Relationship Between Collaboration and Innovativeness: A Case Study In an Innovative Organization

Track: Human Resource Management

Keywords: Collaboration. Innovativeness. Product Development. Social capital. Dynamic capabilities.

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Collaboration shapes the culture of an organization and relates to its innovativeness, understood here as a set of organizational dimensions that affect its ability and propensity to innovate. In order to verify the relationships between collaboration and innovativeness, a case study was conducted in a subsidiary of a transnational company that has a unique expertise in innovation. The research method was centered on content analysis of interviews with sixteen respondents from three areas and distinct hierarchical levels. The findings reveal that collaboration affects the different dimensions of innovativeness. A conceptual framework of the relationship between collaboration and innovativeness is proposed.

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1. Introduction

Collaboration is often used within and among organizations to maximize economic performance, as individuals perceive that mutual support can be more productive than self-sufficiency. More specifically, the potential of design and implementation of innovative products and services can be expanded by sharing diversified knowledge and different perspectives. In the organizational context, collaboration relates to the interaction among individuals and departments, and it can be characterized as a social capital resource and even a capability (Blomqvist, 2006) that brings about an important source of sustainable competitive advantage

Collaboration requires organizations to overcome a number of barriers to knowledge sharing (Huxham, 2009; Dalkir, 2011) and can be understood as a potential driver that affects, as a whole, the ability to innovate in an organization in conjunction with other organizational dimensions. This research seeks a better understanding of the factors that characterize collaboration, seen also as one capability that is integrated to a range of other capabilities – adaptive, absorptive and innovative (Wang & Ahmed, 2004) – which impact the innovative results of an organization.

In order to deepen this understanding, it is necessary to investigate the intertwined factors that influence collaboration and affect the ability of an organization to innovate, expressed through a set of dimensions of innovativeness (Quandt, Ferraresi & Bezerra, 2013). In order to achieve this goal, a detailed case study was conducted in a subsidiary of a Swedish multinational organization located in Brazil, encompassing individuals and areas that are involved in the process of new product development. This organization has a distinctive expertise in innovation as three functional areas – Design, Marketing and R&D – interact uniquely in this process.

Hence, to better understand the different factors that influence collaboration between people in different areas and discuss the relationships between these factors and the organization's ability to innovate, this study set out to verify how the collaboration between individuals and areas relates to the dimensions of innovativeness. The following steps were taken to achieve the objective of the study: 1) To identify the factors that influence collaboration between individuals and areas; 2) To characterize how individuals and areas collaborate among them in this context of product development; and 3) To verify the relationships of collaboration with the dimensions of innovativeness.

2. Collaboration and Inovativeness

Collaboration brings about a collective action where complementary skills interact to create a shared understanding that none of the actors involved had previously possessed, or are unable to obtain on their own (Dalkir, 2011). The higher the common benefit generated by collaboration behavior, the more positive will be the perception of interdependence among individuals, organizations and areas, and the lower the tendency of defensive behavior based on self-interest. Mutuality allows individuals, areas and organizations to build a trusting relationship over time and minimizes the unilateral solution of problems (Gray & Wood, 1991), which is dependent on a high level of formal commitment and does not occur in relationships based on coordination or cooperation (Mattesich, 2001).

Collaboration, unlike cooperation or other expressions of positive social integration, specifically involves higher risk taking conditions – sharing power, financial resources and reputation – that are inherent to a more intense interaction. It hinges on clear goals and an open atmosphere that encourages people to share risks and build trust in relationships (Antikainen, 2010). Collaboration enhances the creation, sharing and transfer of knowledge (Hansen, 2009) and sustains a culture that favors discovery and innovation (Hurley & Hult, 1998), and subsequent impacts on organizational performance. As a set of interlocking factors (Thomson & Perry, 2006; Thomson, 2007; Mattesich, 2001) collaboration requires the continuous reinforcement and clarification of collective goals, through a balance of participation and control in management style (Huxham, 2005)

In this sense, collaboration may be seen as a strategic choice for the firm to organize resources in order to exploit opportunities or neutralize threats in the market (Barney, 1991). It may be used to integrate, build and reconfigure internal and external competences in order to quickly adapt to a changing environment (Teece, Pisano & Shuen, 1997). It can be seen as a resource that facilitates the construction and management of relationships (De Clercq, 2011), and eventually a capability to build and manage relationships based on mutual trust, communication and commitment (Blomqvist, 2006), forged by team cohesion, openness to new ideas and leadership that encourages the autonomy of the team and its willingness to change (Crespell, 2006). The collaborative capability makes a conjunction with other capabilities – innovative, absorptive, adaptive

(Wang & Ahmed, 2004), that leverage social, relational, and cultural resources, and support an openness and receptivity to knowledge creation and transfer, which impacts heavily on the ability to innovate.

