

Building a rationale for co-creation with customers and suppliers: an exploratory study

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Abstract

The co-creation paradigm, a process of collaboration among all stakeholders, seems the winning approach in nowadays market. We explore how firms adopt it, along the NPD, by looking at 15 co-creation initiatives involving both customers and suppliers. We identify three different patterns of co-creation: (i) companies involving both customer and suppliers in a single NPD phase, (ii) companies co-creating with customers in multiple NPD phases, while involving suppliers only in one, and (iii) the reverse. Two factors drive this choice: the *locus* of the relevant knowledge, market or technology, and the distribution or “stickiness” of knowledge among stakeholders involved.

Keywords: Co-creation with customer, New product development, Supplier involvement

Introduction

New Product Development (NPD) process has become more and more participative. According to the Service-Dominant logic (SDL, Lusch and Vargo, 2006), customers and suppliers are both resource integrators and both are involved in the co-creation of value (Cova and Salle, 2009). The locus of value creation and value extraction for a company lies in the interaction between networked, empowered and active customers (Prahalad and Ramaswamy, 2004) as well as in the integration of capabilities that suppliers can put in NPD projects (Johnsen, 2009). A collaboration between all stakeholders can not only create value, but also expand and enlarge it for all participating individuals (employees, customers, suppliers) in a more win-win fashion (Ramaswamy & Ozcan (2014). The Process of Co-creation, as defined by Ramaswamy & Ozcan (2014) is “*the practice of developing offerings through ongoing collaborations with customers, employees, managers, and other stakeholders*”. This process implies a collaboration among all stakeholders, through engagement platforms, what has been recently defined as “*The co-creation paradigm*” (Ramaswamy & Ozcan, 2014). This new view of the value creation process imply a passage from a resource-based view of the organization to a co-creation based view, where

resources are shared between multiple stakeholders, and from resource allocation to resource leverage, including suppliers and customer resources, to create an extended enterprise (Ramaswamy & Ozcan, 2014).

The DART model (Prahalad & Ramaswamy, 2004), posits that dialogue, access, reflectivity and transparency are the four elements companies should develop for a successful integration, and thus co-creation, with stakeholders. For an efficient and efficacy development of a shared solution, all participants must become equal and joint problem solvers. Dialog should be centred on issues of interest to both and should be made possible through transparency and access to information. Reflexivity of information is essential as it enables feedback, hence dialogue, between stakeholders while access is essential to gain information about others experiences, needs, and thoughts.

Relatively surprisingly, even a cursory review of literature would highlight that customer involvement and suppliers' involvement in NPD have been generally analysed separately, while much lower emphasis has been put so far in the reciprocal role of these two processes, the possible interactions and consequences. This is a severe limit to literature for a twofold reason: on the one hand, it is somehow intuitively reasonable to assume that customer co-creation implies severe challenges to supply chains (and, of course, this could be extended to the case in which co-creation is on the supply-side and generates opportunity for demand-side co-creation), in terms of personalization required, sometimes raising even unfeasible concepts, and research is not able to provide reliable managerial guidelines to manage such a situation; on the other hand, network theory and the SDL suggest that co-creation depicts networked innovation, and that the outcome of a networked process is different from the sum of the outcomes of single processes (such as supply-side and demand-side involvement in NPD). For this reason, in this paper, we aim to explore the involvement network and the mutual effect of supply-side and demand-side co-creation by analysing 13 cases of co-creation. To do this, we develop a framework aimed at developing a taxonomy of demand-side and supply-side co-creation practices, and two research questions of the factors motivating firms to adopt either. Then we test the research questions in the cases to understand also the networked roles of supply- and demand-side co-creation to provide theoretical implications and managerial alike.

