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Market learning capability and innovation. An explorative empirical study in the fashion industry

1. Introduction

The main purpose of this work is to understand how organizations absorb and use market knowledge to innovate.

The topic of innovation is profoundly rooted in managerial studies since it has been traditionally considered as one of the most important determinant of competitive advantage (Rumelt, 1987). Indeed, product innovation is one of the most fruitful strategies in modern economies, where an increasing number of industries is characterized by rapid pace of innovation (e.g.: Clark and Fujimoto, 1991; Nonaka and Takeuchi, 1995; Brown and Eisenhardt, 1998). Firms such as IDEO in the product design consulting industry, Diesel in the fashion, or Alessi in the household articles industry are just few examples of this kind of organizations.

The studies that analyzed the importance of innovation as competitive strategy for firms in highly dynamic environments addressed the problem under different perspectives. Some of them used theories such as Resource-Dependence (Pfeffer and Salancik, 1978), Information Processing (Galbraith, 1973), and Disciplined Problem Solving (Clark and Fujimoto, 1991), to emphasize the role played by different agents (senior management, project leader, project team, suppliers and customers) in the product development process and in its outcome[1].

More recently, another group of scholars has been focusing its empirical work more on the analysis of the capabilities and the learning processes developed by the firms in order to gain a better performance in the product development process. Rooted in the Resource-Based View of the firm and its main theoretical derivations, such as the Dynamic Capabilities Approach (Teece,

[1] For a comprehensive review on this stream of literature on product development see Brown and Eisenhardt (1995).

Pisano and Shuen, 1997) and the Knowledge-Based Theories of the Firm (e.g., Kogut and Zander, 1992; Grant, 1996; Organization Science, 1996), these empirical contributions have been trying to show how organizations, individually considered or linked in networks, gain a better performance in the innovation process through their capabilities of integrating different pieces of knowledge (e.g., Henderson, 1994; Henderson and Cockburn, 1994; Iansiti and Clark, 1994; Leonard-Barton, 1995)[2].

All these empirical analyses on product innovation have mainly put emphasis on the role of technology. Although technological knowledge is extremely important in underpinning product innovation, market knowledge – that is customers and competitors knowledge - is important as well (e.g., Urban and Hauser, 1982; Busacca, 1987; Von Hippel, 1988; Christensen and Bower, 1996). The role played by market knowledge in improving the firm's innovative capacity, though, has been mainly theorized. Few empirical studies have shown how to absorb and integrate market knowledge in order to generate innovations (Verona, 1999). This issue represents a real shortcoming in a deep understanding of the innovation dynamics. For this reason the topic of this dissertation – *How do organizations absorb and use market-related knowledge - coming from customers, competitors and firms operating in different industries*- represents a way of filling this gap in the literature on innovation.

In order to copy with this issue, studies on market orientation (e.g., Deshpande' and Webster, 1989; Kohli and Jaworski, 1990; Narver and Slater, 1990; Sinkula, 1994), on organizational capabilities (e.g., Kogut and Zander, 1992; Henderson and Cockburn, 1994; Leonard-Barton, 1995; Teece, Pisano, and Shuen, 1997; Nonaka et al., 2000), and on organizational memory (e.g., Walsh and Ungson, 1991; Moorman, 1995; Moorman and Miner, 1997, 1998) are extremely insightful.

Studies on market orientation have explicitly addressed the issue of how 'market-oriented' organizations learn about customers, competitors, and channel members in order to continuously sense and act on events and trends in present and prospective markets (e.g.: Slater and Narver, 1990; Day, 1994a, 1994b). The main idea is that the 'most distinctive features of market-driven organizations are their mastery of market-sensing and customer-linking capabilities' (Day, 1994a: 37). These capabilities are rooted in the organizational processes of information acquisition, dissemination/interpretation and use that are more systematic, thoughtful, and anticipatory than in other firms.

The studies on organizational capabilities, on the other hand, explore the processes through which market knowledge is gathered and integrated over time (e.g., Kogut and Zander, 1992; Henderson

[2] For a comprehensive review on the studies on product innovation developed in a Resource-Based approach see Verona (1999).

and Cockburn, 1994; Iansiti and Clark, 1994; Teece, Pisano, and Shuen, 1997; Kusunoki et al., 1998).

However, in these studies there is not a complete understanding of the mechanisms through which this market learning process is realized; on the other, the extent to which market knowledge contributes to the product innovation success is not fully explored. Finally, the role played by competitor orientation is underestimated, because the analysis is mainly focused on the role of customers' knowledge in improving firm's innovation performance.

Finally, the literature on Organizational Memory (e.g., Walsh and Ungson, 1991; Moorman, 1995; Moorman and Miner, 1997, 1998) offers the theoretical framework to explain how the market knowledge is stored and integrated inside the organization, in order to be used in different products, in different periods of time.

The theoretical analysis is supported by an empirical investigation on how organizations develop new product in the fashion industry whose main characteristic is that product innovation in itself can be considered as its 'core business'. The basic assumption I will consider in the analysis is that this ability to innovate effectively is rooted in the organizational capabilities of integrating, storing and recombining the knowledge coming from the market. Indeed, in many cases this knowledge is imperfectly shared over time and across people, organizations, and industries (Hagardon and Sutton, 1997); knowledge from one group of people or developed in an industry can solve problems emerging in other industries, in a different period of time.

2. Theoretical references

Different scholars with different, but sometimes complementary perspectives, have tried to address the issue of how organizations acquire, use and create knowledge to gain a sustainable competitive advantage. Particularly, many efforts have been spent in the analysis of the processes of knowledge creation and diffusion in inter-firms relationships (e.g., Teece, 1987; Kogut, 1988; Powell, Koput and Smith-Doerr; 1996).

For the purpose of this work, I will first consider the literature on market orientation that focuses on the processes underlying the ability of the organization to learn about customers, competitors, and other players. In addition, I will analyze the stream of research on the capabilities developed by firms in order to absorb and exploit the market knowledge. I will, finally, consider this issue in the analysis of the product development process, trying to gain insight on the role played by the market learning capabilities in routinary product innovation.

3.1 The contribution of Marketing Management: the construct of market orientation

A strong contribution to the analysis of the main issue of this paper comes from the scholars that, working in a Marketing framework, have tried to address the issue of which kind of processes and capabilities drive the market-oriented organizations (e.g., Deshpande' and Webster, 1989; Kohli and Jaworski, 1990; Slater and Narver, 1990; Day, 1994a). The purpose of these works has been twofold: on the one hand, they have tried to identify the activities and processes of an organization that describe its market orientation; on the other, they have tried to analyze the relationship between an organizational market orientation and its innovativeness (e.g., Slater e Narver, 1995; Hurley and Hult, 1998; Li and Calantone, 1998; Han, Kim and Srivastava, 1998). In these studies, the construct of market orientation has been defined both in terms of processes and in term of content of the market intelligence process. In particular, Kohli and Jaworski (1990) define the market orientation as 'the organization wide *generation* of market intelligence pertaining to current and future customers needs, *dissemination* of the intelligence across departments, and organization wide *responsiveness* to it' (p. 6). In addition, Slater and Narver (1990) consider the market orientation as a one-dimension construct that comprises three different behavioral components: customer orientation, competitor orientation and interfunctional coordination. The first one is the firm's understanding of the target market; the second is the firm's understanding of the capabilities of the present and future competitors; the interfunctional coordination is the coordinated use of firm's resources and capabilities to create superior value for customers. The idea that results from the integration of these two perspectives is, first, that the market orientation is an information-based construct, centered not only on customers, but also on competitors and players working in other industries. Indeed, there is a relevant difference between those firms that are customer-led and those that are market-oriented. "Market-oriented businesses scan the market more broadly, have a longer-term focus, and are much more likely to be generative learners" (Slater and Narver, 1998:1003). In addition, the market orientation has a behavioral characterization. Indeed, the concept is related to the organizational information processes that affect its market performance. Yet, this stream of literature shows some shortcomings. First, it does not explore the problem of the type of knowledge affecting the acquisition, dissemination, and responsiveness processes. Knowledge is characterized by different levels of complexity and codification. Its intrinsic variety has to be considered because it might require the organization to use different tools in order to tackle with it.

