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Italian clusters joining global value chains: the Riviera del Brenta footwear district between tradition and innovation

RELATORE:

CH.MA PROF.SSA DI MARIA ELEONORA

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La candidata dichiara che il presente lavoro è originale e non è già stato sottoposto, in tutto o in parte, per il conseguimento di un titolo accademico in altre Università italiane o straniere.
La candidata dichiara altresì che tutti i materiali utilizzati durante la preparazione dell'elaborato sono stati indicati nel testo e nella sezione "Riferimenti bibliografici" e che le eventuali citazioni testuali sono individuabili attraverso l'esplicito richiamo alla pubblicazione originale.

Firma

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INTRODUCTION & SUMMARY

THE REASON OF MY DISSERTATION – The dynamics of international competition have posed some challenges to the traditional manufacturers, in particular to industrial districts, which based their competitive advantage on location and proximity. This dissertation aims to describe the involvement of Italian districts and clusters in global value chains, and the paths that they can embrace in order to keep on being competitive and innovative in a world characterized by global sourcing and competition from emerging countries. The case study which has been analysed is related to Riviera del Brenta, a resilient footwear district which is still competitive in the market thanks to the collaboration with global fashion brands. A traditional industry such as luxury shoes manufacturing, which is based on local sourcing and close relationships, has found in the role of global lead firms its key to success even after competition has become harsher.

CHAPTER 1 – INDUSTRIAL DISTRICTS: TRADITIONAL VIEW AND RECENT DEVELOPMENTS – The first chapter begins by describing the historical background which led to the theorization of the concept of industrial district, that was born as a manufacturing system opposed to the traditional way of producing mass commodities, in favour of a more customized and quality-based type of production. Marshall argued that districts were characterized by externalities generated by the co-existence of cooperation and competition, and that the relationships between companies, individuals and local actors were at the basis of the competitive advantage. The theories developed by other authors during the years are then encompassed, especially the ones sustained by Italian scholars who saw the emergence of this economic phenomenon in Italy. The last section instead is focused on the new emerging dynamics, in particular on the definition of cluster and the differences with respect to the traditional concept of Marshallian district. Industrial districts base their advantage on proximity among actors, but with globalization, international competition and global sourcing have become a reality. Therefore, the role of location appears to be weaker, so it is analysed how districts keep on competing, also thanks to their internal knowledge-based mechanisms which act as drivers for innovation.

CHAPTER 2 – EVOLUTION OF INDUSTRIAL DISTRICTS IN GLOBAL VALUE CHAINS – The second chapter is focused on the changes in the competitive scenario brought by globalization, and the peculiarities of the Italian manufacturing system which help to explain how Italian companies have

reacted to the new challenges in competition. In particular, the focus is on the involvement of industrial districts in global value chains. In recent years the concept of value chains has switched from local to global, and the different activities composing it can be represented with the "smile curve", which allows to analyse them according to how much value they add to the entire process. Companies seek paths to upgrade, namely to move to higher value-added activities in the global value chain. In particular, the role of global lead firms and local dynamic actors assumes a particular relevance in the new framework, and the relationships between buyers and suppliers can be of four types: market driven, modular, relational or captive. The new globalized framework represents a challenge for industrial districts, which have to be dynamic and responsive in order to survive. In general, the evolution of districts in globalization can follow three trajectories: decline, hierarchization and resilience. In the last section, a model describing the involvement of industrial districts in global value chains is reported, which helps to explain the reasons why a district can be successful or not in the international competition framework.

CHAPTER 3 – THE IMPACT OF LOCALIZATION CHOICES ON INNOVATION: THE ROLE OF MANUFACTURING – After describing the phenomenon of "deindustrialization" which has characterized Western countries due to the waves of offshoring and outsourcing, the dissertation continues by focusing on the decisions of back-reshoring taken by many companies, which led to an apparent revival in the role of manufacturing as an activity to keep in the home country. The motivations related to the choice of where to locate the stages of the production process can be many, but authors argued that in some cases back-reshoring can be value driven: especially in the fashion industry, the "made-in-effect" and the greater control on the whole process allow to compensate for the cost differential of locating production in a high-cost country. Hence, companies operating in this type of industry should base their decision considering a wide range of drivers and not only economic considerations. The goal of the chapter is assuming that manufacturing can be a relevant part in the innovation system, and not only a low-value added activity in the global value chain. In particular, locating it close to the Product Development function fosters an exchange of knowledge and information that can avoid mistakes in the first phases of the process and that can grant a higher level of quality on the finished products. This is found to be particularly true for low-tech industries, where manufacturing has an active role in the creation of the product, since the key figures involved in the different phases maintain a continuous exchange of information.

CHAPTER 4 – HOW FOOTWEAR DISTRICTS HAVE REACTED TO GLOBALIZATION: THE CASE OF RIVIERA DEL BRENTA – The fourth chapter applies the theoretical concepts described in the previous

chapters to the actual case of an industrial district embracing the trajectory of resilience: the Riviera del Brenta footwear district. First, the history of the district is briefly reported, with a particular focus on the meeting between the local entrepreneurs and the famous international brands which gave origin to the series of collaborations and licensing that brought the district to its success. Then, the global value chain model is applied to the Riviera del Brenta district, analysing the role of firms, suppliers, fashion luxury brands, and the way it has reacted to the global challenges. The second part depicts the case of the Product Development function in Rossimoda, one of the most successful firms in the district, in which manufacturing plays an active role in innovation, thanks to the dense network of relationships internal and external to the firm, with both local actors and figures coming from other countries, such as the designers of the fashion brands. Rossimoda is an example of how manufacturing firms can retain high value-adding activities in the global value chain, such as Product Development. All the stages of the Product Development process are described thanks to the work experience of the author in this function of the firm.

CHAPTER 5 – INNOVATION TRAJECTORIES IN THE RIVIERA DEL BRENTA CLUSTER – The fifth chapter is focused on the actual innovation path pursued by the Riviera del Brenta district. The first section is dedicated to three innovation projects carried out by Politecnico Calzaturiero in collaboration with international partners and with the European Union: these projects demonstrate how Politecnico has an actual role in attracting and gathering innovation to the district. The three projects are "Feet in 4.0", "Traceability and Certification of Fashion Made in Italy products" and "Skills4smart TCLF industries". They aim to apply the innovations in technologies, such as Industry 4.0 and traceability, to the footwear industry, in order to improve the processes and combine the traditional expertise of manufacturers with the new opportunities offered by recent technological advancement. The second part of the chapter is instead dedicated to the innovation path embraced by Del Brenta, a heel manufacturer inside the district, which applied to its traditional process the technologies offered by Cisco, which allow to keep a deeper relationship with both suppliers and shoes designers. In this way, the need of local presence during the development phase is substituted by technologies based on sharing and video-meeting, which permits to save sensitively costs and time.

1. CHAPTER

INDUSTRIAL DISTRICTS: TRADITIONAL VIEW AND RECENT DEVELOPMENTS

1.1. HISTORICAL BACKGROUND AND DEFINITION OF INDUSTRIAL DISTRICT

1.1.1. Alfred Marshall and the Cambridge School

An industrial district is a production subsystem of a market system, characterized by predominantly small and medium firms concentrated geographically, with a distributed or decentralized network organization (Lane, 2002)[1].

The concept of industrial district, now known also as industrial cluster, was at first theorized in the 1870s by the English economist Alfred Marshall and from the scholars of the so-called Cambridge School (Whitaker, 1975)[2]. In that period, the economic theory considered the most effective manufacturing system to be represented by big firms with a high degree of vertical integration within their structure. The studies of Marshall were also orientated towards contesting this belief by demonstrating that for certain types of production there were two efficient manufacturing systems: the first one was the established method of having large and vertically integrated factories, and the second one was the presence of many small or medium enterprises that operated complementary activities of the same production process, and that were concentrated in a precise geographical location or cluster (Becattini, 2002)[3].

[1] Lane, D. A. (2002). Complexity and Local Interactions: Towards a Theory of Industrial Districts. In Quadrio Curzio, A., *Complexity and industrial clusters, dynamics and models in theory and practice*. New York, Physica-Verlag HD, p.77.

[2] Whitaker, J. K. (1975). *The Early Economic Writings of Alfred Marshall*, 1867–1890, 2 vols, London, Macmillan for the Royal Economic Society.

[3] Becattini, G. (2002). From Marshall's to the Italian "Industrial Districts". A Brief Critical Reconstruction. In Quadrio Curzio A., *Complexity and industrial clusters, dynamics and models in theory and practice*. New York, Physca-Verlag HD, p. 84.

According to Alfred Marshall, the key element which could allow small and medium firms to compete with large and established ones was represented by the external economies that normally were generated within a cluster. Hence, the scholar theorized that small firms concentrated in a cluster could benefit of external economies, that would compete with the internal economies generated within a big factory. In the Marshallian view, districts were characterized by a mix of cooperation and competition, where the classic economic principle of the division of labour was therefore applied not to a single firm, but to a group of small enterprises processing diverse phases of the same process.

These firms are like living organisms, where employers and employees are vital elements which are continuously interacting (Belussi & Caldari, 2002)[4]. Marshall gave particular importance to the role of the human, who could evolve through his own work, and whose development was significantly marked by the social context. He believed that productivity could not only be increased by an improvement in machines, equipment and other capital goods, but also by a situation in which the worker was able to identify himself in the firm where he worked. With this research, the scholar put the focus on the intellectual potential as a mean to reach constant innovation and improvement, if located in a proper context of social relationships (Becattini, 2002).

In order to implement knowledge and reach competition and cooperation, the productive framework should be based on three systems: an economic system, a social system, and a moral system. Firms were considered the primary agents for their own improvement, and they should reach internal coordination for their activities and at the same time coordinate the relationships with external actors, such as suppliers and customers.

1.1.2. The Marshallian industrial districts and the communitarian factor

It is possible to state that industrial districts, when they were first conceptualized, represented a system that seemed to be the opposite to the classical Fordist model, that was prevalent up to that moment. Industrial districts put at their centre knowledge spillovers and external economies, but most importantly they underlined the relevance of some intangible assets that were not considered in the past economics, such as trust and sense of belonging, in addition to the relevance of every single individual as an actual contributor and an active part of the

[4] Belussi, F., & Caldari, K. (2008). At the origin of the industrial district: Alfred Marshall and the Cambridge school. *Cambridge Journal of Economics*, *33*(2), 335-355.

business. This shed the light on the existence of a new form of capital, the "social capital", that had its roots in the local community, its values, traditions and local institutions, and that saw the district as a socioeconomic entity. Becattini (1990)[5] defined the industrial district as the interpenetration of a community of people and a population of firms, where the geographically delimited area allows the overlap of production and daily activities, giving origin to the so-called "communitarian factor", which permits to reduce frictions and transaction costs among the actors within the district and facilitates the distribution of knowledge.

The communitarian factor is originated by the presence of a community with a homogeneous background both in social and cultural terms, but at the same time most of the economic activities that take place in the area should be focused on the peculiar production of the district, for instance through belonging to the same industry. Hence, this productive system is characterized by homogeneity, that is present both in the community and under a sectorial point of view. The communitarian factor implies also that since production is fragmented among a multitude of different firms, there is a constant exchange of resources, which are not detained by a few large enterprises, but equally divided according to the size and activity of the businesses.

Another element, highlighted by Piore and Sabel (1984)[6], was the competitive advantage given by the fact that small and medium companies could apply the paradigm of the flexible specialization, in contrast with the mass production carried out up to that point in time. In addition to this, the traditional or Marshallian Industrial district is characterized by a local specialization, which means that all the companies that are involved in the district perform operations which are related to a specific industry. The activities that are carried out by these small and medium enterprises (SMEs) are the following:

- *Horizontal*: activities carried out to compete in the market and to realize the end product which characterizes that particular district;
- *Vertical*: activities to carry out the input-process-output model and that involve the various firms which operate in the supply chain;
- *Diagonal*: instruments and services useful to perform the core activity.

[5] Becattini, G. (1990). The Marshallian industrial district as a socioeconomic notion. In: F. Pyke, G. Becattini & W. Sengerberge (eds), *Industrial Districts and Inter-firm Cooperation in Italy*. Geneva: International Institute of Labour Studies.

[6] Piore, M. J., & Sabel, C. F. (1984). *The second industrial divide: possibilities for prosperity* (Vol. 4). New York: Basic books.

What is peculiar of this framework is that the relationships among the firms in the district are particularly important, since they perform a variety of activities that are complementary, so intermediate resources and outputs are exchanged within local markets. Local and global forces interact to realise the economies that are external to the firm but internal to the district and that lead to a decrease in costs and an increase in revenues.

The industrial district should not be considered as a static system, this is why besides the economies theorized by Marshall, also dynamic externalities play their role within districts, in particular specialization/localisation externalities and urbanisation externalities.

Specialization or localisation externalities identify the benefits that firms obtain from the spatial concentration of other firms belonging to the same industry. The first of these advantages is represented by technological spillovers, namely the intra-industry transmission of knowledge, technology and information, and the inter-industry exchange that leads to cross-fertilization of ideas and competencies among different sectors. It is important to underline that within the industrial district framework, proximity should be at the same time geographical, social and cultural, to obtain a context characterized by a shared language, common values and meanings, and implicit rules of behaviour, in order to facilitate relationships (Dei Ottati, 2003)[7]. The second benefit derives from labour market pooling, that happens when there is local supply of work which is specialized in the production of the district, guaranteeing a match with the demand for labour of the firms. The last advantage is the market of specialized goods and services, since in the district there are many suppliers producing the needed inputs for the final firms.

Urbanisation externalities instead are the benefits from being located in an urban area provided with the necessary services, such as transport, infrastructures, universities, etc. (Cainelli & Zoboli, 2004)[8]. Therefore, some externalities occur naturally, while others are facilitated from actions of the local institutions or government.

According to Becattini et. al (2014)[9], the local system is effective in putting the ground for the growth of a network of companies when particular features are present:

[7] Dei Ottati, G. (2003). The governance of transactions in the industrial district: The 'community market'. In: G. Becattini, M. Bellandi, G. Dei Ottati & F. Sforzi, *From Industrial Districts to Local Development: An Itinerary of Research*. Edward Elgar, Cheltenham.

[8] Cainelli, G., & Zoboli, R. (Eds.). (2004). *The Evolution of Industrial Districts: Changing Governance, Innovation and Internationalisation of Local Capitalism in Italy*. Springer Science & Business Media.

[9] Becattini, G., Bellandi, M., & De Propris, L. (Eds.). (2014). *A handbook of industrial districts*. Edward Elgar Publishing.

- An effective organisation of the local division of labour, which must be flexible and adapted to changes when needed;
- Knowledge that should be codified in order to be transferrable, and should be embedded in the contextual knowledge, in order to be subject to both constant integration and updating;
- A strong attitude towards entrepreneurship, which includes a tight contact with the local community and the involvement of workers in innovative processes, to gain benefits and to motivate them;
- A network of social interactions which maintains the cohesion of the local community and the relations among the companies.

In absence of these ideal conditions, the local agglomeration cannot be defined as a proper Marshallian district, since it would be characterized by a less specific development involving companies operating in diverse industries, or by a few larger firms that are dominating the scenario, bringing to a more centralized framework.

The geographical position in which these SMEs are located is a consequence of historical and economic contingencies, but it is also related to the presence of structures which favour the establishment and development of the networks that are fundamental for the survival of the district. These networks can be divided into four categories (Lane, 2002): *networks of information* allow actors to be constantly updated about best practices and new developments, both within the local systems and on a global level. This information is then transformed into useful distributed learning for the business through the *networks of interpretation*, which permit to apply the knowledge to the specific case. *Networks of production* are those which obviously lead to the carrying out of the production process through the collaboration of different firms and suppliers, while *networks of marketing* are related to finding the global buyers for the final products.

1.2. INDUSTRIAL DISTRICTS IN ITALY

1.2.1. The rise of Industrial Districts in Italy

In the late 1960s, many capital-intensive companies in Italy showed signs of crisis, and unexpectedly many small companies started to flourish in determined geographical regions. The peculiar characteristics of these companies were that they were not located in industrial cities, but they were spread over wider territories, and that they started to operate in industries that were considered mature and with no possibility of further growth, such as textiles, leather goods,

furniture, footwear etc. They were all small in size and most of them were family businesses. This configuration recalled the theories of Marshall, who was dead in 1924, and many Italian scholars started in-depth studies about this productive phenomenon.

According to Giacomo Becattini, the rise of industrial districts was related to two precise aspects, that were local supply and general demand. Local supply was represented by all the regions that during the industrialization period and the Second World War had been able to maintain their own cultural complexity, made of beliefs, behaviours and knowledge, surviving to the main massification that was happening during that time. These communities were also characterized by the presence of small craftsmen and artisans, people working from home or family enterprises and a solid credit system willing to sustain small businesses.

Moreover, the general improvement in the living standard of the middle class led to the desire of having customized and high-quality goods, that were more than what the mass-productive companies could offer, since they operated based on large economies of scale and therefore realized homogeneous products. Within this framework, small businesses could actually have a competitive advantage over large firms that up that moment had dominated the economic scenario, creating the favourable conditions for the rise of industrial districts. These economic conditions were very similar by the ones experienced by England during the Industrial Revolution, and that led Marshall to theorize the concept of industrial district by observing Sheffield, Lancashire and other similar manufacturing areas.

In the 1990s further research was carried out by the American economist Michael Porter (Becattini, 2002), who discovered that many of the industrial clusters under analysis, in particular Italian ones, had gained an advantage especially in niche sectors of manufactured goods, and embraced the definition of industrial districts that was elaborated by Alfred Marshall many years before.

1.2.2. The “Made in Italy” concept

As previously mentioned, the success of industrial districts in Italy was originated by a change in the demand that happened around the 1960s-1970s. The economic growth led to an empowerment of the middle class, that started to switch its preferences from mass-produced goods to differentiated and high-quality goods, that before were only a prerogative of wealthier people in society. This does not represent the failure of the Fordist model, but its success: the mass production led to a significant growth that increased the well-being of society, leading to this unavoidable change in the consumption pattern. The change in the economic conditions of the

middle class made customers more aware of what they bought: before that period, buying a pair of shoes or a dress was just a matter of having something to wear; then, the taste of having different varieties of products spread the concept of fashion and high-quality commodities among wider groups of people. Given the profound change in demand, offer could not remain the same: this was the engine for a new wave of economic development, according to Piore and Sabel (1984). This gave origin to the previously mentioned flexible specialization, that put the small and medium enterprises in the centre of Italian economy. The "Made in Italy" label therefore became, at the same time, a symbol of quality of the products, but also an element of an original production method which goes beyond the factory work, to recover social, cultural and political dimensions (Corò & Grandinetti, 2010)[10].

1.2.3. The characteristics of the Italian industrial district

Becattini (1990) defined the Italian industrial district as a socio-territorial entity characterized by the simultaneous presence, in a historically and naturalistically circumscribed area, of a community of people and a population of firms. According to this definition, we can recap the five fundamental elements needed for the existence of an industrial district:

1. *The local community*: it is characterized by shared values and a shared work ethic that permeate the life of people and is formed in a long span of time through informal processes. This system has to coexist with a formal set of institutions that should support small and medium firms in the district and provide them with policies and services.
2. *The population of firms*: this does not imply casual firms that are geographically close to each other, but the group of firms that are actively involved in the production of the district and among which the production process is divided. Hence, each of these firms is specialized in a phase of the process.
3. *Human resources*: they own the specialized knowledge that is needed to carry out the production, which does not get lost when they change company, thanks to what Marshall called the "industrial atmosphere".
4. *The Market*: the final product of the district should be recognized among others in the final market, for the quality of the resources used, its specific characteristics, etc. The reputation of the whole district is relevant for the purchase done by customers. Moreover, in the

[10] Corò, G., & Grandinetti, R. (2010). Frontiere e attori dello sviluppo oltre la crisi: il laboratorio del Nord Est. *Economia e società regionale*. Franco Angeli.

district a lot of specialized buyers are likely to be concentrated; this implies that a market of specialized input resources can arise, which can benefit of scale economies and therefore increase the variety of its offering.

5. *Competition and cooperation*: cooperation usually takes place among different actors in the supply chain that have vertical relationships among each other, while competition is present among companies within the district that have the same specialization. Anyway, this does not have to be seen as a negative side, since it represents an incentive for firms to innovate.

1.2.4. A picture of districts in Italy today

Industrial districts are considered the backbone of Italian economy, since SMEs have always been the driving force for its growth. According to the annual report done by Intesa Sanpaolo[11], in 2017 districts have kept on showing a better growth performance in sales with respect to the non-district areas (+4,3% vs +4%), and in 2018 districts have continued to grow with a +3,4%, even if the growth was lower than the one experienced in 2017. The general census of industry and services done by the Italian National Institute for Statistics ISTAT[12] has identified 141 industrial districts in the country, and an important thing to notice is that the number has decreased of 40 units with respect to 2001, data that is attributable to the economic recession that has affected the economy in 2008. Industrial districts constitute around one fourth of the Italian productive system, both in terms of workers (24,5 % of total) and of productive units (24,4 % of total). From the census it emerged also that districts in Italy employ about one third of the workforce in manufacturing, and about 22 % of the Italian population lives within a cluster area. The highest concentration of industrial districts is in the North-east, that counts 45 units, followed by the North-west with 37 districts, and the Centre with 38. In the South there are 17 districts, and in Sardinia there are 4.

The districts of the so-called "Made in Italy" are 130, 92,2% of the total, and are concentrated mainly in the mechanic sector (27 %), textiles and clothing (22,7 %), house decorations (17 %), and leather and footwear (12 %). The "Made in Italy" concept is important in particular for exports, since it is related to products that are world-wide recognized as being high

[11] Economia e Finanza dei distretti industriali, rapporto annuale n.11. Direzione studi e ricerche, Intesa Sanpaolo (2018).

[12] ISTAT. I distretti industriali. Anno 2011.

quality and recalling the Italian excellence in manufacturing. These products allow Italy to be competitive, and they show that Italian districts are pursuing a strategy of differentiation, rather than of cost leadership.

