From early supplier involvement toward early purchasing involvement: Story of a radical co-innovation in the energy industry

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Abstract.

This paper illustrates a successful co-innovation project in a multi-changing environment within a global SME (Small and Medium Enterprise) firm acting in the energy industry. We discuss how the early involvement of purchasing and suppliers leads for both SME companies to radical co-innovation (RCI).

Given the restricted number of studies that takes into consideration role of purchasing in radical innovation projects, we proposed to investigate this issue using a single-depth case study, as we aim to answer a research question that has not been studied deeply yet.

Following of what has been observed in this exploratory case, we shaped an understanding of the purchasing and supplier roles, and found the importance of motives and reciprocity during a radical co-innovation project. We emphasize offensive motives as stimulating growth opportunities and wining new market share or for defensive motives like optimization of cost/quality/delay of the project and sharing risks.

Furthermore Early Purchasing Involvement impacts the innovation performance. Motives congruence and reciprocity for the internal and external partners are a necessary condition of success of this radical co-innovation project.

Key words: Early Purchasing Involvement (EPI), Early Supplier Involvement (ESI), Co-innovation, Radical innovation.

Introduction

Due to a competitive and dynamic environment, international organizations are responding by continuous innovation processes (Lemaire, 2003). Furthermore, innovation is a condition to survive (Anderson Strachan, 1996), and to maintain competitive advantage (Kim and Mauborgne, 2005). Collaboration with external partners and open innovation practices are essential to accelerate innovation's processes (Chesbrough, 2003). External innovation's sources can now be considered as a new way to add knowledge or to complement the firm's internal knowledge base (Laursen and Salter, 2006; Witzeman et al., 2006). One of the levers for introducing innovations from suppliers into the firm is the sourcing process (i.e. identifying and selecting) of these innovations (Schiele, 2006). In most organizations, this lever is naturally driven by the Purchasing Department.

Beyond the classical remit of such a Department (procuring materials, evaluating prices, policy compliance), contributing to innovation by driving relationships with suppliers is

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becoming an important task since buyers are the most common interface with suppliers (Prester et al., 2014).

It is now established that the suppliers' added value is far superior when the buyer-supplier relationships are collaborative. Henke and Zhang (2010) also show that suppliers are more likely to invest and share new ideas when relationships with their customers are based on openness and confidence.

When developing innovation projects, motivation is required from both parties: buyer side and supplier side. In this research, we seek to explore the role of early purchasing involvement (EPI) and further drivers of a successful radical co-innovation (RCI) project.

The outcome of this study will help fill the gap in the current literature on Purchasing and Supply Management (PSM) while providing practical directions to managers, which are seeking to achieve sustainable RCI projects. The findings disclose that EPI and reciprocity between main stakeholders in RCI projects are *key* enabling factors.

The importance of Early Supplier Involvement in radical innovation

The early supplier involvement is a complex process in which several firms attempt from one perspective to relate on the best conceivable terms in order to achieve a successful partnership while then again each company keeps as a main priority its own interests that may collide with the partner's ones.

Very often the buyer companies consider that suppliers with experience and capability in product development are important for all kinds of innovation, but supplier participation is more profitable when technology is unique and complex (Petersen et al., 2003).

A very limited number of research studies have clarified the role of suppliers in radical innovation and even less on their early involvement in the case of radical innovation.

McDermott and Handfield (2000) found that suppliers were identified with a confirmed record of design and technological competencies. The same author point out that supplier integration leads to improved performance out-comes in terms of improved quality, technological improvements, and, reduced costs and cycle time.

Song and Benedetto (2008) have studied the impact of early supplier involvement in radical innovations developed by new ventures. They claimed that more often small firms are leveraging their suppliers' abilities to increase their own chances of survival and success.

As purchasing function is playing an interface role between suppliers and internal department, also we are seeking deeply about the purchasing involvement during innovation.

Toward an Early Purchasing Involvement

Recent evolutions of the purchasing function shift the function from a transaction-oriented one to a collaborative-oriented one, establishing linkages between purchasing, operations and other parts of the supply chain (Kersten, 2012). Its mission has become how to "obtain, from external resources, goods, services, knowledge, and innovation necessary to create and maintain the company's competitive advantages" (Van Weele, 2000)

The early purchasing involvement can add knowledge and increase the understanding regarding product design, choice of material, suppliers and could also lead to the introduction of supplier knowledge at an early stage (Van Weele, 2002, 2010).