The dynamic capabilities described by Wang and Ahmed (2004) are integrated by Quandt, Ferraresi and Bezerra (2013) into a model with ten dimensions: strategy, leadership, organizational structure, processes, people, relationship/ networking, infrastructure/ technology, measurement, learning and culture (Table 1) . According to the authors, the ability to innovate continuously in the long term – that is, the innovativeness of an organization – is supported primarily by those measurable dimensions, which are associated with knowledge management and innovation. When managed effectively, those dimensions support a superior ability to expand and revitalize the tangible and intangible resources of an organization, and to apply them to solve problems and to produce innovations.

Table 1 – Ten Dimensions of Innovativeness

Dimension	Description
Strategy	The degree of development of an organization's strategy regarding innovation.
Leadership	Level of leadership performance in order to ensure the effectiveness of innovation management.
Culture	How organizational culture is favorable to knowledge sharing by values that stimulate learning, autonomy, confidence and creativity.
Structure	Structures that allow flexibility, communication and participation in the promotion and sustaining of innovation through a collective process.
Processes	Existence of structured processes for idea generation and project management, as well as registration, validation and dissemination of what has been learned.
People	Human resources management for innovation, including recruitment, retention, competence development e mechanisms of performance recognition.
External Relationships	Ties with external agents for exploration and acquisition of knowledge and learning, including competitive intelligence and networking.
Technological Infrastructure	Managerial tools and methodologies related to the effective use of technology infrastructure aimed at developing products and processes.
Measurement	Indicators of the efforts and results of innovation, with mechanisms for measuring results from various perspectives.
Learning	The conditions for learning, including identification of improvements, problem reports, evaluations of possibilities and dissemination of lessons learned.

Source: Adapted from Quandt, Ferraresi and Bezerra, 2013.

From an an innovative capacity perspective, social interaction phenomena observed in can be analyzed specifically in terms of how this interaction affects the relationship between individuals and areas identified by Kim and Kang (2008) in a framework of eleven critical success factors that affect cooperation in cross-functional teams involved in a formalized new

product development process (Rozenfeld, 2006; Back, 2008). The process is based on a number of phases or sequential steps (Kratzer, 2008), where each stage of a decision points is improved, as a more evolved mechanism for participatory decision-making is created (Cooper, 2002).

Cagan and Vogel (2002) discuss the challenge of integrating Design, Marketing and R & D, which are typically bound by different views and objectives specific to each area, in a process where frequent changes in requirements (Ulrich & Eppinger, 2008) tend to isolate executors from decision makers. As a result, areas and individuals tend to lose the ability to act in a flexible, empowered and informal way (Ward, 2007).

When considering the importance of those aspects for social interaction, the social capital perspective complements the proposed approach regarding the relationship between collaboration and innovativeness. Aspects of social capital are directly related to the collaborative capabilities proposed by Blomqvist (2006) and willingness to share reported by Kim & Kang (2008). Collaborative capabilities express the quality and quantity of social ties that underpin the set of capabilities required to create and share knowledge that generate economic value. That depends on the network of relationships among individuals, a set of relational, social and cultural resources which constitutes the social capital of an organization (Bourdieu, 1980, 1983, 2012).

Nahapiet and Ghoshal (1998) propose a three factor model of social capital in which the properties of a social system facilitate the connections between individuals (Structural factor), together with a set of beliefs and values among individuals that provides alignment of objectives (Cognitive factor); this implies investing in informal or subjective aspects such as trust, intimacy and reciprocity (Granovetter, 1973) that shape norms, obligations and identification of individuals (Relational factor). Tsai (1998) and other authors such as Chua, 2002, Hoffmann, 2005, De Clercq, 2011, and Chow and Chan, 2007 conducted research on the three dimension model of Nahapiet and Ghoshal (1998) to investigate the relationship between social capital, collaboration and knowledge sharing. De Clercq (2011) linked social capital, collaboration and innovativeness in context of product development in an intra-organizational context, whereas Chow and Chan (2007) characterize the organization as a social community, prone to create, share and transfer knowledge.

3. Methodology

The chosen approach for data collection was a case study. The case study strategy emphasizes the in-depth understanding of a particular context, rather than an attempt at generalization (Stake, 2000). In order to answer the research question regarding the relationships between collaboration and innovativeness, the initial effort was to identify organizations involved in a day to day basis with the development of new products, and which adopted innovation as an important element

in their business strategy. The third criteria was that the company should be clearly recognized as a leading innovator in its field. The selected organization was characterized by having innovation as a central element in its business strategy. It has been recognized as a leading innovative company by a number of awards received by associations and institutions that promote technological innovation, which is uncommon in subsidiaries of transnationals based in developing countries (Ferigotti, 2005).