In addition, it does not consider the new product performance as an outcome of the organizational market orientation, which previous researches suggest as likely to be influenced by information acquisition (e.g., Day, 1994a; Dickson, 1992), dissemination (Nonaka and Takeuchi, 1995) and utilization (Clark & Fujimoto, 1991). Few exceptions can be found. The first one is in the work

by Hurley and Hult (1998) that explicitly considers the capacity to innovate[3] as a mediator in the relation between the firm's market and learning orientation and its competitive advantage. In addition, other scholars (Han, Kim and Srivastava, 1998) have considered innovation as a mediator link between market orientation and organizational performance. They argue that supports to the chain market orientation-innovation-organizational performance have been piecemeal (p.31), in the sense that some studies analyzed the relation between market orientation and innovation, while others the one between innovation and organizational performance. In particular, they operationalize the construct of innovation in terms of technical and administrative innovation; the first one is referred to product, services and production technology, while the administrative one involves organizational structure and administrative process. In addition, the work by Moorman (1995) tries explicitly to address this major shortcoming in the Marketing research, by focusing on the impact of organizational market information processes on new product performance. This construct is articulated as new product timeliness and new product creativity, expressing the degree to which its introduction changes marketing and thinking practice. The major contribution of the study is that the knowledge-based competitive advantage depends less on whether a firm possesses knowledge and more on its ability to exploit that knowledge. In a sense, the knowledge utilization process seems to act as a mediator in the impact of information acquisition and transmission on new product performance.

Finally, in the literature on market orientation little is known on the processes and mechanisms driving the organizational market orientation, and on the characteristics of successful program for implementing it inside the organizations. A contribution in filling out this gap can be found in the work by Day (1994a, 1994b, 1999) that examines the role played by capabilities in creating a market-oriented organization[4]. Starting from the literature on organizational capabilities the author claims that 'organizations can become more market-oriented by identifying and building the special capabilities that set market-driven organizations apart' (p.38). Following the work by Teece, Pisano and Shuen (1990, 1997), capabilities are defined as the mechanisms and processes through which competencies are created, and market-driven organizations as 'superior in their market-sensing and customer-linking capabilities' (Day, 1994a: 38). The first one is based on a superior ability to sense the trends and events in the market, while the second is driven by strong cooperative relationships with customers. In particular, Day argues that the definition of market orientation as proposed by Kohli and Jaworski (1990) is the essence of the organizational market sensing capability. The process of market sensing follows, in this perspective, all the sequence of information processing activities that a firm uses to learn. It is based on superiority in each step

[3] The term innovation capacity has been used for the first time by Burns and Stalker (1961), to indicate the ability of the organization to adopt or implement new ideas, processes, or product successfully.
[4] On the mechanisms see also Ruekert (1992).

and can be achieved through open-minded inquiry, synergistic information distribution, mutually informed interpretation and accessible memory. Yet, the linkage between the Strategic Management idea of organizational capabilities and the Marketing Literature on market orientation though intriguing does not give any additional insight in the organizational processes that enable a firm to gain a competitive advantage. Day's work is the expression of an integration of the organizational capability approach within the market orientation framework where, nevertheless, the market sensing capability is considered as driven by the market orientation processes.

3.2 The contribution of the Strategic Management: Organizational Capability as Knowledge Integration

Following the approach by Day it is possible to argue that a big contribution in the analysis of the way organizations are able to absorb and use external market knowledge comes from the integration of the Marketing researchers approach with the Resource-Based Theory of the firm and its main derivations, namely the theory of the Dynamic Capability (e.g., Teece, Pisano and Shuen, 1997) and the theory of the Organizational Knowledge Creation (e.g., Nonaka, 1994; Nonaka and Takeuchi, 1995; Kogut and Zander, 1992, 1996; Nonaka et al., 2000). The Resource-Based View of the firm looks inside the firm in terms of the resources it owns. The firm is seen as a collection of resources and knowledge as one of these resources. Knowledge and skills are seen as a major source of competitive advantage, because they are accumulated through learning processes and, for this reason, they are characterized by imperfect imitability, imperfect sustitutability and limited mobility (e.g., Wernerfelt, 1984; Barney, 1986, 1991; Winter, 1987; Dierickx and Cool, 1989; Amit and Schoemaker, 1993; Peteraf, 1993; Leonard Barton, 1995; Henderson and Cockburn, 1994; Kogut and Zander, 1996). Yet, the resource-based view of the firm fails to understand how firms accumulate such resources (Nonaka et al., 2000). In brief, it does not address the issue of dynamism, that is the way in which the firm continuously builds such resources. As Nonaka suggests: 'the organization actively interacts with its environment, and reshapes the environment and even itself through the process of knowledge creation' (Nonaka et al., 2000: 4). In his perspective a relevant problem is of understanding what are the capabilities that drive the dynamic processes through which new knowledge is created out of existing firm-specific capabilities.

These considerations push the analysis toward the analysis of firm-specific capabilities (e.g., Prahalad and Hamel, 1990; Henderson and Cockburn, 1994; Leonard-Barton, 1992, 1995; Grant, 1996), in order to focus on the ones that drive the organizational market learning processes. There are various definitions for the concept of organizational capabilities. Yet, most researches share the following points (Kusunoki et al., 1998). First, they are not easily obtainable in the

marketplace and are difficult to copy, therefore having firm specific characteristics. Secondly, they are knowledge-based systems, accumulated through long-term and continuous learning, with path dependent characteristics. Finally, they have the potential to become a source of sustainable competitive advantage on a long-term basis.

Starting from the work by Leonard-Barton (1992, 1995) it is possible to affirm that capabilities are a knowledge-based system, made up of four different dimensions: skills, technical systems, managerial systems and culture. Skills and technical systems are the repositories of knowledge, that are guided and monitored by the managerial systems and by the norms and values that build the organizational culture. The firm-specific interrelations and interdependences in the knowledge created and generated by these systems is what makes a capability as core for an organization, and enhance its rigidity towards change.

The idea of capability theorized by Leonard-Barton has been pushed forward by other authors that, trying to address the issue of the differences between firm's resources and capabilities, came out with the concept that 'integration of specialist knowledge to perform a discrete productive task is the essence of organizational capability' (Grant, 1996: 375). The ability of the firm to generate new combinations of existing knowledge is what Kogut and Zander (1992) have defined as a firm's combinative capability[5]. In a similar way, Henderson and Cockburn (1994) define the architectural competence as a way of integrating the organizational component competencies, which is the specialized knowledge that each firm develops in different areas.