Literature Review

The Service-Dominant school of thoughts (Lusch and Vargo, 2006) has been identified as initiator of a shift in the dominant thinking in SCM context, moving from viewing the customer as the destination of supply in a "chain" perspective to someone to co-create value with in a more service - ecosystem perspective (Lusch, 2011). In this way, the classical supply chain strategy segmentation process, based on product, demand and market characteristics (Fisher, 1997), need to be replaced by a more customer - centric perspective, in which this segmentation is carried out on the basis of the intensity of customer involvement in the co-creation process. Some authors (e.g. Juttner et al., 2010; Kalaiganam and Varadarajan, 2006) theorised that this process is coupled with a supply side alignment strategy that directs the unique characteristics and capabilities of suppliers towards the target customer segments, consistently with a company value proposition. In order to ensure so-called "seamless" activities between customers and suppliers (Juttner et al, 2010) and a joint problem solving focus (Prahalad & Ramaswamy, 2004) the Service-Dominant logic literature (Lusch, 2011), the participative innovation literature (Chesbrough, 2006) as well as the classic literature on decision making related to innovation (Von Hippel, 1994), claim that participative or joint decision making implies to bring physically or virtually to a single "locus" all the needed information and capabilities by the different parties. Moreover, Von Hippel (1994) argues that this joint decision making is influenced by the extent to which an actor has relevant information and capabilities and by the extent to which there are difficulties in transferring those information and competences to other parties involved in the decision making process. This point acquires even more relevance when this knowledge is put at stake for a "super co-creation entity".

As a whole, by a more extensive analysis of the SCM and marketing literature, very few are the

empirical contributions on the joint involvement of customers and suppliers and on a more co – creative view of the NPD process. Researches on co–creation with customers and suppliers involvement in the NPD process appear to have grown apart. Most of the literature on co-creation focuses, indeed, only on the outsourcing company and its relation with customers, while on the SCM side, the focus is on the mode, intensity and timing of integration of capabilities that suppliers can put in NPD projects (Johnsen, 2009). Only recently some contributions appear, that highlight the supplier's side (Baraldi et al, 2014), stressing the importance of processes of value creation within outsourcing and the interaction between the outsourcing company and the suppliers. However, even in these recent cases, the focus is only on the relation between suppliers and the company, not considering the linkages with customers, despite the co-creation paradigm conceives co-creation as a mutual dependence relationship among all stakeholders, the company, customers and suppliers.

Research Framework

In the present paper, by disentangling the concept of co-creation with both customers and suppliers, we aim to investigate how companies and their supply chain partners manage this activity in the NPD process. More specifically, we believe that enabling co-creation with customers can affect the modes and the timing of co-creation with supplier during the NPD process, and thus should be properly designed. We also assume that knowledge and competences of suppliers and customers, should be considered as a moderator factor in this relationship.

Looking at two different streams of literature, marketing and operation management, we derive an integrated research framework (Fig. 1) to guide our exploratory analysis of the subject. In particular, as outlined in Figure 1, we concentrate our attention on the interactions flow between customers, firm and the firm’s suppliers involved in the NPD process. We posit that in order to fully exploit co-creation benefits, firms should enable a continue interaction and dialogue with both suppliers and customers along the NPD process through engagement platforms. Thus, in order to explore how co-creations processes actually take place and are interrelated we outline as a first research question: (RQ1) How does the integration between customer co-creation and supplier co-creation takes place along the NPD process? The integration between co-creation processes, i.e. co-creation interactions flow, encompasses not only when, how and what is the contribution of suppliers or customer to the co-creation process, but also the role of the firm, the development choices made and consequent constraints imposed ahead in the NPD process and on other actors during the co-creation processes. Furthermore, both customers and suppliers knowledge and competences seem relevant moderators when studying involvement of external actors into the NPD process. Hence, we are interested in studying (RQ2): Are suppliers and customers knowledge affecting the co-creation interaction flow among customers and suppliers? And how they do so?