The case study was conducted in a subsidiary of a Swedish multinational company located in the State of Paraná, Brazil and leader in its sector. The unit is in charge of the full cycle of creation, development, production and sale of products for the home appliance market. This organization suffered increased competition during the 1990s, which led it to anticipate market expectations related to factors such as product performance, reliability, design and durability (Ferigotti, 2005). During the 2000s, continuous investments in innovation evolved into the current consumer-driven strategy, focused on product differentiation. It is guided by the following innovation organizational values: passion for innovation, obsession for the consumer and orientation for results.

Three areas – Design, Marketing and R&D – exert great influence over decisions relating to new products and were exposed to a continuous tension between the need for dialogue and consensus-building to ensure the flow project delivery. This is represented by overlapping circles and the 'battle of knowledge', driven by divergent interests and perspectives, as shown in figure 2.

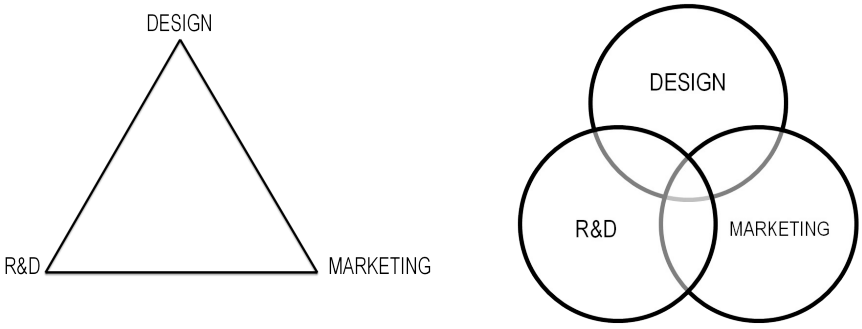

Figure 2 – Dialogue and consensus-building between three functional areas

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Information gathering involved primary and secondary sources through a combination of semi-structured interviews with managers from the organization, unstructured interviews and analysis of documents and manuals. The semi-structured interviews were distributed among the three areas (Design, Marketing and R&D) and three hierarchical levels (execution, operational and strategic). The unstructured interview involved reports from a manager about the practices and mechanisms that underpin the relationship between Design, Marketing and R&D. The analysis of documents related to the process of product development were compared with information and perspectives provided by directors of Design, Marketing and

R&D, about competitive strategy, technology and market trends, as well as the organization's history and organizational structure. Seventeen participants were selected in the ´washing machine´ segment, because it is the one with the highest innovation recognition and commercial success, surpassing all other product segments. The selection criteria for those seventeen participants included a personal history of relevant multidisciplinary performance; proportionality between the three areas; those at least one year of work in those areas and those who were referred among peers.

Respondents were asked to talk about two stories about collaboration: one that was successful and one unsuccessful. All the interview data were transcribed and exported to Atlas TI software for content analysis methodological procedures, based on a method of collection, description and analysis (Figure 1) proposed by Friese (2012) that involved : a) floating on the data, recognizing relevant points and giving them a badge or identity; b) digging into the data, associating, categorizing, and ranking in order to describe it with the utmost accuracy; reflecting on the data, creating new meanings and leading to new ways of understanding a reality. The coding method proposed in this research took into account a progressive refinement of the theoretical model of the factors influencing collaboration, in light of the encoding process of the interviews, according to the phases contained in the descriptive level.

