilities, financial strengths, location, and global footprints. The agreement with the suppliers is done in terms of volume and the contracts are done on a component level. The contract should be more effective and include all detailed information about collaboration terms, sharing risks and benefits. "Suppliers are evaluated based on product or component or system level" said the respondent.

They are not measured based on value of the component; instead they are measured based on the criticality of the component. Moreover, they are evaluated annually in terms of commercial quality, delivery performance, etc.

The respondent also said that although it is difficult to identify system-level suppliers who have high level of competences for the industry standards; they still could find new innovative partners and involves them very early in the design phase. THETA has already started including some of their suppliers very early in the design phase. Additionally, the respondent mentioned that there will be huge differences in incorporating key suppliers early in the new product development. Having said this, THETA was not initially good at involving suppliers before the design is frozen; but now they do use them much earlier in the design phase. To enable this early involvement, they conduct a thorough risk analysis while selecting key suppliers. Additionally, they also write a detailed contract based on critical components and evaluate the suppliers efficiently to avoid any challenges during the product development.

In general, THETA is very proficient in adapting to the current changes in the market and also effective in involving their suppliers early in the design phase. They have dedicated quality systems to qualify the suppliers during the selection process. THETA is also specifically focused towards cost reduction and increasing lifetime of the product (wind turbines).

#### **4.4 Company 4: ZETA A/S**

ZETA is a global maritime company that supplies life-saving appliances with over 2,000 employees. The respondent was this company about 8 years. However, he has worked in the field of sourcing at different levels for more than 20 years. His responsibilities include the global sourcing function, pricing, finding new suppliers, selecting the suppliers, making agreements with the suppliers, etc. According to the respondent, total cost is always a challenge in sourcing; additionally, other factors such as the business environment, market, customers, and government policies also present significant challenge to the sourcing function. The respondent also acknowledged that sourcing for new development is also a challenge as they need to get a better structure to accomplish it. Nevertheless, the sourcing function has gained more importance in the firm than earlier for various reasons. For instance, sourcing is responsible for the total result of the company, helps in getting the right cost structure as well as finding the right suppliers. Today, the company is highly dependent on the suppliers; "if we don't have the right suppliers, then we will never succeed". In total, sourcing is able to select the right strategic suppliers and secure the relationship with these suppliers. Above all, ZETA involves the sourcing function during the firm's strategy development process and in turn contributes much

towards the firm's success. ZETA provides adequate training to the sourcing personnel on the elements of competitive advantage and they are measured on certain KPIs including cost savings, inbound delivery performance, quality, etc.

ZETA collaborates with many suppliers; in turn they need suppliers to provide raw materials as well as deliver services effectively so as to improve the performance of sourcing function. Moreover, ZETA always desires to innovate together with their suppliers. The selection of their suppliers is based on pricing, quality and delivery performance. They are also more concerned about the communication capabilities of the suppliers; if we cannot communicate with the suppliers, then it will be very difficult to work with them appropriately. ZETA does not follow any formal procedure while selecting their suppliers; however, to approve a supplier they do have a formal procedure. As a first step of selection, they buy a sample from the supplier. Subsequently, a questionnaire is sent to the supplier concerning their quality management system. Later, they rate them on quality performance and if it is satisfactory then the supplier will be approved. On the other hand, a formalized report is prepared while evaluating their suppliers; this evaluation report includes logistics, quality, pricing, risk factors and corporate social responsibility. Additionally, the suppliers are evaluated in terms of cost reductions and innovation. ZETA involves their supplier early in the design phase. Additionally, they are also constantly trying to improve this process. The respondent mentioned that involving suppliers early depends very much on the product. Most of the times, ZETA originally have an idea about what they want to gain from supplier involvement and then will proceed with involving suppliers. When they have too many suppliers for the same product, then the supplier is selected based on their core capability, quality, cost, performance, and time to market.

ZETA is very proficient in adapting as well as responding to the market changes. They always try to monitor and follow the market changes as well as constantly attempt to act and react to the market changes; both in terms of customer and supplier markets. They do have a very strong management team that is extremely customer as well as market focused.

#### **4.5 Company 5: LAMBDA A/S**

LAMBDA is one of the Danish food bakeries with more than 600 employees. The respondent was with the company for over two years. On the other hand, he has been working in the baking industry for more than 20 years and been responsible for logistics, warehousing, procurement, building huge network of suppliers and building networks within the organization.

LAMBDA, in general, has their own product development department that is in charge of creating new products; they follow a mixture of push and pull approaches. Pull approach means that the sales and marketing department set some demands for the product developers, and then, the developer makes the product so that the sales and marketing team can take it to their customers. On the other hand, a push approach is when the product developers go to the sales department with newly created products and request them to take it to the market as well as show them to their customers. If the product developers want a new variety of raw material then it is the sourcing function's duty to find that product at a competitive price. Therefore, in turn the sourcing department plays a key role in finding appropriate suppliers for the company. They also ensure that suppliers have all the certificates and documentation in place.

According to the respondent, most of the companies within the baking industry are not working with sourcing on a strategic level; instead they seem to be focused more on cost reduction. On the other hand, the responsibility of sourcing, in his opinion, is building long-term relationships and long-term strategies. In LAMBDA, the sourcing function is part of the supply chain group and is to some extent involved in the firm's strategy development process. The main focus of the sourcing function is to get raw materials cheaper. Therefore, they focus their supplier selection efforts based on cost benefits. There is no training provided as the respondent is the only person in the sourcing department who has all the authority in selecting suppliers as well as executing contracts. He does all documentations and sends it to the central quality department for approval. LAMBDA measures the performance of the sourcing function in terms of cost (lower prices). LAMBDA needs suppliers to supply raw materials at competitive price that is based on the total cost of ownership (quality, delivery, correct invoice apart from the right product). Additionally, they rely on suppliers to create innovation for the company that focuses on reduced cost as well as other added benefits. LAMBDA always gives preference to the existing suppliers when it comes to selecting suppliers for new product development; they search for new suppliers only if the existing suppliers don't have the desired product. As a first step, the sourcing department (procurement manager) checks online for new suppliers and then contacts them. Later, the selected supplier completes the supplier questionnaire and submits all supporting documents and certification details. Subsequently, the central quality department approves the supplier. If the supplier has all approved certificates and has submitted appropriate supporting documents, then there will be no audit done. Finally, the sourcing department

(procurement manager) will prepare the product information specification and once it is approved, the sourcing begins. For an improved result, the suppliers are evaluated on a running basis. All the supplier's details are taken from their internal database once a year and will be evaluated in general terms like delivery time, quality, cost, etc.

