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SMES AND COMPETITIVE ADVANTAGE: A MIX OF INNOVATION, MARKETING AND ICT. THE CASE OF "MADE IN ITALY".

ELEONORA DI MARIA
Università di Padova

STEFANO MICELLI
Università Ca' Foscari

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SMEs and Competitive Advantage: a Mix of Innovation, Marketing and ICT. The Case of "Made in Italy".

Eleonora Di Maria[1], Stefano Micelli[2]
[1]eleonora.dimaria@unipd.it
Department of Economics, University of Padova, Via del Santo, 33, 35123 Padova (Italy)
Tel. +39 0498274069 – Fax. +39 0498274211
[2] micelli@unive.it
Department of Business Management, Ca' Foscari University, Cannaregio 873, 30121 Venice (Italy) Tel. +39 0412348736 – Fax. +39 0412348701

Abstract

Global economy is transforming the sources of the competitive advantages of firms, especially for firms embedded in local manufacturing systems. Based on the theoretical contributions to knowledge management and industrial districts, this paper describes alternative firm's strategies and upgrading options by exploring the relationships among innovation, marketing and network technologies. Starting from the analysis of the Global Competitiveness Report and the European Innovation Scoreboard, this paper focuses on the case of firms specializing in the "Made in Italy" industries (fashion, furniture, home products) to outline a framework explaining the new competitive opportunities for SMEs. Through a qualitative analysis,this paper presents four case studies of Italian firms that promote successful strategies based on a coherent mix of R&D-based innovation, experienced marketing and design, by leveraging on ICT.

Introduction

Global economy is transforming the sources of firms' competitive advantages and especially for firms embedded in local manufacturing systems. As in the case of Italy, during the '80s and '90s small and medium enterprises (SMEs) localized in industrial districts and specializing in low or medium-tech industries have built their success on productive flexibility, quality certification and incremental innovation. Literature on industrial districts has provided evidence of the sources of competitiveness of local systems (Pyke *et al.*, 1990). As opposed to the large multinational corporations, district SMEs emphasize an alternative model of economic organization (Piore and Sabel, 1984; Porter, 1998), in which external economies support distributed production processes within the local networks of firms. From this perspective, on the one hand, scholars focused on the advantages offered by proximity in terms of technology spillovers and economic externalities (i.e. Krugman, 1991) (collective goods). On the other hand, studies on the knowledge economy (i.e. Arora *et al.*, 1998; Becattini and Rullani, 1996) consider industrial districts as knowledge management systems, where the local context is able to sustain and facilitate creation, exploration and exploitation of (mainly tacit) knowledge, rooted into social practices.

SMEs are now facing competitive forces that impact on the sustainability of their strategies in the next years. First, manufacturing internationalization pushes firms operating in

local supply chains to extend their networks beyond local boundaries to catch the opportunities of global value chains (Gereffi *et al.*, 2005). While, on the one hand, a growing part of local productive activities may be transferred internationally with cost advantages, on the other hand, those paths may reduce a small firm's control over economic processes with negative influence on learning-by-doing innovation.

A second major challenge refers to the development and management of sales networks on a global basis, in a framework of stronger connections with the market. As many scholars have outlined, the interaction between customers and the firm through sales networks, as well as the web, is crucial in order to understand the market and anticipate demand trends. More important, building relationships with active customers (lead users and communities of customers) is part of a firm's innovation strategy, to obtain profitable knowledge for product and brand management (i.e. Sawhney, Prandelli, 2000). From this perspective, SMEs have to improve their competencies in interaction with customers at the international level, overcoming local social and cultural boundaries as well as their traditional manufacturing approach. Such strategic options require more sophisticated marketing competencies, which are not usually available within SMEs operating in local productive systems.