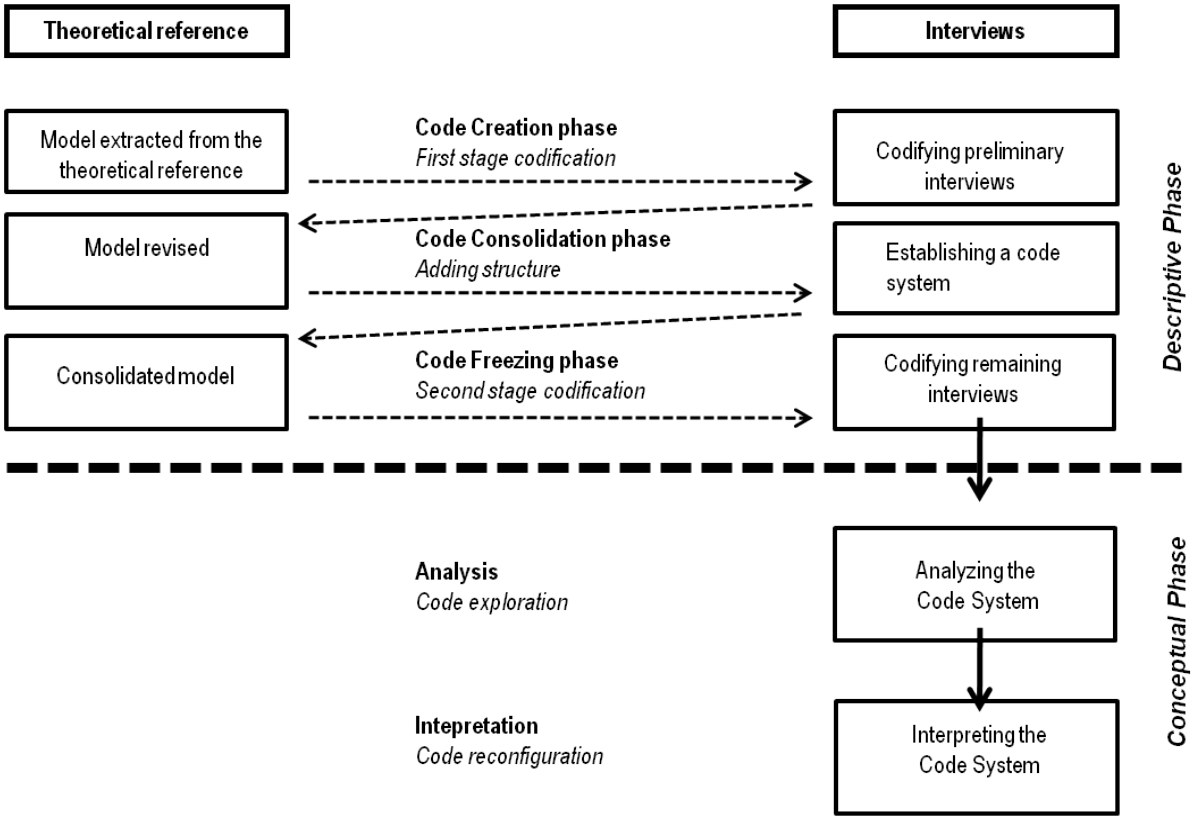

Figure 1 – Codification model adapted from Friese (2012)

4. Analysis and Discussion

An interpretive inductive-deductive analysis was structured into four main steps:

1) encoding of three preliminary interviews based on ten collaboration factors extracted from the literature;

2) generation of a new set of codes based on the set of ten factors originally proposed;

3) coding of interviews remaining, generating additional new codes;

4) generation of a new synthesis with the construction of a new naming system of factors and sub-factors that influence collaboration and a set of associated indicators.

The first step referred to the process of corpus encoding three preliminary interviews, in the light of the ten factors of collaboration (Table 2)

Table 2 – Model of Collaboration factors

Factor	Operational definition	Theoretical reference
Flexibility	Continuous adjustment of expectations aimed at adaptation to the environment, considering different perspectives through mutually beneficial interactions	Thomson, 2006; Antikainen, 2010; Crespell et al, 2006.
Trust	Continuous building of social ties built around positive expectations of trust and reciprocity.	Thomson, 2006; Tsai, 1998; Mattesich, 2001; Ellinger, 2006; Hoffmann, 2005.
Congruence of objectives	Shared vision based on clear expectations , goals, roles and responsibilities, that brings a sense of identification	De Clercq, 2011; Mattesich, 2001; Hoffmann, 2005; Chua, 2002.
Ease of access to information and people	Ways of building combined bonds of information and engagement between individuals and areas.	Chow, 2007; Hansen, 2009; Chua, 2002.
Leadership	Set of interpersonal skills and processes of the leader who ensures the legitimacy to manage resources and manage tensions inherent in collaboration	Ellinger, 2006; Huxham, 2005; Hurley & Hult, 1998; Crespell et al, 2006.
Open, transparent and inclusive communication	Informal interaction lines between members using information channels molded by transparency, with explanation of differences, as well as open and constructive atmosphere.	Ellinger, 2006; De Clercq Et Al., 2011; Hoffmann, 2005; Gray; Wood, 1989; Hurley & Hult, 1998; Antikainen, 2010.

Mutuality	Degree of support and mutual help in the workplace. Empathy, lenience in judgment and care for others that reveal the interdependence of individuals in their belief in support, mutual respect and understanding.	Chua, 2002; Hansen, 2009; Mattesich, 2001; Hurley & Hult, 1998.
Joint creation	Construction of shared norms, rules and structures and resources around a common representation and where gains to act collectively outweigh the loss of autonomy.	Chua, 2002; Mattesich, 2001; Hurley & Hult, 1998; Crespell et al, 2006; Antikainen, 2010.
Autonomy	Propensity of the organization to provide individuals with resources and incentives for these individuals to have the initiative and make decisions.	Thomson, 2007; Chua, 2002.
Sharing interests	Process of exchange and combination of shared and complementary or homogeneous interests in an interdependence that supports the combination of diverse interests.	Thomson, 2007; Hoffman, 2005; Chow; Chan, 2007; Chua, 2002; Crespell et al, 2006.

The second step related to the generation of a new code set as an evolution to the group of ten factors originally proposed. It involved a refinement process in a new factor system structured in two levels, leading to rearrangement, deletion and addition of codes, as shown in table 3.