According to the respondent, involving too many suppliers increases the complexity. Accordingly, LAMBDA reduces the amount of suppliers to create buying power as well as to create a better understanding of the company in the eyes of the supplier. LAMBDA is very open and informative in telling suppliers that they don't want to spread their sourcing. In other words, they clearly convey the message that the company would like to consolidate sourcing among less number of suppliers.

LAMBDA is good at in-house innovation. In other words, the company is proficient at developing new product, process or service with its own creative ideas. In regards to supplier involvement, they involve suppliers whenever there is a need for a special type of raw material for new product development. In most cases, they need suppliers to supply raw materials and give them some suggestions. On the other hand, they are also concerned about information security if the supplier is involved during product development; it gets

complicated if the suppliers are not completely dedicated to LAMBDA.

LAMBDA is consistently trying to adapt to market changes; however, they are always one step behind in the market they compete in. There are many exciting raw materials outside Denmark and LAMBDA might not be using them in their products. Therefore, to cope up with the market changes, LAMBDA sends their sourcing personnel to different exhibitions to see how the other markets behave. The respondent also indicated that there is an issue in the bakery industry as they cannot just pick good ideas from outside Denmark and bring it to the Danish market. This is because LAMBDA is a bigger organization and would need some good volume (sales volume) to start up a new product.

## 5. KEY FINDINGS

Having summarized the individual exploratory cases in detail, this section presents a critical analysis across the five companies. This section starts with the review of the definition of sourcing innovation provided by the respondents to come up with a revised definition based on practice. Later, the exploration of the various key elements of sourcing innovation is presented.

Table 1 – Various interpretation of sourcing innovation (Based on interviews)

<b>Company</b>	<b>Various interpretations of sourcing innovation</b>
ETA	"Finding new ways to work with the suppliers to create value. Suppliers have huge potential that we can tap into if we work with them in the right way."
BETA	"Development away from category management or just hardcore bargaining to the next level wherein you realize that you can get benefits in many other ways. Sourcing innovation is in the field where as a sourcer you are not only a sourcer; instead, you need to know the product to be able to (1) bind internally in the firm, (2) bind resources from engineering and production as well as from the supplier side, and (3) bind the resources together to create right product at lower price."
THETA	"Sourcing innovation is that you see the synergy between our knowledge and supplier's knowledge; we both have competences that give the synergy; we have to identify what our core competences are and by combining those with suppliers provide the synergy, equal growth and profits for both parties."
ZETA	"Doing innovative things that can benefit us. It not just getting a new product, it can also be about establishing a new process and communication methods. Sourcing innovation cannot be without suppliers."
LAMBDA	"It is a creative process between supplier and the customer where they work together to get to higher level. In many ways it is about better product at lower price. Getting much more involved in the innovative process". "More strategic value".

**5.1 Sourcing innovation – definition**

The interpretations presented in Table 1 are the summary of the data collected through semi-structured interviews from key sourcing experts within each firm. During the interview, the respondents were informed about the interpretation of sourcing innovation that was adopted for this study based on the literature (Appendix 1). Precisely, they were asked: “... would you please describe the concept of sourcing innovation from your company standpoint?”

The lessons learnt from the interviews (Table 1) helped in modifying the literary definition of sourcing innovation that was proposed by [72]: “an operative engagement or commitment among firms through which they both can achieve substantial progress and confidence on each other to be innovative” [72: 173]. This definition was presented to the respondents before asking them for their perspective of sourcing innovation in terms of practice.

Based on their interpretations, sourcing innovation is not just a usual routine; instead it is an effective (active) “synergy among the firms” (see Table 1, THETA) so as to create “more strategic value” (see Table 1, LAMBDA). It is more than just supplier involvement, wherein the firms work much closer together with their suppliers in “finding new ways to create value” (see Table 1, ETA). Slowinski et al (2009) conceptualizes sourcing innovation as an affair between two firms. Alternatively, our research

forwards that sourcing innovation is not only between two firms; instead, it is an intense and strategic collaboration among firms (such as buyers, suppliers, supply chain, stakeholders, etc.). Now, these interpretations directed us to revise the definition of sourcing innovation (in terms of practice) as “an operative engagement or commitment among firms (such as buyers, suppliers, supply chain, stakeholders, etc.) through which they, together, can find new ways to achieve substantial growth and effective synergy in each other to be innovative”. More importantly, it was clear that the sourcing executives acknowledge sourcing innovation as a capability that can support their firms in finding innovative ways to work closer with their suppliers so as to create new strategic value.

**5.2 Sourcing innovation – Key elements (Dominant capabilities and Observable practices)**

In addition to the literary definition of sourcing innovation, the respondents were also provided with the key dominant capabilities and observable practices that underpin the notion of sourcing innovation (based on the extant body of literature). Overall, the respondents acknowledged the appropriateness of these chosen key elements. They also conveyed their belief that these could cohesively reflect an effective practice of sourcing innovation. In the remainder of this section, we associate these key elements across the selected companies.

Table 2 – Interpretations of first-order factors (Based on interviews)

First-order Factors	ETA	BETA	THETA	ZETA	LAMBDA
<i>Strategic level of sourcing – involvement of sourcing function</i>	Yes, they are highly involved	Yes, they are highly involved	Yes, they are highly involved	Yes, they are highly involved	Yes, they are highly involved
<i>Strategic level of sourcing – evaluation of sourcing function</i>	Measured on cost down, no of suppliers, on time delivery, PPM and payment charge	Measured on usual KPI. More focused on cost reduction	Measured on cost saving, time delivery, and quality	Measured on cost saving, time delivery, quality, and lead time	Measured on cost saving
<i>Strategic level of sourcing – sourcing personnel are given training</i>	Annually or if any gap exists	No specific training. Only if gap exists	Annually. Huge level of focus on developing suppliers	Yes	No specific training given.
<i>Firm innovativeness – company adapting to</i>	To some extent	Strong in adapting to the market	Very much the top player in adapting to the market	Strong in adapting to the market (More market	To some extent

the changes in the industry				responsive)	
<i>Firm innovativeness</i> – it is better to develop new products in-house without involving suppliers	No, it is better to involve suppliers	Yes it is much better doing it inside; still learning to do much with the suppliers	No, it is better to involve suppliers	No, it is better to involve suppliers	Yes it is much better doing it inside
<i>Supplier innovativeness</i> – selection of suppliers	Selection done based on the supplier list.	Formal pre-assessment (in-house at the supplier firm).	Formal procedure carried out to select suppliers	Two levels of selection: Approval of suppliers which is then followed by a formal procedure.	Central quality team approves based on questionnaire sent and certificates
<i>Supplier innovativeness</i> – evaluation of suppliers	Evaluated on quality, strategic fit, cost performance, and on-time delivery	Evaluated based on 2 page supplier performance report	They are also strongly evaluated on various aspects	Evaluated on pricing, on time delivery, quality, etc.	Evaluated on quality, on time delivery, and cost
<i>Early supplier involvement (ESI)</i>	Trying hard to involve them; however, only after the design is done	Not much	Already started involving them before the design is done	Already started involving them before the design is done	Only if there is need