In the product development process; the buyer can play several roles as: cataloguing suppliers technical and design expertise, foster a committed environment making suppliers more creative and risk-taking, developing stronger relationships making suppliers invest in product development capabilities, contribute to early supplier involvement and facilitating better and more consistent communication (Birou and Fawcett, 1994). In this way the purchasing function is able to play the coordinator between the marketing department and production with the external suppliers when new products are being specified (Mol, 2003). It has been proposed also that purchasing plays an important role in managing the suppliers and supporting the R&D function (Wynstra et al., 2003).

Krause et al. (2009) consider that supplier selection and retention are the main purchasing's competitive priority to enhance innovativeness of the company. However, less is known about the nature of the relationships between buyer and seller that allow purchasing managers to contribute efficiently to the innovation process.

Purchasing comply an important role in coordinating the efforts of the supplier by initiating regular innovation meetings with suppliers and developing technology roadmaps linking firm strategy, innovation strategy, sourcing strategies (Schiele, 2010), and supplier development (Reed and Walsh, 2002). By performing these activities, purchasers act as important supplier relationship promoters (Walter, 2003).

Radical co-innovation and reciprocity

Radical innovation is known as using new technologies for providing a demand not yet grasped by markets and customers (Jansen et al., 2006, O'Connor and Veryzer, 2001) and highly uncertain (Moguilnaia et al., 2005). It involves engaging in new knowledge domains and entails to develop a completely new product or service, or making fundamental changes in the configuration (inputs, outputs or processes) of products or services (Das and Joshi, 2007).

It is now established that inter-organizational relationships have become a major source of innovation. External partners, such as suppliers, are an important source of innovative solutions, ideas, and technologies (Chesbrough et al., 2008), and are considered as stakeholders that allow to enhance or drive innovation projects (Faems et al., 2005).

Co-innovation means the interaction between two parties that actively work together to develop a new solution from which they will share benefits. Organizations choose to co-innovate when they do not have the capabilities to innovate on their own to ensure their competitiveness. When two companies decide to co-innovate, they have to decide the way they want to manage this collaboration (Håkansson, 1993). In fact, the co-innovation for a technological solution is very complex and requires specific capabilities and knowledge.

Open innovation and co-innovation are strategies that allow companies to focus on their core business activities and to collaborate with external actors (Hamel, 2012). In the coming years, the buyer-supplier relationship could become genuine catalysts of innovation since a great number of the skills and resources for innovation lie outside a firm's boundaries (Kanda and Deshmukh, 2008).

According to Huizingh (2011), in order to participate to an open innovation project, firms must generate a reciprocal outbound activity. Tranekjer and Knudsen (2012) suggest that an outbound activity could be transferring knowledge and ideas, or delivering solutions to another firm's new product development. For Fehr and Gächter (2000) an efficient cooperative relationship needs to be reciprocal since partners have to open their own knowledge to access simultaneously to the partner's knowledge. They show that when reciprocity is not given, the exchange of knowledge cannot take place. This can be related to a lack of trust between both parties that could prevent innovativeness.

Reciprocity is a mutually contingent pattern of positive interactions and behaviours present in the relationship (Uzzi, 1996). It can be viewed as a protean concept, difficult to characterize, but viewed as important as it is often quoted in the innovation's literature.

A recent paper examines the reciprocal relationships between buyer cost sharing and supplier willingness to share and invest in new technology (Zhang et al., 2015). The authors show that reciprocity is an important tool that shapes the interactions between buyer and seller, and that the real challenge for any company lies in whether it can "persistently and convincingly pursue a cooperative, value-based collaboration approach with suppliers" (Zhang et al., 2015).

Methodology

Given the restricted number of studies that consider EPI in radical co-innovation projects, we propose to investigate this issue using a single-depth case study. Detailed analysis of a single case is consistent with our comprehension effort around little explored or unexplored questions (Yin, 2009). This methodology can make a useful contribution to both management practices and theory building in a relatively new research field such as SCM (Seuring, 2005).

The SME has been targeted based on significant and recent radical innovation success and involvement of both purchasing department and supplier. The business case is particularly well suited to address our research question for several reasons: we are using retrospective data and the choice was made based on the richness of information and results of the project that was launched three years ago. Data was gathered from primary and secondary sources. We interviewed the main knowledgeable informants of the companies involved in the project from both the buyer and the supplier side. This approach is supposed to provide more objective responses to the questions and permits us to compare answers from both sides. Secondary data is made of available public materials (from supplier and buyer). They are mainly annual reviews of projects and successes, also what are the main development axes to come. The different documents allowed us to gather historical and background information about the firms.

The combination of data collection methods enables us to triangulate between several sources and assumes internal validity and reliability.