Table 3– Recoding from the factor model of collaboration after the initial reading of preliminary interviews

Collaboration factors	**Recodification**
Flexibility	Risk exposure; Quest for consensus
Trust	Trust; reputation
Congruence of objectives	Interplay; explicit rules
Ease of access to information and people	Access to information and people who hold information
Leadership	Endorsement; conflict tolerance
Open, transparent and inclusive Communication	Open communication; informality
Mutuality	Mutuality; commitment
Joint creation	Availability; fault tolerance
Autonomy	Autonomy, self-sufficiency
Sharing interests	Cohesion; complementarity

In the third step, a system of coded factors generated in the previous step was the basis for coding the remaining interviews, generating additionally new codes from the same system abstract codes. The analysis of the set of codes led to reflections about how the collaboration between people and areas happens in the organization, as depicted in Table 4.

Table 4– Reflection about collaboration factors

Abstract code	**Reflections on how collaboration happened in the Organization**
Explicitation of viewpoints	There is an open dispute for the best ideas in order to convince the other area on the best decision to be made. To do that, a dialogue is encouraged and conflicts between departments are exposed. ´You have to be exhaustive, always feel that the other is important, that another area is important, not only your area. (...) Everyone has to have his strong conviction, if not, things don´t happen, then it will bring a failure.` (S 15).
Mobilizing leadership	There is an assertive style from whom that assumes the role with his team to take firmly an argument or point of view that mobilizes people and areas. Thus it sustains a culture of encouragement to viewpoints expressed objectively and based on rational arguments. `He imposed the mission of to be a company that launches innovative new products (…) So it begins a digestion through the vice presidents, directors, through a charge to have an innovative.` (S 11) .
Preservation	The preservation of areas of expertise involves the assertion of technical knowledge as a source of power, around a set of practices and procedures that reinforce the language and practice of a given area based on the conviction of an intellectual superiority. `( ... ) one is too focused on reality, very down to earth, and the other lives in the stars (…) Engineering who have a little more down to earth, are dreamers, but not as much as designers.` (S 9).
Interaction among people and areas	Difficulties of integration relates to the pace in which decisions are taken at the time and in the appropriate level of detail. The lack of pace is more evident due to information that was not provided at the right time or the resistance of the areas in comprehending limitations and requirements. `Many steps have been skipped and we ended up with a shorter time, so I think that while there is a process, I think that in practice, things end up being kind of run over.` (S 5)
Openness to experience	There are stimulus to generate ideas and trial and error, especially from the leaders. This stimulation is more evident in encouraging pairs of the same area but not necessarily in another area. `(...) you just make mistakes when you do something, then this is the message that we receive, you have to try.` (S 1). `We are not shy, we go along, sit, discuss and we will go forward always.` (S 14).
Involvement and detachment	There is high involvement and willingness to contribute, which leads to a greater willingness to interact and help each other in another area. The individual is motivated by the satisfaction of

	donating to a level that leads to sacrifice for others. `I called the lab manager and said, "I need you to do me a workout," and he picked the best person he had and left me all morning learning every component or system , and I came to the meeting with a very clear information (...)´ (S 6).
Alignment of goals	Goals and objectives are agreed and shared at regular monitoring meetings and constructed to encourage integration between areas and make collaboration the best way out to get a result. `Nothing is left out and you do not get there in the end of the project to realize you forget to evaluate an important aspect of the project, or an idea, or something along those lines (...) It is important have the assurance that what you will really deliver the need of what has been identified as an opportunity (...) (S 14).
Complicity	There is a confirmation of expectations, promises built over time, that exposes participants to share information. There is relaxation of formalization turns into shortcuts in a process. ´ If I promise I 'll call and say: "look happened a problem, I will send you tomorrow, " (...) It generates proximity, this gives openness that allows to discuss things that actually needs to be discussed (S 2). We have a lot of confidence in the quality (of work) made by the others (...) This is what gives us security and also reduces the level of friction (S 17).
Cohesion	There is a closeness of values, beliefs and behaviors, which may extend from a professional category to personal ties of friendship. `They work very synchronized in the mission of the company and they give us lots of autonomy to work in order to make great things happen ( …) being very open among them and very familiar with the product`. (S 11).
Complementarity	There is little willingness to combine efforts and interests around differences, which may be associated with areas of knowledge or beliefs and values. `It lacks synergy with other areas (...) we understand those areas work at different paces (...) we still need to find a way of passing the bat, who is the project owner, who was and who will design, to make it happen in a natural way (S 6).
Access to information and people who hold information	There is good access to people who hold information, dependent on the hyerachical level . The technology that allows access is a precondition to cooperate. `I think that information is power, but I think the information here is still pretty much stuck in Executive and Managerial level, some information that would be very important for the team to come down (S 4).
Risk exposure	There is a greater willingness among participants to take risks and share. `They came up with a totally new, breakthrough, differentiated proposal that would shake with

	Engineering. It was a fuss and we from Marketing loved it, we enjoyed this innovative proposal because it was to break up (…) (S 4).
Disposition to share	There is little shared language between areas. Participants do not always build a common knowledge, which encompasses both the intellectual and the emotional field. '(...) Each area wants to value its own work and also wants to work very closed, with a very local view (...) without looking, for example, another area that needs to perform its work very well. (S 7).