**5.2.1 Strategic level of sourcing function**

In general, based on interpretations in Table 2, it is apparent that the strategic level of sourcing function can help both buyer and supplier firms to trigger an intense collaboration. From the interviews, it is also clear that companies do have “dedicated sourcing personnel who are integrated as part of the cross-functional project teams” (e.g. ETA and THETA) and such cross-functional efforts results in optimized supply chain performances [6]. The sourcing personnel of all the five companies are greatly involved in their firm’s strategy development process and their contributions are significantly high towards the firm’s success. Additionally, it is evident that the sourcing personnel are working together with other functions on cost reduction initiatives and strategies. The sourcing function is increasingly being measured in terms of on-time delivery, quality, cost reduction, number of suppliers, procurement performance measures, etc. (Table 2). Notably, it is quite evident that firms are more focused on the strategic aspects of

the sourcing function. On the other hand, the respondent from BETA indicated that “category management should have strategic attention on total cost savings, quality, as well as bringing in the right suppliers”.

Additionally, the interviews indicate that the sourcing personnel are given training annually, or, only, if any gap exists (e.g. ETA and BETA). On the other hand, the sourcing personnel in ZETA are given training consistently. In THETA, the training given to the sourcing personnel focusses predominantly on developing suppliers. In case of LAMBDA, there is only one person in the sourcing department who is responsible for all the activities. Therefore, it is apparent that not every company provides formalized training for their sourcing personnel. Since sourcing innovation mandates frequent training as well as cross-functional training [6, 21], its practice could subsequently lead to an invaluable contribution to the firm’s sustainable growth.

### 5.2.2 Firm innovativeness

The concept of firm innovativeness has two characteristics; one is the firm's ability to exploit new ideas, and the second is the willingness of the firm to adapt to the market changes [37, 39]. BETA, THETA as well as ZETA are very much on top when it comes to adapting to the marketing changes (Table 2). On the contrary, ETA and LAMBDA are trying hard in adapting to the market changes. Generally, it was clear from the interviews that firms have strong management teams that can help them to not only build innovations successfully in-house, but also to adapt to the industry changes (BETA, THETA and ZETA).

As mentioned earlier, respondent from ETA said that "firms need suppliers to do everything that is not core for the buying company". ETA, THETA, and ZETA feel that it is better to involve suppliers in developing new innovative products (see Table 2). Alternatively, BETA and LAMBDA feels that it is better to do it in-house; however, they are still learning to involve their suppliers (Table 2). In summary, "firms need suppliers to keep the business running" (ZETA), "produce best possible quality at the lowest cost" (ETA), achieve sustainable competitive advantage, deliver the desired services, and "reduce the complexity of the product" (THETA). On the other hand, LAMBDA, in most cases, needs suppliers only to supply the required raw materials.

### 5.2.3 Supplier innovativeness

It is also obvious from the interview that sourcing innovation is "not possible without suppliers" (ZETA). Therefore, if they do not have the right degree of sourcing, then the firms are vulnerable to the fluctuations in the market (ETA). Though firms have pre-assessments and other formal procedures in place, the present process for selecting and evaluating suppliers could be less effective. Specifically, from the interviews, it is apparent that there is no standardized formal procedure followed by all companies in selecting and evaluating suppliers (see Table 2). For instance, BETA select their suppliers based on a formal pre-assessment at the supplier firm; ETA select suppliers from a supplier list; THETA selects suppliers from established supply base; ZETA uses a formal procedure to select suppliers; LAMBDA uses online to check for suppliers then questionnaire is sent out to the suppliers. When it comes to evaluating the suppliers, again, there is no consistent formal process among the firms in evaluating the supplier performance in new product development. In general, they are being evaluated periodically on various aspects like quality, strategic fit, cost performance, and on-time delivery performance (see Table 2). Every firm has their own predefined criteria and follows different formal procedure in assessing and selecting the right suppliers. Since sourcing innovation recommends

standardized, systematic as well as effective procedure for selecting and evaluating suppliers [18, 77, 82], to practice sourcing innovation firms will have to adopt standard procedures to select the right strategic suppliers as well as sustain their superior performance.

### 5.2.4 Early supplier involvement

It was also clear that the suppliers are not only "willing to participate in innovation activities" (ETA), but are also actively participating in the innovation initiatives taken by the buying firm (THETA and ZETA). Moreover, it is evident from the interviews that suppliers possess many competences that the buying firms might not have (ETA, BETA and THETA); so, it is pertinent to transfer those competencies into new product development by actively working together closer with suppliers. And, sourcing innovation insists firms to involve their key suppliers in innovation activities as well to work together in finding new ways to innovate [69, 87].

It is evident from the interviews that some of the buying firms have already started integrating their suppliers early in the design phase itself (THETA and ZETA). However, some of the buying firms are not working closely with their suppliers in developing new products (BETA and LAMBDA) and some firms really trying hard to involve their suppliers early in the new product development (ETA). As mentioned earlier, through sourcing innovation, the buying firms could involve their suppliers much earlier in the design phase to create inter-organizational trust and value together. But some companies seem to be involving their suppliers only after the design is frozen. Even though some of the firms are trying to bring the suppliers before the design is confirmed, historically they are involving them only after the first draft of the design is completed (for example, ETA). The respondent from BETA said that "the earlier the involvement, the more design influence that we have from suppliers". On the other hand, the respondent from LAMBDA mentioned that "they involve suppliers only if they need any special type of raw material". Additionally, the respondent from LAMBDA said that involving suppliers might sometimes complicate the process. In essence, even though firms realize the importance of involving their suppliers before the design of the product is frozen; from these interpretations it is apparent that they might not be actively integrating their suppliers at an early stage. Therefore, practicing sourcing innovation will enable firms to advance the involvement of suppliers much earlier in the design phase so as to increase their chances of winning additional market share.