Table 1: **Data collection**

Buyer side			**Supplier side**		
Quality of the interviewee	**Date of the interview**	**Duration**	**Quality of the interviewee**	**Date of the interview**	**Duration**
* Global Purchasing Director	July 2014 November 2014 December 2014	35 minutes 1h15 minutes 25 minutes	CEO/Purchasing Director	January 2015	1h10 minutes
Global head of engineering and R&D director	December 2014	1h05 minutes	CEO/R&D Director	February 2015	25 minutes

We have conducted and tape-recorded semi-structured interviews of the main actors involved in both companies (see Table 1). Focused on a recent and successful innovation project, the interview guide aimed to collect empirical data concerning different aspects of the project: relationships between client and supplier, role of purchasing/customer department, role of the supplier, tools and means for collaboration and motivation, learning processes (from both sides), major difficulties and risks met, and critical success factors (views from both sides).

Case presentation

The buyer's company is a Small and Medium sized Enterprise (SME) that evolves in the energy industry, particularly in providing gas fuelling equipment for operators and in shipping fuels through different types of vessel. An important percentage of its turnover is coming from the export markets. The markets for Liquefied Natural Gas (LNG) fuelling of vessels are expected to grow worldwide with double-digit values over the next few years, especially in the Asia-Pacific area where gas price is much higher than elsewhere. This market is becoming more complex and technically challenging. During the last decade, market's trends were various: internationalisation, dynamic environment, time-to-market, strong reactivity required from clients/market, regulation's changes, increasingly multi-technological solutions and ecological trend.

As most of SMEs, constant innovation is an important aspect of the buyer's company performance. The company is known to innovate regularly, to offer to its customer's products and services of irreproachable quality. This industry is challenged by the need of sustainable and reliable sources.
In this case, due to the market trends and after unexpected environmental consequences, some countries decided to move away from their primary production of energy -nuclear power- to switch to natural gas. As it is cheaper to transform natural gas into Liquefied Natural Gas (LNG), and also due to long distances, the transportation is generally done using ocean-going LNG carriers. In order to become a pioneer in addressing this new market, the buyer's company Corporate Executive Committee, including the global Purchasing Director, decided to develop a new solution. This solution is a combination of two new technologies (one from buyer company and one from supplier), new services and new products jointly developed with the supplier.

Purchasing department managed the sourcing of the supplier, and selected the most appropriate one in terms of innovativeness, technical and quality perspectives. Due to the strategic importance of the project, the selected supplier was part of the existing suppliers portfolio.

For thirty years, the supplier's company has been specialised in the conception, detailed design and building of Industrial Piping and Process, also of boiler pressure vessels. During the relationship with the buyer's company, they succeeded to insure an ability to react technically in various industrial challenges.

Main findings

The case study provides an example of a company, which gathers all the motivations to drive a radical innovation project in collaboration with the supplier.

Our findings are the following:

- Go deeper in the understanding of the purchasing and supplier roles during RCI,

- Describe mutual motives and define the reciprocity dimensions

A combined technology Push: The supplier started to develop a specific and radical new technical solution, with the help of the buyer's company, and reciprocally. Their common goal was to elaborate a radically new solution to create a new market, instead of introducing incremental improvements to the existing solution.

In a market Pull context: Launched to address this specific market's need, and thanks to this collaboration, the most important Asian customers decided to adopt the new solution, allowing the buyer's company to be the first entrant on the market and therefore the leader with a high worldwide turnover.

A purchasing push approach in Radical co-innovation context

The project team includes buyer and supplier representatives and the Purchasing Department plays a coordination role, being the leading function between internal functions (R&D, marketing…) and external partners (suppliers).

From the early stages of the project, the supplier, the top management and the Chief Purchasing Officer have been strongly involved. Strategic directions have been shared and aligned with both parties.

> *"The Executive committee, where Purchasing is part of, took the decision to move forward on this strategic project. All decisions were made collegially".* Global Purchasing director, Buyer Company.

> *"At the beginning, both CEOs met regularly in order to develop strategic axes together."* Global Purchasing director, Buyer Company.

The Purchasing Department was consulted and helped decision-making about cost reducing soon in the project.

> *"Is there anything from our specification that we can take out in order to reduce total cost?" (*Question asked by the Purchasing Director to the supplier).

Involvement of Purchasing and Supplier during RCI

During this co-innovation project, even though the buyer company was the initiator of the project, the two partners were involved during all the process (from the idea generation to the commercialization of the product). The role of an actor in such project depends on the level of the involvement in the different stage of the co-innovation process. Thought, from the viewpoint of the global innovation process, we can say that the two partners have an active role during the process but with different weight in each stage.

The Purchasing department of the buyer firm was a key player during the RCI project. The earlier implication allows the team to deliver outstanding value and to play an important role with the integration of the appropriate supplier and to well manage operations.