The fourth step encompassed the interpretive stage, with a second reading of the definitions of the coding system. It had the purpose of specifying more clearly the indicators of each of the sub-factors and the generation of a new synthesis. This implied the construction of a new naming system of factors and sub factors that influence collaboration and a set of associated indicators. The interpretation procedure was also enriched with the reading of the definitions of the coding system, so that the indicators of each of the sub-factors that influence collaboration were clearly specified. Table 5 summarizes this interpretative effort, describing the evolution in the denomination of the factors through the construction of a new naming system of factors and sub-factors that influence collaboration and a set of associated indicators.

Table 5– Factors and sub factors that influence Collaboration and associated indicators

New denomination of factors and sub factors that influence Collaboration	**Associated indicators**
Flexibility: Involves continuous adjustments of expectations around different perspectives in high tension load interactions.	• Ability to build commitments and agreements • Degree of risk sharing • Degree of sharing goals • Degree of willingness to change • Degree of encouragement for explanation of differences • Ability to engage in situations of disagreement • Degree of persistence in defending a point of view
Reciprocity: Continuous building of social ties grown around positive expectations of trust and reciprocity.	• Degree of positive expectations of reciprocity • How obligations are met and expectations are met • How much one takes advantage of another in situations of vulnerability • Degree of informality • Number of shortcuts around formalized processes
Congruence: Shared vision based on clear expectations, goals, roles and responsibilities that brings a sense of identification.	• Degree of openness and involvement in decision making • Degree of consistency in decisions • To what extent an individual shares knowledge • To what extent roles and responsibilities are defined

Access: There are persons who have access to information. Technology infrastructure is adequate, but the technology that allows access to information is a precondition to collaborate.	• Degree of access to people • Degree of access to information
Mobilization: The leader ensures the legitimacy to manage resources and manage tensions inherent to collaboration when combines assertiveness and courage to take risks.	• Ability to align people to a goal • Degree of information sharing • How much encourages team autonomy • How the leader encourages staff to venture • The degree of technical mastery
Transparency: Informal interaction lines between members using information channels molded by transparency, with explicitness of differences, in an open and constructive atmosphere.	• Degree of informal social relations
Selflessness: Degree of support and mutual aid in the workplace, which is revealed in the interdependence of individuals. This results in donation, risk taking and moving away from the established rules.	• Degree of longevity of relationships • Degree of willingness to help • Degree of respect between individuals • Degree of willingness to ask for help • In what context one benefits the other beyond what is necessary, required or expected • Degree of anticipation of a need • Relationship between the length of an experience and a willingness to help
Openness: Flexibility and stimulating environment for creating shared, which provides openness to ideas, but sensitive to resource constraints.	• Degree of reworked ideas • Openness to criticism • Level of fault tolerance • Openness to new ideas • Degree of tolerance to lack of resources • Degree of tolerance for taking risks
Self-sufficiency: Movements of affirmation between individuals and areas, taking into account the need for autonomy and preservation.	• Degree of freedom for decision • Degree of explicitness of viewpoints • Degree of delineation of roles and responsibilities • Degree of acceptance of paradigms from other fields of knowledge • Degree of attachment to their own field of expertise
Sharing: Process of exchange and combination of shared interests, complementary or homogeneous, in an interdependence that supports the combination of diverse interests.	• Degree of knowledge sharing • Degree of tolerance to behavioral differences • The degree to which each one is perceived to belong to a group • Level of openness to the power of others

6. Conclusion

The study of an organization that is recognized as innovative and with a unique ability to mobilize people and areas to develop new products proved useful to understand how collaboration relates to innovativeness. A peculiar form of collaboration took place in a social space where marketing, design and R&D posed distinct demands. In this case, the observed effort to integrate and explain differences openly and emphatically is a driver of idea sharing. it makes this organization an example of innovativeness – understood as an ability to generate and implement ideas. According to the narratives, the disputes over certain positions engaged people in dynamic defense of their points of view. The constructive tension was maintained at a level that enabled people to expose their arguments and debate fearlessly, simultaneously generating a convergence that guaranteed an innovative result with a high degree of effectiveness. A continuous movement of integration and derivation made that those three areas took turns driving the process and generated a high level of mobilization. (Figure 3).