## 6. DISCUSSION

In general, the main intention of this exploratory study is to compare theory and practice. The results of our exploratory study recognize the importance of practicing sourcing innovation among firms. Based on the literature, our research has considered strategic level of sourcing, firm innovativeness, supplier innovativeness, and early supplier involvement as key elements that underpin the notion of sourcing innovation. The results of this empirical research reaffirm the understanding that the relationship between the chosen key dominant capabilities and observable practices will lead to effective practice of sourcing innovation. From Table 2, it is apparent that companies THETA and ZETA would be superior in adapting to the market changes, giving adequate training the sourcing personnel, involving their key suppliers greater and much earlier during the new product development, and following, to large extent, formal procedures in selecting as well as evaluating them for better performance. Therefore, our research claims that there could be very high prevalence of sourcing innovation in these firms. Alternatively, BETA and ETA are progressing towards achieving sourcing innovation. Though BETA is very strong in adapting to the marketing changes and has constructive assessment for selecting and evaluating their suppliers, they are not involving their suppliers earlier in the design phases of new product development. Additionally, there is no specific training given to the sourcing personnel. Therefore, in order to elevate the effective practice of sourcing innovation, our research recommends BETA to focus on early supplier involvement and training process for sourcing personnel. On the other hand, ETA is trying hard in adapting to the market changes as well as involving their key suppliers earlier before the design of the product is frozen. They (ETA) do not follow any formal procedure while selecting their suppliers and also they provide annual training to the sourcing personnel only if there is a gap. For this reason, our research suggests ETA to perhaps establish substantial procedure in selecting their supply as well as advance the training given to the sourcing personnel for an effective practice of sourcing innovation. In case of LAMBDA, though they are to some extent adapting to the market changes, they are not involving their suppliers much during the new product development instead they are using their suppliers only when there is a need. Therefore, this research recommends LAMBDA to start involving and working much closer with their suppliers to ensure an effective practice of sourcing innovation.

To sum up, our research argues that the proposed key elements through their association would predict the effective practice of sourcing innovation. This could support companies in obtaining extensive strategic

value through the intense as well as early involvement of their key supplier during the new product development and to focus on these key dominant capabilities and observable practices to strengthen the practice of sourcing innovation. Certainly, the five case studies have provided sufficient evidence to confirm that the suggested positive inter-relationship among them could clearly indicate the extent of sourcing innovation within firms.

On the other hand, this research recommends that firms perceiving sourcing innovation as a dynamic capability. This approach will offer them the strategic abilities to develop innovative products, process or services of next generation and realize competitive advantage against various dynamic market setting [42, 100, 105]. Firms will understand the strategically importance of intense active collaboration with key suppliers and continuous enhancement of their resources and capabilities to explore innovative value along with their supply chain partners [22, 30, 100]. Above all, firms that view sourcing innovation as a dynamic capability would be superior in various aspects such as sensing, seizing and transforming/reconfiguring capabilities, opportunities, strategic supplier integration abilities and competence to innovate products of next generation as well as to achieve innovative knowledge for organization learning [56, 94, 100, 105, 110].

## 7. CONTRIBUTION AND IMPLICATION

As sourcing innovation presents many challenges to organizations, this research not only conceptualizes the notion in terms of practice but also identifies dominant capabilities and observable practices to operationalize it. This research paper endorses the conceptual definition as well as the four key elements of sourcing innovation, more from a practical perspective and also explores the sourcing innovation concept by integrating theory and practice, and, in doing so, provide clarity on the notion of sourcing innovation. Additionally, our research informs firms to practice sourcing innovation from this dynamic capability perspective so that they could innovate more efficiently through intense strategic collaboration with their supply chain partners. This exploratory study indeed substantiates the prevalence of sourcing innovation among firms. Further, the insights gained from the interviews show that firms are not practicing it effectively and do not have a true strategy in place. This research emphasizes that organizations should perceive sourcing innovation as a dynamic capability and practice it through effective strategic collaboration which should predominantly include the integration of suppliers to a greater extent before the design is frozen. Above all, this form of strategic collaboration will support firms in acquiring

win-win innovations and achieving solid growth as well as sustainable competitive advantage [87, 105]. In general, the implications of this research are twofold. From a theoretical perspective, our paper contributes to sourcing innovation research by demonstrating the significance of strategic collaboration among firms. The pragmatic evidence enhances the theoretical definition of sourcing innovation from practical perspective and supports that the chosen four key elements will clearly signal as well as strengthen the practice of sourcing innovation. Sourcing innovation, of course, is not a new concept but an emerging concept. Therefore, this research would be a significant contribution by bringing other related concepts, for instance outsourcing innovation, innovative sourcing etc., together under one umbrella 'sourcing innovation'. Based on this groundwork, other researchers could be able to expand or refine it depending on their perspective. From a managerial perspective, this paper provides constructive knowledge for practitioners to observe sourcing innovation as a dynamic capability. Firms by recognizing sourcing innovation as a dynamic capability would be able to equip their resources and competences in line with the current dynamic market environment. More importantly, perceiving sourcing innovation as a dynamic capability is critical in achieving continuous innovation and sustainable competitive advantage. Specifically, from a buyer perspective, this research clearly highlights how firms could increase the overall performance by strategically collaborating as well as innovating along with their supply base. In other words, our research findings recommend that a focus on these key elements (dominant capabilities and observable practices) and the strategic alignment among them will lead to effective practice of sourcing innovation, and, in turn, achieving sustainable competitive advantage.

## 8. CONCLUSION, LIMITATION AND FUTURE DIRECTIONS

Sourcing innovation is a core activity in the field of supply chain management. It does not concentrate only on cost reduction; instead, it is more likely a dynamic capability that helps firms to achieve sustainable competitive advantage. It also helps in achieving the strategic objective of the firms through extensively collaborating with their key supply chain partners in all innovation activities. Sourcing innovation as a dynamic capability helps firms to recognize enhanced ways to innovate by exploiting the resources and capabilities of their suppliers as well as overcome challenges in selecting and managing their suppliers so as to involve them effectively in the innovation process [22, 66, 81, 87]. In particular, sourcing innovation provides firms with

an effective strategy to identify right suppliers and evaluate them on the components of competitive advantage.