1.3. FROM THE DISTRICT TO THE CLUSTER: NEW COMPETITIVE DYNAMICS

1.3.1. The difference between district and cluster

The term industrial cluster is usually used as a synonym for industrial district, but as stated by Porter (1998)[13], there is a difference between these two concepts. In fact, Porter gives less importance to the geographical delimitation, by defining as a cluster even entire regions or states. In his view, a cluster is larger and more heterogeneous with respect to a district. Despite this, he still believes that the communitarian factor is at the basis of the competitive advantage of this framework, even though in this case it is spread over a wider area, both in terms of geography and in terms of competences and knowledge. Figure 1 depicts the differences among the Marshallian industrial district, the industrial district and the modern definition of cluster.

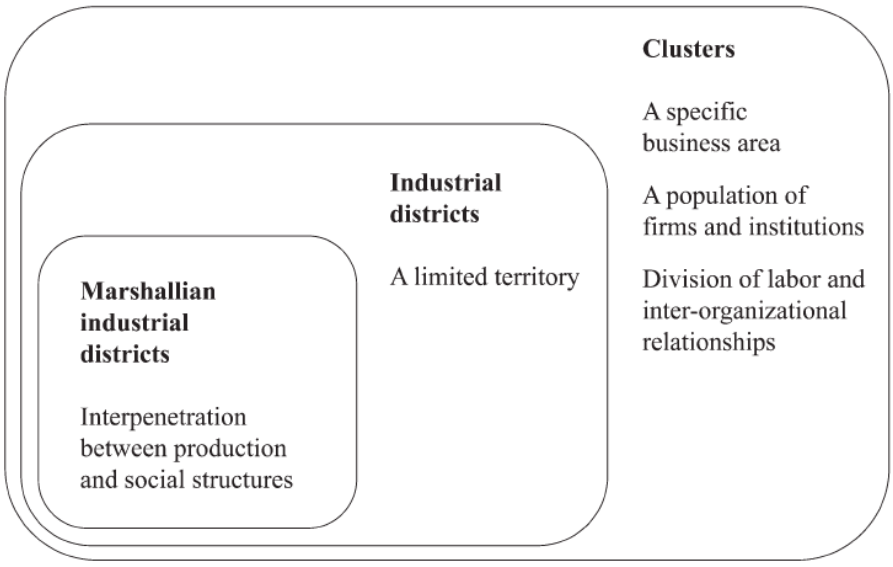


Figure 1 - Clusters, industrial districts and Marshallian industrial districts. Source: De Marchi & Grandinetti (2014)[14].

[13] Porter, M. E. (1998). Clusters and the new economics of competition (Vol. 76, No. 6, pp. 77-90). Boston: *Harvard Business Review*.

[14] De Marchi, V., & Grandinetti, R. (2014). Industrial districts and the collapse of the Marshallian model: looking at the Italian experience. *Competition & Change*, *18*(1), 70-87.

As previously mentioned, the Marshallian Industrial district has the peculiarity of being strongly linked to a given industry and a powerful communitarian factor, while the industrial district in its modern definition is similar to a cluster, with the difference that in is present over a limited territory.

Regarding the Italian case, industrial districts have significantly contributed to the economic growth of the country from 1970s to mid-1990s, especially by spreading internationally the quality of Italian goods. Anyway, the progressive departure from the traditional configuration of the Marshallian district was unavoidable, due to the profound changes that the social and economic world has experienced in the last years. In particular, the advent of globalization has modified the configuration of the global markets, increasing competition not only among local or national firms, but opening the way to new countries to challenge the previous equilibrium. Moreover, also the economic recession started in 2007 had its role in the change of the paradigm of competition, threatening the survival of many small and medium firms that had to be innovative in order to keep on being competitive (De Marchi & Grandinetti, 2014).

According to Porter, in the new definition of cluster, location is less important due to the fact that the change in competition has put the light on lowering input costs, and globalization has driven companies to global sourcing, making the concept of comparative advantage less relevant and stressing the efficacy of competing through constant innovation and through a more efficient use of inputs.

"Clusters represent a new way of thinking about location, challenging much of the conventional wisdom about how companies should be configured, how institutions such as universities can contribute to competitive success, and how governments can promote economic development and prosperity". (Porter, 1998)

Therefore, a cluster is a spatial concentration of interrelated companies, which pertain to different industries that are linked to each other, together with institutions and networks that favour its growth, such as universities and specialized schools providing specific education and training. The cluster includes the suppliers of specialized inputs, but sometimes it integrates also the downstream channel for the distribution of its final products, as well as partners with parallel companies which provide complementary products, maintaining alive the constant process of cross-fertilization of ideas.

Figure 2 - Mapping the Italian leather fashion cluster.
Source: Porter (1998)

An example provided by Porter to better understand his notion of cluster is the Italian cluster of leather goods. Italy is well known for the realization of very high-quality fashion items that are produced for world-wide known brands and high couture houses, and Porter groups all the leather production into a large cluster that includes all the suppliers of footwear components, specific machinery, moulds, design competencies, tanned leather, etc. In Figure 2 it is possible to notice how there are actually many industries that are related to each other and that constantly get to interact. These industries usually share their target market and their distribution channels and marketing strategies as well, and usually manufacture products that are complementary with each other. For instance, a fashion brand producing leather shoes in a district is likely to produce clothes in a different district focused on textiles, but these goods are designed to be worn together, so they will be sold and advertised as pieces of a common look. From the figure it is possible to see how the synergies and the exchange happens among the industries. Taking the footwear production as an example, all starts from the leather tanning cluster, which provides the main materials to realize the shoes. In addition to this, the company making the shoes is in contact with the lasts producers that work with plastic or wood, and with design and CAD pattern-making experts that are needed to make the 2D design of the shoe, that is essential to cut the leather accordingly. This is how the

different industries are linked together and exchange synergies, competencies and technologies, in a climate that mixes cooperation and competition.

Porter considers the modern cluster as a paradigm to organize the value chain, by combining close market relationships with vertical integration, but at the same time avoiding those management challenges and that internal complexity that belong to large companies that are vertically integrated. These informal links grant more flexibility, efficiency and effectiveness with respect to what could be done by formal linked companies that joined alliances or partnerships. In summary, according to Porter a cluster is a combination of supplier relationships, common labour markets, rivalry, knowledge spillovers, and learning effects. In a later research dated back to 2009 (Ketels & Porter, 2009)[15], he points out the three dimensions which characterize a cluster:

Geographic dimension: this dimension is related to the static and dynamic externalities previously discussed, which incentive firms to locate close to each other to benefit from those advantages;

Activities dimension: this dimension is linked to the intercorrelation of companies pertaining to different industries, but that together are able to provide the customer with a valuable final good;

Business environment dimension: this dimension is affected by the cluster-related conditions that are originated by the actions taken by other companies, as well as institutions, government, etc.

In addition to this, not all clusters are the same: some are composed by a network of small and medium enterprises, others are led by a main company, but some others can also be the result of spin-offs from universities and other local institutions.

In conclusion, even if the term cluster is used as a synonym of the term district, it is important to underline that according to the literature they are related to two different concepts. A district is a concentration of small medium enterprises that form a dense network in a location and carry on light manufacturing activities, while a cluster is a more complex system that encompasses different configurations of companies and institutions.

[15] Ketels C., Porter, M. E. (2009). Clusters and industrial districts: Common roots, different perspectives. In Becattini, G., Bellandi, M., De Propris, L. *A handbook of industrial districts*, 172-183. Cheltenham: Edward Elgar.

1.3.2. Local clusters in a globalized world: the paradox of location

As previously said, globalization has brought significant changes in commerce and sourcing, giving birth to a global market that forces firms to face new players who threaten their previous dominance in the local scenario. The advent of globalization has shortened distances and made communication and commerce easier and faster, so it is natural to ask: does location still matter? Clusters are based on the concepts of location and proximity, so it is important to understand how they keep on being competitive in a globalized framework, where the place in which firms are does not seem to be a concern, since they have a global market where to find inputs and resources, and where to sell their final products. The reasons that in the past favoured the creation of a cluster now have lost their relevance, but the new challenges in competition have risen new advantages for operating in an increasing complex, knowledge-based and dynamic economy.

Normally, companies are concerned about what is going on *inside* the organization, while clusters are focused on what happens *outside* organizations, and even outside districts. Defining the boundaries of a cluster is not easy, since it is necessary to analyse the complex network of relationships inside it, but what is certain is that they experience a constant evolution as new industries emerge and some others decline, in particular with the rise of new technologies, which change both market needs and the way of producing goods. Thanks to the deep networks that characterize them, clusters are more likely to capture new knowledge and technology spillovers.

Clustering brings advantages to companies even in a globalized world, because they share common needs, challenges and constraints, and the cluster dimension gives them the opportunity to dialogue among each other, but also with suppliers, government and institutions. According to Porter, seeing a group of firms as a cluster increases the chance of mutual improvement, since the investments and related innovation in the industry embrace all the firms in the cluster, which benefit from being networked and to compete with the others. Therefore, a cluster perspective focuses on enhancing competition (pro-competitive), while an industry or narrow sectoral perspective tends to result in distorting competition (anti-competitive rent-seeking behaviour), since they are smaller groupings of direct competitors, so they benefit less of spillovers (Porter, 2000)[16].

[16] Porter, M. E. (2000). Location, competition, and economic development: Local clusters in a global economy. *Economic Development Quarterly*, 14(1), February 2000, 15-34. Sage Publications.

Before the rise of globalization, what was crucial in competition was the comparative advantage in factors of production, that has currently lost of importance in favour of a new dynamic paradigm of competition which sees innovation and strategic differences in the first place. In this scenario, the connections with suppliers, buyers, institutions and competitors play a crucial role to reach productivity growth. Figure 3 shows the Diamond Model by Porter applied to a cluster, therefore the locational advantages in competition.

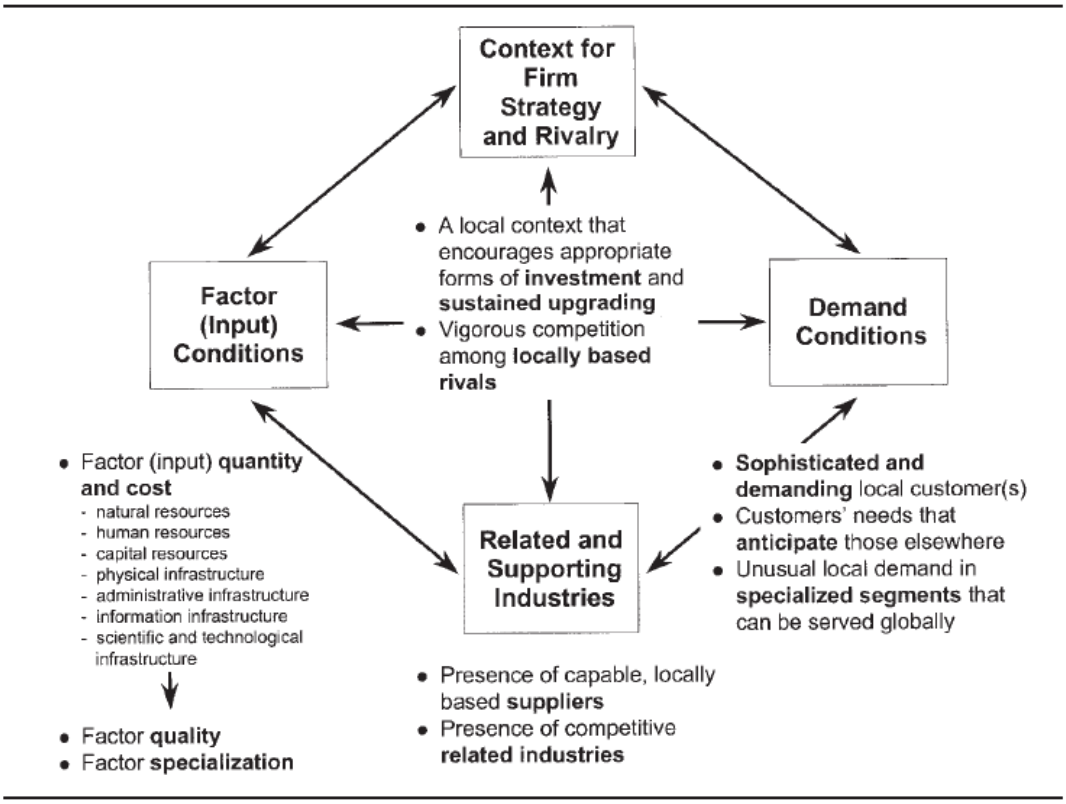


Figure 3 - Sources of locational competitive advantage.
Source: Porter (2000)

Input factor conditions do not consist of merely raw materials and human resources, but include also the information framework that is built around a cluster, and the presence of scientific and technological infrastructures that transmit intangible resources to companies. Within the cluster, particular importance is given to the quality of inputs, but overall to their level of specialization. An example of this type of inputs could be a specialized research carried out by a local university about the business of the industry. Such intangible resources help increase productivity, but their specificity makes them idiosyncratic and difficult to apply elsewhere.

Context for firm strategy and rivalry includes the rules, norms and incentives that regulate firms' competition, but also the political and macroeconomic stability, the tax system, labour market policies and intellectual property rules. Competition in an advanced economy means that

companies need to improve the efficiency of manufacturing, service delivery and product differentiation, since lowering the cost of inputs is no more the right strategy to pursue. The old mechanism of imitation that occurs among businesses that are close to each other now is replaced by innovation.

Demand conditions set the circumstances in which a firm can apply a differentiation strategy instead of providing homogeneous, low cost products. Nowadays firms have to take into account also foreign customers, that are more demanding with respect to the past, and they should elaborate insights to understand future desires and needs, to anticipate trends and be competitive.

Related and supporting industries grant the presence of capable suppliers and form a stronger network that increases firms' competitivity.

As Porter stated, a cluster is the manifestation of the diamond at work, since proximity arising from the co-location of companies, customers, suppliers and other institutions amplifies the pressures to innovate and upgrade.

1.3.3. The knowledge-based model as an engine for innovation

Globalization increases competition, so companies need to innovate to continue to respond to customers' needs and survive in the market. Hence, another question that should be addressed is whether innovativeness of companies is affected by being in a cluster. The answer is yes. Companies within clusters have a broader view of their final market, and the constant process of learning that is granted through the dense network of relationships allows them to be up-to-date and to get to know latest trends and technologies. What is even more important are the actors that contribute to the innovation process: the deep relationships inside the cluster give the possibility to directly involve suppliers and partners in the innovation process, with lower costs of coordination than the ones that would be borne by an isolated company (Porter, 1998).

The *knowledge-based model* allows to define districts and clusters as local systems of innovation (Camuffo & Grandinetti, 2011)[17], since it is the basis for the exchange of information among firms. This happens in three main ways:

1. Imitation through observation;
2. Various types of relationships that intertwine with each other in the district context;

[17] Camuffo, A., & Grandinetti, R. (2011). I distretti industriali come sistemi locali di innovazione. *Sinergie Italian Journal of Management*, (69), 33-60.

3. The inter-firm mobility of human resources.

The first point, *imitation through observation*, considers as an assumption that every product is an artefact that includes both tacit and explicit knowledge. In the same way, knowledge is applied by companies also in their behaviours when introducing the product on the market, for instance through communication strategy and distribution. The final product, and the marketing actions that are carried out to promote it, are permeated by the knowledge that has been applied during the product development phases, even if this knowledge is tacit or semi-explicit. The observation finalized to imitation happens with the reverse-engineering process, which aims to get to know the highest quantity of information enclosed in the artefact. As stated by Porter (1998), the dynamism of the recent economy takes the market to another level, and competition through imitation is no more enough: to be competitive, companies have to pursue a strategy of competition through innovation, by making high investments on knowledge, to integrate the information that have been obtained through observation.

The second point, *relationships in the district context*, assumes that the transfer of knowledge can be conveyed through the dense network of relationships which characterize districts and clusters. This can happen to firms involved in the same supply chain, or through horizontal partnerships. Even if two companies are not directly in contact, the exchange of information can happen through a third subject that has relationships with both of them, since every node in the cluster network functions as a cognitive relay.

In their research, Camuffo and Grandinetti (2011) bring the example of two final firms that are rivals, but which rely on the same subcontractor. The knowledge that the subcontractor obtains will affect the goods realized for both firms, even if they do not directly interact and maintain a competitive behaviour. In addition to this, also the social relationships among people working in different companies must be taken into consideration. Since districts are characterized by geographical proximity, people employed in firms that are competitors live in the same community and inevitably meet and talk to each other, especially if they do the same job. In this way, an informal exchange of information happens, and both companies can benefit of this situation.

The third point, *inter-firm mobility of human resources*, state that people, as well as artefacts, can act as knowledge carriers. Usually employees have to sign non-disclosure agreements when they get a job that involves sensible information, but the ability to perform the job remains even when they change it. For instance, a specialized worker with a long experience who changes company has specific competencies that can be potentially activated in the new workplace, such as how to use efficiently a machine or how to apply technical capabilities. The

co-workers benefit from his arrival as well, since they learn by observing and imitating him, and in this way they make the tacit knowledge explicit.

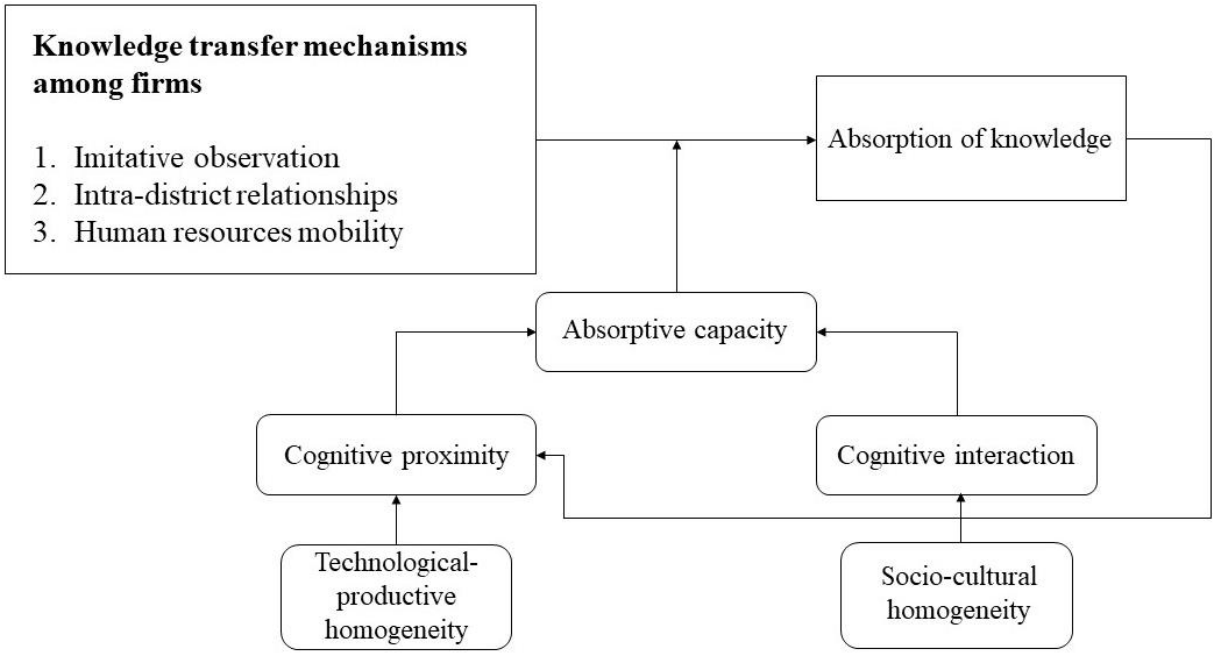


Figure 4 - The mechanism of knowledge transfer in district companies.
Source: Camuffo & Grandinetti (2011)

Figure 4 shows the functioning of the mechanism of knowledge transfer among district firms, starting from the three aspects that have been described above. Everything starts from technological-productive homogeneity and socio-cultural homogeneity, but in order to transfer the knowledge, there must be cognitive proximity among the actors, since knowledge can be made explicit and absorbed only when the receiver has a base of notions and competencies similar to the subject he is observing.

Cognitive proximity is the element which makes observation a proper method for knowledge transfer and innovation. Cognitive interaction instead, resides in the creation of an environment in which people can communicate and share information. Therefore, cognitive proximity and cognitive interaction explain the concept of knowledge-transfer. Inside clusters, these two elements are strengthened by the common knowledge base which increases the absorptive capacity of companies. This is facilitated by the common framework of social norms, rules and behaviours that are shared within the district. The community operates as an intangible resource, and people who live in it can change job easily, since they know they will not face a completely unknown environment, but they are aware that the practices and competencies requested will be similar to the previous ones.

It is important to underline that knowledge transfer favours incremental innovation, while when radical innovation is concerned, there is a high level of cognitive distance among the innovator firm and the rest of the district, since it is developing something that is completely breakthrough and that stems from what the district has developed up to that moment. Therefore, there must be the right level of cognitive proximity in order to make the exchange happen and to leave room for radical innovation. The mechanism that has been described, by allowing the transfer of knowledge, favours also its creation: this happens when the transferred notions get in contact with other type of information, and when both are re-elaborated and combined. In this case, the mere imitation becomes innovative imitation, since the observer does not limit himself to copying the product but uses his own knowledge base to incrementally improve the product.

This model highlights how cognitive proximity must be considered as well as geographical one, and that the competitive and innovative behaviours of district firms benefit by both these two aspects, which help them survive in the globalized market.

1.4. CONCLUSIONS

Industrial districts are geographically concentrated manufacturing systems which are embedded in a strong social context, characterized by a local community that shares value, norms and knowledge. The production process is divided among different actors, and this allowed districts to emerge in a historical period during which firms had to meet the changing demand patterns through realizing customized and high-quality commodities, that required flexibility and responsiveness. The Marshallian district responds to precise features and is usually related to a single industry, but with globalization the competitive framework went through changes that led to a new definition of district, and to the new concept of cluster, which is wider than a district and involves more than a single industry. Global sourcing and new technologies made competition harder for district firms, but they continue to benefit from being localized in a strong network of social and productive relationships. What changed with respect to the past is that now they have to innovate rather than imitate, and that new global competitors have to be faced in the market. Further in this work, the evolutionary patterns of industrial districts and clusters in global value chains will be analysed, with a particular focus on the Italian scenario.