The basic idea of considering organizational capability, as a way of integrating knowledge inside the organization, has been further developed along two different trajectories. The first one emphasizes the role played by the environment in shaping the way competencies are integrated inside the organization. The concept of dynamic capability developed by Teece et al. (1997) refers to the ability of the organization of 'exploiting existing internal and external firm-specific competencies to address changing environments' (p.510). In this perspective the essence of capabilities reposes in organizational processes, whose content is shaped by the assets the firm possesses and by the evolutionary path it has adopted. The organizational processes underlying the capabilities are of integration/coordination, learning and reconfiguration. The concept of reconfiguration of the internal assets to face relevant changes occurring in highly dynamic environments emphasize the ability of the organization not only to integrate existing knowledge, but also 'to sense the need to reconfigure the firm's asset structure' (p. 520).

[5] This idea exploits the concept of development and innovation from Schumpeter (1934: 65-66): 'to produce other things, or the same things by a different method, means to combine these material and forces differently…Development in our sense is then defined by the carrying out of new combinations'. Also Weick (1979: 252) defines creativity as 'putting old things in new combinations and new things in old combinations'.

The second relevant trajectory is in the definition of a hierarchy of knowledge integration into organizational capabilities. Grant (1996) claims that at the base of the hierarchy there is individuals' specialized knowledge; at the first level are the capabilities that deal with specialized tasks; at the upper level task-specific capabilities are integrated into functional capabilities. At the higher level are cross-functional capabilities, as the ones needed for new product development process, or total quality management. Kusunoki et al. (1998) define a similar and at the same time complementary approach. They claim that the knowledge underlying organizational capabilities has simultaneously three different layers, and different layers of knowledge provide different organizational capabilities. The knowledge base, the first layer, includes distinctive individual units of knowledge, such as patents, databases, functional knowledge included in a specific group of engineers. These units of knowledge enable the knowledge base to provide local capabilities. The knowledge frame is about the linkages between individual units of knowledge that form a stable pattern or a configuration. The organizational capabilities deriving from these stable patterns between units of knowledge are architectural capabilities. Finally, the dynamic interactions in which individual units of knowledge are combined identify the third layer. The capabilities that emerge from the process of knowledge interaction are process capabilities.
The result coming out from this stream of research is that capabilities consist of multilayered knowledge and the ways in which different layers of knowledge are integrated make different types of organizational capability arise. In addition, the organizational capabilities are renewed through continuous learning driven by the processes of exploitation of things already known and exploration of new knowledge, of things that might come to be known (March, 1991). Indeed, organizational capabilities consist of knowledge and efforts to build capability must be grounded in processes to build new knowledge. Problem-solving routines (e.g.: Dosi and Marengo, 1993; Iansiti and Clark, 1994) and problem creating activities (e.g., Nonaka, 1990; Vicari, 1991; Vicari and Troilo, 1998) are the essence of capability-building processes.

3.3 Towards a definition of the market learning capability construct

The focus of the analysis on the market learning capability requires, first of all, a definition of the construct of market knowledge. In the Marketing literature Glazer (1991: 2) defines market information in terms of 'data that have been organized or given structure – that is, placed in context – and endowed with meaning'. Similarly, the concept of market knowledge has been defined as: 'organized and structured information about the market. Here organized means it is the result of systematic processing (as opposed to random picking), and structured implies that it is endowed with useful meaning (as opposed to discrete items of irrelevant data)' (Li and Calantone, 1998: 14). In terms of content the market knowledge, as in the market orientation

literature, is relative not only to the customers[6] but also to competitors and other players working in different competitive environments (e.g., Slater and Narver, 1994). The problem with this kind of definitions of market knowledge is that they do not consider the differences in the type of external knowledge organizations access to. Indeed, as technical knowledge, market knowledge has different dimensions that affect the opportunity of its integration from a single organization (e.g., Polany, 1966; Winter, 1987; Zander and Kogut, 1995; Garud and Nayyar, 1994). In general, there are two explanations for why there may be a transfer or an integration problem of complex knowledge: unwillingness and ability (Hansen, 1999). The ability problem is the one that appears as relevant in the analysis of the market knowledge integration process. Previous analyses on knowledge integration and transfer showed that there are three dimensions of knowledge to consider as relevant (Polany, 1962; Winter, 1987): its degree of articulation, of complexity, and independence. On the one hand, a low level of codification is close to the concept of tacitness that implies that knowledge is hard to articulate and can only be acquired through experience (e.g., Nelson and Winter, 1982; von Hippel, 1988; Nonaka and Takeuchi, 1995). The degree of complexity relies on the amount of information necessary to describe it. Another dimension of knowledge, particularly relevant in the process of acquisition of technical knowledge (e.g., Teece, 1986), is the degree to which the knowledge is independent or is part of a set of interdependent elements. Tacitness, interdependence, and complexity are relevant dimensions of analysis in the process of absorption, transfer, and integration of market knowledge. Indeed, these knowledge dimensions tend to affect the ability of the organization of absorbing and exploiting a specific set of knowledge and require different mechanisms of integration (Hansen, 1999). In order to explore the complex nature of knowledge assets, Nonaka et al. (2000: 15) have recently proposed a categorization of knowledge assets that operate a distinction between: experiential knowledge, conceptual knowledge, systemic knowledge, and routine knowledge. Experiential knowledge assets are the shared tacit knowledge built through shared experiences among organizational members, and/or between organizational members and customers, suppliers or other firms. Conceptual knowledge assets are explicit knowledge articulated through images, symbols and language, and are based on concepts held by customers and organizational members, such as brand equity, concepts, design. Systemic knowledge assets refer to 'packaged' explicit knowledge, such as product specifications, manuals, and customer databases. Finally, routine knowledge assets are the tacit knowledge embedded in organizational actions and practice.

In summary, from the integration of Marketing Literature on organizational market orientation and of Strategic Management works on organizational capability and knowledge it is possible to

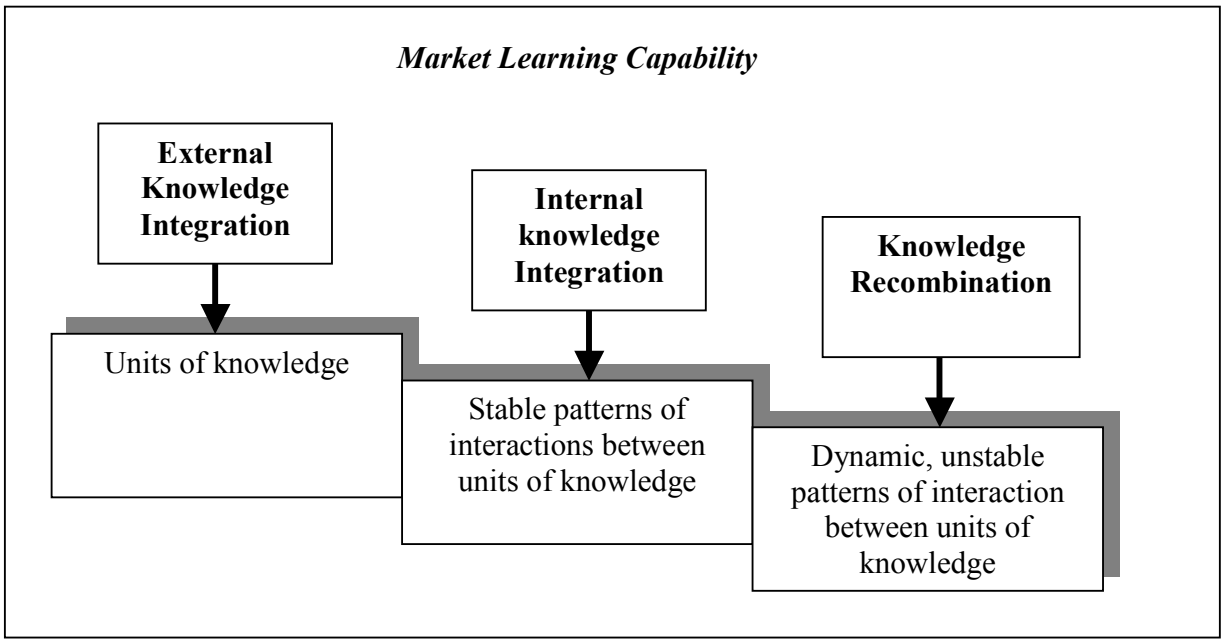
[6] Customers are an organizational resource both in terms of knowledge and trust (see Vicari, 1991, Busacca, 1994).