Thirdly, the evolution of information and communication technologies (ICT) contributes to the debate about the transformation of the district firm model and the advantages of local embeddedness (i.e. Chiarvesio *et al.,* 2004). Global supply chains and international commercial outlets ask the firm to increase control on processes at the organizational level and within the firm's extended value system. From this perspective, network technologies can strengthen information sharing, process transparency and interaction among players in the value system (final customers included). Large multinational companies were able to fill the gap with the flexible SME model in the 1990s, thanks to network technologies. These tools supported distance cooperative work, also increasing process monitoring, knowledge management and communication within a renovated firm model (Scott Morton, 1991). In the present scenario, SMEs are asked to update their strategies benefiting from network technologies. SMEs have to overcome the local environment as the prime source of innovation - local tacit knowledge, mainly manufacturing-oriented and informally managed - by developing new capabilities to manage extended networks including research centers, designers, and customers (Corò and Grandinetti, 1999; Biggiero, 2006).

Based on the theoretical contributions to knowledge management and industrial districts, this paper describes alternative firm's strategies and upgrading options by exploring the relationships among innovation, marketing and networks technologies. The paper focuses on the case of firms specializing in the "Made in Italy" industries (fashion, furniture, home products) to outline a framework explaining new competitive opportunities for SMEs. Our hypothesis is that the learning-by-doing innovation model that has characterized district firms in the past is no longer sufficient to sustain their competitive advantage. The R&D-based innovation, efficiently adopted in large corporations, can offer new strategic options to face international competition. However, it cannot be implemented easily in all district SMEs. Moreover, innovation cannot be limited to scientific knowledge management, but can benefit also from customer input and experience related to technical features as well as associations and symbols the product incorporates (i.e. Krippendorf, Butter, 1984).From this perspective, the capabilities of SMEs to manage networks of relationships and to translate customers' needs into products may open new competitive opportunities, under the condition of a well-defined ICT strategy.

In the first section this paper analyzes the district SMEs' model and its impact on Italian competitiveness, based on the contributions and approaches to innovation of the Global Competitiveness Report and the European Innovation Scoreboard. The second section focuses on the drivers of competitive advantage and stategies of firms in terms of science-driven and market-driven innovation, also considering the role of ICT. Through a qualitative analysis, in the third section, this paper discusses four case studies of Italian firms that promote successful strategies based on a coherent mix of R&D-based innovation, experienced marketing and design, by leveraging on ICT.

SMEs' Competitiveness in the European Scenario

Despite scholars' interests in the Italian economic model based on competitive local systems of SMEs (Piore and Sabel, 1984), international analysis stresses the marginal role of Italy in the global arena as regards SME's capabilities to manage codified innovation. The Global Competitiveness Report of the World Economic Forum put Italy 42nd in the international ranking. This study emphasizes the dynamics of growth and competitive factors of countries (with a focus on technology innovation, economic systems and institutional framework) through a comparative approach and identifies then the competitive potentials of firms localized in each country. As opposed to its success during the '80s and '90s, the Italian economic system, and specifically SMEs specializing in the so-called "Made in Italy"industries (home products, fashion, mechanics, food), seem to lack competitiveness, due to low investments in R&D and patents. Even in the European Union framework, the tool used to evaluate competitiveness and performances of nations and regions – the European Innovation Scoreboard – describes a quite negative picture of Italian firms, based on a few indicators on firm's expenditure on R&D, the numbers of patents registered, investments in advanced services (Arundel, Hollanders, 2005).

> "Italy (…) performs exceptionally badly in knowledge flow. Performance is also well below average for skills and governance, and below average for an innovation-friendly market. Given the structural problems confronting innovation in Italy, as shown in EXIS, the Italian performance on innovation mode is above expectations." (Fonte: EXIS: An Exploratory Approach to Innovation Scoreboards).

As stressed by analysts, the prevalence of small and medium firms in the economic system is the principal reason for Italian weakness in managing innovation successfully. According to the data of European researchers, the Italian SMEs are characterized by learning-by-doing innovation. Thus, SMEs are not able to translate new knowledge into patents and codified outputs. Moreover, SMEs do not approach (formal) innovation with strategic intent and, hence, do not invest a relevant amount of resources in R&D, training and new technologies. Despite this negative picture, those studies mention a few Italian SMEs' strengths related to organizational innovation and strategic control on technical activities such as product design.