2. CHAPTER

EVOLUTION OF INDUSTRIAL DISTRICTS IN GLOBAL VALUE CHAINS

2.1. THE RISE OF A NEW COMPETITIVE SCENARIO

2.1.1. Peculiarities of the Italian manufacturing system

The Italian manufacturing system is different from the ones of other advanced countries, and this must be taken into consideration when analysing how Italian companies have reacted to the challenges of globalization. Italy is characterized by three main aspects: the predominance of SMEs, the specialization pattern and the presence of industrial districts (Rabellotti, 2009) [18].

The predominance of SMEs: the definition of SMEs includes micro-enterprises (less than 10 employees), small enterprises (11-49 employees) and medium-sized enterprises (50-249 employees). In Italy, SMEs count about 76 % of the total employment in manufacturing, while the European average is 57,6 %. Other advanced countries such as Germany and France have a share of SMEs employment that is under the average level, around 54,8% for France and 45,7% for Germany. Firms with more than 250 employees in Italy employ only around 23,5 % of the labour force, compared with 54,3 % and 45,2 % respectively of Germany and France, and the European average of 42,4 %[19].

A determinant element in the Italian economy is the "family-based capitalism". In fact, family businesses in Italy employ about 70% of the labour force, and this results in a fusion of ownership and control and a tendency not to involve banks and financial institutions in business. SMEs are the backbone of Italian economy, and for many years they were considered an important resource, since they granted high flexibility and responsiveness. In the new economic framework instead, their particular governance structure has been argued to put limits to their expansion and the access to innovation.

[18] Rabellotti, R., Carabelli, A., & Hirsch, G. (2009). Italian industrial districts on the move: where are they going? *European Planning Studies*, *17*(1), 19-41.

[19] Eurostat. Manufacturing Statistics, NACE Rev. 2.

The Specialization pattern: historically, Italy has been specialized in sectors characterized by high labour intensity, and its upgrading to sectors with a higher technological content has been slower with respect to other countries. Its traditional sectors of specialization are the "Made in Italy" ones, which include personal consumer goods (textiles, garments, leather, footwear, jewellery, eyewear), furnishing products (furniture, ceramic tiles, lights), food products and mechanical equipment. According to the Italian National Institute of Statistics ISTAT[20], between 2010 and 2017 the degree of specialization of export in the sectors in which Italy has a comparative advantage with respect to the Eurozone has decreased, even if it remains higher than the European average.

The industrial districts: the third feature of Italian economy is the presence of industrial districts over all the country, and this is closely linked to the first two characteristics, namely the size of firms and their specialization, since districts are mainly composed of SMEs and are involved in productions related to traditional sectors.

2.1.2. The impact of globalization on competition

Starting from the 1990s, globalization has given rise to a new era of international competition that is reshaping global production and trade and altering the organization of industries (Gereffi, 2014)[21]. This has impacted also on industrial districts, since their localisation advantage has lost its previous strength, and they had to compete against new actors in the global market. Within this new scenario, the advantage of flexible specialization held by district companies is no more enough to be competitive, since new technologies have allowed big firms to reach a higher level of reactivity to demand changes, which now permits them to reach the market niches that before could be covered only by SMEs. Therefore, big companies nowadays are able to produce the commodities that are typical of the "Made in Italy" label, such as clothing, footwear, bags, furniture, but pursuing a low-cost strategy maintaining differentiation. These industries are now characterized by lower barriers to entry, so traditional district firms have to face these new kinds of competitors that threaten their former competitive advantage, even if the quality differential remains an aspect that must be considered.

[20] ISTAT. Rapporto sulla competitività dei settori produttivi 2019.

[21] Gereffi, G. (2014). Global value chains in a post-Washington Consensus world. *Review of international political economy*, *21*(1), 9-37.

In addition to this, mass production has been taken back to the economic scenario, given that emerging countries are in need of basic commodities. Large transnational groups have therefore gained advantages in producing differentiated goods, both thanks to new technologies and to the delocalisation of production phases in countries with a lower cost of labour and input resources.

Hence, companies in industrial districts have faced a lot of changes in the last decades and saw a strong increase in competition by national and global rivals. These new dynamics led to a higher company mortality and lower company birth rates, causing a reduction in the number of firms (De Marchi & Grandinetti, 2014). The changes which affected the economic scenario did not put an end to the advantages of being located in districts but required district firms to be able to evolve and respond to the new global challenges, being forward-thinking, reactive and able to take a different evolutionary path with respect to the past.

Another result of the changes in the economic environment was a higher concentration of turnover and workforce in a few firms within the district and a weakening of the relationships of interdependence among firms (Iuzzolino & Menon, 2011)[22]. The higher concentration and the increase in firm mortality have an impact on the Marshallian character of the districts and cause a decrease in importance of the local community and of the sense of belonging. The success that district firms are able to reach even in this modified scenario depends also on their position in the value chain. With globalization and new low-cost competitors, district firms had to redesign the division of labour, that has switched from being distributed within the district to being relocated abroad to save on costs, involving these companies in global value chains.

2.2. GLOBAL VALUE CHAIN ANALYSIS

2.2.1. From local to global value chain

For many years, industrial districts were able to rely on their differential advantage which represented their characteristic feature, but that started to fade away in recent times, because of three main causes (De Marchi & Grandinetti, 2016)[23]:

[22] Iuzzolino, G., & Menon, C. (2011). Le agglomerazioni industriali del Nord Est: segnali di discontinuità negli anni duemila. *L'industria*, *32*(4), 615-654.

[23] De Marchi, V., & Grandinetti, R. (2016). Industrial districts evolving in glocal value chains: evidence from the Italian wine industry. *Piccola Impresa/Small Business*, (1).

- The rise of new global competitors able to offer low-cost intermediate and final goods that compete with the products of the district;
- The decline of the importance of the district as a privileged container of resources;
- The progressive erosion of the community factor.

Globalization and the internationalization of manufacturing activities had an impact on Italian industrial districts, and competition was made even more intense with the economic recession started in 2007. These factors led many companies to shut down, threatening the delicate equilibrium of the division of labour among district firms. The supply relations within Italian districts became weaker, and firms had to act dynamically and reinvent themselves in order to survive. An active approach toward globalization means to be able to expand the stock of internal capabilities and of external relationships, to get access to a wider set of resources. The business relationships among firms changed their configuration, going apart from the division of labour of the traditional Marshallian district to implement the role of subcontractors, of suppliers of technologies and knowledge-intensive services, distributors and partners. This system of relationships has been developed on an international scale, so it is no more concentrated within the boundaries of the districts as happened in the past.

The companies that have been able to successfully seize the challenges of globalization and competition are involved in international entrepreneurship: they look for new opportunities, but they are no more limited to the local area. The strategy of exploitation of new tangible and intangible resources is extended even beyond the boundaries of the countries, and companies strive to get a good position and valid relationships within the global value chain.

Global value chains have recently enlarged their role in business strategies, since they represent an opportunity for firms to expand themselves and embrace global sourcing and global markets, in perspective of international development. Value chains are a reference for the analysis of trade and industrial organization, and they include the full range of activities that firms and workers perform to bring a product or service from its conception to end-use and beyond (Gereffi & Fernandez-Stark, 2011)[24]. These activities include design, production, marketing, distribution and support to the final consumer, and can be contained within a single firm or divided among different firms[25]. In the context of globalization, the geographical location in which these activities

[24] Gereffi, G., & Fernandez-Stark, K. (2011). Global value chain analysis: a primer. *Center on Globalization, Governance & Competitiveness (CGGC), Duke University, North Carolina, USA*.

[25] Globalvaluechains.org. Concepts and Tools. https://globalvaluechains.org/concept-tools .

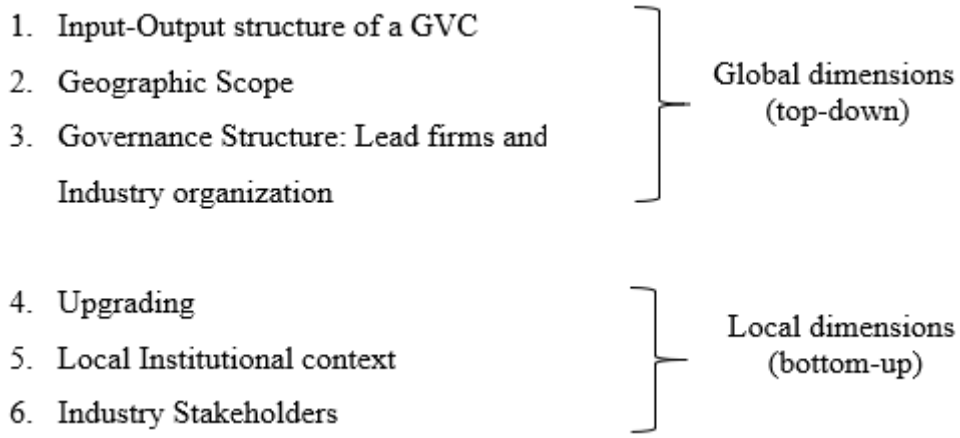
are carried out is a crucial variable for a firm willing to maximize its profits. In fact, the expansion of a business on a local scale is mainly driven by lower cost of input factors, competitiveness framework, social and environmental conditions and also geographical and cultural proximity to the final customer. Therefore, production can take place at different geographic scales (local, national, regional and global), depending on the incentives linked to the above-mentioned factors and the impact of this choice on costs and profits. When the various activities in the value chain are diffused over a network on a global scale, then it is possible to talk about global value chains (GVC), that have developed thanks to the improvement in transports and telecommunication, which reduced the cost of moving people and products from one country to another.

Within a GVC perspective, companies divide their production process both under a productive point of view (outsourcing) and under an organizational point of view (offshoring). In addition to the implementation of new technologies, this was made possible also by the liberalization policies that have opened the possibility to expand a firm's strategy abroad. Companies can choose among four strategies of production (Cattaneo et. al, 2013)[26]:

1. *Domestic in-house production*: all operations are carried out inside the firm in the home country;
2. *Vertical foreign direct investment (FDI)*: some activities take place inside the domestic headquarter of the firm, but some others are placed in other locations through offshoring;
3. *Domestic outsourcing*: the company relies on external and independent subcontractors in the home country, with whom it keeps a strong relationship;
4. *Offshore outsourcing*: the company relies on subcontractors abroad.

The last three strategies involve being part of a Global Value Chain. The Global Value chain analysis includes six elements, which are divided in global elements (top-down) and local elements (bottom-up). The first group of elements, namely the top-down elements, are related to how the industry is organized at a global level, while the second group is linked to how every single country is involved in the GVC. The dimensions of the GVC analysis can be listed as follows:

[26] Cattaneo, O., Gereffi, G., Miroudot, S., & Taglioni, D. (2013). *Joining, upgrading and being competitive in global value chains: a strategic framework*. The World Bank.*Trade Department*. April 2013.



2.2.2. Input-Output structure

The input-output structure includes all the operations that must take place in order to realize a product and bring it to the final market. All these operations are part of the value chain, and they may vary according to the industry, but in general they involve: research and design, inputs, production, distribution and marketing, sales, and sometimes also the recycling of the product after its life has ended. These activities can be ideally represented by a chain of connected steps which display the flow of operations to get the tangible or intangible good or service, and from which it is possible to analyse how the value added is created after each operation. Where the value added is created depends on the type of industry, how it is organized and in what measure it is affected by the trends which are going on in the economy. In addition, it is crucial to understand the strategies of the companies involved in the industry: if they are global or domestic, private or state-owned, small, medium or big, etc., to better address the governance structure.

2.2.3. Geographic scope

With globalization, transport and communication have become easier and less expensive. This allows companies to look for resources and to do investments not only in their home country, but to spread operations abroad and perform global sourcing. In the global economies, activities over the supply chain are dispersed in various parts of the world and countries can leverage on their own competitive advantages which differentiate themselves from the others. In this scenario, developing countries assumed an important role in value chains, since they offer lower cost of labour and raw materials, and at the same time most advanced countries can focus on implementing services, R&D and product development, that are the activities which bring the highest value-added.

2.2.4. Governance

The governance of the value chain is one of the most important elements in the analysis: it shows how corporate power can actively shape the distribution of profits and risk in an industry, and the actors who exercise such power through their activities (Gereffi & Lee, 2012)[27]. Hence, the way in which a chain is controlled and coordinated depends on the type of governance established. Gereffi (1994)[28] defined governance as "authority and power relationships that determine how financial, material and human resources are allocated and flow within a chain". Governance can mainly be of two types: producer-driven and buyer-driven. In producer-driven chains, the power is in the hands of final product manufacturers like transnational corporations or integrated enterprises which act as lead firms and are able to control the production system. It is typical of capital or technology intensive industries, like automobiles, aircraft, computers and electrical equipment: for these companies, it is frequent to be vertically integrated and to leverage on economies of scale. They usually rely on international subcontractors and they exercise power over them through the establishment of standards of compliance.

In buyer-driven industries instead, the power is held by retailers or marketers of the end product, which leverage on the advantage given by their well-known brand name, that has an impact on shaping consumption behaviours. They are characterized by decentralized production networks spread in different countries, and they are in the position of asking suppliers to meet particular standards. Usually the network is composed by independent factories producing finished products according to the specifications, and they are not owned by the buyer, which is only a merchandiser that is in charge of the design and the marketing activities but is not directly involved in the making of the commodity. This configuration is led by trade, and it is diffused in labour-intensive and consumer-goods industries such as garment, footwear, hand-crafted products, etc.

From these two types of industries it emerges that in order to comprehend how a value chain is structured it is important to perform a governance analysis to understand which are the lead firms, how they interact with other agents and what is their power, namely in what extent they can set their own standards that buyers or suppliers must meet. The two extreme governance configurations are market and hierarchy, and in between other three paradigms were identified:

[27] Gereffi, G., & Lee, J. (2012). Why the world suddenly cares about global supply chains. *Journal of supply chain management*, *48*(3), 24-32.

[28] Gereffi, G., & Korzeniewicz, M. (Eds.). (1994). *Commodity chains and global capitalism* (No. 149). ABC-CLIO.

modular, relational and captive. They are differentiated by three variables: complexity of the information shared, the extent to which this information can be codified and the level of competence of the supplier (Gereffi et al., 2005)[29].

1. *Market governance*: market governance takes place when transactions are relatively simple, information about product specification is easily codifiable and transmittable, and suppliers are able to realize the product without keeping constant contact with the buyer. This arm-length relationship does not require formal cooperation between actors, and for the buyer switching to another supplier is not expensive, since there is not a particular relationship or intense knowledge sharing. Suppliers can switch to other buyers with no excessive costs as well. The central governance mechanism is price, so the chain is not driven by the power of a lead firm.
2. *Modular governance:* modular governance takes place when the transactions are quite complex, but at the same time they can be easily codifiable. In this case, the customer provides the supplier with a list of specifications that must be followed for the realization of the product. The supplier has full responsibility over the technology used, and he invests on generic machinery in order to divide the expense over a large customer base. Therefore, even if the transaction is complex, switching costs are kept low, since there are limited investments which are specifically undertaken for a particular transaction. The principal aspects of this governance approach are the use of information technology and standards for the exchange of information.
3. *Relational governance:* relational governance occurs when buyers and sellers exchange complex information which cannot be easily transmitted, codified or learnt. In order to be aligned, they need to interact frequently and rely constantly on knowledge sharing. In this configuration, there must be a trust relationship between buyers and sellers, which is strengthened by reputation and social ties. They are mutual dependent, and the linkages between them take time to get built, therefore there are high switching costs, given by the fact that the unique relationship and information sharing are not easily reproducible in another context.

[29] Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of international political economy*, *12*(1), 78-104.

However, within the relationship lead firms still specify the characteristics of the products, so they tend to have control over the suppliers. The goods that are produced under this type of governance are usually characterized by high quality, a peculiar geographic origin or other unique features.

4. *Captive governance:* chains with a captive governance are characterized by the presence of small suppliers which are completely dependent on one or a few buyers that exert a large power over them and that maintain a high level of monitoring and control. The conditions of the transactions are set only by the powerful buyers, and this forces the suppliers to perform activities that are specific to that particular buyers and that are idiosyncratic. This results in high switching costs for both the actors involved, but at the same time can lead to benefits: usually lead firms are focused on operations not linked to production, so it is in their interest to help the suppliers improve their productive capabilities and efficiency. In this configuration the concept of ethical leadership is important, in order to make sure that suppliers are treated fairly and adequately rewarded.
5. *Hierarchical governance:* hierarchical governance defines chains characterized by vertical integration, where the lead firm maintains the control over the production by keeping the whole process inside the organization. This structure could be chosen in case of particularly complex products, whose specifications are not easily sharable, or in case it is difficult to find specialized suppliers for that type of production.

As mentioned before, these five types of governance approaches are determined by three drivers: complexity of transactions, ability to codify transactions and capabilities of the suppliers of meeting the buyers' requests. In Table 1 the five configurations are displayed and classified according to these three drivers. Each one is characterized by a different trade-off among the three drivers and at the same time is located on a continuum representing the degree of explicit coordination and power asymmetry.

Table 1- Key determinants of global value chain governance
Source: Gereffi et. al (2005)

Governance type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	Degree of explicit coordination and power asymmetry
Market	Low	High	High	Low
Modular	High	High	High	↕
Relational	High	Low	High	
Captive	High	High	Low	
Hierarchy	High	Low	Low	High

Markets are characterized by low degree of explicit coordination and power asymmetry, since transactions are based mainly on price and there is not a lead firm exerting power, while hierarchy is characterized by a high degree of explicit coordination and power asymmetry, given that it is based on vertical integration and all the power is in the hands of the company which controls the entire process. Captive value chains are characterized by high power asymmetry as well, since the standards are defined by the lead firms, but at the same time require a high level of coordination, making this situation very similar to the hierarchy configuration, with the only difference that operations are not all inside a single headquarter. In relational global value chains, the parties are linked by a relationship of mutual trust, therefore power is symmetrically divided between them. Coordination cannot happen in an explicit way, since the information transferred is very complex and needs constant interaction to be transmitted in the framework of an equal exchange, where there is not a party that is controlling the other. Modular governance instead is quite similar to the market approach, there is low power asymmetry and coordination, and the costs of switching partners are not high.

In Figure 5, the five governance configurations are graphically displayed and positioned according to explicit coordination and power asymmetry. The thin arrows represent the transactions based on price, while the thicker ones represent flows of information and control that are based on explicit coordination. This includes the standards imposed within a captive approach or inside a hierarchy, but also the social sanctions which regulate the behaviour of the actors involved in relational value chains.

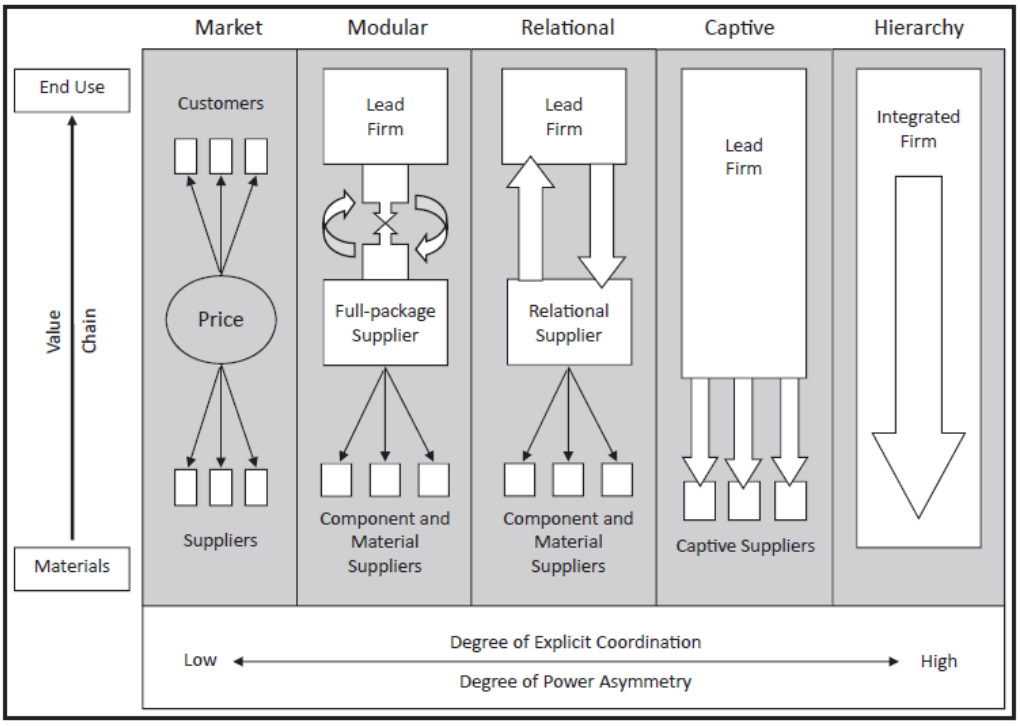


Figure 5 - Five global value chain governance types
Source: Gereffi et al. (2005)

According to Gereffi et al. (2005), governance should not be considered a static element: global value chains are dynamic and usually overlapping, and the patterns inside them should not be strictly associated to particular industries. In fact, inside one chain there could be more than one type of governance approach taking place at different steps, depending of the kind of relationships and on the technologies that are used.

2.2.5. Upgrading and the smile curve

Value chains are composed by different value-adding activities which allow to obtain the final product. Upgrading is the process according to which firms, countries or regions move to higher value activities within the GVCs in order to increase the benefits deriving from participating to them. According to Humphrey and Schmitz (2002)[30], upgrading can be of four types:

1. *Process Upgrading* is related to increasing the efficiency in the way in which inputs are transformed into outputs, through reorganizing the production system of by introducing a superior technology;

[30] Humphrey, J., & Schmitz, H. (2002). How does insertion in global value chains affect upgrading in industrial clusters?. *Regional studies*, *36*(9), 1017-1027.