Table 2 summarizes the purchasing department and the supplier roles and contributions in the RCI project that we analyzed.

Table 2: Early Involvement Purchasing and supplier roles during RCI

EPI in RCI	ESI in RCI
• Benchmark: cost, quality, technology etc. • Choose the strategic supplier. • Integrate upfront the supplier to improve the total cost of ownership. • Coordinate the intra-organizational exchanges between R&D, quality and operations. • Facilitate the inter-organizational collaboration with stakeholders (R&D and supplier). • Share ideas, core documentations that helps supplier to learn and develop. • Help the supplier to improve its capabilities and competitiveness with R&D. • Dealing with risk management. • Sharing commercial agreements to improve supplier purchasing's skills.	• Participate in the concept and the solution development (co-developer). • Finance a part of the project. • Share technology with the buyer. • Develop a network of stakeholders (also suppliers) around the project: capabilities, technical expertise, etc.

Reciprocity characterization during co-innovation

The success of this RCI project allowed the Buyer Company to lead the global market share in the energy industry. Therefore, it is key to understand the main enabling factors of this success story.

Due to a high level of trust between main actors, the first solutions developed during this co-innovation project were launched without a formal contract, despite the inherent risk of this innovation. This shows the high level of reciprocal knowledge the partners have from each other. By sharing technological risks, the companies were able to develop an innovative solution that allowed them to capture new markets and to increase both firms' revenue.

We present below these mutual motivations and benefits.

- <u>Relational embeddedness</u>

All decisions were made collectively in a project management mode. For example, regular monthly meetings and brainstorming were held and organized equally at the buyer's company headquarters and at the supplier's headquarters. These meetings goals were to review project status, issues and to build joint solutions. In order to help the supplier in developing a new product/technology, the buyer's company shared specific knowledge that simplified the supplier's access to a competency through a learning effect – "benefit".

> *High quality of supplier relationships: « we openly share core information together, try to resolve different problems together… Learning curve for this kind of suppliers takes a lot of time »*. Global Purchasing Director, Buyer Company.
>
> *"They have a very tight and strong relationship with their suppliers… they develop sustainable relationships with us"*. CEO, Supplier Company.

- Mutual Trust

The collaboration in this RCI project was initiated without any formal contract. According the interviewees the long-term relationship was an adequate safeguard to initiate the project. Respondents from the two parties were agreeing that working in this co-innovation project is based on openness and mutual trust.

> *"Our customer (the Buyer Company) has a complicity and trust that I've never seen elsewhere, an outstanding listening level and empathic skills."* CEO, Supplier Company.

> *"Credibility and trust are mandatory factors, after all we are interdependent. Then we explain to our supplier that he will benefit from these partnership and interdependence."* Global Purchasing Director, Buyer Company.

During the development of this new product, the communication between parties was frequent and informal which supports open information sharing. They confirm that the open environment in which collaboration was unrolling enabled the two companies to have enough confidence to identify the problems and enough trust not to pass the blame around. As such, the right conditions exist for the actual project and also for post projects to succeed.

- Willingness attitude

Relational issues such as strong cooperative ties and mutual trust between parties stimulate the willingness attitude between them. From this case we can confirm that suppliers are more willing to invest in an innovative project with the preferred buyer even if the results are not clear in the short term. This willingness attitude is closely related to the buyer willingness to share its knowledge assets with the supplier.

> *"We shared regularly our key knowledge in order to help the supplier, we had a supporting role."* Global head of engineering and R&D Director, Buyer Company.

> *"It's because of the help of the Buyer Company, that we show willing to do more in return."* CEO, Supplier Company.

The willingness attitude from the two sides could also be related to the interdependence between parties as explained above. When the buyer had the pressure to reduce the cost he didn't assert a pressure on the supplier to reduce the price. This case in-point, ensure an efficient link-up between the buyer and the supplier as a result of fair practices from the two sides.

The willingness of the supplier to participate in the strategy of cost reduction and to increase their chance to be leader in the market has led to let the buyer's company come to the supplier's company and make a review and improve their purchasing strategy.

Asymmetric relationship in this project, when the buyer can make the pressure on the supplier to reduce the price could lead to non-equitable results and impact the willingness attitude of the supplier.

- Mutuality in exchange: equal benefits supplier – buyer

The project's success equally benefits to both companies. The evolution of the market share of the buyer has automatically impacted the evolution of supplier's market share.

> *"This is a true partnership relation because we are securing to the supplier's turnover with a high percentage exchangers orders."* Global Purchasing Director, Buyer Company.

Thanks to this radical innovation, the supplier increased his own capacities (production and technical) and products' quality.