From our perspective, the explanation of such contradictory results can be explained by considering a broader approach to innovation, which does not cover only R&D-based activities. Instead, innovation can also be linked with the development of intangible features of the product and customer experience as the main drivers of value creation. From this standpoint, there are many different ways through which innovation can be deployed: the value created through innovation and its impact on competitiveness is rooted in the variety of forms and processes of the innovation each firm is able to design in its own original way. Following this approach, recently, the European Union has upgraded its framework of analysis by

creating the Innovation Diversity Index, which is a measure oriented to capture the alternative forms of innovation characterizing countries and regions. Such an index is influenced not only by innovative firms that invest in R&D and patents, but also firms that have positive performances based on organizational innovation and innovation in marketing and design.

From this point of view, the competitive advantage of Italy becomes clearer. Despite their specialization in low or medium-tech industries, Italian SMEs rank at the top in Europe with regards to innovation management processes that develop and transform informal knowledge into value for the market. In this scenario, of near formalized procedures that lead toinnovation – typically used in large corporations – one should also evaluate, on the one hand, the openness of the innovation cycle (innovation inputs beyond scientific knowledge and R&D) and, on the other hand, the results of innovation (outputs) and its use. Based on the Innovation Diversity Index of the EU, Italian SMEs show strong ability in the management of networks and collaboration. Traditional innovation drivers (R&D, skilled labor force and lifelong training) are weak in SMEs (ranked 21 out of 25). Instead, small firms are stronger in new knowledge generation and implementation.

According to the categories developed by the EU, Italian firms are classified as "modifier" in their innovation strategy because they capture and transform external knowledge into products through informal processes. Such approach is perceived either negatively, as it is not codified (and represents incremental innovation) or positively, as SMEs are flexible in knowledge management. Firms can reinvent products and processes in many original ways thanks to their reactivity to market inputs and demand and by developing differentiation strategies. This capability is supported by specific professional practices focused on product specialization available at the territorial level. We explain those results by referring to the economic district model, where small businesses belonging to local networks of production organize knowledge management through distributed innovation systems, instead of a large organization (Maskell, 2001).

During the fordism paradigm, the large firm model has been considered the best way and scientific knowledge (and R&D) was the main driver of innovation. In the open innovation paradigm, distributed networks sustain innovation (Chesbrough, 2003) and customers can contribute with their knowledge (von Hippel, 2005). Moreover, customers are available to pay for products that offer not only new features (technological innovation), but also which offer them an experience and the intangible value linked to associations withsensemaking supported by brand strategy, design and social participation(Prahalad, Ramaswamy, 2003). From this perspective, innovation cannot be limited to technological innovation, but should also include aesthetic and intangible elements created through marketing strategy (communication) (Bettiol, Micelli, 2005, Ravasi and Lojacono, 2005). According to this perspective, Italian firms may improve their position in the international competitive arena because of their specific capacity to face innovation.

Strategies, Knowledge Management and ICT

In low or medium-tech industries such as fashion or furniture, the competition is increasing and require firms to choose either cost leadership in the mass market or niche differentiation, while positioning in the middle-market is becoming more and more unsustainable (Silverstein, Fiske, 2003). As opposed to high-tech industries, in which the role of patents and collaboration with research institutions is crucial for product innovation, in the mentioned industries – as in the case of Italy – innovation cannot usually be perceived as patent-driven. Instead, innovation is linked to creativity, a firm's ability to manage variety

(innovation as organizational capability), and mix inputs coming from the market, designers and marketing (Schmitt, Simonson, 1997). From this perspective, an evaluation of a firm's innovation performance and its strategy should not be limited only to R&D activities and its outputs. Rather, from our perspective, in the open-innovation paradigm (Chesborough, 2003) it should also consider the extension and characteristics of the networks that sustain a firm's innovation (as inputs of knowledge) as well as innovation outcomes. Marketing scholars emphasize the role of the intangible as part of the innovation process and a result of the value offered to customers. Products are not sold only because of their new features and functionalities, but also, and often, due to the meaning they transmit through their shapes (design) and the experience they give to customers (Pine and Gilmore, 1999).