2. *Product Upgrading* is related to moving to more sophisticated product lines;
3. *Functional Upgrading* implies acquiring new functions within the organization or abandoning others in order to reach a higher level of skill intensity in the activities;
4. *Inter-sectoral or Chain Upgrading* takes place when firms use their competences to move to other industries, enlarging their product base horizontally.

According to Cattaneo et al. (2013) upgrading, or moving up the value chain, is the best long-term strategy for preserving a country's participation in GVCs. Therefore, Upgrading can be viewed as a dynamic movement along the value chain from one stage of production to another which involves higher value-added activities. This can be represented through the smile curve, that was first introduced by Acer founder and CEO Stan Shih in the early 1990s. This curve is a graphical representation of the activities within a manufacturing process, and it shows that the most value-added is nowadays shifting from the fabrication stages to the pre and post-fabrication services.

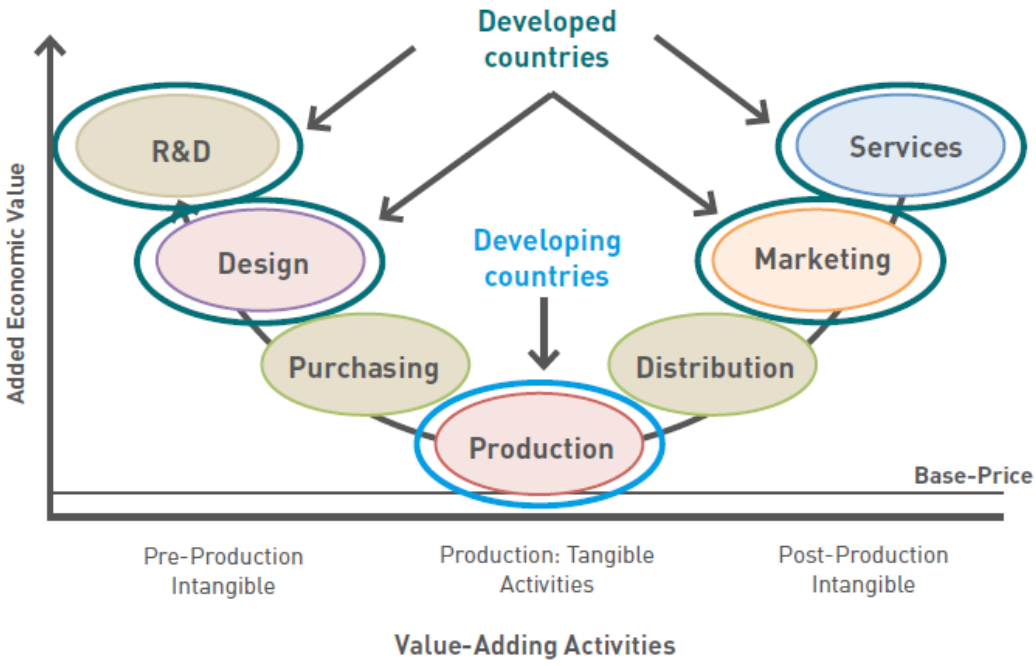


Figure 6 - Smile Curve of High-Value Activities in Global Value Chains
Source: Gereffi & Fernandez-Stark (2016)

This trend is given by the fact that intangible assets are increasing their importance in the global economy, and the role of knowledge creation is being widely recognized as a value generator. Intangible assets, also called intellectual assets, include patents, copyrights and brands, which ensure the holders of receiving legally defensible rents, but they are related to inter-organizational relationships and unique organizational structures as well. A firm controlling

intangible assets is able to generate higher returns, ceteris paribus, with respect to another one that is not in possession of these assets (Mudambi, 2008)[31].

To understand the concept of upgrading it is crucial to analyse the value chain along two dimensions: control and location. The activities along the smile curve can be divided into three categories: the upstream (input) end, the downstream (output or market) end and the middle. The activities at the upstream end (the left side of the curve) generally include Research and Development, design and commercialization, while activities at the downstream end (right side of the curve) comprise marketing, advertising, brand management and after-sales services. The activities in the middle are related to production and manufacturing of the goods. In the context of global value chains and on a country level, the activities in the curve have become locally disaggregated: in general, the low value-added manufacturing activities are located in developing countries, while advanced countries retain the upstream and downstream end activities which entail a higher value-added. The upgrading tendency of advanced countries is now challenged by three processes: firms in emerging countries are striving to develop new competencies in high-value added activities, the so-called *catch-up* process; this is strengthened by the fact that advanced countries are not focusing on customized activities and services, and outsourcing standardized high-value added activities to cut costs, therefore starting a *spillover* process of which host countries can benefit. These two processes are again reinforced by the rapid innovation which requires advanced countries to rely on other countries for non-core activities, in order to keep up with the process of *industry creation* which entails the generation of new sources of value creation.

2.2.6. Local institutional context

The local institutional context summarizes the way in which local, national and international conditions and policies influence in which stages of the value chain a country is located. Global value chains cannot be examined separately from the context in which they are embedded, so analysing the drivers which shape the particular condition of every country in the world economy is fundamental. The economic conditions of every nation are related to the availability of key inputs, such as labour costs, development of infrastructures, access to financial resources, social context and presence of skilled workers in the labour market, taxes, labour

[31] Mudambi, R. (2008). Location, control and innovation in knowledge-intensive industries. *Journal of economic Geography*, *8*(5), 699-725.

regulation, subsidies, educational and innovation policies which could have an active role in promoting development.

2.2.7. Stakeholders Analysis

The stakeholders are all the actors involved in the activities along the value chain. In order to analyse the value chain and the local dynamics within each country, it is important to map their role. The main stakeholders in the value chain are: firms, industry associations, workers, educational institutions, government agencies, Ministries of foreign trade, economy and education. An important aspect to be taken into consideration is how all these actors relate to each other on a local level, to understand which of them are in the position of driving change, namely the key players in the value chain of each industry.

2.3. INDUSTRIAL DISTRICTS IN THE CONTEXT OF GLOBAL VALUE CHAINS

2.3.1. How industrial districts react to globalization: the weakening of the communitarian factor

In the framework of globalization, industrial districts have lost some of the characteristics that made them successful in the past, and their localization advantage has been eroded by the progressive globalization of production. The division of labour has become global and no more concentrated only within the local area, where internationalization has mainly involved the leader firms of the districts, that had to redefine their strategy considering a new competitive and productive scenario. In addition to finding new and more convenient sources for their inputs, they worked on penetrating the local markets through the creation of joint ventures, branches and subsidiaries, or by acquiring retail chains such as franchising networks. This allowed these firms to establish new strategic alliances and find new suppliers, therefore finding new channels for accessing the knowledge needed to reinforce their competitive advantage. These processes of growth that leading companies in districts have undertaken have expanded beyond the district boundaries, both in organizational terms and in terms of external relationships; this led to a downsizing of the intra-district spatial configuration, in favour of the extra-district portion, causing a weakening of the communitarian factor (De Marchi & Grandinetti, 2014).

Another phenomenon that has contributed to impoverishing the communitarian factor was the migration of workers: the district firms' need of low-skilled workers employed in low-paid

jobs was met by the increasing number of immigrants arrived in Italy since the end of the twentieth century (Murat & Paba, 2006)[32]. The multi-ethnicity and heterogeneity of the workforce led to a decrease in the sense of belonging of the community in all the IDs, but with a different impact depending on the specific cases. One of the most significant cases was the one of the Arzignano tanning district in the Veneto region, whose growth have depended mostly on immigrant workers (Belussi & Sedita, 2010)[33].

Immigrant workers have been employed mostly in small and medium firms of the typical Made in Italy industries, and this represents a strategy to face globalization which is the opposite with respect to the one implemented by the leader firms. In fact, in recent years Italian exports had to deal with increasing competition and loss of the value of their goods on international markets, thus leading many firms to expand their geographical scope and to split the production based on convenience and on the comparative advantages of each country. On the contrary, a relevant part of Italian productive system is not equipped yet to take on an internationalization strategy and has aimed to employ immigrant workforce to maintain alive some specializations in low-tech sectors that otherwise would had been efficiently localized in countries with lower salaries. (Murat & Paba, 2006).

In other cases, some immigrant entrepreneurs established their activities within IDs. An illustrative case concerns the Chinese entrepreneurship in the textile district in Prato, which has been considered a perfect example of a Marshallian district. Chinese businesses are the numerically largest foreign presence within IDs today, and they rely on a strong communitarian factor which favours cooperative relationships among themselves and which seems to be even stronger than the one established amongst the other firms in the district (Calvosa, 2006)[34].

In addition to immigration, another factor that resulted determinant in the decrease in importance of the communitarian factor has been the social heterogeneity. The 'golden age' of industrial districts in Italy has seen the succession of two generations that were homogeneous under the point of view of culture and values, where the differences in social classes were less

[32] Murat, M., Paba, S. (2006). I distretti industriali tra immigrazione e internazionalizzazione produttiva. *I distretti industriali dal locale al globale*, 177-207. Rubbettino, 2006.

[33] Belussi, F., Sedita, S.R. (2010). Moving immigrants into Western industrial districts: the "inverse" delocalization of the leather tanning district of Arzignano. In Belussi F., Samarra A. (Eds.), *Business Networks in Clusters and Industrial Districts: The Governance of the Global Value Chain*, 136-145. Routledge: New York.

[34] Calvosa, P. (2006). Le reti distrettuali in Campania. In: Izzo F., Ricciardi A. (Eds.), *Relazioni di cooperazione e reti di imprese: Il caso della Campania*. Franco Angeli.

marked. Blue-collars, craftsmen and small and medium entrepreneurs were characterized by a sociocultural continuum which favoured the interaction among people with different positions in the society. This homogeneity was gradually lost over time, mainly due to the generational turnover. This can be attributed in particular to the case of family businesses and the 'change of the guard' within them. The founding entrepreneurs were different from the descendants taking their place: they are generally better educated and not all of them embrace their parents' work ethic, since taking over the family business is not the obvious choice for them, giving origin to the problem of succession.

Another phenomenon occurred within districts in the last years is the lower birth rate of new companies, that at a certain point was no longer able to compensate the firm mortality. The fertility which had characterized districts in the years of their success was generally due to spin-offs, namely when former employees decided to start a new business within the same district, with the general support from the local community. In the last 15 years this tendency has decreased and less companies were established with respect to the past, also due to the fact that globalization has discouraged the opportunities for new ventures in the manufacturing districts of the 'old' world (De Marchi & Grandinetti, 2014). The entrepreneurial activity in the past was mainly oriented toward developing the district's characteristic products using new materials or introducing goods that were innovative for the districts, for the market or both, nourishing a process of concentric diversification. Recently, this process has given way to what can be defined as a non-concentric diversification of activities, which implies the development of related sectors and the geographical dispersion of the industry-specific operations.

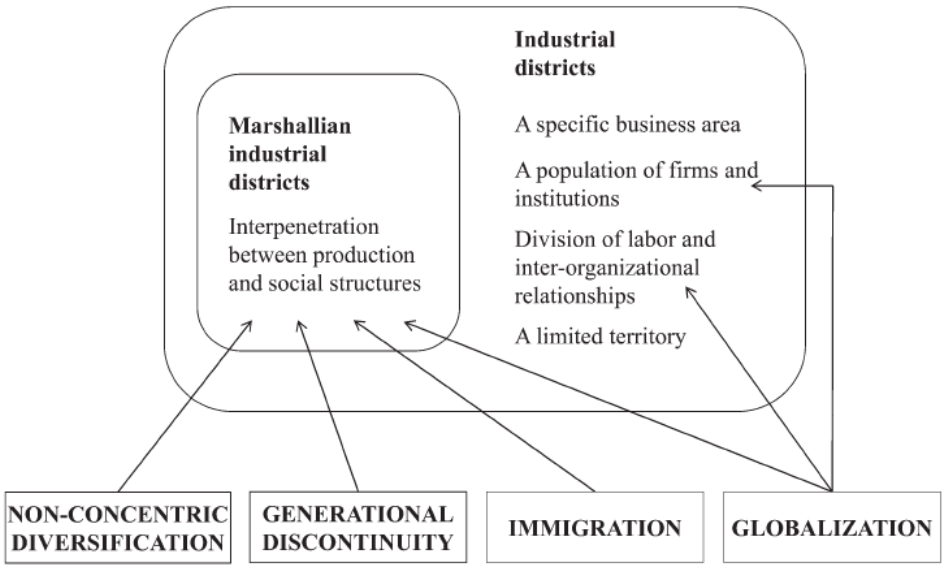


Figure 7 - Evolution of industrial districts
Source: De Marchi & Grandinetti (2014)

As summarized in Figure 7, all the above-mentioned factors have contributed to drive away from the traditional Marshallian district, but at the same time they led to a decrease in importance of the role of the communitarian factor, since there is a lower level of juxtaposing of the social structure, which is now less homogeneous, and of the productive structure, that has evolved according to the new trends.

2.3.2. Evolutionary trajectories for Industrial districts in a globalized framework

The factors that were previously analysed, namely globalization, immigration, generational discontinuity and non-concentric diversification have modified the core features of the traditional ID model, which was characterized by a large population of interconnected businesses, mainly SMEs, operating in the same sector with different specializations (De Marchi et al., 2017)[35]. Firm population is affected in the sense that some existing companies have exited the market and the birth rate has suffered a reduction. Also the concentration of resources has changed over time, especially due to the rise of larger companies inside the district, which detain more resources and the capabilities of implementing an internationalization strategy. In the past instead, resources and competencies were distributed over a number of quite homogeneous firms in terms of size. Finally, the value production in the district was affected by the difficulties of taking part to the GVCs and to compete with foreign firms in the context of globalization.

The above-mentioned phenomena did not have the same impact over all industrial districts, this is why De Marchi and Grandinetti (2014) identified three evolutionary trajectories for industrial districts, starting from the traditional Marshallian configuration:

1. Decline
2. Hierarchization
3. Resilience

Table 2 shows in which way every evolutionary trajectory has brought changes to three main variables related to the district: reduction of ID firm population, increase of resource concentration and reduction of ID value production.

35 De Marchi, V., Gereffi, G. & Grandinetti, R. (2017). Evolutionary trajectories of industrial districts in global value chains. In De Marchi V., Di Maria E., Gereffi G. (Eds.), Local clusters in global value chains, 33-50. Routledge.

Table 2 - Trajectories of ID evolution in GVCs
Source: De Marchi et al. (2017)

	Decline	*Hierarchization*	*Resilience*
Reduction of ID firm population	High	High	Moderate
Increase of resource concentration	Moderate	High	Moderate
Reduction of ID value production	High	Negligible	Negligible

Decline is related to districts which suffered a large reduction in firm population, together with the inability of facing global competition. Therefore, also the possibility of creating value is reduced, and it is not linked to a few big players emerging in the district. The districts that have gone through this trajectory are the Barletta footwear ID, the textile ID of Como, the Vibrata-Tordino-Vomano clothing ID, and others.

Hierarchization involves a reduction in firm population in favour of the rise of a small number of large companies that are able to compensate for employment losses and which capture most of the value produced in the district. The districts which have undertaken this trajectory are characterized by a concentration of revenues and employment in a few big corporations. Some examples are the Santa Croce sull'Arno leather ID, the Belluno eyewear ID and the Sassuolo ceramic tile ID.

Resilience trajectory is the one embraced by districts which have experienced a moderate contraction in the population of firms and employment and are characterized by a discrete capacity of generating value. Concentration does not increase steeply, but dynamic firms emerge in the district. Two examples of districts experiencing this trajectory are the Montebelluna sportsystem ID and the Riviera del Brenta footwear ID.

The trajectories of hierarchization and resilience represent two positive reactions to globalization, and they are an example of how a district can effectively respond to global challenges. They are both related to the ability of maintaining the value produced inside the district, even if they differ in how this value is distributed: districts characterized by hierarchization have value concentrated in the hands of only a few large companies that might be disconnected by the others, while in the resilience trajectory this value is spread over a wider group of actors. The decline trajectory instead is the one engaged by firms which are not able to keep their activity competitive, thus striving to survive and to deal with global challenges.

2.3.3. Global lead firms and local dynamic actors

The evolutionary trajectory along which a particular district evolves is influenced by some key factors determining how the firms within it can actually compete in the GVCs, namely its

history, industry specificities, institutions and social context. These are in turn affected by the presence of global lead firms (GLFs) and local dynamic actors (LDAs).

Global lead firms (GLFs) can be home or foreign. Home GLFs are the ones that have grown inside the district until they have become a global leader, while foreign GLFs are multinational enterprises (MNEs) that decided to invest in the industrial district through acquisitions, greenfield investments or local sourcing. Global lead firms represent the main character when it comes to GVCs, in fact they act as a channel between the local district and the global value chain.

In the case of foreign GLFs, an important factor to be considered is the specific stage of cluster evolution in which the entry takes place (Belussi et al., 2017)[36]. If a MNE enters the district or cluster in its initial stage, it will be able to shape its development and establish place-anchored value chains. In fact, in this stage the district-specific characteristics are not present yet, but local firms rely on an historical background of tacit knowledge and competencies, strengthened by local culture. The maturity stage instead is characterized by a slow-down of local population's growth rate and of the reproduction of cluster-specific conditions. In this stage codifying tacit knowledge becomes easier and it can be better grasped by external actors. In this stage, the entry of a MNE can bring to immediate benefits, especially because innovation in the district is stuck and has difficulties in flourishing. The multinational enterprise can bring dynamism to this situation and help the cluster rejuvenate. For what regards knowledge, local firms have already developed their own set of competencies, but the MNE could help them in better benefit from the combination of internal and external knowledge, taking advantage from the relationships that go over the district boundaries. Generally, the presence of a MNE in a cluster facilitates upgrading through spillover effects: literature has hypothesized that it is likely to start a process of product improvement reengineering, which favours innovation. An aspect that should be considered is that not all MNEs are focusing on developing relationships with internal and external actors, and there are cases in which the multinational is isolated from the local context since it operates in a closed network, leading to uncertain results on cluster development.

In general, lead firms are usually older and larger than the average of the firms of the district to which they belong. In addition to this, they usually benefit from a technological, performance or reputational differential with respect to other local firms. Usually they are positioned in the downstream segment of the supply chain and tend to be in charge of assembling finished goods.

[36] Belussi, F., Caloffi, A., & Sedita, S. (2017). MNEs and clusters. The creation of place-anchored value chains. In De Marchi V., Di Maria E., Gereffi G. (Eds). *Local clusters in global value chains*. Routledge.

An important aspect of lead firms is that they develop relationships which go beyond the district boundaries, organizing their activities as follows (Camuffo & Grandinetti, 2011)[37]:

1. Internationalization of manufacturing activities through subcontracting agreements, creation of joint ventures for production or establishing production subsidiaries or plants abroad;
2. Control of distributive channels also in foreign markets, through a sales agencies network or through sales joint ventures, commercial branches, franchising or acquisition of retailers;
3. Acquisition of firms inside or outside the district to enrich the brand portfolio and to enter strategic business areas;
4. Developing relationships with service suppliers outside the district to source new strategic resources and improve innovation, product development, quality management, marketing and finance;
5. Signing agreements with industrial partners outside the district operating in the same or in related sectors to jointly develop innovation projects or commercial strategies.

To foster innovation, the lead firms rely not only on relationships with industrial and service partners, but implement a network of connections also with institutional actors that could develop new knowledge and technologies, such as universities, research laboratories and specialization schools.

Local dynamic actors instead are already present in the district, and they preserve peculiar and hard-to-replicate value-adding capabilities, in addition to keeping strict relationships with other firms. These firms act as a bridge between the market knowledge present in the GVC and the knowledge embedded in the local context, which is related to the productive technology. The larger the number of LDAs in a district, the higher the likelihood that it will have a competitive position in GVCs. Their size is important as well, since they manage international relationships and have to cope with the standards indicated by GLFs, thus their leadership is favoured by being at least medium-sized. LDAs can be of different types, depending on the configuration of the district (De Marchi et al., 2017):

[37] Camuffo, A., & Grandinetti, R. (2011). Italian industrial districts as cognitive systems: are they still reproducible?. *Entrepreneurship & Regional Development*, *23*(9-10), 815-852.

- Original equipment manufacturers (OEMs) or original design manufacturers (ODMs) with advanced production capabilities;
- Original brand manufacturers (OBMs) with advanced post-production capabilities;
- Highly specialized suppliers with peculiar manufacturing or service capabilities;
- Capable local institutions.

An OEM firm is in charge of producing goods that then will be used in the production process of another company, while an ODM firm designs and manufactures a product according to a set of specificities which sometimes are indicated by another firm that will carry out the selling activities and which brands the final good. OEMs and ODMs respond to the requests of global brands and are both characterized by specific production capabilities which combine the high quality of manufacturing artisanal production with the organizational structure needed in order to meet the standards established by the GLF. This aspect has particular relevance when manufacturing is considered a high-value-adding activity, as happens in the case of luxury products. OBM companies retail their own branded products which are produced by a second company. In this case the value-adding happens when the product is branded, if this is valuable for the final customer. The OBM firm is in charge of all the post-production activities and preside the final markets through organizing their own distribution channels. The third category of LDAs includes highly specialized suppliers, which are important actors in the district since they provide specialized manufacturing capabilities and knowledge intensive business services such as design, prototyping, development of new materials, etc. The fourth LDA is represented by local institutions, which are fundamental in creating a framework that allows local knowledge and specific capabilities to be preserved and reproduced.