argue that organizational market orientation is driven by a specific set of capabilities. These capabilities consist of knowledge, repose in skills, technical and managerial systems and organizational culture, and govern the processes of integration, dissemination, and recombination of customer and competitor knowledge. From this theoretical framework it is possible to conjecture that organizational market orientation is driven by a superior ability in managing market knowledge, that is knowledge coming both from competitors and customers, and characterized by different degrees of codification, complexity, and interdependence.

The knowledge that forms this capability has simultaneously three different layers (Kusunoki et al., 1998). The first one is composed by distinct units of market knowledge. Customer databases, brand, competitor databases, marketing researches, and knowledge embodied in a specific group of people that work closely with the market, both with customers and competitors, are examples of these units of knowledge. The second layer is represented by stable patterns of interactions among these units and between market knowledge units and other units of knowledge inside the organization – for example technical knowledge embodied in a group of engineers. The last layer is represented by the dynamic interactions between different units of knowledge that do not follow stable patterns. They emerge through the unplanned combination of different units of knowledge, through communication, experimentation, and trial and error.

The market learning capability consists of these different layers of knowledge and is driven by the ability to integrate external market knowledge, to disseminate it internally, and to recombine different units of knowledge in order to address changing environments. In particular, the ability to integrate external market knowledge, from customers and competitors, represents the way in which the organizational knowledge base is enriched. The market represents a source of knowledge necessary to renew the basic units of knowledge, the building blocks of the organizational capabilities creation process. In addition, the ability to integrate internally the knowledge acquired from customers and competitors is rooted in the processes and mechanisms that, through stable patterns of interactions, enable the market knowledge to be disseminated inside the organization. The recombination ability expresses the capacity of the organization of combining different units of knowledge following new and unplanned patterns, to anticipate new trajectories of market evolution (figure1).

Figure 1: Market learning capabilities: a conceptual framework



4. Market learning capability and new product development

The problem of acquisition and integration of market knowledge in the product innovation process has been considered by many empirical and theoretical studies in the Marketing, Strategic Management literature and in the Technology and Innovation Management studies (e.g., von Hippel, 1986; 1988; Busacca, 1987; Urban and von Hippel, 1988; Narver and Slater, 1990; Iansiti and Clark, 1994; Leonard Barton, 1995; Moorman, 1995; Christensen and Bower, 1996).

A growing stream of literature in marketing centers on the topic of market knowledge competence and its impact on product development advantage. The empirical works on market orientation (e.g., Jaworski and Kohli, 1993; Deshpande' et al., 1993) have given a strong contribution to the analysis of the impact of organizational customer and competitor orientation, both knowledge-based constructs, on its performance. Yet, these studies have not addressed specifically the issue of the relation between organizational ability to acquire and integrate market knowledge and its innovativeness (Deshpande', 1999: 5-6). The only exception can be found in the work by Slater and Narver (1994) that propose the innovation as a mediator in the relation between market orientation and organizational performance (Han et al., 1998). Similarly, the theoretical framework by Day (1994a, 1994b) has emphasized the organizational capability of tapping into relevant sources of knowledge and integrating this knowledge but has not considered

explicitly the relationship between market-driven capability and organizational product innovation.

On the contrary, the study by Moorman (1995) on organizational market information processes and new product advantage found that conceptual and instrumental utilization processes more than information acquisition and transmission processes enhance new product performance (creativity and timeliness). These results indicate that information utilization processes might be a mediator in the relation between information acquisition and transmission and new product success. In the same direction are the works by Li and Calantone (1998) and Han et al. (1998) that have explicitly addressed and tested the relation between market knowledge competence (and market orientation) and performance. In the first study the three component of *market knowledge competence* - customer knowledge processes, competitor knowledge processes, and marketing-R&D interface - show a significant impact on the organizational new product advantage. Similar conclusions can be drawn from the study from Hal et al. (1998) that show the mediator role played by innovativeness in the relation between market orientation – above all of *customer orientation* - and overall performance.

Finally, the work by Moorman and Miner (1997) has pushed the attention toward the consideration of *stored knowledge*, instead of acquired one, in new product development activities. Their work emphasizes the role played by organizational memory level and dispersion on new product creativity and financial performance. The results from their empirical analysis show that the organizational memory level enhances short-term financial performance, but does not enhance new product creativity.

On the contrary, there is a positive and linear relation between the *organizational memory dispersion* and new product creativity.

Researches developed in a product innovation framework have been focusing more on the mechanisms and processes through which firms integrate external knowledge from different sources. The empirical work undertook by von Hippel (1986; 1988) and Urban and von Hippel (1988) explores the role played by *lead users* – those who face needs that will be general in the marketplace months or years before and are positioned to benefit significantly by obtaining a solution to their needs – in the new product development process. The contribution of lead users' knowledge is particularly relevant in fast moving markets where the real world experience of 'ordinary' users is quickly rendered obsolete in the time the new product is developed. In the same direction, Leonard Barton (1995: Chapter 7) offers detailed examples of consumer good firms that increase product effectiveness through the use of *powerful marketing tools* - such as "anthropological expeditions" and "empathic design techniques" (Leonard and Rayport, 1997) - which spur market knowledge absorption through customer interaction.

In addition, the work by Iansiti & Clark (1994) on the automobile industry identifies the positive impact of specific issues linked to *customer voice internalization* on product quality. The generation of the product concept made by the product manager and the dominion of the marketing representatives over the entire development process are two examples of such issues. The work by Christensen and Bower (1996) presents different conclusions: in high tech and dynamic environments paying too much attention to customer leads to the failure of leading firms.

Hagardon and Sutton (1997, 2000), on the other hand, propose a more processual approach to the analysis of product innovation in organization. They argue that in highly dynamic environments, where continuous product innovation is necessary to survive, success firms develop capabilities of knowledge brokering. They sustain a high pace of innovation by transferring ideas over time and across people, organizations, and industries (1997, p.716). Their ability as knowledge brokers depends on their network position and on their organizational memory that allows them to acquire, retain, and retrieve new combinations of information obtained through such a position. Following these different streams of research it is possible to conjecture a relation between organizational product innovation and the market learning capability.