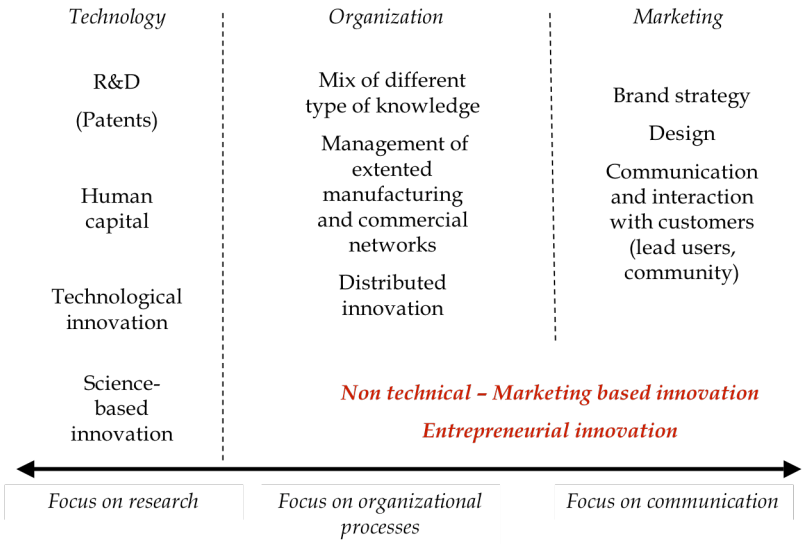
Studies on innovation process have stressed the role of codified knowledge in knowledge management cycles, while the analysis of social dynamics (Brown, Duguid, 2000) has outlined the situated learning system and the relevance of experience as a driver to develop and share complex knowledge. According to this point of view, SMEs operating in local manufacturing systems benefit from physical proximity to customers, suppliers and relevant communities of practices embedded into local contexts. However, the global competitive scenario forces SMEs to upgrade and develop new strategies where innovation processes are sustainable on a international level. In a complex and global market, where leading customers are far from the firm and there are numbers of potential knowledge sources for a firm's innovation (Tapscott, Williams, 2007), the local economic and social system is inadequate to offer SMEs all the relevant and useful knowledge to compete. On the one hand, modularity and codification can guarantee a more open and extended circulation and use of knowledge, across contexts. On the other hand, the more complex the knowledge to manage, the higher the difficulties in codification and the need for promoting more sophisticated sharing strategies based on "pragmatic collaboration" (Helper, MacDuffie, Sabel, 2000) (people-to-people by face-to-face interaction or web-based).

Based on this distinction and the literature contributions on the topic, we can represent the sources of firms' competitive advantage (Grant, 1996; Kogut, Zander, 1996) by comparing the different role of knowledge developed by firms and the alternative strategies of knowledge management adopted. We identified alternative models (Figure 1). On the one side, we can identify firms that compete by leveraging on R&D and scientific knowledge. Codification allows firms to enter into global networks of innovation and exchange knowledge on a broad scale with universities and research centers (regional innovation systems, Asheim Coenen, 2006). Local dynamics are supported by international connections, through which the firm is able to explore opportunities and exploit knowledge. On the other side, competitive advantage is based on customer relationship management built on experience. The firm is interested in selecting lead users and involving customer communities into the innovation processes, aiming at their sharing relevant knowledge (von Hippel, 2005). It is a form of entrepreneurial innovation, with a strong role of marketing, as the firm's organization and processes are oriented to the market and to interact with external players (customers and lead users) to co-develop the product and the meaning related to it (Muniz, O'Guinn, 2001). Our hypothesis is that in the complex competitive scenario, firms may develop sustainable competitive advantage by mixing the strengths of the opposite models, where patents and R&D-based innovation may be enhanced through marketing-based innovation and vice versa.