Table 3 shows in what extent GLFs and LDAs are present in every evolutionary trajectory industrial districts can go through: in districts that are experiencing decline both global lead firms and local dynamic actors are absent, this is explained by the difficulties this type of districts face when having to deal with the challenges imposed by globalization. In the hierarchization trajectory GLFs represent the main actors in the district, this is why LDAs strive to emerge and most of the activities in the district is coordinated by the lead firm. Resilient districts benefit from the presence of both GLFs and LDAs which coexist in an equilibrium which allows local firms to keep on being competitive also on international markets. Therefore, it is possible to state that the actors that are present in a district are determinant in shaping the trajectory it will take, and in particular it should be noted that the presence of GLFs is a necessary condition for hierarchization and resilience to take place, since they allow the district to take part to the GVC in which their industry is embedded.

Table 3 - Key determinants of ID trajectories in GVCs
Source: De Marchi et al. (2017)

		Decline	*Hierarchization*	*Resilience*
Global lead firms (GLFs)	Home-grown (*inside-out*) Foreign (*outside-in*)	Absent	Present	Present
Local dynamic actors (LDAs)	OEMs or ODMs with advanced *production capabilities* OBMs with advanced post-production capabilities Highly specialized suppliers with distinct *manuf./service capabilities* Capable local institutions	Absent	Absent	Present (variety)

2.3.4. Italian industrial districts involvement in GVCs

Industrial districts in Italy have always contributed to international trade, since according to the Italian Institute of Statistics ISTAT (2011)[38] their exports account for around 30 % of the national manufacturing exports, which goes up to 80 % of exports when considering the textile, clothing and leather industries. Since the 1990s exporting has contributed to upgrade the quality of products in order to face competition from emerging markets. An example is the Biella textile cluster, which went through a period of severe crisis, but that then was able to redirect the production toward the niche of very high-quality luxury fabrics such as alpaca and cashmere and that invested in high value-adding activities such as marketing and branding.

Despite this, Italian districts are challenged by other economies, especially China, which are now able to compete against them also in prime market segments (Giovannetti et al., 2012)[39]. The districts that are suffering most competition are the ones specialized in low-tech, traditional goods which do not have a clear quality differential with respect to the ones offered by low-cost competitors. Therefore, the industries that have to face Chinese competition the most are textile, apparel, leather goods and furniture ones, since they can be considered low-skilled sectors which are less capable to respond to the competitive pressure by applying product upgrading and strategies related to specialization. At the same time, China has been developing upgrading

[38] ISTAT. I distretti industriali. Anno 2011. https://www.istat.it/it/archivio/150320 .

[39] Giovannetti, G., Sanfilippo, M., & Velucchi, M. (2012). The "China effect" on EU exports to OECD markets: A focus on Italy. In Gomel, G., Marconi, D., Musu, I., & Quintieri, B. (Eds.). (2012). *The Chinese economy: recent trends and policy issues*. Springer Science & Business Media.

capabilities in order to be able to produce higher quality goods to be exported, broadening the quality-based challenge (Giuliani & Rabellotti, 2017)[40].

A strategy to stimulate the economic activity of industrial districts is connecting them to GVCs. Traditionally, their success was based on a profound specialization along a value chain that was geographically limited to the local area. In recent years instead, also district production is increasingly being organized along a value chain that crosses the borders of the country, with one or more lead firms, usually MNEs, that assume the role of coordinators of these GVCs. The level of involvement of Italian clusters in GVCs depends on the features of the firms and on the competitive strategy they pursue. Giuliani and Rabellotti (2017) proposed three models of ID-GVC involvement: *low roads IDs*, *locally rooted GVC-led IDs* and *outward-oriented GVC-led IDs.* As shown in Figure 8, every model has a different position on the GVC smiling curve, according to the typology of activities performed within the ID and the level of value-added that they carry.

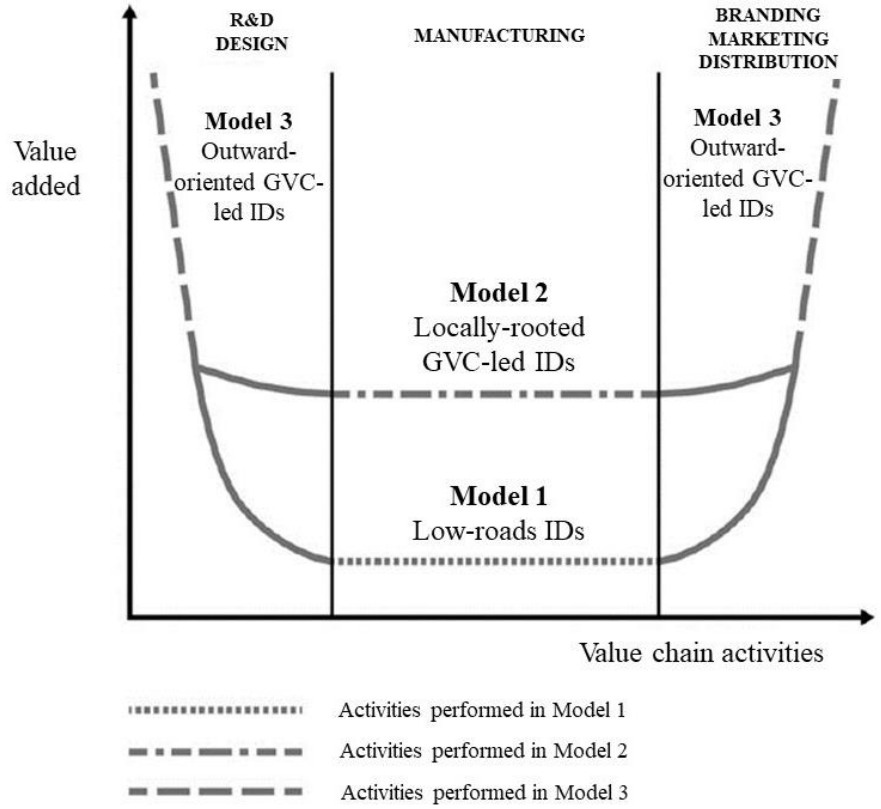


Figure 8 - Stylized models of ID-GVC involvement in Italy
Source: Giuliani & Rabellotti (2017)

[40] Giuliani, E. & Rabellotti, R. (2017). Italian industrial districts today: between decline and openness to global value chains. In De Marchi V., Di Maria E., Gereffi G. (Eds.). *Local clusters in global value chains*, 21-32. Routledge.

Model 1: low-roads IDs

Low-roads IDs model includes districts that are characterized by mostly small and inefficient firms operating in low-value added manufacturing that were damaged by the fading of the district effect. Firms in these districts have felt pressures from international competition and have reacted mainly by outsourcing their productive activities in countries with lower labour costs. This led to a reduction of the production activities physically present in the district, making it more difficult to add value because of the low investments in branding and design. This situation resulted in a reduction of firm population inside the district and reduced employment as well, threatening the survival of the district. As highlighted by De Marchi et al. (2014)[41], the crisis is even stronger when competition is only based on cost: this makes it hard to create and maintain a competitive advantage, and inevitably traditional districts will not be able to stay competitive against low-labour countries manufacturers. An example is the Vicenza jewellery district, mainly composed by unbranded subcontractors competing on cost, which base their strategy on economies of scale rather than on product differentiation. In this district some firms "downgraded" their production (e.g. by substituting gold with silver) while others strived to upgrade by making their processes more efficient and by improving their products, but without realizing that they should have invested in activities characterized by higher value-added such as design, marketing and retail. This type of districts did not manage to be successfully engaged in GVCs and remained stuck in performing low value-added manufacturing, as displayed in Figure 8. In some cases, GVCs even had a negative impact on the ability of district of capturing value-added, favouring the proliferation of low-cost competitors.

Model 2: Locally rooted GVC-led IDs

The locally rooted GVC-led IDs are characterized by a concentration of medium and large-sized firms which are deeply embedded in their district thanks to relationships with other local companies and institutions. For these firms a competitive advantage is represented by the local supply chain, since it grants quality, lead times and easy monitoring and control, aspects that are not easily providable by distant suppliers. Anyway, some of these companies have decided not to undertake high-value added activities related to product design and development, branding and marketing, and have become manufacturing suppliers to larger Italian or international luxury brands which retain these activities. An example of this model is the Riviera del Brenta footwear district, where several existing companies have become subcontractors of Italian and international

[41] De Marchi, V., Lee, J., & Gereffi, G. (2014). Globalization, recession and the internationalization of industrial districts: experiences from the Italian gold jewellery industry. *European Planning Studies*, 22(4), 866-884.

fashion houses that grant a safe high-end market for their products, at the same time allowing local firms to maintain supply relationships with other companies in the same area (Rabellotti, 2004)[42]. Another example is the Livenza furniture district, which includes also Italian suppliers of IKEA, and which relies on a large network of local suppliers. This district is in charge of connecting the design knowledge to local manufacturing specific know-how. With respect to Model 1, this one is characterized by a higher level of value adding at a district level, as shown in Figure 8. It is still unknown whether giving up high value-adding activities and keeping only manufacturing could damage this firms in the long-term, especially taking into consideration that other countries are rapidly developing skilled production at a lower cost.

Model 3: outward-oriented GVC-led IDs

This model is characterized by districts populated by mainly medium to large firms that are strongly outward oriented. Instead of keeping their relationships within the local area they tend to establish linkages with actors beyond the district and even the nation's boundaries. These linkages are related to commercial activities, supply and knowledge exchange. Some of these firms have established business groups or have been acquired by a MNE, but all have the characteristic of being deeply embedded in the GVC. They usually compete in high-end, specialized or niche markets, outsourcing abroad most manufacturing activities and keeping high-value added activities in house, such as R&D, product development, design, branding and marketing. An example of this model is the Montebelluna sportsystem district in Veneto, whose largest firms offshore production in countries characterized by lower cost of labour, in order to focus district activities on high value-added activities such as R&D, marketing and distribution. This process was favoured by the entry of MNEs inside the district through direct acquisition of local companies: this fostered upgrading and knowledge transfer between district firms and foreign subsidiaries (Samarra & Belussi, 2006)[43]. Another case is the Belluno eyewear district: it includes Luxottica, the world's largest eyewear group, which is connected to an international network of suppliers (De Marchi & Grandinetti, 2014).

[42] Rabellotti, R. (2004). How globalisation affects Italian industrial districts: the case of Brenta. *Local enterprises in the global economy: Issues of governance and upgrading*, 140-173.

[43] Sammarra, A., & Belussi, F. (2006). Evolution and relocation in fashion-led Italian districts: evidence from two case-studies. *Entrepreneurship and Regional Development*, *18*(6), 543-562.

3. CHAPTER

THE IMPACT OF LOCALIZATION CHOICES ON INNOVATION: THE ROLE OF MANUFACTURING

3.1. RETURNING TO THE HOME COUNTRY: BACK-RESHORING

3.1.1. The deindustrialization phenomenon

Over the past 30 years the role of manufacturing in the OECD countries has changed, in particular its weight on national employment and output has decreased over the years, in a process called deindustrialization (Christopherson et al., 2014)[44]. The reasons of the progressive deindustrialization can be found in different phenomena which have characterized the economic scenario, but the main one is the availability of low-cost labour force in the emerging countries: this has led to the appearance of new competitors and at the same time many OECD countries producers have decided to offshore part or the whole manufacturing operations where it was more convenient. Another factor that contributed to deindustrialization is the technological advancement which has led to a reduction in the labour demand per unit of output, and the progressive growth of importance of services, which are partially displacing the traditional offer. In recent years there has been a widespread view about how deindustrialization in favour of the focusing on knowledge intensive services could be positive for the economy, leaving at the same time the manufacturing activity to emerging lower-cost countries. This view has been questioned after that the service and financial sector did not prove to resist to the crisis, as happened in the recession started in 2007 that led to fiscal austerity programmes in many Western countries. In some ways this situation proved that these countries were not balanced and too dependent on a narrow range of services, they were therefore in need to be rebalanced by giving more weight to manufacturing as an engine for resilience. According to this perspective, the problem relies in the offshoring strategies of many Western countries, which relocated production looking for the most economic conditions to

[44] Christopherson, S., Martin, R., Sunley P. & Tyler P. (2014). Reindustrialising regions: rebuilding the manufacturing economy?, *Cambridge Journal of Regions, Economy and Society* 3, 351–358.

manufacture, reducing home investments and reinforcing deindustrialization. According to Christopherson et al. (2014), the reality is that manufacturing performance in Western economies has followed an irregular path during the years, showing high rates of innovation and productivity. Moreover, the former low-cost countries saw an increase in labour costs, giving a signal of what could be the end of the relocation phenomenon in those areas and a consequent revival of the role of manufacturing in Western economies. In addition to this, BRIC countries are increasingly growing and currently represent markets where to export.

3.1.2. The back-reshoring concept

Offshoring has been a major internationalization strategy in the last thirty years, pursued by firms seeking low-cost resources, efficiency, strategic assets or market advantages. Despite being a still existing tendency, some companies operating offshore can face operational issues that may lead them to the decision of relocating their facilities. The reasons could be related to adverse changes in the local environment, such as an increase in costs, the ability of suppliers, local policies and regulations, supply chain disruption and quality problems (Manning, 2014)[45]. In the last years, it happened frequently that manufacturing companies that had previously relocated their production abroad announced to return to their home countries. This happened to big firms such as Caterpillar, Bosch and Philips (Fratocchi, 2014)[46], but the phenomenon involved also SMEs. On one hand, recent cases of back-shoring can be reconducted to a consequence of the global recession and of the governmental policies aimed to give incentives to companies that brought jobs back to the home country. On the other hand, this phenomenon has involved also countries where this type of policies has not been implemented (Kinkel, 2012)[47]. The literature does not provide a clear and unique definition of the reshoring-related phenomena, and different authors tend to refer to the concept using different terms. Kinkel and Maloca (2009)[48] use the term back-reshoring to define the *re-concentration of parts of production from own foreign locations as well*

[45] Manning, S. (2014). Mitigate, tolerate or relocate? Offshoring challenges, strategic imperatives and resource constraints. *Journal of World Business*, *49*(4), 522-535.

[46] Fratocchi, L., Di Mauro, C., Barbieri, P., Nassimbeni, G., & Zanoni, A. (2014). When manufacturing moves back: Concepts and questions. *Journal of Purchasing and Supply Management*, 20(1), 54-59.

[47] Kinkel, S. (2012). Trends in production relocation and backshoring activities: changing patterns in the course of the global economic crisis. *International Journal of Operations & Production Management*, 32(6), 696-720.

[48] Kinkel, S., & Maloca, S. (2009). Drivers and antecedents of manufacturing offshoring and backshoring - A German perspective. *Journal of Purchasing and Supply Management*, 15(3), 154-165.

as from foreign suppliers to the domestic production site of the company. Holz instead (2009)[49], uses the same term to indicate *the geographic relocation of a functional, value creating operation from a location abroad back to the domestic country of the company*. Another term used in literature is re-shoring, which is referred to by Ellram (2013)[50] as *moving manufacturing back to the country of its parent company*. Other definitions are back-sourcing, which Holz (2009) defines as the *production return relocation from an external entity*, de-internationalization, which according to Benito and Welch (1997)[51] is *any voluntary or forced action that reduces a company's engagement in or exposure to current cross border activities* and international disinvestment, defined by Boddewyn and Torneden (1973)[52] as a *reduction of ownership percentage in an active direct foreign investment*. Fratocchi et al. (2014) refer to as back-reshoring the decision of relocating in the firm's home country production or supply previously offshored. The authors underline how the term reshoring instead stands for a generic change of location with respect to a previous off-shore country, therefore not necessarily meaning the return to the home country. If considering all the above-mentioned definitions, it is possible to define the following common characteristics of back-reshoring:

- It is the opposite decision with respect to the previous off-shoring process;
- It does not have to involve the repatriation or the termination of all the company's off-shored activities or of a whole industrial plant;
- It can be considered as a decision to relocate, irrespective of the ownership mode, in the offshore country.

The related concepts usually miss to include some of the characteristics: for instance, the term de-internationalization does not capture the feature of outsourced production and the contemporary relocation of the activities in the home country. In order to unify the views of the different authors, Fratocchi et al (2014) elaborated a final definition according to which back-reshoring is a *voluntary corporate strategy regarding the home-country's partial or total*

[49] Holz, R. (2009). An Investigation into Off-Shoring in the German Automotive Industry. *University of Whales, Swancea*.

[50] Ellram L. M., Tate W. L. and Petersen K. J. (2013) Offshoring and reshoring: an update on the manufacturing location decision, *Journal of Supply Chain Management* 49, 14–22.

[51] Benito, G. R., & Welch, L. S. (1997). De-internationalization. *MIR: Management International Review*, 7-25.

[52] Boddewyn, J. J., & Torneden, R. (1973). US foreign divestment-preliminary survey. *Columbia Journal of World Business*, 8(2), 25-29.

relocation of (in-sourced or out-sourced) production to serve the local, regional or global demands. Therefore, back-reshoring is a strategy that a manufacturing firm can pursue regarding the international relocation of its production-related operations.

3.1.3. Drivers of location decisions

Previous to globalization, international competition was based on static efficiency, meaning that firms with the lowest input costs or greater economies of scale were the ones to prevail. Globalization and the progress in technology have contributed to neutralize location-related benefits. The new paradigm instead, allowed firms to source inputs on international markets by locating their facilities in low-cost countries: therefore, the competitive advantages has shifted from static efficiencies to dynamic improvement (Porter, 1994)[53].

The drivers of localization decisions regarding manufacturing activities have been deeply analysed by literature and can be summarized in the following location-specific categories:

- Cost reduction opportunities, especially regarding labour, energy and transportation (De Noble & Galbraith, 1992[54]; Jensen & Pedersen, 2011[55]; Karakaya & Canel, 1998[56]);
- Cultural, political, legal, geographical, economic and infrastructural characteristics of the host country, with a particular role of taxes, tariffs and incentives provided by the government (Fox & Lee, 1996[57]; Lösch & Woglom, 1954[58]);

[53] Porter, M. E. (1994). The role of location in competition. *Journal of the Economics of Business*, 1(1), 35-40.

[54] De Noble, A. F., & Galbraith, C. S. (1992). Competitive strategy and high technology regional/site location decisions: a cross-country study of Mexican and US electronic component firms. *The Journal of High Technology Management Research*, 3(1), 19-37.

[55] Jensen, P. D. Ø., & Pedersen, T. (2011). The economic geography of offshoring: the fit between activities and local context. *Journal of Management Studies*, 48(2), 352-372.

[56] Karakaya, F., & Canel, C. (1998). Underlying dimensions of business location decisions. *Industrial management & data systems*, 98(7), 321-329.

[57] Fox, S. E., & Lee, J. H. (1996). Determinants of Foreign Firm Location Decisions in the United States, 1985-1990: Implications for State Economic Development Policies. *American Politics Quarterly*, 24(1), 81-104.

[58] Lösch, A., Woglom, W.H. (1954). The economics of location. New Haven: *Yale University Press*.

- Availability of resources in the host country, both natural (Kang & Jiang, 2012[59]; Hart, 1995[60]) and related to human capital (Karakaya & Canel, 1998), to knowledge and skills availability (Mudambi, 2008) and to the local presence of universities and research centres that could be useful for the business (Alcácer & Chung, 2007[61]);
- Customers proximity and local market size, considering also the expected or actual growth rate (e.g., Dicken & Lloyd, 1990[62]; Mudambi, 1995[63]), and the presence of nodes of other networks or other manufacturing plants in a view of co-location (Audretsch,1998[64]; Shaver & Flyer, 2000[65]; Temouri et al., 2010[66]).

These drivers are related to location-specific advantages, but another part of the literature is dedicated to the analysis of firm-specific and product-specific advantages that influence the location choices of firms. Among the product-related features the main ones are related to the stage of the product life cycle, the technology used, the level of standardization or customization, the responsiveness requirements and the positioning of the production phase in the value chain (Meijboom & Voodrijk, 2003[67]; Schemenner et al., 1987[68]).

[59] Kang, Y., & Jiang, F. (2012). FDI location choice of Chinese multinationals in East and Southeast Asia: Traditional economic factors and institutional perspective. *Journal of world business*, 47(1), 45-53.

[60] Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of management review*, 20(4), 986-1014.

[61] Alcácer, J., & Chung, W. (2007). Location strategies and knowledge spillovers. *Management science*, 53(5), 760-776.

[62] Dicken, P., Lloyd, P.E. (1990). Location in space: Theoretical perspectives in economic geography. New York: Harper & Row.

[63] Mudambi, R. (1995). The MNE investment location decision: some empirical evidence. *Managerial and decision economics*, 16(3), 249-257.

[64] Audretsch, B. (1998). Agglomeration and the location of innovative activity. *Oxford review of economic policy*, 14(2), 18-29.

[65] Myles Shaver, J., & Flyer, F. (2000). Agglomeration economies, firm heterogeneity, and foreign direct investment in the United States. *Strategic management journal*, 21(12), 1175-1193.

[66] Temouri, Y., Driffield, N. L., & Higón, D. A. (2010). The futures of offshoring FDI in high-tech sectors. *Futures*, 42(9), 960-970.

[67] Meijboom, B., & Voordijk, H. (2003). International operations and location decisions: a firm level approach. Tijdschrift voor economische en sociale geografie, 94(4), 463-476.

[68] Schemenner R.W., Huber J.C., Cook R.L., 1987. Geographic Differences and the Location of New Manufacturing Facilities, *Journal of Urban Economics*, 21, 83-104.

Dunning (1980, 1998, 2000, 2009)[69] elaborated the eclectic theory of international production, according to which the location advantages that have been described above are only one of the three factors which affect international manufacturing. According to this theory, the *location-specific* characteristics of each country interact with the firm's *ownership,* namely the access to assets which can generate income, and with the firm's interest to *internalize* activities in order to generate and exploit skills and competences. In addition to this, Dunning groups the location drivers previously mentioned into four main categories of factors which influence the international configuration of production:

1. The economic and political features of the country or region of the investing firms and of the country or region in which they would like to invest;
2. The industry and nature of the value-added activity in which firms are engaged;
3. The features of the individual investing firms;
4. The reason for the investment or *raison d'être*, namely whether the investment or alliance is market-seeking (demand driven), resource-seeking (supply driven), efficiency-seeking (motivated by rationalization), or strategic assets-seeking (to defend or improve the firm's ownership advantages).