> *"Global Purchasing Director told us: Keep your margin to invest, I just want to have the best quality at the right market cost"*. CEO, Supplier Company.

For the Buyer Company, the supplier contributed in decreasing the development cost, the manufacturing cost; in providing to the market high product reliability, a more innovative product technology and a better design solutions.

The Buyer Company wishes to continue working with the supplier in the future. Such a long-term relationship can provide the customer company a permanent long-term access to supplier technologies and other specific knowledge that increases the innovative capability of the customer. Also this long-term relationship can grant an alignment of technological strategies and possibilities to influence future technological investments.

From the supplier perspective several benefits could be highlighted. Thanks to this co-innovation project has improved its learning skills, has extended its own capabilities, and has achieved higher revenues.

> *"We increased our purchasing power/impact and developed a network of suppliers that helps us for other businesses (volume/costs/services). This is thanks to an increased volume but also because we learned from the buyer company."* CEO Supplier company.

These short-term returns will enable the supplier to better plan the future investment and follow the potential growth development of the buyer.

The output of these factors are detailed below, they represent the innovation result and performance. We named them reciprocity outcomes since they are not expected to be one sided.

- Reciprocity outcomes and innovation performance.

The performance and the success of this shared innovation are otherwise confirmed by the evolution of the market positions for both buyer and supplier. This project allows the buyer's company to strongly increase its market share after two years. The supplier developed a real interest to pursue the collaboration with the buyer's company, and is nowadays recognized as "a true partner".

"Our objective is to be and stay the market's leader". Business Unit director, Buyer Company.

> *"As a result and thanks to this collaboration, we improve our capacity, capabilities and this was better than expected"*. CEO, Supplier Company.

Our findings showed that the existence of equity with commensurate sharing of risk, benefit and motives might influence the performance of a co-innovation process between the buyer and the supplier.

Our study also revealed a strong evidence of the symmetric return for the both parties in the co-innovation performance. Thus, the result of this study is the existence of some factors required to achieve the objective of a co-innovation when organization proposes a new solution in the market.

From these findings we confirm that, the concept of reciprocity is important in a co-innovation project since a joint decision-making is needed at each stage. Thus, decisions suppose an equitable distribution of benefits, risks and costs (Cox et al., 2004).

Discussion

The case study aimed to analyse the role of the Purchasing Department when involved in an early stage of a co-innovation project with a supplier. This early involvement allowed to select and develop the project with the appropriate supplier and conducted to a real success.

We argued that an EPI facilitates the inter-organizational collaboration with internal and external stakeholders (R&D and supplier) (Wynstra et al., 2003). Also, the EPI helps supplier to learn and develop its capabilities in order to accelerate the innovation process and ensure a good quality of the solution

Through this case, we emphasize the importance of reciprocity and that without reciprocity, no cooperation would occur because of the danger of free riding and the lack of trust. So we operationalize reciprocity between firms by: (1) Relational embeddedness, (2) Mutual Trust, (3) Willingness attitude, (4) Mutuality in exchange: equal benefits supplier – buyer. These factors facilitate the Innovative performance / final result, they are reciprocity outcomes.

Long-term relationships are good bases to co-innovate, and viewed as an enabling and supporting factors for innovation during buyer-supplier co-operation (Schiele, 2006). The inter-organizational reciprocity could also be the result of routines between two firms. These routines are defined as stables patterns of interaction between two organizations, developed and refined through repeated collaborations (Doz, 1996).