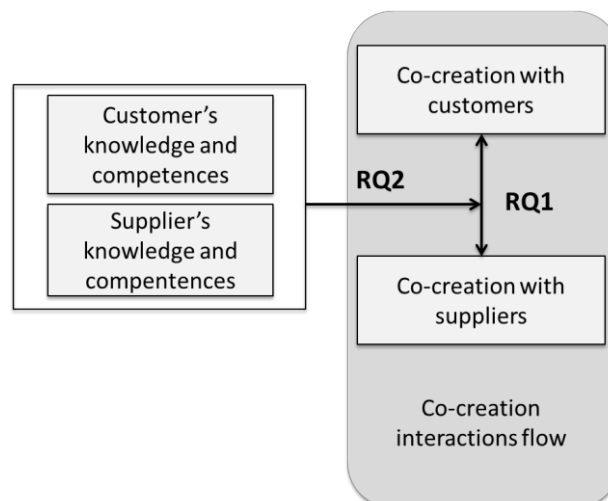


Figure 1- Conceptual Framework

Methodology

The research framework presented in the previous section outlines the main aim of our research: disentangling the concept of co-creation with multiple stakeholders, such as customers and suppliers. We aim therefore to provide answer to RQ1, RQ2 and refine the research framework presented above getting details on the definition and operationalization of the variables involved (i.e. co-creation with suppliers and customers) and to provide external validity of this and future related studies investigating the role of contingent factors in place. We performed exploratory multiple case studies research (Yin, 2009) in a cross-industry context (i.e. food, home appliances, consumer goods, health care equipment and steel pipes), adopting as unit of analysis a single project of a product recently launched in the market.

Our sample is composed by 13 case studies and a total of 15 embedded units of analysis. Case studies have been selected adopting a purposive sampling (Miles and Huberman, 1994) in order to find evidences about co-creation initiative with both customers and suppliers. The information to understand the case eligibility in the sample have been collected through an extensive secondary sources analysis by looking for specific co-creation initiatives. Information about the NPD project have been collected thanks to at least two semi-structured interviews with a NPD or Product manager. Interviews have been tape recorded, transcribed and coded. The choice of adopting a semi-structured interview protocol is explained by both the need to have the freedom to focus on the specific and unique aspects of each initiative as well as to ask more specific questions related to the theoretical constructs underpinning the variables chosen in our research framework.

Table 1 - General Information about the sample

Companies	Turnover 2013 (mln EUR)	Num. of employees	Unit of analysis (co-creation initiative)
Case 1	220	4.000	Leather bag and accessories
Case 2	45	50	Car scent
Case 3	<10	<250	Interbody cage
Case 4	1330	6.600	Boiler
Case 5	70	400	Zipper
Case 6	7979,50	23.500	Steel pipe for oil well
Case 7	3.500	8.300	Gluten free pasta
Case 8			Nuts biscuits
Case 9	14.000	10.400	Fridge
Case 10	76.000	320.000	Frozen pizza
Case 11			Brick of tea
Case 12	12.000	60.000	Vacuum drawer
Case 13	11.700	35.000	Homogenized meat
Case 14	<2,5	<250	Professional vacuum cleaner
Case 15	21.300	85.000	Customised bottle of beer

Findings and discussion

Within-case analysis allows to derive a taxonomy of modes and timing of the co-creative process with customers and suppliers and in order to assess whether and how supplier and customer knowledge and competences (both technical and about the final market) can help explaining

different approaches. First of all, table 2 summarises the main points of the within-case analysis. Results show different co-creation patterns (both supplier and customer triggered), enlarging the concept of co-creation not only to the sole customer, but to the supplier as well. These modes reveal that the integration of co-creation activities with the customer in the NPD process affects the way the firm itself co-creates with its suppliers, in terms of both information and communication flow. Results show five companies (Cases 1,4,9,12,13,14) that involve customers and suppliers in only one phase of the NPD, not allowing feedback exchange and integration. For instance, in Case 13, the firm involves suppliers for the detailed development of the fridge, while consumers only test the final product. No interaction or exchange of feedbacks, even with the firm mediation, is allowed between consumers and supplier during the product development. All other companies follow a virtual pattern, designing multiple interactions with both stakeholder along the NPD process, enabling a dialogue and the exchange of feedbacks. In Case 11, for example, suppliers are the ones proposing an innovative packaging (a new brick of tea), customers are then asked to select the preferred packaging and to propose changes according to their impressions and needs and, finally suppliers are involved again for the detailed design of the brick of tea including changes in color and shape proposed by the customers. These patterns are depicted by arrows and if the interaction lasts for two consecutive phases, it is represented with the number of the company written in between the two columns or rows (as in Case 8,2,3). Not - dotted arrows stand for companies that engage in co-creation with suppliers in both earlier and later stages on the NPD process while limiting the engagement of customers, and dotted for companies that adopt the opposite strategy. No companies analyzed co-create with customers and suppliers in all NPD stages (this desirable pattern is depicted by the diagonal arrow in Fig. 2).