In such a competitive scenario, the analysis of a firms' strategy about innovation management cannot be developed without the study of their approach to information and communication technologies (ICT). On the one hand, these technologies support information management at a distance, by stressing the advantages of efficiency. On the other hand, thanks

to multimedia tools, ICT allow the development of a virtual, interactive environment, where participants live the experience and are involved in social interaction on line. This environment offers opportunities related to knowledge creation and sharing, even in the case of complex knowledge (i.e. product innovation).

Figure 1 – Competitive advantage and firm strategy



It is not our aim to describe the debate on the impacts of ICT on knowledge management in detail [1]. We would outline the SMEs' approach to ICT investment and its influence on innovation. The international reorganization of manufacturing activities, as well as sales networks, push firms to adopt technological solutions that sustain coordination of activities in extended networks and organizations (Scott Morton, 1991). Moreover, the transformation in the consumption models described above asks firms to interact with customers in order to exploit the linkages with lead users and communities for innovation purposes. In both the strategic options of a science-based, competitive advantage (i.e. patents) and value-driven by "customer intimacy" and sensemaking (Treacy, Wiersema, 1997), network technologies become key factors in supporting competitiveness. In the open-innovation paradigm, ICT is in fact the valuable infrastructure for knowledge management aims, where knowledge is spread across contexts, organizations, and people (employees, customers).

Computer-mediated communication offers tremendous advantages of tracking and tracing dialogues and interactive relationships, as well as content development and sharing (digitalization, multimedia solutions, social software) (Kuomi, 2002; von Hippel, 2005), even in complex situations. Hence, technologies can help firms overcome barriers and leverage the networks of connections characterizing the on-line environment (in primis among customers). Traditionally, ICT found primary application in large corporations, to solve coordination problems and support knowledge gathering and retrieval efficiently and effectively (Sproull, Kiesler, 1991). The role of technological infrastructure as a necessary condition for knowledge management did not match with the SME's competitive model. Especially within local systems, small firms have developed knowledge management mechanisms rooted in the social sphere of their contexts of embeddedness (Becattini, Rullani, 1996). Knowledge processes are usually not codified in formal procedures, but lie in the intensive communication and personal

[1] Among the many contributions in this field consider: Nonaka (1994), von Kroogh and Roos (1996), Davenport and Prusak (1998), De Sanctis, Fulk (1996), D'Adderio (2001), Antonelli (2005).

linkages within the organization, as well as outside the working domain, in the social fabric of places.

As shown in studies on ICT adoption in district firms (i.e. Chiarvesio *et al*., 2004), as opposed to large corporations, small and medium firms localized in local manufacturing systems have focused their attention on commodity-based technologies, such as email and web sites. Those technologies can be considered ready-to-use tools, which can be implemented in the organizational structure with low financial investments, as well as limited organizational changes. In industrial districts, SMEs' strategies in ICT investments have been characterized by:

- selectivity in the technological solutions chosen;
- incremental innovation processes based on learning-by-doing paths;
- a bottom-up process (no "master mind" at the local level)

During the new economy many scholars and analysts stress the potentialities of e-commerce for SMEs in terms of market enlargement and efficiency. Instead, research on ICT adoption by Italian district SMEs show low rates of e-commerce, while the web is exploited as an interactive marketing tool. Firms do not consider the e-commerce solutions available adequate to manage "Made in Italy" products for transactional purposes. Rather, firms stress the importance of web-based communication: the web becomes a medium to gather customers' feedback on products and support brand strategies.

More advanced technologies such as ERP (Enterprise Resource Planning) or groupware, tailored to large firms, are less diffused in small organizations. However, those solutions are considered crucial tools to increase process transparency and the control on distributed networks at the international level. In this perspective, the more extended the firm's value chain, the higher the need for upgrading the SMEs' strategy, where ICT sustains the firm's management beyond the local system. From our perspective, all the technological solutions available can be included in the framework of the knowledge management system, not limited to the organizational boundaries, but involving the players operating upstream (suppliers, designers, etc.) and downstream (sales agents, customers) in the product innovation as well as marketing activities.