The interviews did confirm that firms are practicing sourcing innovation; however, they are not effectively practicing the same. For example, not all five case companies are giving adequate training to the sourcing personnel on the elements of competitive advantage instead they are giving training only when there is a new update or need or annually. Sourcing innovation insists on adequate training for the sourcing personnel to understand the firm's strategy and needs of the current dynamic market setting. They are not following any formalized procedures while selecting their suppliers and do not have any standardized procedure in evaluating the performance of their suppliers. And, when it comes to early supplier involvement, they all are aware of early supplier involvement and its positive impact. However, not all companies are involving their suppliers early in the development process. On the other hand, two of the five firms are trying hard to implement the process of early involvement of their suppliers; another two firms of the five are already involving their suppliers even before the design is frozen. Wherein, one of the five companies is involving their supplier if ONLY there is a need. Therefore this research is conveying to all firms the importance of early supplier involvement which will lead to superior firm performance. In other words, this research showcases that early supplier involvement will not only help cost reduction, but will also results in the overall growth of the company and achieving sustainable competitive advantage.

With respect to the practical definition, a theoretical description was provided in the qualitative questionnaire. The participating executives were asked about it's the professional perspective about the definition of sourcing innovation. Based on the inputs received, the theoretical definition of sourcing innovation was improvised. The resulting practical definition of sourcing innovation is that it is "an operative engagement or commitment among firms (such as buyers, suppliers, supply chain, stakeholders, etc.) through which they, together, can find new ways to achieve substantial growth and effective synergy in each other to be innovative".

In spite of significant contributions, our research does have limitations that could provide scope for future research on sourcing innovation. First, the companies selected for our research are all within the context of Danish manufacturing firms. Therefore, this research could be extended by including other Nordic and European manufacturing firms (including the hi-tech and automotive industries). Second, all the respondents were from the sourcing department of the focal firms. Accordingly, this research could be extended by adopting a dyadic unit of analysis that



also includes supplier firms. Such an attempt will help to envision the theoretical and practical aspect of sourcing innovation from buyer as well as supplier perspective. Third, the research could be further developed with additional companies (as of now five companies) and analyzed from other theoretical aspects. Additionally, it would be exciting to expand the results of this research into hypotheses, which could be measured through a survey to improve the reliability and validity of the proposed framework. In spite of these limitations, this research would make significant contribution to extant research on sourcing innovation.

To conclude, this research paper, based on the exploratory study, acknowledges strategic level of sourcing function, firm innovativeness, supplier innovativeness, and early supplier involvement as dominant capabilities and observable practices that would underpin the complex concept of sourcing innovation. Firms might not be utilizing these acknowledged dominant capabilities and observable practices and therefore, this research paper recommends firms to actively exploit these acknowledged dominant capabilities and observable practices to promote the effective practice of sourcing innovation which includes intense strategic collaboration, continuous innovation and sustainable competitive advantage. Having said this, further exploration and active discussion on this topic sourcing innovation would result in greater benefits for firms.

## 9. REFERENCES

1. “Bryan” Jean, RJ, Sinkovics, RR (2010) Relationship learning and performance enhancement via advanced information technology: The case of Taiwanese dragon electronics firms. *Int Market Rev*, 27(2):200–222.
2. Adobor, H, McMullen, RS (2014) Strategic purchasing and supplier partnerships—the role of a third party organization. *J Purch Supply Manag* 20(4):263–272.
3. Alexiev, AS, Volberda, HW, Van den Bosch, FA (2016) Interorganizational collaboration and firm innovativeness: Unpacking the role of the organizational environment. *J Bus Res* 69(2):974–984.
4. Andersen, PH, Ellegaard, C, Kragh, H (2016) I’m your man: How suppliers gain strategic status in buying companies. *J Purch Supply Manag* 22(2):72–81.
5. Anderson, MG, Katz, PB (1998) Strategic sourcing. *Int J Logist Manag* 9(1):1–13.
6. Apte, AU, Rendon, RG, Salmeron, J (2011) An optimization approach to strategic sourcing: A case study of the United States Air Force. *J Purch Supply Manag* 17(4):222–230.
7. Arlbjørn, JS, Paulraj, A (2013) Special topic forum on innovation in business networks from a supply chain perspective: current status and opportunities for future research. *J Supply Chain Manag* 49(4): 3–11.
8. Ateş, MA, Wynstra, F, van Raaij, EM (2015) An exploratory analysis of the relationship between purchase category strategies and supply base structure. *J Purch Supply Manag* 21(3):204–219.
9. Augusto, M, Coelho, F (2009) Market orientation and new-to-the-world products: exploring the moderating effects of innovativeness, competitive strength, and environmental forces. *Ind Market Manag* 38(1):94–108.
10. Automotive News (2013) Innovation partnership winners (Pace award 2013). [http://www.autonews.com/Assets/html/pace\\_award/past\\_winners.html](http://www.autonews.com/Assets/html/pace_award/past_winners.html) Accessed 15 August 2016.
11. Azadegan, A (2011) Benefiting from supplier operational innovativeness: the influence of supplier evaluations and absorptive capacity. *J Supply Chain Manag* 47(2):49–64.
12. Azadegan, A, Dooley, KJ (2010) Supplier innovativeness, organizational learning styles and manufacturer performance: an empirical assessment. *J Oper Manag* 28(6):488–505.
13. Azadegan, A, Dooley, KJ, Carter, PL, Carter, JR (2008) Supplier innovativeness and the role of interorganizational learning in enhancing manufacturer capabilities. *J Supply Chain Manag* 44(4):14–35.
14. Bengtsson, L, Lakemond, N, Dabhilkar, M (2013) Exploiting supplier innovativeness through knowledge integration. *Int J Technol Manage* 12, 61(3/4):237–253.
15. Beske, P (2012) Dynamic capabilities and sustainable supply chain management. *Int J Phys Distr Log* 42(4):372–387.
16. Bidault, F, Despres, C, Butler, C (1998) New product development and early supplier involvement (ESI): the drivers of esi adoption. *Int J Technol Manage* 15(1):49–69.
17. Brewer, BL, Ashenbaum, B, Carter, JR (2013) Understanding the supply chain outsourcing cascade: when does procurement follow manufacturing out the door? *J Supply Chain Manag* 49(3):90–110.
18. Bruno, G, Esposito, E, Genovese, A, Passaro, R (2012) AHP-based approaches for supplier evaluation: Problems and perspectives. *J Purch Supply Manag* 18(3):159–172.
19. Burgelman, RA (1983) A process model of internal corporate venturing in the diversified major firm. *Admin Sci Quart* 28(2):223–244.
20. Charvet, FF, Cooper, MC (2011) Key contact employees and supply chain collaboration: a literature review and research agenda. In *Supply*