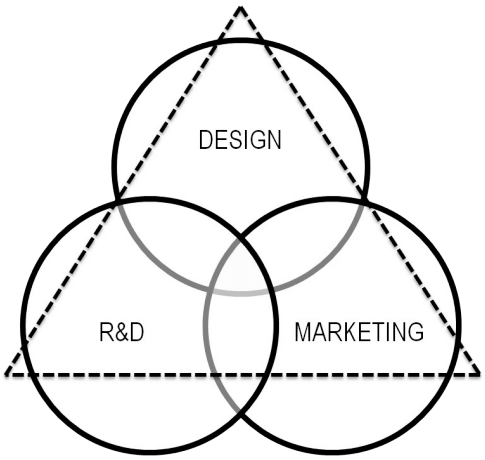

Figure 3 – Derivation and integration between Design, Marketing and R&D

This social space for experimentation and innovation is part of a regular hierarchical departmental structure. As it would be expected, there are barriers to knowledge sharing due to differences in perception and different world views among expert areas. However, the barriers to sharing and mutual aid were rarely noted. A movement of self-sufficiency that eventually would stimulate isolation between areas or the preponderance of one area over another, though present, was not a preponderant force due to the mobilization of leadership around a strong incentive for openness to new ideas. The leadership combined a directive role to take assertive command positions with a commitment to participation.

These differences were encouraged by the leadership to be exposed and confronted. One could assume that the exposure of disagreements in a continuous and intense level would lead to a deterioration in relations over time. However,

the opposite was observed: the more experienced team members extracted from this experience a sense of security and self-confidence that allowed them to be selfless; they also regularly stepped out of established or expected paths, which also supported attitudes of openness and generosity from the veterans toward the newcomers, sustaining a culture that values longevity.

Giving and reciprocity were strengthened by the influence of positive expectations among individuals and areas, confirmed through fulfillment of commitments. It was evident, therefore, that the organization strengthened its long-term pledge to develop people´s capacity to innovate. As a proof of such commitment, the organization, through authentic leadership, organized resources around the established social space for people to work together in defense of intense beliefs among themselves and the experts in their areas toward the integration and differentiation of ideas.

The ability to keep people innovating for long periods and sustain an above average performance was perceived as a unique feature of this organization, which strengthened its social capital and thus supported the openness to experimentation. This above average performance can be connected to the following aspects:

1. the importance to the alignment of ideas between people and areas from a previous clear setting about the path to be followed that reflects a unique position of taking calculated risk and supporting staff in this process;
2. the way decisions are taken, where opinions and impressions must be avoided and concrete evidences should be used in a logic way of analyzing, fighting back and sustaining an argument until the last moment;
3. a culture of value of the individual that eventually overlaps the collective and reinforces the importance of defending one´s own position;
4. a positive disposition and a marriage of interests in situations of potential disagreement, in which individuals strive to build a field of agreement, even though they are aware of the difficulty of achieving a common vision and a congruence of goals.
5. an improvisation, informal and rule breaking behavior, aimed at resolving an eventual circumstance that moves from the anticipated or planned position;
6. the establishment of ties of mutual aid that let you overcomes obstacles or traps from being too harnessed to formal processes and procedures;
7. the valorization of more mature and experienced people with more home time, where stability achieved after many efforts experimentation results in generosity and giving.

It can be argued that this organization highlights the importance of collaboration as a relevant element in innovativeness. In summary, it demonstrates a peculiar combination of interlocking behaviors that make this a remarkable case for collaboration:

1. flexibility in continuous adjustment of expectations, as it preserves dialogue in situations of disagreement;
2. reciprocity and informality that support the regular use of shortcuts in a highly formalized process;
3. alignment of expectations and rapport which contributes to a high degree of consistency of decisions;
4. ease of access to information and people who have mastered specific knowledge;
5. strong mobilization for innovation from stimuli coming from a leadership recognized by technical mastery and openness to experimentation;
6. open communication that transcends the hierarchy;
7. selflessness and willingness to contribute beyond what is necessary, required or expected;
8. openness and tolerance to experiment and risk taking, even in an environment of resource constraints;
9. self-sufficiency, expressed in movements of affirmation of autonomy and associated with the preservation of certain knowledge and worldview;
10. sharing ideas, enhanced by the openness to power that comes from others.

As a contribution to the understanding of the factors under control of the organization that affect its ability to innovate, a conceptual framework, or model, can be advanced (Figure 4). It represents the tension between self-reliance and how sharing and openness to experimentation around new ideas is associated with a mobilizing leadership committed to the implementation of a strategy focused on innovation.