Competitiveness in "Made in Italy" firms

In this theoretical framework, we considered the strategies of firms specializing in low and medium-tech industries to explore the connection between R&D-based and marketing-driven innovation processes, and the role of ICT in supporting those activities at the local and global level (Di Maria, Micelli, 2007).

In order to explore the strategies of "Made in Italy" firms in the scenario described above, we carried out a qualitative study on district SMEs to analyze knowledge management processes and firms' innovation approach (Siggelkow, 2007; Yin, 1994). Based on a first selection of firms specializing in "Made in Italy" sectors and located in North East Italy, we interviewed entrepreneurs andthe managers of R&D, design and information system departments. Interviews focused on a firm's history and strategy, organizational structure and innovation management models and ICT adopted. The four cases discussed in the paper are summarized in Table 1.

Table 1 – Case studies

Company		Innovation strategy	Main ICT investments
Alpinestars	100 Ml Euro turnover Car and motorbike apparel products (Montebelluna sport system district)	Focus on lead users, interaction in customer loci (Torrance, CA)	Web and multimedia, e-commerce
Lotto Sport Italia	120 Ml Euro - 230 employees Sport system: shoes and apparel (Montebelluna district)	Mix of R&D (patent, relations with universities) and design	ERP and explicit knowledge management processes
Horm	6 Ml Euro - 40 employees Furniture (Livenza furniture district)	Collaboration with external international designers Patents	Internet to support on - line distributed product design processes
Bisazza	100 Ml Euro - 350 (900) employees High-quality covering for private/public buildings (Vicenza, mosaic district of Spilimbergo, India, China)	Design and brand (luxury) R&D and craft competences	ERP and CRM, collaborative design, e-learning, e-commerce

Alpinestars: Innovation Through Lead Users

Localized in the sport system district of Montebelluna, Alpinestars is a leading firm in sport apparel and accessories for motorcyclists and car drivers. Innovation in Alpinestars is perceived as a dynamic and interactive process, where the managers, the team of creative people and technicians work together to develop new innovative products for the markets. The source of innovation is not localized only in the province of Treviso (Alpinestars' headquarter), but also in California, where the lead users adopt a firm's products in their daily sport activities. According to long-term relationships, Alpinestars was able to develop with customers, the firm can translate their needs and inputs into concepts and products, on an interactive basis.

The firm demonstrates having identified and implemented a successful strategy in recent years, where the positive economic performances stress its leadership in the district (characterized by negative trends). Alpinestars has obtained a leading international role through continuous product innovation and design. Based on a flexible and creative (not conventional) organization, the firm focuses on creating stable connections with the networks (the places and the players) of innovation in the market of sport apparel and accessories. In the framework of product innovation that couples technical performances and fashion components, Alpinestars relys on informal groups in charge of supporting the new product development. A fundamental component is played by California – Torrance, Agoura Hills – where the firm has located its own research center and interacts with most dynamic customers. In this scenario, innovation is not rooted in the management of suppliers or customers within the local system

boundaries. On the contrary, the firm leverages on knowledge repositories available outside the district – in the customers' loci – to reinvent and originally transform those ergonomics and emotional inputs into products. Those relationships are also fundamental for the brand strategy of the firm.

In an international oriented organization as the one described, ICT is the key driver to support information sharing among the offices, as well as a tool (web) for communication. Multimedia allows rich and intense communication, where the discourse on the product and the brand meanings are nurtured also through videos and pictures shared on-line and created by the firm and lead users themselves. Alpinestars has also e-commerce solutions for customers.

Lotto Sport Italia: "Word Champions" In Mixing Design And Patents

One of the most famous companies of the Montebelluna sport system, Lotto started in 1973 producing tennis shoes, followed by shoes and other products for individual and team sports. During the '80s the company internationalized its business, thanks to soccer shoes and international partnerships with Italian and foreign athletes. Moreover, Lotto is among the first district firms that invested in internalization of productive activities beyond the local manufacturing system. As a leading firm in the Montebelluna district, Lotto invests in innovation to support its competitiveness by coupling R&D-based activities (scientific research on new materials, ergonomics, etc.) and the involvement of lead users. One of its latest products is, in fact, a pair of football shoes without laces (Zhero Gravity), designed in collaboration with athletes. Meanwhile, in a framework of global production and commercialization of products, network technologies have been considered key elements in the management of extended supply and sales networks with the district as the core.