The Dunning paradigm has been used to describe different types of localization choices, included disinvestments and reshoring, which are considered second step choices. Regarding relocation, Dunning argued that the knowledge-based economy and the growth of assets-seeking internationalization contributes to see location advantages as subject to changes.

According to Porter (1994), in recent years the role of inputs and economies of scale have lost their importance for competitive advantage, if compared to the ability of innovating and upgrading skills and technology, under the form of intangible assets. When competition comes to intangible assets, the role of location changes. Firms source inputs globally, but the competitive advantage nowadays is mostly given by the innovation process, which is usually located in the firm's home country, where the strategic management teams and Research and Development offices have their basis. Location in this case is related to the embeddedness in a particular environment, which can influence the ability of innovating and upgrading of a firm. If considering

[69] Cited in Ancarani, A., Di Mauro, C., Fratocchi, L., Orzes, G., & Sartor, M. (2015). Prior to reshoring: A duration analysis of foreign manufacturing ventures. *International Journal of Production Economics*, 169, 141-155.

competition based on innovation and intangible assets, the locational drivers change with respect to the drivers of location related to manufacturing activities, and are the following:

- Presence of a pool of continually improving skilled employees;
- Use of applied technology;
- Availability of tailored infrastructures;
- Sources of capital and of specialized inputs;
- Core of sophisticated and demanding customers for the product;
- Presence of a critical mass of localized suppliers providing specialized machinery, components and services which influence product improvement;
- Presence of locally based competitors to motivate progress.

3.1.4. Motivations for back-reshoring

A company deciding to offshore its manufacturing activities must not ignore the risks and criticalities this process may entail. The main ones are the risk of subtraction of confidential data and violation of intellectual property rights, the geographical, language and cultural distance which may make more difficult to communicate and negotiate with locals in the host country, and the foreign country political, financial and legal system, which could be very different from the one of the home country. Other risks could be related to the relationships with suppliers: especially when considering developing countries, supplier training assistance may be needed, requiring significant investments. If the relationship ends, this results in a loss of that specific investment. Moreover, the exchange of knowledge and information between supplier and buyer could be subject to the risk of opportunistic behaviours by suppliers. Other difficulties of offshoring are instead related to the risk of the demotivation of the staff operating in the host country and to the fact that monitoring the quality of products is harder with respect to home country-based processes.

Ancarani et al (2015) found 150 different elements to study reshoring motivations, which have been grouped into macro-categories. Every category has been linked to one of the elements of the Dunning paradigm: efficiency, market, resource and strategic assets seeking. The match is based on factors which establish a relationship between the eclectic paradigm and the reshoring motivations. The Dunning theory elements with the relative macro-categories indicating motivations for reshoring are the following:

1. *Efficiency-seeking*:
    - Customer proximity;

- Host country legislation;
- Know-how and Intellectual Property;
- Physical and cultural distance;
- Supply chain risk.

2. *Market-seeking*:
    - Coordination and monitoring costs;
    - Labour-related aspects, such as costs and productivity;
    - Logistic performance;
    - Production and logistics costs.
3. *Resource-seeking*:
    - Automation;
    - Currency exchange;
    - Host country infrastructures;
    - Skilled human resource availability.
4. *Strategic asset-seeking*:
    - Ability to quickly respond to changing market conditions;
    - Home country/global economy;
    - Improve customer satisfaction;
    - Innovation;
    - Made-in effect;
    - Quality;
    - Taxes and incentives.

From this analysis, two aspects in particular resulted to be interesting. The first one is that Dunning believes that the items defining a specific *raison d'être* are not static, but instead evolve over time; the second regards the macro category related to taxes and incentives, which is hybrid, namely it is related both to efficiency and strategic assets seeking motivations for relocating.

Fratocchi et al (2016)[70] instead developed an interpretative framework to explain back-reshoring decisions which is based on two levels of analysis according to which every motivation

[70] Fratocchi, L., Ancarani, A., Barbieri, P., Di Mauro, C., Nassimbeni, G., Sartor, M., Vignoli, M., & Zanoni, A. (2016). Motivations of manufacturing reshoring: an interpretative framework. *International Journal of Physical Distribution & Logistics Management*, 46(2), 98-127.

should be examined. The first level of analysis is related to *the goal* of the firm, so if its strategy is aimed to foster customer perceived value or to reach cost efficiency. Customer perceived value refers to the preference for products attributes and performance which can influence the achievement of the consumer's purpose during the use of the commodity. Cost efficiency instead is related to the minimization of overall costs which can be reached by managing the process in a better way. Motivations for reshoring related to customers' value perception are linked to the need of the firm to achieve or defend its own critical features which drive its competitive advantage in customers' preferences: these motivations are related to the quality level perceived by the customer and to the product or process innovation. Under this perspective, reshoring can improve the firm's ability to create value and keep its competitive advantage through aspects such as quality and innovation, or by providing unique services to its customers. In this case, reshoring can become an effective strategy when keeping manufacturing away from the home country could threaten the firm's ability to maintain its own distinctive capabilities (e.g. intellectual property protection, quality, innovation, etc.), the access to knowledge sources or other critical resources and the understanding of customers' needs and their fulfilment. On the other side, cost efficiency-related motivations regard the choice of reshoring in order to pursuit lower production and logistics costs, and more efficient coordination and control mechanisms. Cost efficiency is one of the basic elements of the international trade theory, and reshoring can be attributable to the reduction of gaps in input costs between locations, the high cost of monitoring and coordinating distant operations and relationships. The choice of reshoring reflects a situation in which locating manufacturing activities in the home country results to be more convenient than keeping them offshore, as a result of changes of production costs, hidden costs related to offshore production, and the costs of managing global logistics and relationships with distant locations, including supply chain risk.

3.1.5. General trends in Europe

Eurostat has collected data about international sourcing in Europe twice[71]. The two surveys were carried out by the National Statistical Institutes of 11 European countries in 2007 and of 15 countries in 2012. The survey done in 2007 is referred to the period 2001-2006, while the survey done in 2012 is referred to the period 2009-201, and both the surveys cover non-financial market

[71] Kinkel, S., Dewanti, R. T., Zimmermann, P., Coates, R., & Institutes, R. (2017). Measuring trends in the Eu and US. *Makers*, Deliverable 4.1.

activities. The data have been collected considering only firms with more than 100 employees, since larger firms were considered as key players in international outsourcing. The survey done in 2007 has involved 11 countries: the Czech Republic, Denmark, Germany, Ireland, Italy, the Netherlands, Portugal, Slovenia, Finland, Sweden and the United Kingdom. The survey done in 2012 instead has involved 15 countries: Belgium, Bulgaria, Denmark, Estonia, Ireland, France, Latvia, Lithuania, the Netherlands Portugal, Romania, Slovakia, Finland, Sweden and Norway. The data set of the 2012 survey included around 40.000 companies (of which 14.000 from the manufacturing industry) from the 15 participating countries, while the data set of the 2007 survey included around 54.000 companies (of which 25.000 from the manufacturing industry) from the 11 participating countries. The number of countries and firms is lower for the 2012 survey, since many large EU countries which participated in the first survey did not join the second, among these countries there is also Italy. The second survey instead saw the participation of a higher quantity of smaller countries, such as Belgium, Bulgaria, Estonia, Latvia, etc. The surveys cover the following business functions:

1. *Core business functions*: manufacturing of final goods and services carried out by the company;
2. *Support business functions*: functions with the aim of facilitating the core activity of manufacturing, such as distribution and logistics, marketing, sales and after sales services, ICT services, administrative and management functions, engineering and technical services, Research and Development.

The principal results of the surveys on international sourcing activities of European companies can be summarized as follows:

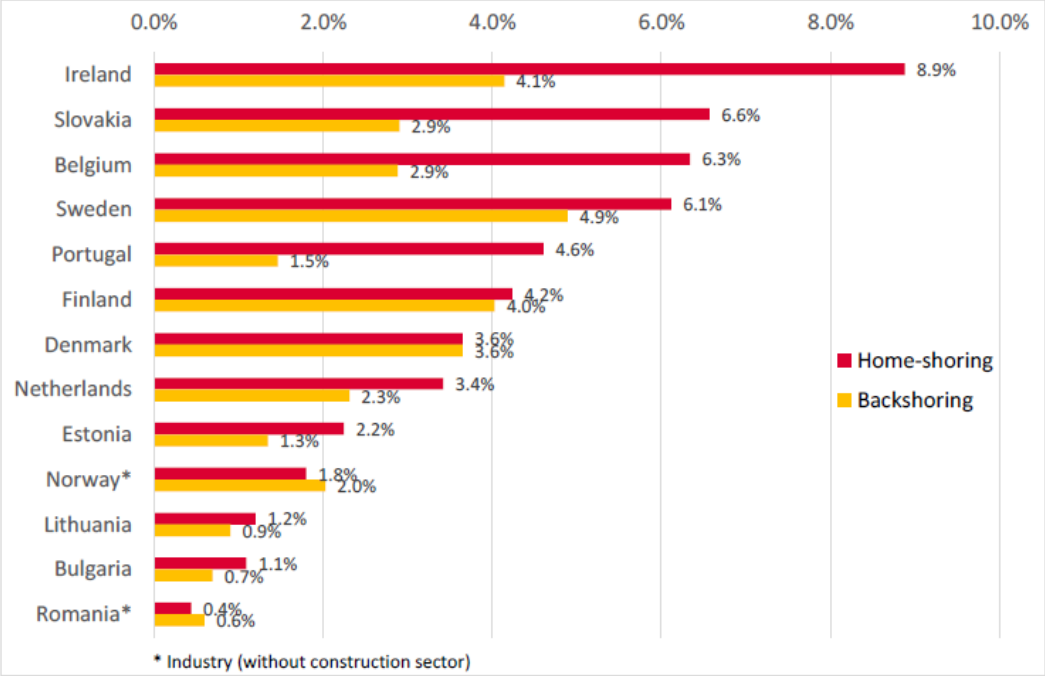
- The highest share of international sourcing has been found in small, open economies characterized by higher labour costs, such as Denmark and Finland with respectively 25 % and 21 % of the companies being involved in international sourcing in the period 2009-2011. In the 2007 survey, international sourcing resulted to be common also for companies based in Ireland, United Kingdom and Slovenia.
- Sourcing is mainly performed by manufacturing enterprises. In a high number of countries, around two-thirds of the companies involved in international sourcing operated in the manufacturing industry.

- Companies more frequently source support functions rather than the core functions. Exceptions are represented by France, Ireland, Italy, Sweden and United Kingdom, where core business functions were sourced in a more frequent fashion with respect to support functions. In the 2009-2011 period, ICT has been the most frequently internationally outsourced support function. In the previous period, it was distribution and logistics and marketing, sales and after sales. The reason behind the offshoring of ICT functions can be found in the fact that the nature of these services allows them to be performed easily from any location.
- The number of firms internationally sourcing knowledge intensive support functions resulted to be growing. Around 15 % to 20 % of enterprises carrying out international sourcing were moving R&D and engineering functions abroad. It should be noted that over half of the international sourcing of R&D has been moved to other EU countries.
- Proximity resulted to be a relevant factor in sourcing, since domestic sourcing was more common than international sourcing, and since the latter was carried out mostly within Europe. Anyway, China and India have become important countries for business functions outsourcing: China attracts core business functions in manufacturing, while India supplies mainly support services.
- The main driver for outsourcing functions resulted to be cutting costs, in particular for countries with a high cost of labour.
- Direct employment consequences are limited, but their cumulative and indirect effects should not be underestimated.

Of the two surveys, only the one done in 2012 covers the phenomenon of reshoring activities. For the survey, the phenomenon has been subdivided into two different activities. The first one is international back-sourcing (back-shoring), namely when a company that had previously offshored functions decided to move them back to the home country. The second one is international relocation (home-shoring), which is the movement into the home country of functions that were carried out abroad for the company, but that were not previously moved to the host country by the company itself. Table 4 shows the results on home-shoring and back-shoring activities of companies operating in the manufacturing industries. The highest rate of home-shoring was found in Ireland, with a share of almost 9 % of firms pursuing this strategy between 2009 and 2011. Home-shoring was above average also in Slovakia, Belgium and Sweden. Back-shoring instead was frequent in Sweden, Ireland, Finland and Denmark, with shares between 3,5

% and 5 %. Lower rates have been found for Romania, Bulgaria and Lithuania, which are below average regarding both back-shoring and home-shoring.

Table 4 - Share of enterprises (manufacturing industry) that home-shored or backshored activities in 2009-2011 (%)
Source: Kinkel, S., Dewanti, R. T., Zimmermann, P., Coates, R., & Institutes, R. (2017). Eurostat data



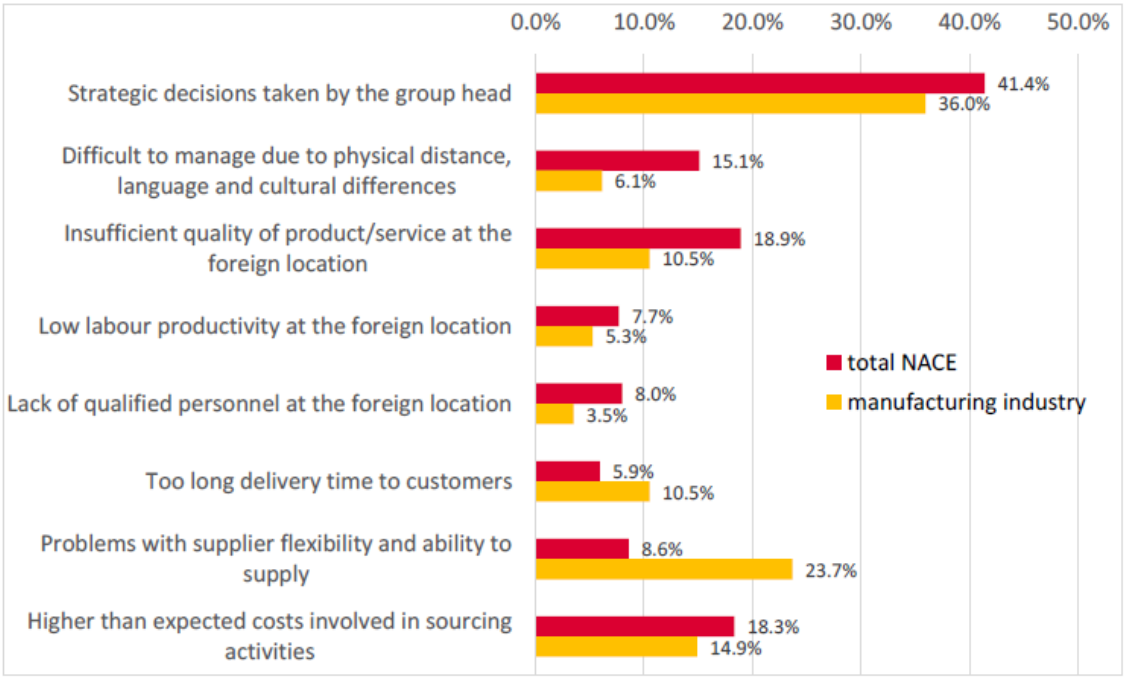
An aspect to be mentioned is that the overall level of home-shoring resulted to be higher with respect to back-shoring for almost all the countries, meaning that in most cases the foreign functions were not moved out of the home country through offshoring or outsourcing by the company itself. According to the authors of the survey, there can be two explanations for this phenomenon:

1. Companies may have added additional capacities or acquired a company or part of it in a foreign country, without actually moving existing activities from the home to the host country, and then home-shored some of these additional capacities;
2. Firms are subsidiaries of a foreign parent company and reshored activities from other countries to the country where the company has its headquarter.

The first opinion is considered to be the most frequent and it seems to be a common phenomenon happening regarding reshoring. Therefore, it must be taken into account that reshoring activities are not always preceded by offshoring or outsourcing, since also expansion capacities can be reshored at a later time.

The survey done in 2012 has also covered the motivation factors explaining international back-shoring. Motivations for home-shoring are not covered, therefore the factors are only related to back-shoring modes. Table 5 displays that the most frequent factor is the strategic decision taken by the group head of the company, in around 40 % of the cases. Regarding the manufacturing industry, this factor is followed by problems with suppliers' flexibility and ability, by higher than expected costs of sourcing activities and then by insufficient quality and long delivery time to customers, both mentioned by 10,5 % of the firms involved. Instead, for sectors different from manufacturing (total NACE[72]) the insufficient quality of the product or service realized in the foreign location is the second most important factor.

Table 5- Motivation factors for backshoring (2009-2011)
Source: Kinkel, S., Dewanti, R. T., Zimmermann, P., Coates, R., & Institutes, R. (2017). Eurostat data



When considering the results of the Eurostat survey it has to be taken into consideration that it has some limitations:

- The lack of large countries participating in the survey of 2012, which limits the result essentially to small European economies;
- The lack of comparability between the two surveys regarding reshoring, given that this theme was included only in the survey done in 2012 and only seven countries

[72] Statistical Classification of Economic Activities in the European Community.

have participated to both (Denmark, Ireland, the Netherlands, Portugal, Finland, Sweden and Norway);

- The lack of differentiation among reshoring activities in core and supporting functions, given the low number of answering reshoring companies in the countries participating to the survey.

Most of the research and data available on reshoring is based on case studies or individual reshoring decisions announced by the media, but quantitative evidence on this theme is still fragmented. This makes it difficult to assess the magnitude of this phenomenon and understand properly its characteristics (Fratocchi et al, 2014). De Backer et al (2016)[73] sustain that the lack of data could be due to the fact that just like offshoring, reshoring is a sensitive part of the corporate strategy that firms may do not want to disclose publicly.

Another study done by Dachs and Zanker (2014)[74] presents results on European countries' reshoring activity based on the European Manufacturing Survey. The data regard the period between 2010 and mid of 2012 for 11 countries (Austria, Switzerland, Germany, Denmark, Spain, France, Hungary, Portugal, Netherlands, Sweden and Slovenia). The results show that around 4 % of all the surveyed companies have moved manufacturing activities to their own country, but in the same period there were more than three offshoring companies for each back-shoring company. Another result was that back-shoring resulted to be most frequent among medium-sized companies: the propensity for back-shoring is under 1,5 % in small companies (less than 50 employees), 9 % for medium companies (150-249 employees) and 7 % for big companies (more than 250 employees). According to this research, the most important reason for backshoring are quality issues, motivation that has been reported by two thirds of the companies involved, followed by loss of flexibility and lower market responsiveness.

[73] De Backer, K. et al. (2016). Reshoring: Myth or Reality?, OECD Science, *Technology and Industry Policy Papers*, No. 27, OECD Publishing, Paris.

[74] Dachs, B., & Zanker, C. (2014). Backshoring of production activities in European Manufacturing. European Manufacturing Survey. *Fraunhofer Institute for Systems and Innovation Research*, November-December 3(3), 8.

3.1.6. A comparative study of Italy, Europe and North America

In order to realize a characterization of the reshoring activity implemented by Italian firms, Barbieri and Fratocchi (2017)[75] have carried out a research based on secondary data. In particular, this methodology has been adopted by an inter-university research group (*Uni-CLUB MoRe reshoring*), which involves the University of Catania, L'Aquila, Udine, Bologna and Modena & Reggio Emilia. The available data have been sourced by international economic newspapers, consulting firms reports, websites and academic research. For every evidence under analysis, the following aspects were investigated: country of origin of the company, industry, year of the reshoring, year of the offshoring, country from which the activity has been reshored, company dimensions (expressed in sales volumes and number of employees), motivations for the reshoring and mode of constitution of the foreign affiliate. The data were updated at the 31st December 2015 and regard 728 decisions taken by 600 firms: these numbers demonstrate that there were cases of "multiple reshoring", namely a situation in which a single firm has decided to relocate manufacturing activities that were previously located in more than one country. The focus of the study was on Italy, Europe (the geographic area, not the EU, Italy excluded), and the United States and Canada, which have been considered as a common aggregate given the strong interdependence between the two economic systems. The collected evidences have been grouped according to the geographical area and the country of origin of the reshoring company, for a total of 706 evidences. The data show a similar weight of the phenomenon in the United States and Europe, meaning that it is transversal and happening in different countries in a similar fashion. The approach instead results to be different under the point of view of the proximity: in fact, United States and Canada registered reshoring activities mostly from China, while Europe, included Italy, registered reshoring coming both from distant locations such as China and from closest locations, such as East Europe. This could be given by the fact that United States still benefit from the comparative advantage held by Mexico, which constitutes the destination for near shoring strategies, namely the relocation of production activities in locations close to the home country. Regarding the industry, United States and Canada use to reshore mostly electronic and optic products (15,7 %), while European countries have electrical equipment in the first place (12,2 %). The Italian reshoring activity instead regards mostly the manufacturing of clothing (24 %) and leather

[75] Barbieri, P., & Fratocchi, L. (2017). Le peculiarità del reshoring manifatturiero in Italia: un'analisi basata su dati secondari. *L'industria*, 38(3), 317-340.

products (17,4 %). In Italy, over 41, 4 % of the manufacturing reshoring decisions are related to the fashion sector.

Regarding the temporal aspect, from the data it emerges that the reshoring phenomenon was present mainly starting from the new millennium, with an acceleration in the last decade, especially concerning North America, where almost three fourths of the reshoring activities have been registered after 2010. The Italian data instead appear to be aligned with the European ones: both register an increase in the cases starting from 2006. Concerning the motivations of the reshoring decisions, the research group *Uni-CLUB MoRe* found different elements that can be grouped into categories such as cost reasons, management and organizational reasons, and marketing reasons. For Italy, the most relevant reason was the "made-in effect", with 34,7 % of the companies mentioning it as the main motivation for reshoring, followed by the improvement in customer service (20 %). For European companies, the most relevant motivation was the long time required to receive products (16,4 %), followed by the quality level of the production (12,9 %). Companies from North America reported that the main reason for reshoring was the amount of logistic costs (28,6 %), followed by the difference in labour costs and the "made-in effect", both mentioned by 20 % of the companies. Therefore, motivations for reshoring show an uneven pattern in the three geographical areas under analysis: Italian drivers are mostly related to the relationship with the customers, while on the contrary North American firms are mostly focused on cost-related aspects. European drivers instead, are related to the timing required to receive the products and to quality aspects.