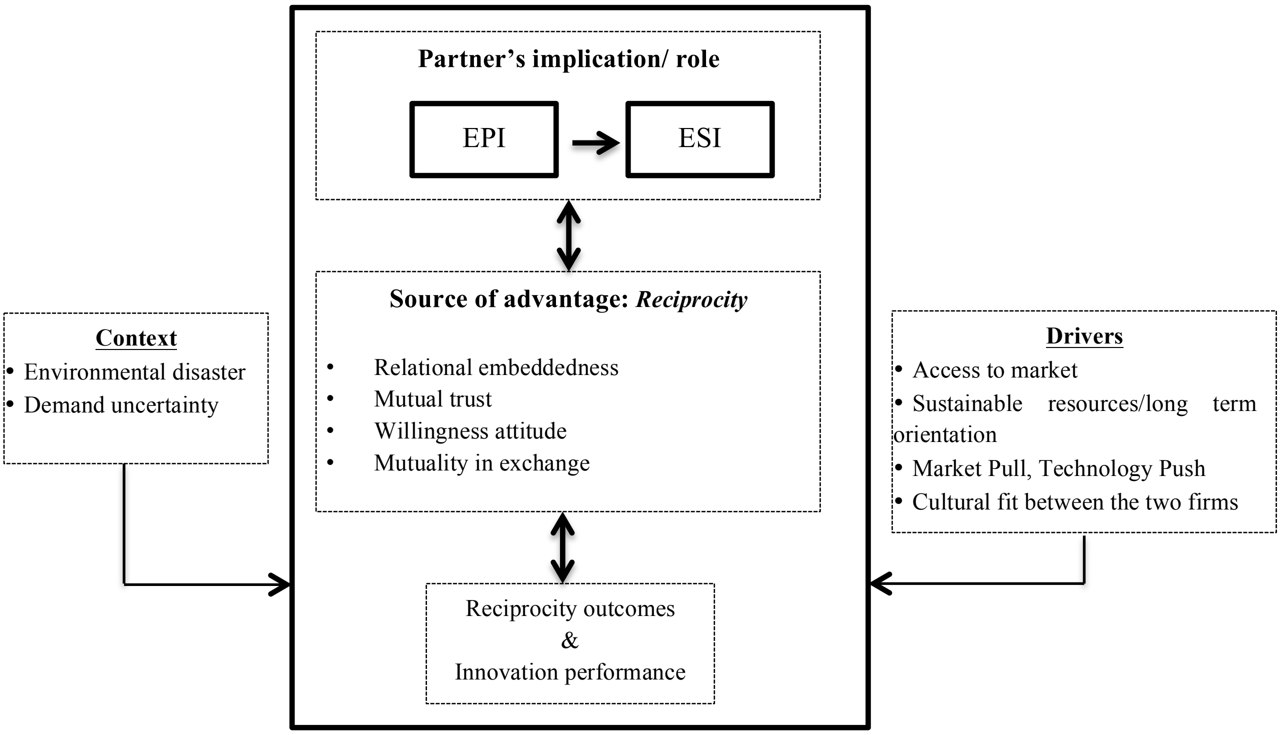
Strong ties promote and enhance both reciprocity and long-term perspectives (Larson, 1992), and a positive relationship has been shown between the strength of ties and the degree of learning (Kale et al., 2000). In this case study, it has been manifested by the absence of a formal contract between the two partners, at the beginning of the project. Indeed, the larger autonomy enables the partner to approach problems and performance metrics in a way that makes the most of its expertise and creative thinking (Liao et al., 2010).

Through this RCI project, both the customer and the supplier have learned more about each other and about their collaboration, which would possibly make future collaborations more efficient and effective (van Echtelt et al., 2008).

The buyer and the supplier behavior attitudes toward co-innovation, evolve and change with the manner and degree of evolution depending on the status of the business working relations with the buyer, as well as the inter- dependence dynamics between supplier and buyer. We found that a trustful attitude involves that parties are willing to take the risk to co-innovate in a new solution. If trust is not reinforced during the collaboration or if it is disappointed, actors are not willing to collaborate further.

Therefore we propose a conceptual model to illustrate our findings in table 3.

Table 3: Conceptual Model - EPI, reciprocity roles during RCI



We confirm that, thanks to the buyer's company to share knowledge and benefits, the supplier's willingness to build capability and to assume a critical role in the co-innovation process is supported. Our findings support that suppliers are willing to use technological capability on behalf of the buyer, to share important technological information (Krause et al, 2001), only if it believes that it can realize benefits and will be receiving a return by doing so (Schiele et al., 2011).

Conclusion, limitations and research perspectives

The field of radical innovation and especially purchasing role during RCI, aren't been deeply explored yet.

Based on this case, we can emphasize offensive motives as stimulating growth opportunities and wining new market share or for defensive motives like optimization of cost/quality/delay of the project and sharing risks.

Early Purchasing Involvement seems to impact positively on the innovation performance, but this should be confirmed through a larger scale.

> *"Thanks to this co-innovation, we are the market's leader since three years." Business Unit director, Buyer Company.*
>
> *"The profitability on long term for this kind of project is rare, as we often work on an ad-hoc mode and we do not have a lot of visibility." CEO, Supplier Company.*

Motives congruence and reciprocity for the internal and external partners are a necessary condition of success of this RCI project.

For managers, this study suggests that Purchasing department is core to succeed in a RCI project. Furthermore the reciprocity relationship between parties is needed in co-innovation. They have to be aware first that when initiating a RCI project, the relationship between the two organizations is important and cooperative practices are needed. Thus, involving a supplier in an innovation process should ensure equal returns for both parties.

Some limitations need to be considered in this explorative study. First, the use of a single in-depth case study on a specific industrial sector does not permit to any generalization. The possibility to search on other sector may be an area for further development and insights. We focused on SME companies and on heads of business as main respondents, which could bias findings. Although some respondent had different responsibilities, double hats, as the supplier's CEO, this could be a potential source of risks for misinterpretations. Therefore, additional cases studies would strengthen and validate the findings.