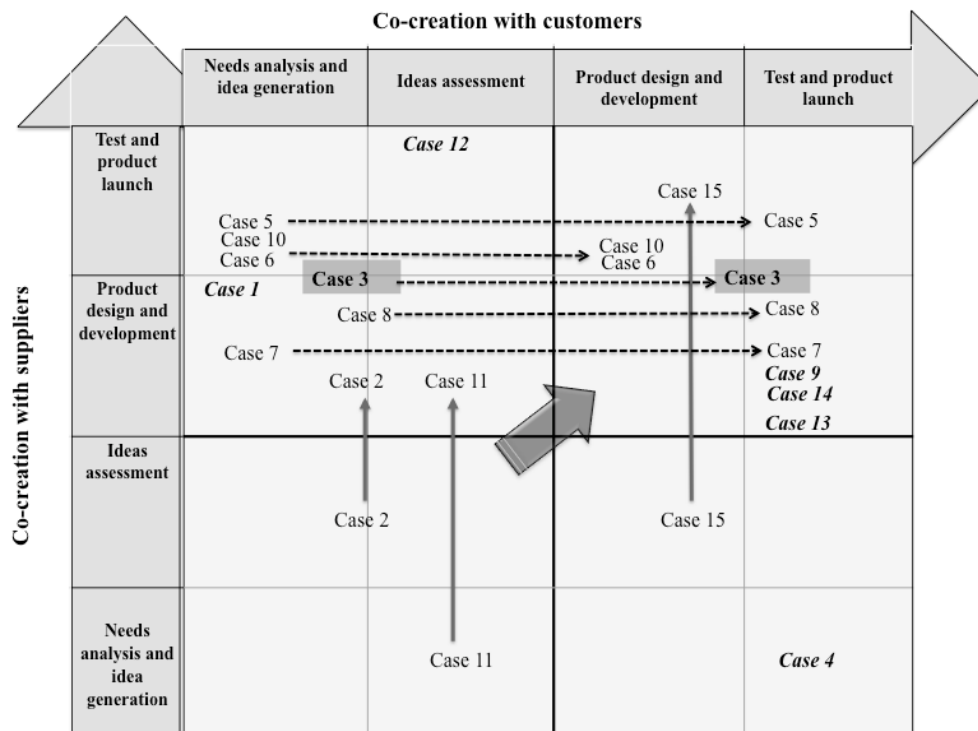


Figure 2- Results

First of all, our findings suggest (RQ1) that firms are in most cases in the central position of the network and work as mediators between customers and suppliers, managing the relationship with these partners in a separate fashion. This mediation operates for different reasons: in some cases represents a way to bridge a gap in competences or a physical geographic gap between suppliers and customers (Case 7, 8, 9). In other circumstances, it is related to confidentiality of information (Case 12) or to the difficulties the company foresees in managing it (Case 10, 13). As clearly

depicted in Fig 2, firms tend to concentrate their effort on the development of co-creation activities on the customers side, engaging them broadly in NPD process stages. Suppliers, instead, are still lightly involved in these activities, particularly in the early stages and, when involved in later stages of the NPD process, they usually participate in the development of the idea proposed by customers. These finding perhaps explain why the focus of prior researches has been mostly on customer co-creation with a lack of studies on the supplier's one.

Secondly, our findings confirm that the relationship between the two sides is moderated by suppliers and customers knowledge (RQ2). Results suggest, indeed, that the actors owning the relevant information and knowledge about the product and final market (Von Hippel, 1994) define the interchange between actors in the NPD. Three are the main pattern emerged: (1) Suppliers are engaged in the early stages only when co-creation involves product features demanded at them (Case 11 brick, bottles sleeve in Case 5 and design of the air refresher in Case 15), in which they traditionally possess technical competences and knowledge but also knowledge of the final market, being themselves a competitor in the market (as in Case 11). We can further observe that, for these products, the customer is included as well in the early stages only when he plays an "inventor role" (Case 2 and Case 11 initiatives), while in cases approaching mass customization, the customers do not provide the initial product idea, and thus is engaged only in later stages (Heineken). (2) The majority of companies analyzed seem to engage customers in more than one phase, developing broad joint creation processes. In these cases we can easily observe how the relevant knowledge is embedded in customers that propose ideas, suggestions and participate in the development and test of the product (In Case 7 and Case 8 customers suggest recipes and rate them, in Case 5 customers suggest new ideas for the zippers). Case 3 in particular shows a direct interaction between customer and supplier with no needs of mediation by the company. This is indeed a case in which the knowledge embedded in the customer is highly technical and really "stick" on the customer (a surgeon). She/he is the owner not only of the idea, but she/he has also the ability to translate it into technical requirements to be transmitted to the suppliers. On the other hand, in this case suppliers involved are mainly suppliers of commodities, with very little knowledge about the specific product and the final market. Their role is indeed marginal and limited to the sole product development phase. (3) In five cases we found customers and suppliers involved in one stage only. We observe that for these initiatives, firms seem to possess the knowledge and competences to interact with the market. Thus, they engage stakeholders only in traditional activities, mostly product development for suppliers and market test for customers.