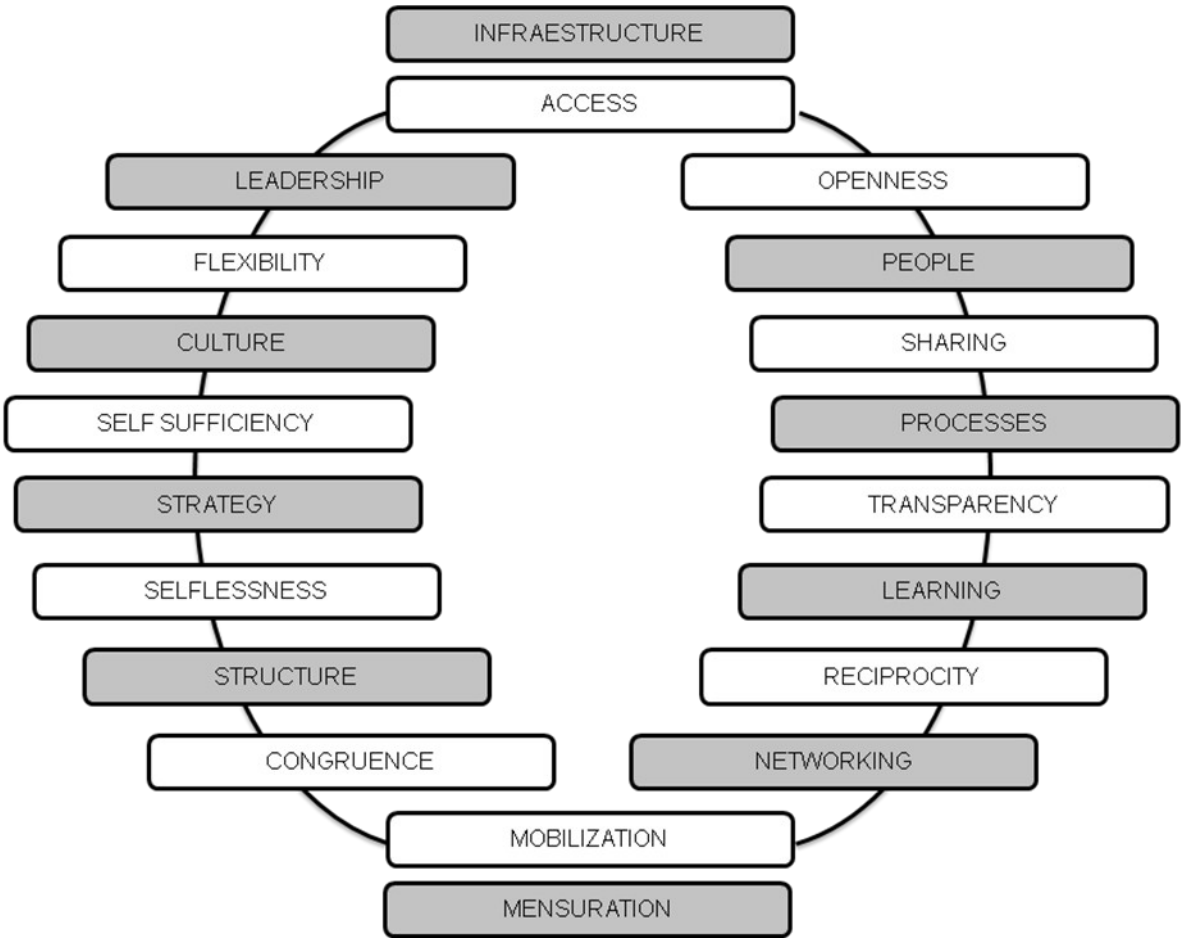

Figure 4 – Conceptual model for the relationship between collaboration and the dimensions of innovativeness.

In this model, it is suggested that there is a relationship of eight dimensions of innovativeness – strategy, learning, culture, structure, leadership, network, processes and people – with all the collaboration factors that the study has identified. As a whole, these collaboration factors affect the development and implementation of strategy, organizational learning, the quality of construction of external linkages, leadership performance (especially with the mobilization factor), the HR process and the process of developing and managing new products.

Hence it is possible to propose that these eight dimensions relate to the means (Access; Mobilization), that lead people to express their points of view (Flexibility), in a participatory and informal way (Transparency), around a shared goal (Congruence) where the balance between autonomy (Self-reliance) and interdependence (Sharing), supported by close ties and goodwill (Selflessness), built around the confirmation of positive expectations (Reciprocity) allows individuals and areas acting with freedom to experiment (Openness).

The infrastructure dimension specifically is strongly related to access, as it refers to the effective use of methodologies and tools, and thus becomes a facilitator of how information becomes available and how to get access to people who hold this information. Finally, the measurement dimension would have a relationship with mobilization. There

was no direct relationship with this dimension and the collaboration factors; however it is understood that performance evaluation through the presence of indicators can be a very important tool for mobilizing people.

Among the points that need further understanding, the distinction between hierarchical levels and their impact on factors of collaboration is worth mentioning. The specific roles of managers and directors with regard to the factors of collaboration and their relationship with aspects of social capital should be the object of further studies. Another relevant aspect for future research is an exploration of the relationships between the adaptive, absorptive and innovative capabilities in the context of the factors of collaboration. It is necessary to define and operationalize these capabilities in terms of measurable variables, so that organizations can make apply the theoretical model in their everyday actions.

Any future investigations, which intend to operationalize these factors as indicators related to innovativeness, may benefit from this research effort. In this sense, the identification of factors that influence collaboration and further analysis and discussion on the relationship of these factors with the dimensions of innovativeness certainly contribute to new studies that further investigate their relationship.

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