- Chain Forum: an International Journal 12(2):4–18
21. Chen, IJ, Paulraj, A, Lado, AA (2004) Strategic purchasing, supply management, and firm performance. *J Oper Manag* 22(5):505–523.
  22. Cheng, JH, Chen, MC, Huang, CM (2014) Assessing inter-organizational innovation performance through relational governance and dynamic capabilities in supply chains. *Supply Chain Manage* 19(2):173–186.
  23. Christensen, C, Suarez, F, Utterback, J (1998) Strategies for survival in fast-changing industries. *Manage Sci* 4(12):207–220.
  24. Damanpour, F (1987) The adoption of technological, administrative, and ancillary innovations: impact of organizational factors. *J Manage* 13(4):675–688.
  25. Dankbaar, B (2007) Global sourcing and innovation: the consequences of losing both organizational and geographical proximity. *Eur Plan Stud* 15(2):271–288.
  26. Delphi Annual Report (Making it possible) (2015) <http://delphi.com/docs/default-source/financial-documents/delphi-annual-report-2015.pdf> Accessed 15 August 2016
  27. Dibrell, C, Fairclough, S, Davis, PS (2015) The impact of external and internal entrainment on firm innovativeness: A test of moderation. *J Bus Res* 68(1):19–26.
  28. Dobler, DW, Burt, DN (1996) *Purchasing and Supply Management: Text and Cases*, 6th Edition, McGraw-Hill, New York, NY.
  29. Dowlatshahi, S (1998) Implementing early supplier involvement: a conceptual framework. *Int J Oper Prod Manag* 18(2):143–167.
  30. Eisenhardt, KM, and Martin, JA (2000) Dynamic capabilities: what are they? *Strateg Manage J* pp.1105–1121.
  31. Eisenhardt, KM (1989) Building theories from case study research. *Acad Manage Rev* 14(4):532–550.
  32. Eltantawy, RA, Giunipero, L (2013) An empirical examination of strategic sourcing dominant logic: Strategic sourcing centrality. *J Purch Supply Manag* 19(4):215–226.
  33. Evans, JR., Lindsay, WM (2005) *The Management and Control of Quality*. Southwestern, Mason, OH.
  34. Flynn, BB, Huo, B, Zhao, X (2010) The impact of supply chain integration on performance: a contingency and configuration approach. *J Oper Manag* 28(1):58–71.
  35. Gabler, CB, Richey, RG, Rapp, A (2015) Developing an eco-capability through environmental orientation and organizational innovativeness. *Ind Market Manag* 45:151–161.
  36. Gerbing, DW, Hamilton, JG, Freeman, EB (1994) A large-scale second-order structural equation model of the influence of management participation on organizational planning benefits. *J Manage* 20(4):859–885.
  37. Golgeci, I, Y Ponomarov, S (2013) Does firm innovativeness enable effective responses to supply chain disruptions? an empirical study. *Supply Chain Manag* 18(6):604–617.
  38. Gonzalez-Benito, J (2007) A theory of purchasing's contribution to business performance. *J Oper Manag* 25(4):901–917.
  39. Gualandris, J, Kalchschmidt, M (2014) Customer pressure and innovativeness: Their role in sustainable supply chain management. *J Purch Supply Manag* 20(2):92–103.
  40. Handfield, RB, Melnyk, SA (1998) The scientific theory-building process: a primer using the case of TQM. *J Oper Manag* 16(4):321–339.
  41. Handfield, RB, Ragatz, GL, Petersen, KJ, Monczka, RM (1999) Involving suppliers in new product development. *Calif Manage Rev* 42:59–82.
  42. Hermano, V, Martín-Cruz, N (2016) The role of top management involvement in firms performing projects: A dynamic capabilities approach. *J Bus Res* 69(9):3447–3458.
  43. Hult, GTM, Hurley, RF, Knight, GA (2004) Innovativeness: its antecedents and impact on business performance. *Ind Market Manag* 33:429–438.
  44. Hurley, RF, Hult, GTM (1998) Innovation, market orientation, and organizational learning: an integration and empirical examination. *J Marketing* 62(3):42–54.
  45. Inemek, A, Matthyssens, P (2013) The impact of buyer-supplier relationships on supplier innovativeness: an empirical study in cross-border supply networks. *Ind Market Manag* 42(4):580–594.
  46. Johnsen, TE (2009) Supplier involvement in new product development and innovation: Taking stock and looking to the future. *J Purch Supply Manag* 15(3):187–197.
  47. Kang, KH, Kang, J (2014) Do external knowledge sourcing modes matter for service innovation? Empirical evidence from South Korean service firms. *J Prod Innovat Manag* 31(1):176–191.
  48. Kibbeling, M, der Bij, H, Weele, A (2013) Market orientation and innovativeness in supply chains: supplier's impact on customer satisfaction. *J Prod Innovat Manag* 30(3):500–515.
  49. Kirci, M, Seifert, R (2015) Dynamic Capabilities in Sustainable Supply Chain Management: A Theoretical Framework. In *Supply Chain Forum: An International Journal* 16(4):2–15.
  50. Kotula, M, Ho, W, Dey, PK, Lee, CKM (2015) Strategic sourcing supplier selection