Conclusion and managerial implications

This study investigates how involvement of suppliers take place when a firm is putting in place co-creation with customer, and *vice versa*: what are the implication for co-creation with customer of co-creation initiatives with suppliers. Results suggest that when co-creation with customers takes place, also the mode of suppliers' involvement changes in terms of information and communication flows with the company. However, despite the intense dialogue and interaction between the company and customers and/or suppliers, companies tend not to let customers and suppliers communicate directly, but act as mediators between supply-side and customer-side contributions. Based on the cross-case analysis of 15 experiences of co-creations, three main strategies of co-creation interaction have been outlined: (i) companies involving customer and suppliers only in one and in the same NPD phase, (ii) companies co-creating with customers for more than one NPD phase, while involving suppliers only in one, and (iii) companies co-creating with suppliers for more than one NPD phase, while involving customers only in one. Interestingly, the choice of the strategy seems to be in some part dependent on the *locus* of the relevant knowledge (i.e. market or technology). When relevant knowledge is in the market, the co-creation interaction is more unbalanced towards the customer-side (second strategy), *vice versa* when the relevant knowledge is the technology. Finally, our findings confirm that the pattern of interaction is affected by the

distribution of competences among stakeholders where the actors owning the relevant information and knowledge about the product and final market define the interchange between actors in the NPD.

This study opens a new stream of research, stressing how the evolution of the market, to a more participative one, spurs the needs to analyze integration and interaction between the different actors. From a managerial point of view, we believe our results can help to efficiently and effectively manage the relation with suppliers (i.e. when and how to involve them) in the NPD process. The same holds true for the Marketing manager who are provided with some guidelines to understand which modes of co-creation or customer involvement is most suitable depending on the supplier type and knowledge of the final market as well as the nature of the relationships in place or to be established with a supplier.

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Appendix

Table 2 – Descriptive analysis –

(1)= Needs analysis and idea generation

(2)= Ideas assessment

(3)= Product design and development

(4)= Test and product launch

Company	Co-creation initiative	Description	Co-creation mode with suppliers	Timing	Co-creation mode with customers	Timing	Actor owning more relevant knowledge and competences T= technical M= of the final market
Case 1	<i>Leather bag and accessories</i>	New product line: leather bags and accessories	Suppliers involved for the technical drawings of the bag	(3)	Members of the Company club are involved to provide new ideas through the website.	(1)	Customer - M
Case 2	<i>Car scent</i>	New variants of car scent(same shape but different style and colour)	Adaptations to product design to make it “producible” with not excessive cost. The manufacturing division of the external production plant takes also part in the evaluation of ideas to be released into the market.	(2); (3)	Customers are asked to draw their car scent design according to their own style and upload it on the website. Customers can also rate the different design posted by other customers. A committee composed of managers and some external actors chooses the winner.	(1) (2)	Supplier - T
Case 3	<i>Interbody cage</i>	Evolution of a typical cage to treat degenerative disc diseases.	Suppliers propose the material (steel, plastic, titanium) according to the company’s specific requirements.	(3)	The trigger of the NPD process is an intuition of a surgeon (owner of the idea) put then in direct contact with the company’s engineers and suppliers	(1); (2) (3) (4)	Customer – T and M
Case 4	<i>Boiler</i>	New boiler based of a new technology.	The technological innovation in one component of the boiler is suggested from the supplier of this component.	(1)	Collection of possible requirements from the distributors and the technicians (generally in charge of product installation). Prototypes testing	(4)	Supplier - T