References

Anderson Strachan, P. (1996), Managing transformational change: the learning organization and teamworking. *Team Performance Management: An International Journal*, 2 (2), 32-40.

Birou, L.M. and Fawcett, S.E. (1994) Supplier Involvement in Integrated Product Development: A Comparison of US and European Practices, International Journal of Physical Distribution and Logistics Management, Vol. 24, No. 5, pp. 4-14.

Chesbrough H. W. (2003), *Open Innovation: The New Imperative for Creating And Profiting from Technology*, First Trade Paper Edition, Harvard Business Press.

Chesbrough, H. (2006a), Open innovation: A new paradigm for understanding industrial innovation. In *Open Innovation: Researching a New Paradigm*, ed. H. Chesbrough, W. Vanhaverbeke, and J. West, 1-12. Oxford: Oxford University Press.

Cox, A. (2004), The art of the possible: Relationship management in power regimes and supply chains, *Supply Chain Management: An International Journal*, 9 (5), 346-356.

Das, S. R., and Joshi, M. P. (2007). Process innovativeness in technology services organizations: Roles of differentiation strategy, operational autonomy and risk-taking propensity. *Journal of Operations Management*, 25(3), 643–660.

De Visser, M., de Weerd-Nederhof, P., Faems, D., Song, M., van Looy, B., Visscher, K. (2010), Structural ambidexterity in NPD processes: A firm-level assessment of the impact of differentiated structures on innovation performance, *Technovation*, 30 (5), 291-299.

Doz, Y.L. (1996), The evolution of cooperation in strategic alliances: Initial conditions or learning processes?, *Strategic Management Journal*, 17 (7), 55-83.

Faems, D., B. Van Looy, and K. Debackere. 2005. Interorganizational collaboration and innovation: Toward a portfolio approach, *Journal of Product Innovation Management* 22 (3), 238–50.

Fehr E, Gächter S (2000) Fairness and retaliation: The economics of reciprocity. *Journal of Economic Perspectives,* 14, 159–181

Gassmann, O. (2006), Opening up the innovation process: towards an agenda, *R&D Management,* 36 (3), 223-228.

Hamel, G. (2012), *What Matters Now: How to Win in a World of Relentless Change, Ferocious Competition, and Unstoppable Innovation*, Jossey-Bass.

Huizingh, E.K. (2011), Open innovation: State of the art and future perspectives, *Technovation*, 31, 2-9.

Henke Jr, J. W., Zhang, C. (2010), Increasing supplier-driven innovation. IT Management Select, 16.

Jansen, J. J. P., Van Den Bosch, F. A. J., and Volberda, H. W. (2006), Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators, *Management Science*, 52(11), 1661–1674.

Kale, P., Singh, H., Perlmutter, H. (2000), Learning and protection of proprietary assets in strategic alliances: Building relational capital, *Strategic Management Journal*, 21 (3), 217-37.

Kanda A, Deshmukh, S.G. (2008), Supply chain coordination: perspectives, empirical studies and research directions, *International Journal of Production Economics*, 115 (2), 316–335.

Kersten, W. (Ed.) (2012), *Managing the Future Supply Chain: current concepts and solutions for reliability and robustness*, Joseph Eul Verlag, Lohmar-Köln.

Kim, W.C., Mauborgne, R. (2005), *Blue Ocean Strategy*, Harvard Business School Press, Boston.

Knudsen, M.P., Mortensen, T.B. (2011), Some immediate -but negative- effects of openness on product development performance, *Technovation*, 31 (1), 54-64.

Krause, D. R., M. Pagell and S. Curkovic, 2001, Toward a measure of competitive priorities for purchasing, *Journal of Operations Management*, 497-512.

Krause, D. R., Vachon, S. And Klassen, R. D. (2009), Special Topic Forum On Sustainable Supply Chain Management: Introduction And Reflections On The Role Of Purchasing Management, *Journal of Supply Chain Management*, 45 (4), 18-25.

Larson, Andrea, (1992), Network dyads in entrepreneurial settings: A study of the governance of exchange relationships, *Administrative Science Quarterly*, Vol. 37(1), 76-104.

Laursen, K., Salter, A. (2006), Open for innovation: The role of openness in explaining innovation performance among UK manufacturing firms, *Strategic Management Journal*, 27 (2), 131-150.

Lemaire (2003), *Stratégie d'internationalisation*, Dunod.