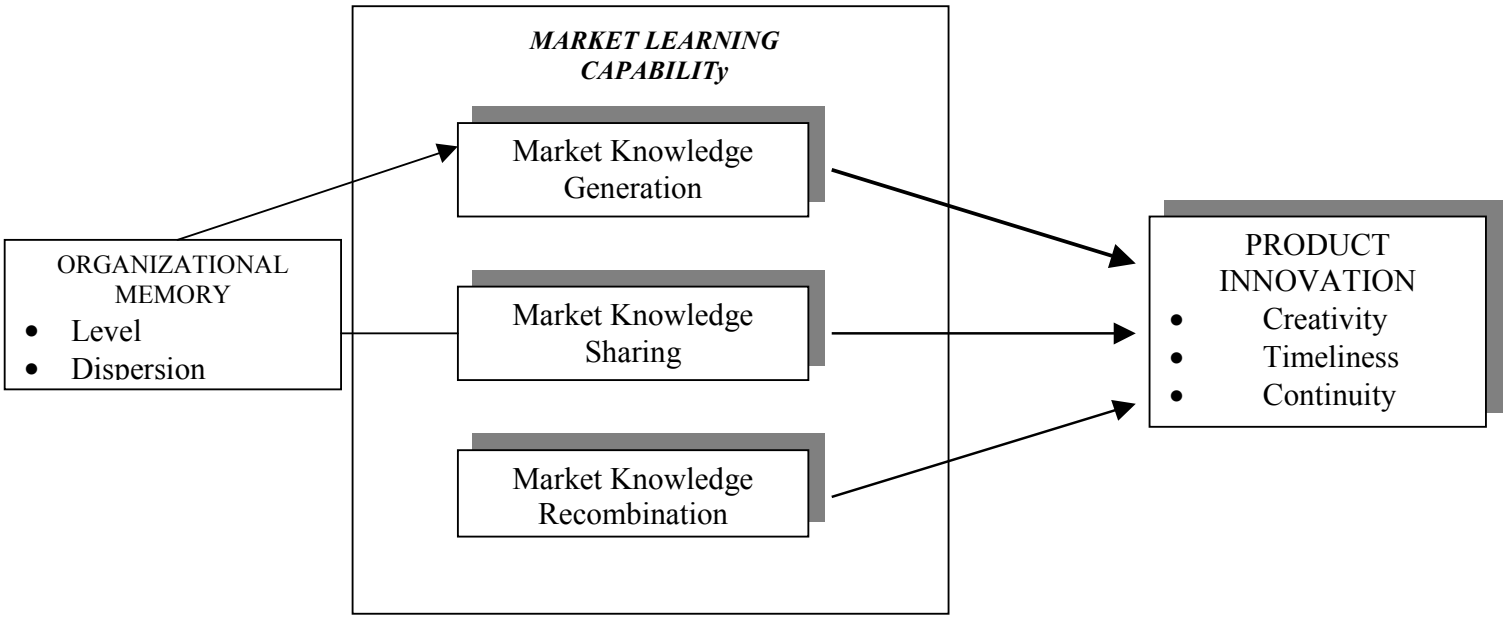
In particular, this condition seems to hold in highly dynamic environments characterized by a high level of market uncertainty (e.g., Iansiti and Clark), and where product innovation can be considered as the 'core activity' of an organization (Nonaka, 1995). In these industries the capability of integrating, sharing, and recombining units of knowledge to address evolving customer needs and preferences is relevant for two main reasons. On the one hand, it represents a way for organizations of internalizing market uncertainty and of creating a vision of the evolution of the markets that is necessary to co-evolve with them. On the other, it is a source of continuous knowledge, necessary to sustain a routinary innovation process (figure2). It can be analyzed and measured both in terms of creativity and timeliness (Moorman, 1995). The *new product creativity* is the degree to which a new product is novel and has generative capacity (i.e., the potential to change thinking and practice) (Moorman, 1995; Moorman and Miner, 1997). The *new product timeliness* 'is the extent to which new products are introduced during environmental conditions that promote their success' (Moorman, 1995: 323). As Iansiti and Clark claim (1994: 570), integrating customers (in this case also competitor's knowledge) means much more than being simply market-oriented or customer-driven: 'customer integration implies mutual adaptation between the organization and its market (customer needs may influence organizational competences, and the competence base may influence customer needs) and mutual learning between producers and customers'.

An additional contribution on the way organizations process information and use them in order to define an innovative output comes out from a group of studies in Organizational Behavior that

have tried to define the concept of Organizational Intelligence, as something that is different from the individual intelligences in organization (e.g., William and Sternberg, 1988; Glynn, 1996, March, 1999). These studies adopt a cognitive perspective, and emphasize the role of cognition in fostering innovation. They identify a strong relation between organizational innovation - that of course can manifest itself in different ways - and its learning processes, driven by its knowledge base (e.g., Cohen and Levinthal, 1990). The idea developed in these studies is that absent the creative spark of innovative genius or the intelligence of organizational systems that support innovation, it could be difficult to find new and useful solutions to emergent problems. In a sense, all the cognitive studies on organizational learning (e.g., Argyris and Schon, 1978; Senge, 1990; Levitt and March, 1991, Huber, 1991), on organizational memory (e.g., Walsh and Ungson, 1991; Moorman and Miner, 1997), and on interpretation and sense-making (e.g., Weick, 1979, 1995), assume the importance of organizational intelligence, because without it an entity cannot learn, remember, and process information. Organizational Intelligence is, specifically, defined as 'an organization's capability to process, interpret, encode, manipulate, and access information in a purposeful, goal-directed manner, so it can increase its adaptive potential in the environment in which it operates' (Glynn, 1996: 1088). The basic assumptions adopted in these approaches are that: 1) organizations resemble information-processing systems that process information from the environment; 2) they can be considered as interpretive systems that scan, interpret, and diagnose environmental events for their uncertainty and complexity (Daft and Weick, 1984); 3) organizations are 'a network of intersubjective shared meanings that are sustained through the development and use of a common language and everyday social interactions' (Walsh and Ungson, 1991: 61). This perspective particularly emphasizes the idea of organizational intelligence as an adaptive one: it is considered as something related to solving problems, meeting objectives, and giving effective responses to environmental challenge. In addition, this perspective has been mainly focusing on more radical innovations that are competence-destroying. An interesting approach is of considering the organizational intelligence as related to more incremental innovation (Glynn, 1996). For this purpose, this perspective needs to be integrated in order to consider the role of organizational intelligence not just in finding solutions to emergent problems (that is an adaptive perspective), but as a way of systematically scanning the environment and using the market information as a way of introducing innovations, not necessarily in response to emerging problems. In this not adaptive perspective a big role is played by organizational memory. Indeed, it is organizational memory that enables firms to store and retrieve knowledge and use it in innovative processes. Rooted in these studies is the idea that the ability of an organization to use market knowledge in order to innovate in a routinary way is related to the level and dispersion of the organizational memory.

The theoretical model in Figure 2, resulting from the integration of the contributions examined so far, shows the relation between the organizational capability to learn from the market and its performance in terms of routinary product innovation. This relation, as suggested by the literature, is mediated by the level and dispersion of the organizational memory.

Figure 2: Market learning capability and new product development



5. Propositions and research design

After developing a deductive conceptual framework of the processes underlying the organizational market learning capability I will consider the product innovation activities as a lens to show how market knowledge is absorbed and used inside the organization.

The empirical analyses on product innovation show that the ability of an organization to develop new products depends hardly on the capability of searching and integrating external knowledge. This ability is rooted in a set of routines that enable the organization to systematically tap into relevant sources of new knowledge.