What emerges from this study regarding the characterization of the manufacturing reshoring can help to underline some national peculiarities. In particular, Italian companies show a strong differentiation in terms of sectors, given by the great relevance held by the fashion industry, which includes textiles, clothing, footwear, leather and eyewear. A relevant part of the Italian fashion industry, especially the luxury and high-end one, have rarely or never resorted to offshoring, contrary to firms with medium or low-cost market positioning. In addition to this, Italy is usually a destination for foreign fashion companies, which locate in this country their whole set of manufacturing activities.

Under the point of view of the country of previous delocalization, Italian data appear to be aligned with the European ones, but strongly divergent with respect to the North American ones. Moreover, a greater reshoring activity comes from the East Europe area, which has been traditionally attractive for Made in Italy firms.

3.1.7. Value-driven reshoring: examples from the fashion industry

The process of reshoring can be in some cases value-driven and be a valuable path for renewing the supply chain strategy. In the last decades, many lead firms in apparel value chain have offshored their manufacturing operations, but the operational challenges and increasing cost of global supply chain management have led some of these firms to modify their value chain activities, in some cases taking their supply base back to the home country (Ancarani et al., 2015). From this point of view, reshoring can be considered as an important strategic decision by luxury products manufacturers, since it allows to capitalize the use of the "country of origin" element as a basis for the competitive advantage, which can be stronger than the costs savings derived from outsourcing or offshoring to low-cost countries. Robinson and Hsieh (2016)[76] took the cases of the UK high-end apparel firms Barbour, Burberry and Mulberry, which have reshored part of their key production processes in order to re-establish product authenticity and country of origin, as a response to a growing demand for British-made fashion. The "Made in Britain" label was considered by these firms as a valuable marker of authenticity and high quality, and the indicator of a tradition in luxury fashion which could justify the premium price applied to products. This aspect was strengthened by the fact that reshoring could allow a better responsiveness to the changing customers' requirements that could lead to the optimization of the trade-off between saving costs and agility in the supply chain.

The concept of supply chain strategy is related to how to design the pattern of supply chain activities, that should take into account the intensification of global competition and think beyond the traditional view, by fostering speed and operational efficiency and by adopting a creative mindset (Kim, 2013)[77]. Generally, the fashion industry is divided into three market segments according to the competitive strategy of the firm: speed, cost advantage and brand equity. When taking into consideration luxury and high-end fashion, the strategy will be the brand equity one, since the critical factors to success are style and design excellence, country of origin and "made-in effect", coherence between brand values and product uniqueness that can disclose emotional sensations able to satisfy customers. All these factors have an influence in designing the supply

[76] Robinson, P. K., & Hsieh, L. (2016). Reshoring: a strategic renewal of luxury clothing supply chains. *Operations Management Research*, 9(3-4), 89-101.

[77] Kim, B. (2013). Competitive priorities and supply chain strategy in the fashion industry. Qualitative Market Research: *An International Journal*, 16(2), 214-242.

chain strategy. Moore and Fernie (2004)[78] analysed Gucci's strategy to find out that its position in the market as a luxury brand had been achieved through the maximization of internal controls of products sourcing, distribution and brand communication. Similar research was carried out by Brun and Castelli (2008)[79], who analysed the strategy of the Italian footwear producer Fratelli Rossetti, which maintains an integrated supply chain for its heritage products and outsources the manufacturing of other products to other firms in the same district, in the Milan area, to preserve the value of the Made in Italy label.

The above-mentioned examples are useful to understand the role of brand image for luxury companies. It should be managed and supported by a value-driven configuration of local and global sourcing of production. Companies use to change their business model according to the challenges posed by competition, and the supply chain should be adapted to maintain the competitive advantage. This implies also changes in the configuration of sourcing, for instance passing from outsourcing to in-house sourcing and consequently rearranging the relocation of activities. Therefore, companies should understand which the reaction of their customers is to the "made in" and country-of-origin factors, and assess whether these elements could increase the value perception and the intention to buy, since these aspects will affect the profitability of the company too. Reshoring can become an effective strategy instead of offshoring if the company feels the necessity of protecting or reinventing its critical attributes, such as innovation, quality and "made-in effect" in order to influence customers' preferences.

3.2. MANUFACTURING AS A SOURCE OF UPGRADING

3.2.1. Manufacturing as part of the innovation system

As mentioned in section 3.1.6, North American companies' decisions about where to source their manufacturing activities are mainly based on financial considerations, not taking into account the potential strategic value that locating production in the home country could entail.

[78] Moore C, Fernie J. (2004). Retailing within an international context. In: Bruce M., Moore C., Birtwistle G. (Eds). *International retail marketing: a case study approach*. Elsevier Butterworth-Heinemann, Oxford, pp. 3–37.

[79] Brun, A., & Castelli, C. (2008). Supply chain strategy in the fashion industry: developing a portfolio model depending on product, retail channel and brand. *International Journal of Production Economics*, *116*(2), 169-181.

Pisano and Shih (2012) [80], argued that viewing manufacturing as a mere cost centre could underestimate the impact that offshoring and outsourcing could have on companies' ability to innovate. Instead of considering manufacturing as a potential source of competitive advantage, according to the authors many companies do not consider manufacturing to be part of the innovation system at all. This has resulted in the exodus of manufacturing, a phenomenon which is referred to as "deindustrialization", which has eroded the capabilities of transforming inventions into high-quality and competitive products, and therefore has threatened the possibility of America to be leading some industries. The underestimation of the role of manufacturing could be due to the fact that it is not easy to determine when this function is critical to innovation, and when instead it only grants a cost advantage and therefore can be outsourced without incurring in strategic problems. Pisano and Shih (2012) elaborated a framework to guide companies' sourcing decisions, which is based on two pillars: the ability of R&D and manufacturing to operate independently one from the other, namely their *modularity*, and the *maturity* of the manufacturing technology.

Modularity

A situation in which R&D and manufacturing are highly modular determines that the features of the product are not determined by the production process itself, therefore the two functions can be located in two different places without having an impact on the strategic side. On the contrary, a situation of low modularity implies that the specifications of the product are tacit or difficult to codify, therefore product design decisions have a high influence on manufacturing decisions and vice versa. Maintaining R&D and manufacturing close to each other would be the best choice in this case, in order to foster communication and knowledge exchange. Low modularity could be present in sectors where the conception of product design requires a specific manufacturing process, therefore it is not possible to achieve product innovations without previously having analysed how to change the process accordingly (e.g. biotech, advanced materials, etc.). On the other side, high modularity allows to use the same process for a wide set of product configurations, meaning that designers can work on innovation without intervening on the process, sometimes even without understanding it (e.g. software development, music, etc.). Some sectors are in between, hence they have developed approaches to incorporate process considerations in the product development phase: this is realized through the establishment of a set of "design rules" to be followed, that will work with a determined process. Process technologies

[80] Pisano, G.P., and Shih, W.C. (2012). Does really America need manufacturing. *Harvard Business Review*, 90(3): 94–102.

can span from pure art to pure science. Processes based on pure art have parameters which are difficult to describe and need to be observed in order to be understood, since they may be very hard to replicate. In this case, product innovation requires a constant interaction with product and process development, with punctual feedbacks.

Maturity

Maturity measures how much a process has evolved in time. Processes that are immature offer a wider set of opportunities for improvement on the path of radical innovation. As the process becomes more mature instead, there is mostly space for incremental innovation, rather than radical one. It means that innovation will be based mainly on improving the existing product and process, instead of creating a new disruptive product or process that would be able to displace existing technologies. Therefore, when manufacturing technologies are immature, firms can try to focus on process innovation.

Pisano and Shih elaborated a matrix, called the Modularity-Maturity Matrix, which divides the types of relationships existing between manufacturing and innovation into four quadrants, as displayed in Figure 9. A firm should understand to which quadrant it pertains and act accordingly, taking into consideration is integrating or separating R&D and manufacturing could be a positive or negative strategy.

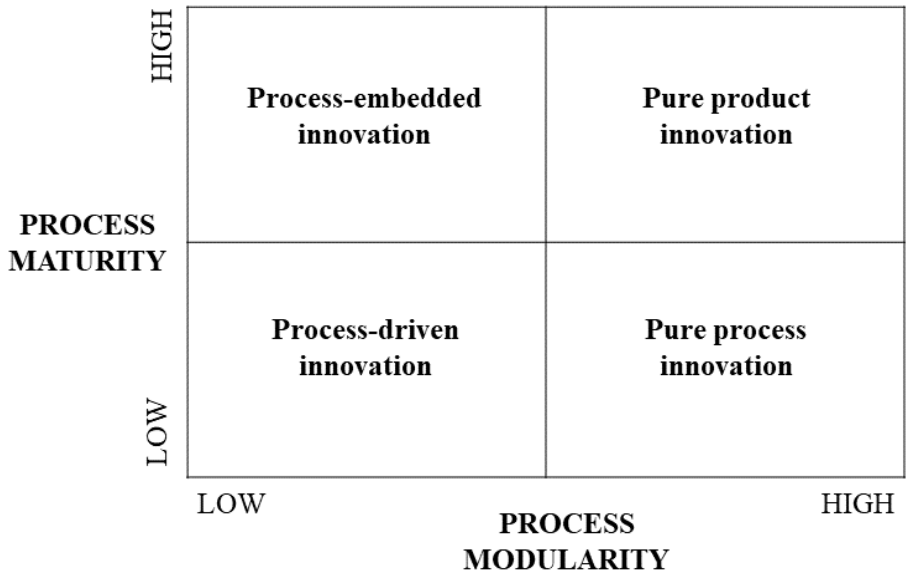


Figure 9 - The Modularity-Maturity Matrix
Source: Pisano and Shih (2012)

1. *Pure product innovation*

The upper right quadrant reports pure product innovation. It entails a high level of process modularity and of process maturity, this means that there is no need to integrate product innovation

and manufacturing, since they are basically independent. In this situation there is not a lot of space for improving processes, therefore outsourcing could be an efficient strategy. An example of pure process innovation industry could be the semiconductor one, characterized by firms doing the design activity and entirely outsourcing manufacturing.

2. Pure process innovation

The lower right quadrant is related to pure process innovation, with a high level of process modularity and a low level of process maturity. In this case, there is space for process technology improvement, but it is not directly connected to product innovation. Design rules have been established, so neither vertical integration nor locating R&D close to manufacturing are critical factors for success; therefore, the company could resort to specialized contractors able to provide customized production processes to firms which aim to focus on the design activity. Anyway, companies should also take into consideration that process innovation itself could be a potential source of value. An example of pure process innovation industry is the one of high-density flexible circuits used to connect the electronics components inside technological devices. They can be designed in many different ways if remaining within a set of design rules related to the engineering specifications needed to produce them.

3. Process-embedded innovation

The upper left quadrant is dedicated to process-embedded innovation, which is characterized by a high level of process maturity and a low level of modularity, meaning that even if process technologies are mature, they are deeply integrated to the product innovation and development process. In this case, changes in the process, even if they are small, could impact on the features and quality of the final product unpredictably. Product innovation is incremental and it is derived from slight changes in the process. In this type of industries, maintaining R&D and manufacturing close to each other and integrated on an organizational point of view is very important for the value creation. Process-embedded innovation characterizes many traditional creative businesses, such as high-end fashion. The way in which a fabric is cut or, in the case of footwear, an upper is stitched have a high influence on the final result, affecting the quality and look of the end product. Pisano and Shih (2012) brought the example of a luxury apparel company, where local fabric suppliers had to constantly talk to the company's product designers in order to exchange information. The same happens for shoes making, as will be reported in section 4.3, where the Rossimoda case will be discussed: the technicians involved in the shoe making and the

product developers have to keep a constant relationship with both suppliers of materials and with manufacturers, in order to be sure to obtain the desired effect once the product is finished. These types of production base their competitive advantage on quality, therefore the development phase and the manufacturing should be integrated to grant that a strict control is pursued on every stage of the process, where the care of details represents a distinctive element for success.

4. Process-driven innovation

The lower left quadrant is related to process-driven innovation, which is characterized by both low level of process maturity and modularity. The sectors carrying out this type of innovation are the ones able to offer breakthrough products, thanks to the close collaboration of R&D and manufacturing and to the immaturity of the process technology, which leaves wide space for improvements. In this situation, small changes in the process may influence the product a lot, this is why integrating R&D and manufacturing is critical for value creation and they should never be separated. An example of process-driven innovation industry is biotechnology, where advances in process technology allow the invention of new drugs to be sold on the market.

3.2.2. The co-location of Product Development and manufacturing

In the past two decades, value chains have been gradually fragmented and dispersed globally as a result of trade liberalization and the diffusion of information technologies. The new organizational disposition is referred to as global value chain and offers the opportunity of decoupling tangible and intangible activities. The international relocation from Western to low-cost countries has involved mostly manufacturing activities, mainly due to the low value that is usually associated to production. According to the smile curve manufacturing is considered a low-value added activity, contrary to service-based activities such as R&D and marketing, which are considered to bring the higher contribution to the competitive advantage (Mudambi, 2007)[81]. Recent studies have challenged this view by arguing that manufacturing can have a positive linkage with innovation, especially through the interdependent and joint activity of manufacturing and design, which can create value and foster knowledge generation. In particular, researches have posed the attention on the long-term effects of offshoring manufacturing activities over the sustainability of firms' strategies over time, since separating production from R&D and design

[81] Mudambi, R. (2007). Offshoring: economic geography and the multinational firm. *Journal of International Business Studies*, 38(1), 206.

could have a negative impact on the innovation ability (Pisano and Shih, 2012). Recent literature has demonstrated the positive results of co-locating manufacturing and R&D (Christopherson et al., 2014), and it is argued that the recent waves of reshoring could be addressed as the reactions to the previous waves of offshoring. Similarly, Alcacer and Oxley (2014)[82] have found that, under specific conditions, moving manufacturing to emerging countries may foster learning processes in the supply base, enabling former OEM suppliers to climb the value curve and competing with those who were their clients.

The success of the product development function depends on the degree of fit present between the design and specifications of the product and the capabilities, technologies and resources held by the manufacturing firm. In fact, integrating manufacturing and design during the early stages allows the combination of resources and competences which can lead to a reduction of initial problems and product defects that could bring a decrease in the firm's sales. This underlines the importance of co-location internal to the firm, but co-location is important also if considering the surrounding context: in fact, also inter-firm relationships within a spatial agglomeration provide the firm with external resources that give a contribution to the innovation ability and foster competitive advantage (Porter, 1998). Hence, in some contexts a firm should give less importance to cost dynamics in favour of the benefits resulting from the co-location of design and manufacturing. The global redesigning of value chains requires to analyse the processes and mechanisms which regulate the relationships between R&D and manufacturing, so firms should understand deeply the nature of its own activities before taking location decisions (Ellram et al., 2013).

Buciuni and Finotto (2016)[83] collected data on a sample of Italian firms operating in low-tech sectors, to understand the sensitive aspects of product development and the interdependencies of activities and capabilities taking place during the process. The sample taken into account is composed by six Italian manufacturers: two firms pertain to the furniture sector, two to the bicycle sector, one is a production firm owned by a major Italian fashion brand, and the last one produces fashion leather goods.

The authors made a first set of semi-structured interviews in order to identify the following elements:

[82] Alcacer J. and Oxley J. (2014). Learning by supplying, *Strategic Management Journal* 35, 204–223.

[83] Buciuni, G., & Finotto, V. (2016). Innovation in global value chains: Co-location of production and development in Italian low-tech industries. *Regional Studies*, 50(12), 2010-2023.

- The steps in the product development process and their interdependencies and iterations;
- The key actors involved in the product development phase and their competencies and contribution;
- The detailed list of the activities carried out by every actor involved in the process.

The second wave of interviews was based on understanding how the global redistribution of manufacturing could influence the innovation process, and it was carried out after having analyzed the evidence generated during the first set of interviews and the relevant literature. The aim of the case studying was to find similar processes and shared patterns among the cases. The analyzed firms participated in global value chains, but their innovation development resulted to be dependent on a specific group of activities: product prototyping, industrialization and samples creation. These activities together set the basis for the elaboration of new proposals and ideas from the designers, which are often located in foreign countries. In addition to this, this set of operations allows the elaboration of constant feedback, also by customers who can take part to previews and shows which usually take place after the sampling phase.

The first mechanism contributing to product innovation is represented by the connection between the design phase and the product prototyping. In this phase the figures involved work to assemble workable artefacts to translate the designer's ideas into an actual prototype, in order to analyze the shapes, details and materials used. The translation of design sketches into artefacts requires a constant interaction between the product designers and pattern-makers. Their joint work is aimed to the creation of the prototype, which allows to understand the technical feasibility of the initial idea. The process of pattern-making could potentially be separated from the rest of the activities, for instance thanks to the use of information technologies, but the authors found that the connection and mutual feedbacks with the other stages of product development are fundamental aspects of the whole process. In fact, they found that in all the three industries under examination designers usually tend to physically go to the pattern-makers offices to validate and refine the initial ideas to make them suitable for industrial production. The second fundamental mechanism in the innovation process is related to the activities, skills and capabilities taking place during the industrialization phase. This stage is oriented towards determining the economical reproducibility of the product, through the analysis of costs and technical requirements, and it is usually started with the realization of samples. Samples represent the first batch of the new products, and they are shown to lead customers to test their opinions and to understand the potential demand volumes.

For the sample of firms under analysis, seizing inputs from trendsetters and early adopters has been considered a very important phase in the product development process.

The findings of the case studies carried out by Buciuni and Finotto (2016) have highlighted five fundamental steps of product development:

1. Design sketches
2. Product prototyping
3. Samples creation
4. Preview shows
5. Industrialization

Two of these stages (design and preview shows) have a global scope, while the other three (product prototyping, samples creation and industrialization) usually occur in the same location and gather locally a set of fundamental inputs also from designers and lead customers, therefore keeping relationships with the global dimension. The phases of prototyping, sampling and industrialization require specific skills and capabilities which are looked for by lead firms, which need them in order to be innovative and competitive. From these findings it could seem that product development does not need manufacturing to be effective, this is the reason why the authors analyzed to what extent lower-value adding production activities could be separated from this bundle of activities. From the case studies it has emerged that the three development functions which are key to product innovation are usually located in the same place of lower-value added activities. For some of the firms under analysis, co-location was fundamental to have the control over the critical steps of the process, or to protect the capabilities and knowledge of skilled and experienced artisans representing a true value added. Firms mentioned also the external context, namely an ecosystem of specialized suppliers, as another source of value creation: this happens in particular in the case of industrial districts, which functions as a gatekeeper of different stages of the value chain.

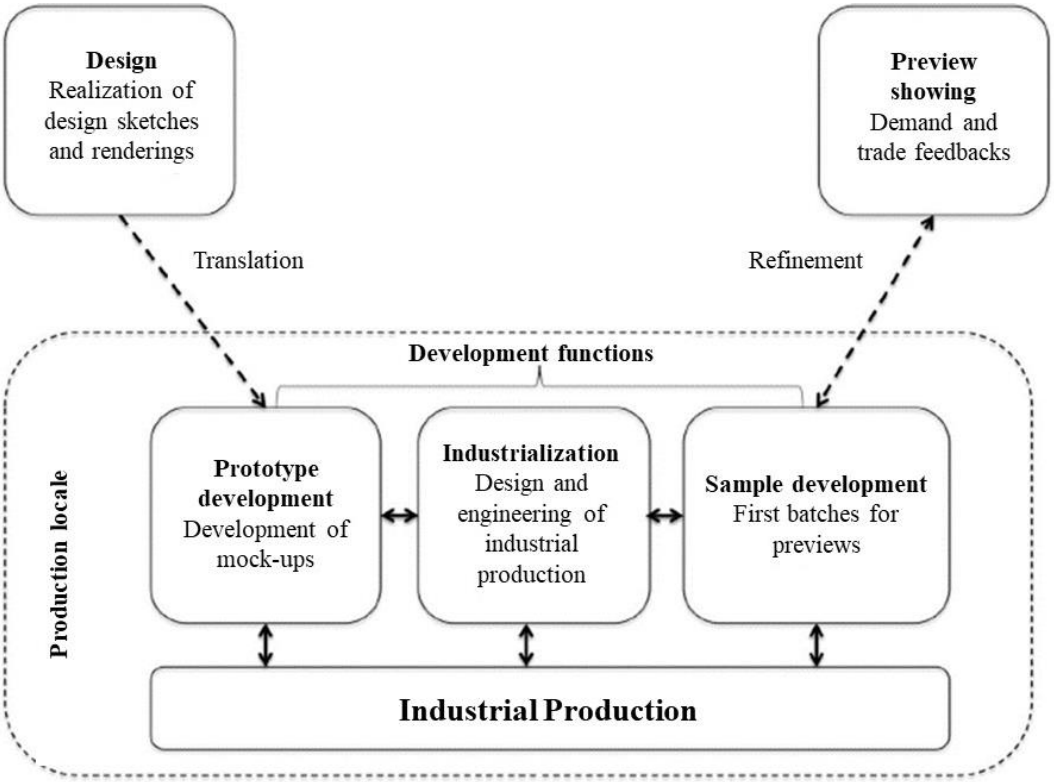


Figure 10 - Co-location of product development and industrial production
Source: Buciuni and Finotto (2016)

Figure 10 displays the different stages of product development: the three that are usually co-located (prototype development, industrialization and sample development) and the other two which can take place in other locations but still give an important contribution to the process (design and previews showing). The intra-industry analysis showed that the critical stages of the innovation process are usually co-located in the same location of low-value added manufacturing activities. In fact, prototyping, sampling and industrialization are tightly linked to the manufacturing expertise of skilled workers and suppliers contributing to the production, therefore locating them closely fosters the exchange of ideas and the avoidance of early mistakes. Buciuni and Finotto (2016) therefore argue that the co-location of the innovation bundle and production activities is a necessary condition in order to improve innovation and development in low-tech global industries.