- misalignment with critical success factors: Findings from multiple case studies in Germany and the United Kingdom. *Int J Prod Eco* 166:238–247.
51. Krause, DR, Pagell, M, Curkovic, S (2001) Toward a measure of competitive priorities for purchasing. *J Oper Manag* 19(4):497–512.
  52. Kunz, W, Schmitt, B, Meyer, A (2011) How does perceived firm innovativeness affect the consumer? *J Bus Res* 64(8):816–822.
  53. Laursen, LN, Andersen, PH (2016) Supplier involvement in NPD: A quasi-experiment at Unilever. *Ind Market Manag* 58:162–171.
  54. Lee, H, Kelley, D (2008) Building dynamic capabilities for innovation: an exploratory study of key management practices. *R&D Manag* 38(2):155–168.
  55. Lichtenthaler, U (2009) Absorptive capacity, environmental turbulence, and the complementarity of organizational learning processes. *Acad Manag J* 52(4):822–846.
  56. Lin, HF, Su, J.Q, Higgins, A (2016) How dynamic capabilities affect adoption of management innovations. *J Bus Res* 69(2):862–876.
  57. Linder, JC, Jarvenpaa, S, Davenport, TH (2003) Toward an innovation sourcing strategy. *MIT Sloan Manage Rev* 44(4):43–50.
  58. Logan, MS (2000) Using agency theory to design successful outsourcing relationships. *Int J Logist Manag* 11(2):21–32.
  59. Manceau, D, Kaltenbach, LBH, Moatti, V, Fabbri, J (2012) Open innovation: putting external knowledge to work. *Supply Chain Manage Rev* 16(6):42–48.
  60. Mishra, AA, Shah, R (2009) In union lies strength: collaborative competence in new product development and its performance effects. *J Oper Manag* 27(4):324–338.
  61. Narasimhan, R, Das, A (1999) An empirical investigation of the contribution of strategic sourcing to manufacturing flexibilities and performance. *Decision Sci* 30(3):683–718.
  62. Narasimhan, R, Das, A (2001) The impact of purchasing integration and practices on manufacturing performance. *J Oper Manag* 19(5):593–609.
  63. Narasimhan, R, Narayanan, S (2013) Perspectives on supply network-enabled innovations. *J Supply Chain Manag* 49(4):27–42.
  64. Narasimhan, R, Narayanan, S, Srinivasan, R (2013) An investigation of justice in supply chain relationships and their performance impact. *J Oper Manag* 31(5):236–247.
  65. Oke, A, Kach, A (2012) Linking sourcing and collaborative strategies to financial performance: The role of operational innovation. *J Purch Supply Manag* 18(1):46–59.
  66. Oke, A, Prajogo, DI, Jayaram, J (2013) Strengthening the innovation chain: The role of internal innovation climate and strategic relationships with supply chain partners. *J Supply Chain Manag* 49(4):43–58.
  67. Onağ, AO., Tepeci, M, Başalp, AA (2014) Organizational learning capability and its impact on firm innovativeness. *Procd Soc Behv* 150:708–717.
  68. Paulraj, A, Chen, IJ, Flynn, J (2006) Levels of strategic purchasing: impact on supply integration and performance. *J Purch Supply Manag* 12(3):107–122.
  69. Paulraj, A, Lado, AA, Chen, IJ (2008) Inter-organizational communication as a relational competency: antecedents and performance outcomes in collaborative buyer-supplier relationships. *J Oper Manag* 26(1):45–64.
  70. Petersen, KJ, Handfield, RB, Ragatz, GL (2005) Supplier integration into new product development: coordinating product, process and supply chain design. *J Oper Manag* 23(3):371–388.
  71. Pressey, AD, Winklhofer, HM, Tzokas, NX (2009) Purchasing practices in small-to medium-sized enterprises: an examination of strategic purchasing adoption, supplier evaluation and supplier capabilities. *J Purch Supply Manag* 15(4):214–226.
  72. Rajkumar, C (2015) Sourcing innovation: a systematic literature review. In: Stentoft, J., Paulraj, A., Vastag, G. (Eds.) (2015) *Research in the Decision Sciences for Global Supply Chain Network Innovations*. Pearson Education, Old Tappan, New Jersey, pp. 107–128.
  73. Rhee, J, Park, T, Lee, DH (2010) Drivers of innovativeness and performance for innovative SMEs in South Korea: mediation of learning orientation. *Technovation* 30(1):65–75.
  74. Rohrbeck, R, Steinhoff, F, Perder, F (2010) Sourcing innovation from your customer: how multinational enterprises use web platforms for virtual customer integration. *Technol Anal Strateg Manag* 22(4): 117–131.
  75. Roy, S, Sivakumar, K, Wilkinson, I (2003) Innovation generation in supply chain relationships: a conceptual model and research propositions. *J Acad Market Sci* 20(10):1–19.
  76. Rubera, G, Kirca, AH (2012) Firm innovativeness and its performance outcomes: A meta-analytic review and theoretical integration. *J Marketing* 76(3):130–147.
  77. Sancha, C, Longoni, A, Giménez, C (2015) Sustainable supplier development practices: Drivers and enablers in a global context. *J Purch Supply Manag* 21(2):95–102.
  78. Saunders, LW, Kleiner, BM, McCoy, AP, Lingard, H, Mills, T, Blismas, N, Wakefield, R (2015) The effect of early supplier engagement

- on social sustainability outcomes in project-based supply chains. *J Purch Supply Manag* 21(4):285–295.
79. Schiele, H (2006) How to distinguish innovative suppliers? identifying innovative suppliers as new task for purchasing. *Ind Market Manag* 35(8):925–935.
  80. Schiele, H (2010) Early supplier integration: the dual role of purchasing in new product development. *R&D Manag* 40(2):138–153.
  81. Schiele, H (2012) Accessing supplier innovation by being their preferred customer. *Res Technol Manag* 55(1):44–50.
  82. Schiele, H, Veldman, J, Hüttinger, L (2011) Supplier innovativeness and supplier pricing: the role of preferred customer status. *Int J Innovat Manag* 15(1):1–27.
  83. Schoenherr, T, Wagner, SM (2016) Supplier involvement in the fuzzy front end of new product development: An investigation of homophily, benevolence and market turbulence. *Int J Prod Eco* 180:101–113.
  84. Schrum, R (2012) PR Newswire. [http://investor.sonoco.com/phoenix.zhtml?c=82014&p=irol-newsArticle\\_Print&ID=1751544](http://investor.sonoco.com/phoenix.zhtml?c=82014&p=irol-newsArticle_Print&ID=1751544) Accessed 15 August 2016.
  85. Scott, JA, Ho, W, Dey, PK (2013) Strategic sourcing in the UK bioenergy industry. *Int J Prod Eco* 146(2): 478–490.
  86. Sjoerdsma, M, van Weele, AJ (2015) Managing supplier relationships in a new product development context. *J Purch Supply Manag* 21(3):192–203.
  87. Slowinski, G, Hummel, E, Gupta, A, Gilmont, ER (2009) Effective practices of sourcing innovation. *Res Technol Manage* 52(1):27–34.
  88. Smeltzer, LR, Carr, A (2003) Electronic reverse auctions - promises, risks and conditions for success. *Ind Market Manag* 32(6):481–488.
  89. Song, M, Di Benedetto, CA (2008) Supplier's involvement and success of radical new product development in new ventures. *J Oper Manag* 26(1):1–22.
  90. Straube, F, Durach, CF, Phung, J (2016) Developing and applying a supplier selection model to account for supplier risk impacts. In *Supply Chain Forum: An International Journal* 17(2):68–77.
  91. Subramanian, A, Nilakanta, S (1996) Organizational innovativeness: exploring the relationship between organizational determinants of innovation, types of innovations, and measures of organizational performance. *Omega* 24(6):631–647.
  92. Talluri, S, Narasimhan, R (2004) A methodology for strategic sourcing. *Eur J Oper Res* 154(1): 236–250.
  93. Tanriverdi, H, Venkatraman, N (2005) Knowledge relatedness and the performance of multibusiness firms. *Strateg Manage J* 26(2):97–119.
  94. Teece, DJ (2007) Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strateg Manage J* 28(13):1319–1350.
  95. Teece, DJ, Pisano, G, Shuen, T (1997) Dynamic capabilities and strategic management. *Strateg Manage J* 18(7):509–533.
  96. Tödting, F, Lengauer, L, Höglinger, C (2011) Knowledge sourcing and innovation in “thick” and “thin” regional innovation systems-comparing ICT Firms in two Austrian regions. *Eur Plan Stud* 19(7):1245–1276.
  97. Tsai, K-H, Yang, SY (2014) The contingent value of firm innovativeness for business performance under environmental turbulence. *Int Entrep Manage J* 10(2):343–366.
  98. Utterback, JM (1974) Innovation in industry and the diffusion of technology. *Science*. 183(4125):620–626.
  99. Van Echtelt, FE, Wynstra, F, Van Weele, AJ, Duysters, G (2008) Managing supplier involvement in new product development: a multiple-case study. *J Prod Innov Manag* 25(2):180–201.
  100. Vanpoucke, E, Vereecke, A, Wetzels, M (2014) Developing supplier integration capabilities for sustainable competitive advantage: A dynamic capabilities approach. *J Oper Manag* 32(7):446–461.
  101. Venkatraman, N (1989) The concept of fit in strategy research: toward verbal and statistical correspondence. *Acad Manage Rev* 14(3):423–444.
  102. Voss, C, Tsiriktsis, N, Frohlich, M (2002) Case research in operations management. *Int J Oper Prod Man* 22(2):195–219.
  103. Wagner, SM (2012) Tapping supplier innovation. *J Supply Chain Manag* 48(2):37–52.
  104. Wang, CC (2008) Entrepreneurial orientation, learning orientation, and firm performance. *Entrep Theory Pract* 32(4):635–657.
  105. Weeks, MR (2009) Sourcing practices and innovation: evidence from the auto industry on the sourcing relationship as a dynamic capability. *Innov-Manag Policy* 11(3):304–326.
  106. Wiklund, J, Shepherd, D (2005) Entrepreneurial orientation and small business performance: a configurational approach. *J Bus Venturing* 20(1):71–91.
  107. Wynstra, F, VanWeele, A, Weggeman, M (2001) Managing supplier involvement in product development: three critical issue. *Europ Manage J* 19(2):157–167.