In particular, the Technology and Innovation Management literature has, on the one hand, emphasized the role played by the integration of external technological knowledge in the innovation process (e.g., Allen, 1977; Cohen and Levinthal, 1990; Iansiti and Clark, 1994; Henderson and Cockburn, 1994; Pisano, 1994). On the other hand, the integration of customer knowledge - lead users in von Hippel's terminology - has been considered as another relevant

variable in the development of a new product (e.g., Imai, Nonaka, Takeuchi, 1985; von Hippel, 1986, 1988; Leonard Barton, 1995; Christensen and Bower, 1996). Also, some studies have highlighted the importance of knowledge collection in the early stages of the product innovation process, when the product has to be defined in terms of main characteristics (e.g., Bacon, Beckman, Mowery, Wilson, 1994; Beckman and Chen, 1998). In addition, the stream of research focused on the way organizations develop continuous innovation (e.g., Nonaka, 1994; Nonaka and Takeuchi, 1995; Hagardon and Sutton, 1997; Hagardon, 1998) have paid attention to the 'access' phase in triggering the innovation process: 'access ensures that knowledge brokers are the first to see when knowledge developed and used in one industry has potential value elsewhere (…). Access sets the initial conditions for continuous innovation' (Hagardon, 1998: 216).

The analyses from Marketing scholars, on the other hand, have been focused mainly on the relation between the level of a firm's market orientation and its innovativeness (e.g., Jaworski and Kohli, 1993; Sinkula, Baker, and Noordewier, 1997; Slater and Narver, 1994; Day, 1994; Han, Kim and Srivastava; 1998). Yet, in these studies the market orientation is reduced mainly to the customer orientation. In addition, the concept of customer orientation has been operationalized in terms of customer satisfaction, customer commitment, but little attention has been paid to the analysis of customers as a source of relevant information and repositories of knowledge that could be used by the firms in their innovation processes.

Following the work by Iansiti and Clark (1994) I operate a distinction between external and internal integration. Indeed, the selection of different sources of knowledge and the ability of interacting with them is rooted in a different ability from the one of integrating that knowledge in the organizational knowledge base, in a way that makes that knowledge available for other uses.

By integrating these different streams of research, I maintain that the ability of an organization to innovate reposes on the capability of integrating external market knowledge. This knowledge is both from customers and from competitors as well as from players that work in other competitive environments whose knowledge could be valuable for the firm. This capability is driven both by cognitive efforts and behavioral mechanisms aimed at generating the necessary range of new ideas and intuitions that can feed the product innovation process[7]. Day (1994) maintains that this capability is supported by the *outside-in processes* (market sensing, customer linking, channel bonding, and technology monitoring) that connect the organization to the external environment and enable the business to compete by anticipating market requirements ahead of competitors, and creating durable relationships with customers, channel members, and suppliers.

[7] Zollo and Winter (1999) claim that while the exploration activities to generate variation are primarily carried out through cognitive efforts, exploitation activities rely more on behavioral mechanisms. I maintain that the behavioral mechanisms are relevant also in the exploration phase in order to generate variation in the interaction with markets.

In addition, other works have emphasized the relevance of the external knowledge integration, not only technological (e.g., Henderson and Clark, 1994), but also the one developed by lead users (Von Hippel, 1988), and by customers (Leonard-Barton, 1995).
Following these analyses on the way external knowledge is integrated in the product innovation process, I maintain that:

> P1a: The effectiveness of the new product development process is positively related to the capability of the organization of *integrating external market knowledge* from customers, competitors and other players working in different competitive environments.

The integration of external knowledge is particularly relevant in environments exhibiting high levels of market uncertainty, compared to the technological uncertainty (Iansiti and Clark, 1994).
The market uncertainty is driven by two different sources: customers and competitors. On the one hand, customers' rapidly evolving tastes represent a big source of uncertainty for organizations that have to be able to detect and rapidly respond to different emerging needs and preferences. On the other, competitors represent another big source of uncertainty, where their strategic actions can completely offset the innovative efforts of a specific firm (e.g., Christensen and Bower, 1996). The more linked are the performances of the competitors in an industry, the more relevant is the ability of the organization to integrate competitors' knowledge into its innovation process, in addition to customers' knowledge.
Yet, the external integration capability depends on the type of knowledge to integrate (Hansen, 1999). Both codified/explicit and tacit/complex knowledge from the market are relevant; somebody claims that it is even impossible to operate a distinction between tacit and explicit knowledge: there is always a tacit dimension even in codified knowledge (e.g.: Nonaka, 2000).
Marketing researchers have been particularly emphasizing the explicit dimension of market knowledge. In a sense, they have focused their attention on the knowledge that is collected in customer databases, in customer satisfaction reports, competitor benchmarking analyses (see for example: Day, 1994; Narver and Slater, 1990, 1994). This kind of explicit market knowledge, removed from the original context of use, defines the direction of the process of searching and integrating tacit and complex market knowledge.
I will focus specifically on the integration of tacit and complex knowledge that cannot be structured in a set of relationships easy to communicate and requires a lot of information to be described. Indeed, this kind of knowledge is the hardest to absorb and integrate, but the most valuable (Grant, 1996).

Many studies have tried to address the issue of the integration or transfer of complex knowledge. Some researchers have been rejecting the idea of knowledge transfer models, which isolate knowledge from context and practice (e.g.: Brown and Duguid, 1991; Bobrow, Cheslow and Whalen, 2000). In this perspective 'learners can in one way or another be seen to construct their understanding out of a wide range of materials that include ambient social and physical circumstances and the histories and social relations of the people involved. (…) Learning essentially involves becoming an insider. Learners do not receive or even construct abstract, "objective", individual knowledge; rather, they learn to function in a community' (Brown and Duguid, 1991: 47-48). So, one of the ways through which it is possible for an organization to integrate tacit and complex knowledge, not easily learned separately from the context in which it has been produced, is by becoming an insider of the context producing that knowledge. Another tradition of research have been emphasizing the idea of experimenting and probing as a way of learning and acquiring tacit knowledge (e.g., von Krogh & Vicari, 1993; Leonard-Barton, 1995; Nonaka, 1995; Brown and Eisenhardt, 1997; Lynn, Morone, and Paulson, 1996; Leonard and Rayport, 1997; Vicari and Troilo, 1998). The idea developed in these studies is that organizations can learn by probing the markets with rough or earlier versions of a product, and by closely analyzing the different reactions that come out this probing process. By integrating these two different streams of research I hypothesize that the integration of tacit and complex market knowledge is based on continuous interactions with different groups (communities) of customers and competitors, experimentation and probe and learn processes.

> P2b: The more *tacit and complex* is the *market knowledge*, the more the external integration capability will be realized through a continuous interaction of the organization with different groups of customers and competitors, through probing and learning processes, and experimentation.

The ability to select different and new sources of market knowledge needs to be complemented with the capability of disseminating that knowledge inside the organization. This kind of capability is close to what Iansiti and Clark (1994) refer to as internal integration. The idea in this case is that organizations have to develop some processes in order to be able to integrate the knowledge they access to into the knowledge base they already possess and to make that knowledge available for usage over time. This kind of ability is necessary not only to speed the product innovation process but also to store this knowledge inside the organization in order to be able to use it in different periods of time.

Many studies have been emphasizing the relevance of an integrative force that blends the different technical knowledge. They have analyzed these mechanisms both from a temporal perspective - with reference to the overlap of competencies belonging to different phases of the process (Iansiti & Clark, 1994) - and from a spatial one - related to the maintenance of a flow of information between disciplines and functions of different research (Henderson & Cockburn, 1994), as well as to the creation of teams with interfunctional competencies (Iansiti & Clark, 1994). Moreover the integration through organizational structures of the different discipline and function-specific capabilities showed also a positive impact on the performance (Leonard Barton, 1995; Pisano, 1996). These results are depicted in the following proposition.