Liao, H., Liu, D., and Loi, R. (2010). Looking at both sides of the social exchange coin: A social cognitive perspective on the joint effects of relationship quality and differentiation on creativity. *Academy of Management Journal*, 53(5), 1090–1109.

Lincoln, J.R., Gerlach, M., Takahashi, P. (1992), Keiretsu networks in the Japanese economy: a dyad analysis of intercorporate ties, *American Sociological Review*, 57, 561-585.

McDermott, C., and R. Handfield. (2000), Concurrent development and strategic outsourcing: Do the rules change in breakthrough innovation?, *The Journal of High Technology Management Research,* 11 (1): 35–57.

Moguilnaia NA, Vershinin KV, Sweet MR, Spulber OI, De Souza MM, Narayanan EMS (2005). Innovation in power semiconductor industry: past and future, *IEEE Transactions on Engineering Management*, 52 (4), 429-439.

Mol, J.M., 2003. Purchasing's Strategic Relevance. Journal of Purchasing and Supply Management 23 (4). 42-25.

O'Connor, G. C., Veryzer, R. W. (2001), The Nature of Market Visioning for Technology-Based Radical Innovation, *The Journal of Product Innovation Management*, 18, 231-246.

Petersen, K.J., Handfield, R.B., Ragatz, G.L.(2003), A model of supplier integration into new product development, *Journal of Product Innovation Management,* 20 (4), 284–299.

Prahalad, C.K., Hamel G. (1990), The core competence of the corporation, *Harvard Business Review*, 68, 79-91.

Prester, J. Raslic Bakaric, I., Matijevic, B. (2014), Organisation of the Purchasing Function for Innovation, *International Journal of Social, Education, Economics and Management Engineering*, 8 (11), 3367-3373.

Reed, F. M., & Walsh, K. (2002). Enhancing Technological Capability Through Supplier Development: A Study of the U.K. Aerospace Industry. IEEE Transactions on Engineering Management, 49(3), 231–242.

Schiele, H. (2010). "Early supplier integration: the dual role of purchasing in new product development." R&D Management, 40(2), 138-153.

Schiele (2006), How to distinguish innovative suppliers? Identifying innovative suppliers as new task for purchasing, *Industrial Marketing Management 35, 925–935*

Schiele, H., Veldman, J., Hüttinger, L. (2011). Supplier innovativeness and supplier pricing: The role of preferred customer status, *International Journal of Innovation Management*, 15(01), 1-27.

Seuring, S., 2005.Case study research in supply chains — an outline and three examples. In: Kotzab, H., Seuring, S., Muller, M., Reiner, G. (Eds.), Research Methodologies in Supply Chain Management. Physica -Verlag, New York, pp. 235–250.

Song, M., & Benedetto, C. A. D. (2008), Supplier's involvement and success of radical new product development in new ventures, *Journal of Operations Management*, 26(1), 1-22

Tranekjer, T.L., Knudsen, M.P. (2012), The (Unknown) Providers to Other Firms' New Product Development: What's in It for Them?, *Journal of Product Innovation Management*, 29 (6), 986–999.

Uzzi, B. (1996), The sources and consequences of embeddedness for the economic performance of organizations: The network effect, *American Sociological Review*, 61(4), 674-698.

Van Echtelt, F. E. A., Wynstra, F., Van Weele, A. J., Duysters, G. (2008), Managing supplier involvement in new product development: a multiple-case study, *Journal of Product Innovation Management*, 25(2), 180–201

Van Weele, A.J., 2010. Purchasing and Supply Chain Management: Analysis, Strategy, Planning and Practice, 5th ed. Cengage Learning EMEA, Hampshire.

Van Weele, A. J. (2002). Purchasing and Supply Chain Management. Boston: Thomson Learning.

Van Weele, A.J. (2000). Purchasing and Supply Chain Management: Analysis, Planning and Practice, Thomsom Learning, London, 2nd eds.

Walter, A. (2003). Relationship-specific factors influencing supplier involvement in customer new product development. Journal of Business Research 56(9), 721- 733.

Witzeman, S, Slowinski, G, Dirkx, R, Gollob, L, Tao, J, Ward, S, Miraglia, S. (2006), Harnessing external technology for innovation, *Research-Technology Management,* 49 (3), 19-27.

Wynstra, F., Weggeman, M., & Van Weele, A. (2003). Exploring purchasing integration in product development. Industrial Marketing Management, 32(1), 69–83.

Yin, R.K. (2009), *Case Study Research: Design and Methods*, Fourth Edition, Sage Publications Inc.
Zhang, C.; Sridhar,V. Henke,J.W.,(2015),Reciprocity between buyer cost sharing and Supplier Technology Sharing, International Journal of Production Economics.