108. Yin, RK (2009) Case Study Research: design and methods. Sage Publications, USA.
109. Yunus, EN, Kurniawan, T (2015) Revealing Unsuccessful Collaboration: A Case of Buyer-Supplier Relationship in the Pharmaceutical Industry. In Supply Chain Forum: An International Journal 16(2):14–28.
110. Zhang, J, Wu, WP (2017) Leveraging internal resources and external business networks for new product success: A dynamic capabilities perspective. Ind Market Manag 61:170–181
111. Zhao, X, Huo, B, Selen, W, Yeung, JHY (2011) The impact of internal integration and relationship commitment on external integration. J Oper Manag 29(1):17–32.
112. Zsidisin, GA, Smith, ME (2005) Managing supply risk with early supplier involvement: a case study and research propositions. J Supply Chain Manag 41(4):44–57.

Table 3 – Firm-selection

Criterion	ETA	BETA	THETA	ZETA	LAMBDA
<i>Industry</i>	Industrial	Electrical	Wind turbine	Maritime	Food
<i>Products &amp; Services</i>	Heaters, air-conditioners, and electric motors	Electrical solutions for wind turbines	Wind turbines	Life-Saving Appliances	Bakery – breads and pastries
<i>Market Breadth</i>	Global	Global	Global	Global	EU
<i>No. of Employees</i>	More than 20,000	More than 1,000	More than 12,800	More than 2,000	More than 600
<i>No. of Suppliers</i>	Direct 3800 Indirect 16000	140 suppliers	Direct 618 Indirect 3983	More than 1,000	Approx. 50 suppliers
<i>Supplier collaboration</i>	Strong	Strong	Strong	Strong	Strong

**Appendix 1 Interview Questions**

1. Would you share your experience in the field of sourcing?
2. From my perspective, I have defined sourcing innovation as an operative engagement or commitment among firms through which they both can achieve substantial progress and confidence on each other to be innovative. Now, would you please describe the concept of sourcing innovation from your company standpoint? (Sourcing innovation definition)
3. In my research, I have considered strategic level of sourcing, firm innovativeness, supplier innovativeness and early supplier involvement as the

concepts (or practices) that underline the notion of sourcing innovation. Please let me know your thoughts. Also, do you have any other practices (or concepts) that could be considered to underpin sourcing innovation? (Confirmation of first-order factors)

**FOF 1 – Strategic Level of Sourcing:** (Chen et al., 2004; Gonzalez-Benito, 2007; Paulraj et al. 2006; Pressey et al., 2009)

4. What are the challenges, if any, you face in sourcing?
5. Is the sourcing function involved in the firm’s strategy development process?

6. How does the purchasing function contribute to the firm's success?

7. How do you measure the performance of the sourcing function?

8. Are the sourcing managers and other personnel trained on elements of strategy & competitive advantage?

**FOF 2 – Firm Innovativeness:** (Augusto and Coelho, 2009; Kibbeling et al., 2013; Rhee et al. 2010; Tsai and Yang, 2014)

9. How well is your company adapting to the changes in your industry?

10. Would you share any recent innovation initiative that your company has developed? Also, how quickly do you think your company has adapted to these new idea(s) or initiative(s)?

11. Do you think it is better to develop new products by yourselves (i.e., without involving suppliers)?

**FOF 3 – Supplier Innovativeness:** (Azadegan, 2011; Azadegan and Dooley, 2010; Paulraj et al. 2008; Narasimhan and Das, 2001)

12. How many suppliers do you have and how do you select your supplier(s)?

13. How does your company decide whether suppliers should be involved in new product development?

14. To what extent are you familiar with supplier's capabilities before including the supplier in new product development?

15. How do you evaluate your supplier(s)?

**FOF 4 – Early Supplier Involvement:** (Flynn et al., 2010; Mishra and shah, 2009; Petersen et al. 2005; Zhao et al. 2011)

16. To what extent does your company integrate activities with your supplier(s)?

17. To what extent do you involve your supplier(s) in new product development?

18. During which stage of the new product development process do you integrate your supplier(s)?

19. Would you share your experience in integrating suppliers much earlier (FFE) than usual? And, do you think this will have a greater impact in developing new product?