> P2: Routinary product innovation is positively related to the capability of the organization of *internally sharing* market knowledge from customers, competitors and other players working in different competitive environments.

Both the searching and integrating capabilities are static concepts; they are rooted in organizational processes that tend to be repeated. They involve a dynamic idea of learning, as they are driven by 'repetition and experimentation that enable tasks to be performed better and quicker" (Teece, Pisano, Shuen, 1997: 520), but not one of reconfiguration.

Instead, the concept of recombination is a transformational one. It involves the idea of reconfiguring different pieces of knowledge and making them fit in different combinations. In this perspective, the idea of recombination is not dissimilar from the one of creativity as defined by Weick (1979: 252): 'creativity is putting old things in new combinations and new things in old combinations'. This process requires an identification and retrieval of the knowledge previously stored and the synthesis of these pieces of knowledge with new market knowledge to fit into new combinations. So, the recombination process requires first a retrieval activity. This is quite complex, because firms have always difficulties in retrieving old, unused knowledge (see Argote, Beckman, and Epple, 1990). In addition, for the recombination process to be complete it could be necessary to modify the knowledge, in order to meet emerging, new market needs.

This process of knowledge recombination relies, first of all, on people (e.g., Hagardon and Sutton, 1997). The easiest way to retrieve a stock of stored knowledge is through individual memories and their interactions. This requires two main things: on the one hand, variety between people, but also in each individual, in terms of background; on the other, it requires the definition of mechanisms to make these different persons interact, and recombine knowledge through interacting. A big number of gatekeepers (Allen, 1977), high-flex individuals, and routines for making people share problems and solutions (frequent meetings, brainstorming sessions, analogic

thinking, creative abrasion, job rotation/variety) are some of these mechanisms (e.g., Schon, 1993; Takeuchi and Nonaka, 1986; Nonaka and Takeuchi, 1995; Sutton and Hagardon, 1996; Leonard and Strauss, 1997; Leonard and Swap, 1999). Secondly, this ability relies on the presence of physical artifacts, such as for example, old products, centrally located file cabinets (e.g., Sutton and Hagardon, 1997), prototypes (Leonard-Barton, 1995) that enable the knowledge to be easily stored and retrieved.

In addition, the synthesis of these different chunks of knowledge in new combinations represents both a technical and organizational challenge (Garud and Nayyar, 1994). From a 'technical' point of view the old knowledge, mostly abstracted from the context and codified, has to be stored in a way that makes it easily match with the new knowledge collected. In addition, on the organizational point of view, the combination of different chunks of knowledge, technical and market-related, old and new, needs the definition of ad hoc structures in order to socialize the knowledge inside the organization. Concurrent engineering (e.g., Clark and Fujimoto, 1991), semi-structures (Brown and Eisenhardt, 1997), and product team heterogeneity (Nonaka, 1990), are but few of the mechanisms that can enhance the process of knowledge recombination.

> P3: The effectiveness of the new product development process is positively related to the capability of the organization of *recombining* the new market knowledge with old knowledge stored inside the organization.

Finally, it is possible to hypothesize that the market knowledge integration, dissemination, and recombination processes are supported by the organizational memory.

Previous studies have analyzed the relation between organizational memory and new product development (e.g.: Moorman and Miner, 1997). In particular, the new product outcome has been related to the level and dispersion of organizational memory. The level (or amount) of organizational memory has been defined in terms of amount of stored information an organization has about a particular phenomenon; the dispersion has been referred to 'the extent to which organizational members share an understanding of organizational beliefs, behavioral routines, and physical artifacts' (Moorman, 1997: 95). The idea developed in these studies is that change becomes more difficult as the level of organizational memory in a particular domain increases. Indeed, when the level of knowledge and expertise on a specific problem gets higher is much more difficult for the organization to tap into different ways of action. This effect has been referred to as competency trap (Levitt and March, 1988), core rigidity (Leonard-Barton 1992), path dependency (Dosi, 1982).

P4*:* The level and dispersion of organizational memory will be positively related to the organizational market knowledge integration and dissemination processes, while negatively related to its recombination ability.

5.1 Research Design

As seen in the previous pages, the empirical analyses on the integration and use of market knowledge in product innovation have fully explored and tested some of the issues considered. Yet, two of these issues, strongly linked, have not been enough considered. The first one is related to the mechanisms through which the market learning process is realized at an organizational level. The theoretical analyses considered have shown the processes that appear to be relevant in the organizational learning from the market. Yet, more insight has to be gained on the nature of this organizational capacity. The second issue that needs to be empirically explored is related to the way the recombination process is realized (Proposition 3). As seen before, some studies have emphasized the relevance of this capacity to the routinary product innovation, but not enough evidence has been collected on its nature and, above all, on the way old knowledge is stored and retrieved, in order to be integrated in different period of time with new market knowledge.

In order to explore these issues, a qualitative empirical analysis based on a multiple case-study approach has been developed.

The analysis has been focused on a single industrial setting. Indeed, the study of such a complex construct as the one of the organizational capacity requires a direct confrontation with their technicality that can be better picked by a single industry analysis (e.g., Pisano, 1994; Henderson, 1994). Moreover, this kind of analysis is useful to better detail the conceptual framework related to organizational market learning capability and product development and try later on to generalize from it.

The industry I have chosen is the fashion industry for three main reasons.

The first one is that this industry is very relevant for the Italian economy. In addition, it can be considered as representative for other industries driven by what has previously been referred to as routinary product innovation. Indeed, firms in the fashion industry have to face the issue of a product innovation with quite a high pace. In addition, they are exposed to a high market uncertainty, related both to rapidly changing customer needs, and to a high level of interdependence with competitors. In particular, they can be considered as representative of other industries, considered as 'creativity intensive', such as music, movie production, design, and so

on, where the ability to innovate routinely represents the only way organizations can survive, and where the innovation they produce is not necessarily a technological one.
The third reason, partially related to the previous one, is that firms in the fashion industry try to reduce partially the uncertainty linked to rapidly changing customer needs by internalizing market in their innovation process. These are the reasons why they offer a particularly interesting ground to start defining the complex construct of organizational market learning capability.
The analysis has been done on a set of 4 case studies of firms in the fashion industry[8]. The firms have been selected on the 'visibility' criterion (Pettigrew, 1990) that is the presence of the phenomenon under investigation, without emphasizing differences linked to the different market segments they serve.
This part of the analysis is an explorative one and is developed in a grounded theory framework (Glaser and Strauss, 1967): the idea is of exploring a complex construct for which extant theory does not appear to be useful.

6. Results and conclusions

The results of the empirical studies will be related to two of the four case studies considered because there is a high level of redundancy in them.
The two case studies considered for the analysis are the Escada AG case and the Diesel case.
Escada AG is a deutch company that in thurty years has developed a very high profile value proposition and it offers a relevant example of how a strong market learning capability has been built as a tool to define an offer for a very specific and demanding target of customers.
Diesel is an italian company, with a global image in the casual wear. It represents a very effective example of integration between R&D investments on fabrics and marketing investments in understanding the evolution and social trends in the market.
First of all what comes out from the analysis is that the innovation process in the four companies considered is built up on the three different phases presented: generation of market knowledge, sharing of the market knowledge at an organizational level, and recombination of the knowledge generated with the knowledge cumulated and stored.
The market learning capability is a dynamic capability made of these three processes. Each one of this processes is driven by four components:

- individual skills of the personnel;
- organizational structure;

[8] The four case studies are: Diesel, Escada, Polo Ralph Lauren, and Romeo Gigli. They are four different firms that operate in different segments of the fashion industry. The different target of reference for these firms are an important element in order to give a wider variety to the analysis that helps to gain evidence in the explorative phase of the research.