In the new millennium the attention for the investment in product quality has been increased through an explicit strategy that emphasizes the role of design and innovation as drivers of competitiveness. In the global competitive scenario, Lotto Sport Italia is oriented to reinforce its international presence. In this perspective, cost reduction as a key goal to face competition has to be coupled with continuous product innovation. The development of original ideas – where the "Zhero Gravity" comes from (launched for the German World Football championship in 2006) – is the starting point in Lotto's strategy. The management of internal knowledge is relevant both in terms of R&D and design – more than 20 patents have been registered or are in the process of registration. The development of research relationships with Italian and international universities stresses Lotto's interests in exploring knowledge paths beyond the local district networks to sustain the company internationally.

As an open network firm, Lotto Sport Italia has invested in network technologies systematically, by gathering different technology solutions – from their Web site, to e-commerce, ERP, groupware and supply-chain management applications. The technological infrastructure sustains information flows and communication between the company and its international networks of partners and markets, in a strategic and codified knowledge management approach. In fact, Lotto is interested in acquiring and sharing informal knowledge available within the organization through ICT (digital archives, database for intellectual property rights management).

Horm: From The District To International Design Networks

Horm is a small firm specialized in the production of high quality furniture and -wooden complementary house products. It was founded in 1989 and is located in Azzano

Decimo, in the furniture district of Livenza (North East Italy). Horm has developed its strategy by focusing on product differentiation through design. Since 1998, Horm has been obtaining economic success and growth thanks to the international recognition of a few of the firm's products – the Compasso d'Oro, a famous Italian Design Award promoted by the Italian Design Association - designed by one of Horm's founders (Lucian Marson) and the Grafite design studio. From these awards, this small firm started relevant collaborations with international designers. Due to Luciano Marson's and Paolo Chiarot's investments in developing personal relationships and connections with designers (Toyo Ito, Mario Botta and Steven Holl among others) all over the world (Japan, USA and Europe), the firm was able to increase the product range and international sales (60% of the turnover is export-based).

Horm's strategy is oriented to exploiting internal strong competencies in wood transformation and production of "natural wood" furniture. The manufacturing process is organized in small-scale stocks, with particular emphasis on product customization as regards to the material used and finishing activities. Specifically, a mix of hand-made and technological innovation processes characterizes Horm's made-to-order production. As opposed to the typical district approach in which local suppliers are key players in the firm's innovation processes, Horm has developed innovation mainly internally, through R&D activities and patenting, and is able to increase the technological features of the products as well as their design characteristics (i.e. invisible hinges). In the global competitive scenario, Horm's approach to innovation is double: on the one hand, the focus is on design and aesthetical components of products as drivers of economic success; on the other hand, this small firm invests also in codified knowledge to protect their ideas against competitors (1 to 3 years is the average time of the product innovation cycle). Horm does not invest in market research. Instead, the firm exploits international designers and entrepreneur's knowledge about customers and future trends, as an emerging process.

The entrepreneur is confident about the strategic role of ICT to sustain the firm's competitive advantage. Network technologies are key tools to support creativity processes, while the Web infrastructure allows Horm to interact with its commercial networks. Specifically, the firm's exploitation of multimedia applications and broadband opens new opportunities in product design and development at the international scale. In fact, the product "Riddled" – obtained through a collaboration with the famous Steven Hollen's design studio based in New York and produced in 39 plus 39 items – has been made possible thanks to on line communication and document sharing at a distance between Italy and the USA. At the same time, Horm has also created an open and distributed digital archive concerning all the documents and digital contents about products and innovation processes to use them for marketing and knowledge management purposes.