					for the final customers.		
Case 5	<i>Zipper</i>	New “green product”, with organic cotton and recycled polyester	Zipper fabrics suppliers involved to change the pigments used to paint the fabrics. Choice of a supplier of natural pigments. Fabrics supplier involved again during the testing of product performance.	(3); (4)	Informal meeting with costumers to collect ideas and trends. Final test of the product performance with customers.	(1) (4)	Customer - M
Case 6	<i>Steel pipe for oil well</i>	Special type of pipe which no longer required reaming and smoothing (incremental innovation)	Supplier of a specific heat treatment is involved during the detailed design of the product and again during the testing phase performed at the client’s plant.	(3); (4)	The idea comes from a specific need of a client (a company). The company is also involved during the detailed design phase to provide specification and to get in contact with new technologies offered.	(1) (3) (4)	Customer - M
Case 7	<i>Gluten free pasta</i>	Gluten free pasta to answer to the need of celiac people and meet the expectations of not celiac individuals.	Suppliers offer to the company some alternatives with an impact on the recipe.	(3)	Initial focus group to get feedback on customers’ expectations for: consistency, taste and color. Customers are then involved in the testing.	(1) (4)	Customer - M
Case 8	<i>Nuts biscuits</i>	New recipes for a new type of cookie, extension of the existing range.	Chocolate suppliers are involved and decide to adopt milk chocolate rather than the usual dark chocolate	(3)	Customers, represented by fans on the Facebook page are asked to rate some recipes proposed and to come out with new ones.	(1) (2) (4)	Supplier - T
Case 9	<i>Fridge</i>	Fridge	Suppliers involved for technical advice during the detailed design of the product.	(3)	Selected group of customers involved in the testing phase	(4)	Supplier -T
Case 10	<i>Frozen pizza</i>	New variants of frozen pizza	Suppliers are involved to propose new toppings (e.g. special type of eggplant). Also involved at the beginning of the industrialisation in case of some pitfalls.	(3); (4)	Customers are involved in a first concept screening phase and then during the testing to taste the new variants of pizza. Distributors are instead involved to provide suggestions about the products chosen by the final	(1) (3)	Supplier - T

					customers during the customers test.		
Case 11	<i>Brick of tea</i>	New solution for the bricks of tea for kids with an innovative packaging.	Two packaging options coming from proposals of two major suppliers.	(1); (3)	Customers (kids and their mothers) are involved through a focus group and are asked to choose among a pre-defined list of packaging options. Customers also suggested a change in the colour variants proposed.	(2)	Supplier –T-M
Case 12	<i>Vacuum drawer</i>	New technology to cook in vacuum by removing 99% of the oxygen.	Best class supplier to adapt an existing technology in the professional business unit for the domestic market.	(3)	Professional customers involved in order to give feedbacks about benefits, weaknesses of the product to be launched the domestic business unit.	(2)	Customer - T
Case 13	<i>Homogenize d meat</i>	An incremental change in the existing recipe of homogenized meat with almost no salt.	Printing agency involvement for changing the label according to new recipe.	(3)	Customers involved in the point of sales to taste the product and to evaluate the differences with ne normally salted variant.	(4)	Supplier - T
Case 14	<i>Professional vacuum cleaner</i>	An incremental change in a dry vacuum cleaner targeting cleaning companies.	Components suppliers involved actively in the decisional process, proposing alternatives, giving to the company some prototypes based on the technical specification decided.	(3)	Customers (cleaning companies) involved in the testing phase to help detecting and solving pitfalls when using the product.	(4)	Supplier - T
Case 15	<i>Customised bottle of beer</i>	Customisation of specific parts of the sleeve of the bottles.	Suppliers heavily involved from the beginning of the NPD process, suggesting the idea of the initiative, performing ideas selection, feasibility assessment and testing of resistance, thickness and other physical characteristics of the product.	(1); (2); (3); (4)	Customers involved for the detail design of the sleeve of the bottle through the website. They choose pre-defined sleeve and they can customise them further (e.g. inserting a picture)	(3)	Supplier - T