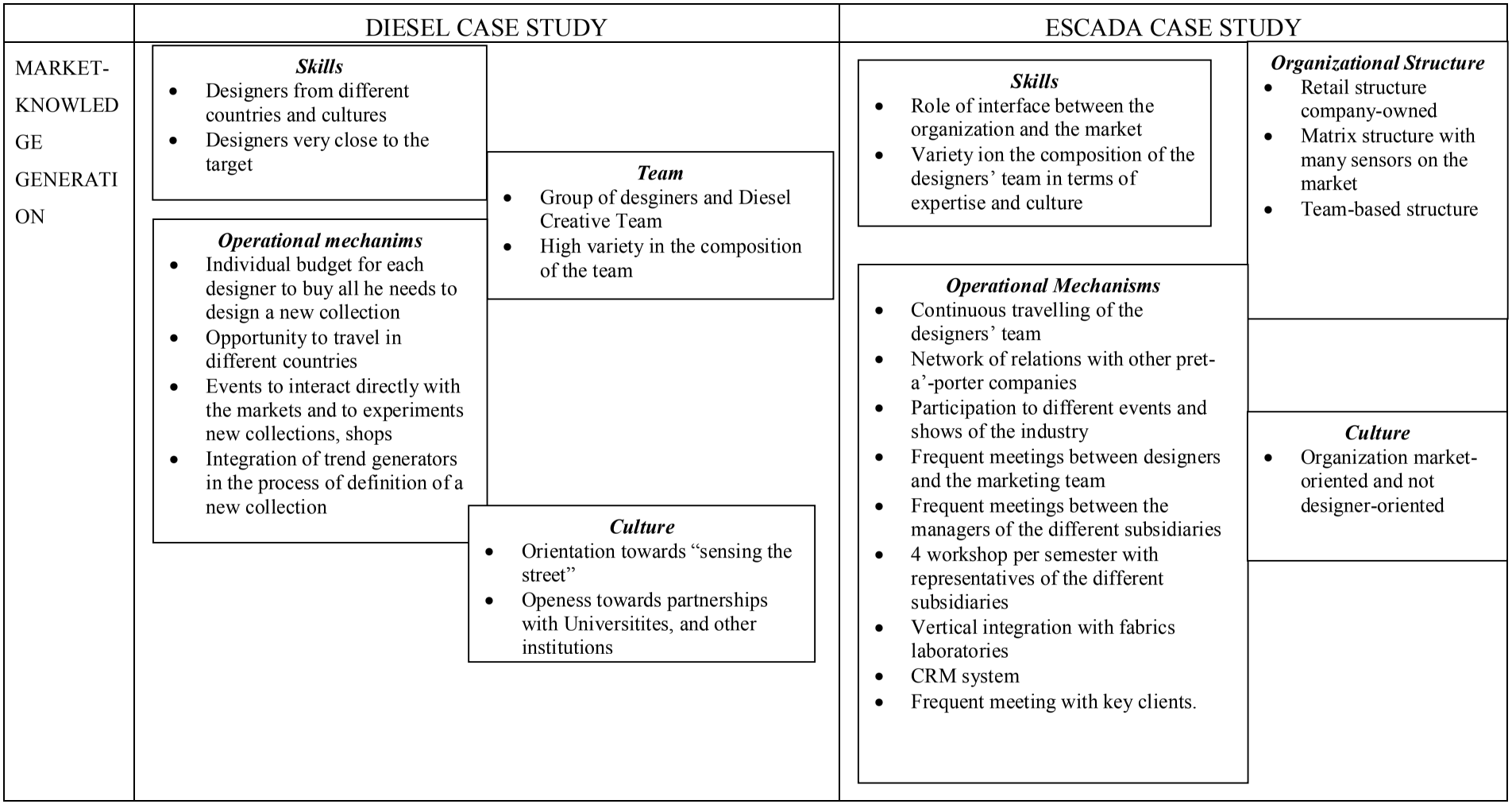
- operational mechanisms;
- culture.

The four components of these processes occur differently in each of the four companies considered in the analysis (see figure 3 for evidence).
In addition, the competitive advantage of each of them resides in the idiosyncratic combination of the different mechanisms they use in order to sustain the three process of knowledge generation, sharing, and recombination.
In addition, as supposed, the market learning capability has to be considered as a dynamic capability, where learning is completed through the recombination process. The results from case studies show that through the recombination process new knowledge is created at the organizational level and the new knowledge generated requires a reconfiguration of the four components that compose the three different capacibilities: the market knowledge generation capability, the knowledge sharing capability, and the recombination capability itself.

7. Limits of the analysis and directions for future research

The analysis has been focused on a single industrial setting - the fashion one. The main reason was of considering a context where there the phenomenon to be studied, i.e. the innovation process, was relevant and easily visible. But, the focus on a specific industrial setting could represent a major limit of the study, where procedures and mechanims could be context-specific and hard to replicate in different competitive landscapes.
The analysis needs to be integrated with a quantitative empirical study in order to test the relations hypothesized and to explore the relation between market learning capability and innovation.
Moreover, considering the main limit of the analysis that is focused on a single industrial setting, it could be quite useful to design a cross sectional quantitative empirical study in order to analyze the relation between market learning capability and innovation in different industries that present differerent structures and comptitive dynamics.

Figure 3: Results from two of the case studies considered for the analysis



	DIESEL CASE STUDY	ESCADA CASE STUDY
MARKET-KNOWLEDGE SHARING	***Organizational Structure*** • Fluid communication between different departments and hierarchical levels • No physical barriers • Presence of a bar as a central meeting point • Designers' team isolated from the rest of the company ***Skills*** • Presence of people to facilitate knowledge sharing • Presence of the same people in different teams ***Culture*** • Openness inside the organization and towards the market ***Operational Mechanisms*** • Meetings netween marketing and designers to share ideas after travelling • Continuous and informal brainstorming • Involvment of suppliers in the definition of the themes of a new collection • Intranet to facilitate knowledge integration and sharing	***Skills*** • Presence of a person to facilitate communication between different departments ***Organizational Structure*** • Architectural concentration of the different units in the same place in Munich • Matrix structure ***Operational Mechanisms*** • Integration of fabrics producers in the organization • Escada Online Information System (EOIS) • Collection management project ***Culture*** • Organization oriented towards continuous change

	DIESEL CASE STUDY	ESCADA CASE STUDY
MARKET-KNOWLEDGE RECOMBINATION	***Skills*** • Continuous reconfiguration of the travelling team • Partnershio with people from othr companies ***Operational Mechanims*** • Designers' team • Diesel Creative Team • *Knowledge repository tools* • High turnover in the creative team ***Organizational Structure*** • Continuous reconfiguration of project teams ***Culture*** • Openness inside the organization and towards the market	***Skills*** • Partnerships with suppliers in each phase of the collection development process • Presence of people with different knwoledge on different markets ***Organizational Structure*** • Continuous interaction between headquarters and subsidiaries ***Operational Mechanims*** • *Knowledge repository tools* • Frequent meetings between desginers office and marketing department • Frequent meetings between different subsidiries to facilitate knowledge integration ***Culture*** • Openness inside and outside the organization • Orientation towards learning from the past

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