Bisazza: Upgrading The Product Through Communication Strategy

Even if Bisazza cannot be considered a "strict" district firm, this family company acts as a local organization able to upgrade its strategy in the "Made in Italy" product towards international markets. More specifically, in the last few years, Bisazza has developed a new strategy based on a mix of local craft competencies, technological innovation and marketing (brand strategy and focus on distribution). Founded in 1956 in a small town inthe Vicenza province (Alte, in the North East part of Italy), Bisazza is now a global leader in the production of glass mosaic and high-quality covering for private and public buildings. In the Italian context, Bisazza distinguishes itself because of its orientation to the culture of design-based products and its international vocation, by transforming its products into luxury ones.

The Bisazza group has now more than 1,000 employees, three factories, 11 branches and six shops, plus more than 6,000 points of sales worldwide. Since 2005, Bisazza has been a member of Altagamma, the Italian association of firms specializing in luxury products, and its turnover is about 100 million Euro. The firm is characterized for its focus on classic mosaic production (glass) and gold-leaf based mosaic. The upgrading transformation started in 2000, when Piero Bisazza (the founder's son) became CEO. Piero Bisazza outlined a twofold strategy. On the one hand, the focus is on product extension: the mosaic should overcome the covering use, to also become a fashionable product with furnishing applications. On the other hand, Bisazza's brand strategy is oriented to transform the meanings linked with the brand and upgrade product position to the luxury niche. To obtain such goals the firm invests in distribution and commercial sales networks (with brand stores, flagship stores and shop-in-shop), also participating in the most famous design fairs. Hence, the firm's strategy is difficult to imitate, while the market positioning is based on strong internal production competencies as well as an innovative communication approach: with a product application shift from bathroom and private house areas to living rooms and public spaces (i.e. museums).

Mosaic production is internally managed. Concerning the artistic and limited edition mosaic productions, Bisazza involves knowledge and competencies of the historical district of Spilimbergo (North East Italy). The manufacturing process includes local and international suppliers. All the processes are controlled through network technologies. Beyond ERP systems, Bisazza in fact supports information sharing about production steps and commercial details through digital connections (quality control, content management at a distance). It is important to stress the firm's investment in developing a customized software solution able to describe and manage mosaic production and its technical application. Through such a solution Bisazza can share key knowledge with its partners within the value chain. Moreover, the company also invests in customer relationship management (CRM) solutions to interact with its USA branch, in addition to e-commerce tools. Recently, the firm is oriented to create new technological collaborative tools to support interior designers and architects' activities, as well as an e-learning platform.

Conclusions

All the four case studies are characterized by successful strategies based on a mix of R&D-driven innovation and marketing, where firms developed strong relationships with customers. Innovation processes blend codified knowledge and tacit knowledge based on specific practices related to consumption (i.e. sport) or professional profiles (exploitation as well as exploration in knowledge management, March, 1991). The firms interviewed are able to couple scientific innovation with product innovation based on design, the creation of experience and focus on communication. The local context in which these firms are embedded is important, but it is not the only source of knowledge in order to build their competitive advantage. On the one hand, these firms are interested in creating new connections with foreign research centers to promote projects for product, technology or material innovation. On the other hand, they develop relevant linkages with the loci of consumption and with key players for creativity, to nurture the innovation process interactively.

The local context offers competencies in the manufacturing domain and sustains the culture of the product. However, competitive SMEs are able to create and manage extended networks by operating in global value chains and approaching innovation through the entrepreneurial innovation model identified by the European Union. To be sustainable those strategies require information and communication technologies, where ERP systems support advanced process management and increase interoperability, while web-based solutions for

communication and product (document) management are also implemented in supply chain and commercial sales networks.

Even if our study is still preliminary in its term, the case studies offer a few managerial implications in the way the innovation process is outlined as an open process. First, firms should understand the types of relationships characterizing the players involved in the innovation dynamics, in order to develop consistent mechanisms of management (codification vs. interaction). Second, there are interesting opportunities in combining different kinds and sources of knowledge, which have to be identified and coordinated. Today, firms are asked to develop capabilities in accessing external knowledge (exploration) through people-moving and electronic connections. In addition to this flexibility and openness they also have to pursue strategies and use tools (ICT) coherent with the relationships developed.

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