3.3. CONCLUSIONS

According to the smile curve model (Mudambi, 2008) manufacturing is considered a low-value added activity that could be offshored or outsourced in favour of a strategic focus on higher value-adding activities. Despite this, from the back-reshoring tendencies of recent years and from the evidence collected through case studies in the low-tech sectors it emerges that manufacturing

should not be considered as a low value-adding activity to be outsourced to save on costs. Instead, in some cases manufacturing could be considered as a part of the innovation process, especially when it operates close to the R&D and Product Development departments. When choosing where to locate activities, companies have to take into account a multitude of different drivers: when it comes to creative industries such as the fashion-related ones, these considerations should be based on understanding which the actual sources of value creation are, and functions should be located accordingly. Determining where to locate manufacturing activities only on the basis of economic considerations could result to be a wrong strategic choice in the long term, as shown by the Burberry case. The English firm, just as many others in similar industries, have pursued a value driven-reshoring path in order to maintain the quality and value of its product as a premium one in the eyes of the customer. Following the classification of Pisano and Shih (2012), it is possible to state that the innovation activity pursued by companies operating in the fashion industry is process-embedded, namely the way in which the process is carried out has a huge impact on the final product. Hence, it is necessary that innovation is realized in accordance with the manufacturing process, in a context of a constant share of information among all the actors involved, both on the development and on the production phase. These theories found a correspondence with the reality in the case studies carried out by Buciuni and Finotto (2016), who discovered that many companies in low-tech sectors prefer to co-locate the developmental activity and the manufacturing one. Co-location can have different advantages, which are mainly given by the synergies generated by the collaboration between the two functions starting from the early stages of the process, which allows to avoid part of the initial mistakes and to obtain a better control on all the phases. Therefore, companies should understand in which way their R&D and manufacturing functions interact, namely if they are independent from each other or if their joint activity generates synergies, and base their localization choices accordingly, being careful not to underestimate the role of manufacturing in the creation of value within the value chain.

4. CHAPTER

HOW FOOTWEAR DISTRICTS HAVE REACTED TO GLOBALIZATION: THE CASE OF RIVIERA DEL BRENTA

4.1. HISTORY OF THE RIVIERA DEL BRENTA FOOTWEAR DISTRICT

4.1.1. Introduction

Riviera del Brenta is a geographical region that is extended between the cities of Padua and Venice, in the Veneto region in the North-East of Italy. The industrial concentration of footwear production in that area dates back to the beginning of the 20th century. The industry experienced a boom after World War II, and most of the former rural workforce of the area started to move towards that kind of production. In 2003, the majority of the shoes produced in the district were medium-high and high-priced women shoes. In fact, taking advantage from the opening of the international markets and of the increasing customer demand for quality and customized products, the local shoemakers decided to position their offer in a niche: a shoe that was the result of a careful choice of leather and materials, and that was produced in a limited number of units. This was possible thanks to the diffused knowledge and tradition of the district, that was composed by small and medium enterprises characterized by a strong customer orientation and unique skills and technical capabilities derived from their long experience and from the hand down from one generation to another. The history of the Riviera del Brenta district that will be described in the following sections is represented as a timeline in Figure 11.

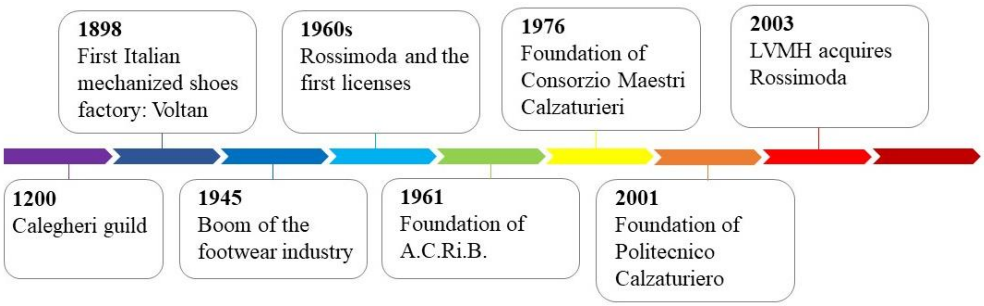


Figure 11 - Riviera del Brenta history.
Source: author's elaboration

4.1.2. The leading experience of Voltan

The realization of high-quality footwear in the Riviera del Brenta sees its origin in the so-called *calegheri*, a Venetian word to define artisanal shoemakers, that begun to be reunited in their own guild around the XIII century. The actual beginning of the district activity is attributed by the pilot-experience of the shoe factory Voltan, founded in 1898 by Giovanni Luigi Voltan, which was based on the American model. In fact, the founder was inspired by North American factories and therefore decided to introduce the first mechanized Italian shoe factory with the idea of producing military shoes and combat boots. After World War II, the firm started relocating its production in the niche market of luxury woman shoes made of fine leathers[84]. The shoe factory Voltan became an example of mass production and direct distribution of the district products and became one of the most advanced and modern Italian footwear factories, giving birth to many new firms thanks to the spin-off mechanisms which characterized the district. The location of the district was favoured also by the proximity with the leather-tanning district of Arzignano, supplier of high-quality materials.

Even if Voltan has started to diffuse the mechanized production of shoes, in the 1950s and 1960s most of the production was still manual, and many firms resorted to home workers, especially for what regarded the sewing and embroidering, realized by ladies whose abilities represented an important and difficult to replicate competitive advantage.

4.1.3. The opening of new markets and the first forms of association

The productive system of the Riviera del Brenta saw an increase in volumes and in the number of firms with the growth in customer demand, especially after that the shoe makers of the district started to expand their final market abroad, thanks to the higher productive capacity and their ability to satisfy completely the local market. First, Brenta shoes were sold in the European market and in particular in Germany, but later they became appreciated also in the United States and in other geographical areas (Riello & McNeil, 2007)[85]. As the relationships with international markets continued to develop, the necessity of creating new forms of cooperation emerged: in 1961 the A.C.Ri.B. (Italian acronym for Association of Shoe factories of the Riviera del Brenta)

[84] Voltan. Azienda. https://voltan1898.com/azienda/ .

[85] Riello, G., & McNeil, P. (2007). *Scarpe: dal sandalo antico alla calzatura d'alta moda*. Angelo Colla.

was founded, followed by the Consorzio Maestri Calzaturieri in 1976 and from the specialization school Politecnico Calzaturiero in 2001.

4.1.4. The choice of licensing and the arrival of luxury brands

In addition to Voltan, another firm to be taken as an example of successful business in the district is Rossimoda, especially for its ability of pursuing an internationalization strategy and for its complex relationships with the most important high-end fashion houses. The business was initiated by Narciso Rossi, who opened his own artisanal shoe factory in 1947, after working for many years as an assembling specialist in Voltan. The real turn in the history of the firm was operated by the son of Narciso, Luigino Rossi, who inherited the family business in 1956 together with the brothers Diego and Dino. Luigino had the desire of maintaining alive the important tradition of shoe making adding even more value to the activity done by his father, and from the 1960s he employed 150 people and acquired firms for the production of shoes components such as soles, insoles, lasts and heels, guaranteeing the integration of the entire shoemaking production chain. Luigino kept the focus of production on luxury woman shoes and was the head of the company up to the early 2000s, marking its growth and development. The meeting of Rossimoda and the foreign luxury brands were summarized by Luigino in the following words:

"Riviera del Brenta has always produced beautiful and high-quality shoes. Between the 1950s and 1960s our firms' internal pattern-makers were able to assembly thirty-forty models on different heels heights, with different colours, depending on the indications given, on the types of models bought and of the sales statistics. They could increase the variability and the originality of the production based on the trends of fashion. Our reference were the French and their models. We were competitive on price and flexibility. We used fine raw materials and our execution was better. We could increase our revenues by 30 %, but we needed to be involved in the business of fashion. We had an excellent designing school. The pattern-makers started to travel, to read fashion magazines. We started to develop our creativity on lasts, heels, toe boxes. In 1961, in a shop on the Champs-Elysées, I was examining some Dior models in the window shop, when Roland Jourdan, the maison producer, came to me. He asked me if I was an Italian manufacturer, I explained him what we did. We exchanged addresses; I was invited in his model-factory in Romans. When I visited it, I saw a dozen of designers at work in their white gowns. I went there with a selection of our shoes. Jourdan examined them and proposed to try with four Dior models: a sandal, a pump, an ankle boot and a boot. We presented two pairs for each model. I worked with

him for two years, doing, as a contractor, a hundred of shoes a day. The rest was our own production. In 1963 I signed the first licensing contract with Yves Saint Laurent." [86]

The evolutionary path of Rossimoda is strictly linked to the brands with whom it collaborated, but also with the organizational forms adopted by the companies of the Riviera del Brenta. Rossimoda started as a pure artisanal activity branding its own products, and then became a proper enterprise keeping the artisanal know-how to produce as a contractor also for the fashion house Dior and reaching its maximum expansion through producing under a license for the most important Italian, American and French fashion houses. Christian Dior was a cornerstone in the French *haute couture*, and between the 1950s and 1960s he collaborated with Roger Vivier to realize shoes that would have never lost their appeal, even after the changes of fashion, remaining as a reference for other designers and being a great inspiration for Italian entrepreneurs such as Luigino Rossi.

The license that the Rossi brothers established with Yves Saint Laurent, the great designer who was a pupil of Christian Dior, lasted for 37 years, from 1963 to 2000, realizing the most iconic shoes of the brand, many of which are now displayed at Rossimoda Museum, opened in 1995 to celebrate the first fifty years of activity of the firm, and which represents a point of reference for the whole community, in charge of gathering and connecting past and future (Riello & McNeil, 2007).

In the following years, Rossimoda continued its evolution through the acquisition of other high-end brands, such as Givenchy (Paris, 1973-1988 and still in production), Porsche Design (Austria, 1978-2005), Emanuel Ungaro (Paris, 1979-1989), Fendi (Roma, 1991-2001), Vera Wang (New York, 1994-2002), Calvin Klein (New York, 1999-2005), Christian Lacroix (Paris, 2001-2009), Marc by Marc Jacobs (New York, 2002-2009), Kenzo (Paris, 2004-2007) and Donna Karan (New York, 2005-2008).

4.2. THE FOOTWEAR BUSINESS AND ITS GLOBAL VALUE CHAIN

4.2.1. The Italian footwear industry

Italy is the first footwear producer in the European Union (32,9 % of the total volume), and it is tenth for number of pairs produced in the world. It is the seventh exporter country on a global

[86] Interview to Luigino Rossi by G. L. Fontana, 20th July 2007. In Riello, G., & McNeil, P. (2007). *Scarpe: dal sandalo antico alla calzatura d'alta moda*. Angelo Colla.

level, third in terms of value (second, after China, if considering only leather-made shoes)[87]. Table 6 reports the general situation of Italian footwear industry from 2000 to 2018. If looking at the general trend, it is possible to notice that the number of companies and of employees have been generally decreasing over the years. The value of production instead has followed a downward trend up to 2017, when it started to increase again. The value of exports is increasingly positive, contrary to the volumes which result to be decreasing. Anyway, the quota of export over production is constantly growing in the entire period under analysis, meaning that exports have an important role for the market of shoes in Italy. At the same time, the value of imports over consumption is increasing as well, like the volume and value of the products imported: this helps to understand how also imported footwear have a significant weight in Italians' consumption habits.

Table 6- Highlights of the Italian footwear industry 2000-2018
Source: ISTAT, SITA RICERCA. Confindustria Moda estimates for Assocalzaturifici

Description		2000	2008	2015	2017	2018	% variations		
							2000/2015	2008/2015	2017/2018
Companies		7.570,00	6.263,00	4.936,00	4.708,00	4.505,00	-21,2	-34,8	-4,3
Employees		113.100,00	85.918,00	77.042,00	76.600,00	75.680,00	-10,3	-31,9	-1,2
PRODUCTION	pairs (millions)	389,90	225,20	191,20	190,70	184,30	-15,1	-50,9	-3,3
	value (million €)	8.269,30	7.319,20	7.492,60	7.797,56	7.861,24	2,4	-9,4	0,8
EXPORT	pairs (millions)	362,40	221,80	207,60	211,10	203,20	-6,4	-42,7	-3,7
	value (million €)	6.605,60	6.915,00	8.656,30	9.195,55	9.585,40	25,2	-31	4,2
IMPORT	pairs (millions)	196,00	352,60	327,90	333,90	336,10	-7	67,4	-0,7
	value (million €)	1.796,30	3.350,30	4.526,10	4.655,14	5.161,36	35,1	152	10,9
Trade balance	pairs (millions)	166,40	-130,90	-120,30	-122,80	-132,90	8,1	-172	-8,2
	value (million €)	4.809,40	3.564,70	4.130,20	4.540,40	4.424,05	15,9	-14,1	-2,6
Production for domestic consumption	pairs (millions)	69,80	41,40	28,70	28,10	27,40	-30,7	-58,9	-2,3
	value (million €)	1.959,70	1.465,90	1.126,70	1.106,02	1.106,02	-23,1	-42,5	-1,4
Domestic consumption	pairs (millions)	224,50	224,20	194,50	194,50	193,60	-13,2	-13,4	-0,5
	value (million €)	3.958,60	4.281,80	3.670,70	3.629,87	3.627,69	-14,3	-7,3	-0,1
Export/Production %	pairs	82,1	81,6	85	85,3	85,1	4,1	3,5	-0,2
	value	76,3	80	85	85,6	85,9	6,2	11,4	0,4
Imports/Consumption %	pairs	68,9	81,5	85,2	85,6	85,8	4,6	23,7	0,3
	value	50,5	65,8	69,3	69,1	69,5	5,4	37,3	0,6

If considering only the most recent years, 2017 and 2018, it is possible to notice that in 2018 Italy counted 4.500 firms and 75.680 employees, a trade balance that has always been positive and a total yearly turnover around 14,3 billion euros. In general, the worsening of the economic scenario has led to consequences on the production and level of employment. The

[87] Data from 2017, World Footwear Yearbook, APICCAPS.

number of active firms registered a reduction, counting -203 shoe factories with respect to 2017, equal to a -4,3 % considering industry and crafts. Employment has also seen a reduction of 1,2 %, corresponding to the loss of about 920 workers.

Made in Italy shoes have registered in 2018[88] a record for the value of exports (+4,2 %), which increased up to 9,6 billion euros and which is still positive net of inflation dynamics. At the same time, the Made in Italy production has decreased (-3,3 % with respect to 2017), together with the quantity of export (-3,7 %), noted that 85 % of Italian footwear production is then exported. This divergence between quantity and value displays the fact that the Italian excellence in producing high-end shoes is recognized by foreign buyers, and simultaneously that the leading role in the business is held by international luxury brands, as shown by the increase in the flows to Switzerland (+16,8 % in value, country used by the fashion labels as a logistic-distributive platform). In general, the slowing down of production can be attributed to the persistent stagnation in the consumption of Italian families and the enduring of the difficulties on various important foreign markets.

Analysing the destination areas of exports, it emerges that the flows to Europe have registered a -6,6 % in volume and a +3,6 % in value: all the main markets in the European Union have closed 2018 with a general decrease in the number of pairs purchased (France -6,2 %, Germany -0,7 %, United Kingdom -3,2 %, Spain -9,6 %, the Netherlands -22,5 %, Belgium -13,5 %, Austria -6,5 %). The situation of the exports for extra-UE areas has been more positive, seeing an increase in value by 4,9 % and in quantity by 2,5 %. Areas such as South America (+2 % in value and +8 % in volume) and Far East (+3,7 % in value) are consolidating their role as buyers, especially in the case of China and South Korea. Exports instead decreased in Russia (-13,1 % in volume and -11 % in value), Ukraine (-3,4 % in volume) and in Middle East (-13% of pairs sold in 2018).

For what regards imports, in 2018 336,1 million pairs of shoes were imported (reimportation included) with a +0,7 % with respect to the previous year and a +10,9 % in terms of value. The flows from China have increased by 4,4 %, considering that 4 shoes over 10 are incoming from that country, with medium prices decreasing by 4,1 %. Imports from Romania, Vietnam and the Netherlands are diminishing in quantity, while flows from France and Germany are increasing.

[88] Assocalzaturifici, il settore calzaturiero italiano 2018, tabella di sintesi e commento. http://www.assocalzaturifici.it/ancimain/doc.html?id=19305 .

Internal consumption has a strategic importance for national producers, being the third market in terms of value and volume, but does not show appreciable signs of improvement. The data of 2018 display that Italian families are still going through a period of stagnation in consumption, with an exception represented by sneakers and sporty shoes. Families are increasingly looking at the price of the product, and often resort to sales, which count for over half of the total pairs sold. Regarding distribution channels, people use less traditional retail (-10%) in favour of retail chains and online platforms. The latter in 2013 counted for only 3,6 % on total expenses, weights now 11 %.

Table 7 shows the value and quantity of exports registered in the first five months of 2019 according to the material with which the shoes are made, comparing this data with the first five months of 2018. What emerges from this information is that the most exported shoes are the one with leather upper, even if they registered a decrease in the pairs sold (-3,7 %). The only types of footwear growing in volume of pairs sold are the fabric-made ones (+22,9 %) and the rubber ones (+19,6 %).

Table 7 – Italian footwear export; analysis according to upper material
Source: Assocalzaturifici, Italia: interscambio commerciale calzature gennaio-maggio 2019[89]

	January - May 2019		Variation % 19/18	
UPPER MATERIAL	**Value (M€)**	**Quantity (000 pairs)**	**Value**	**Quantity**
Leather	2.905,37	46.825	4,4	-3,7
Synthetic	382,98	21.793	4,9	-9,0
Slippers	20,81	2.305	-13,9	-9,1
Rubber	60,41	2.168	70,8	19,6
Fabric/Different materials	847,72	18.737	24,3	22,9
Export	**4.217,29**	**91.828**	**8,4**	**-0,4**

The success of the industry is mainly due to its typical entrepreneurial structure, which is located in a value chain constituted by a system of raw material suppliers, tanneries, components, accessories, machines producers, pattern-makers and designers. This results in a territorial concentration of companies organized in districts, which are mainly located in seven regions: Marche, Tuscany, Lombardy, Veneto, Campania, Apulia and Emilia-Romagna, involving 23 provinces.[90] Figure 12 is an infographic realized by Assocalzaturifici which displays how the production of footwear is distributed in the Italian regions. What emerges from the data is that

[89] Assocalzaturifici. Italia: interscambio commerciale calzature gennaio-maggio 2019.

[90] Assocalzaturifici, il settore calzaturiero italiano 2018, tabella di sintesi e commento. http://www.assocalzaturifici.it/ancimain/doc.html?id=19305 .

Veneto, where Riviera del Brenta is located, is the second region for number of people employed, and the third for number of companies operating in the shoes industry.

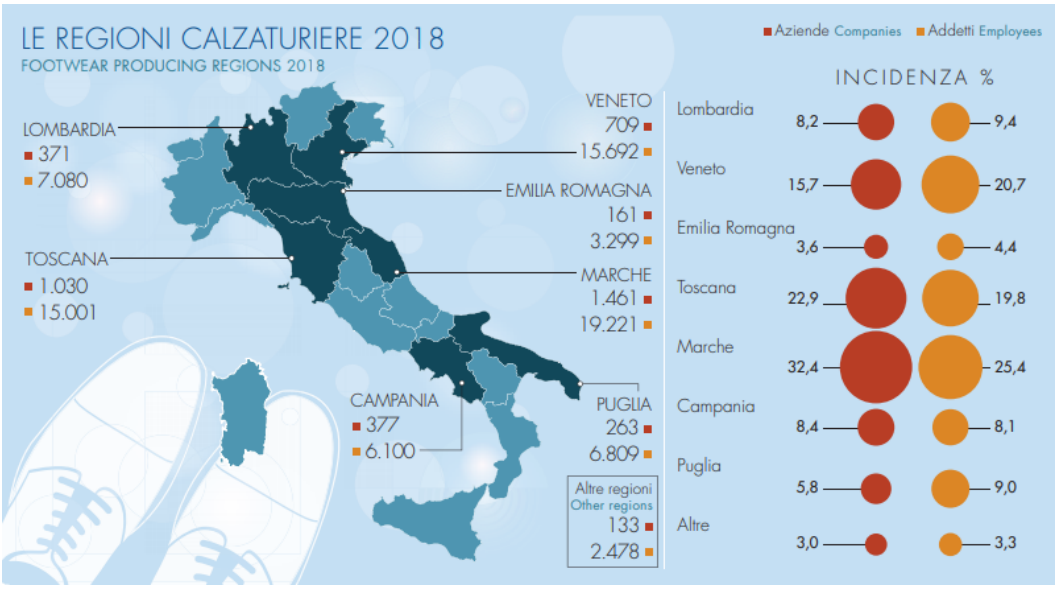


Figure 12 - Footwear producing regions 2018
Source: Confindustria moda estimates for Assocalzaturifici[91]

In particular, Veneto in 2018 exported 27,5 % of the total value produced in the industry, being the first exporting region, while the area of Padua and Venice alone count 9 % of the value exported.

4.2.2. The footwear global value chain: Riviera del Brenta as a case of resiliency

In the following section, the footwear global value chain will be analysed according to the global value chain model presented in Chapter 2, in order to understand how this industry is organized and which actors and dynamics are involved. In particular, the relationships between the global and local dimension will be furtherly explored using the case of the Riviera del Brenta footwear district as a case study. This district is an example of resiliency, one of the three evolutionary trajectories that have been previously described. In fact, it has undergone through major changes during the years, but it did not lose the capacity to produce value and follow the latest trends to continue innovating, also thanks to the collaboration with the MNEs that have entered the district in recent years, acting as GLFs, when at the same time the existing companies represent LDAs, being dynamic and embracing the new challenges of the market. The global

[91] Assocalzaturifici. Infografica 2018 "Tutti i passi dell'industria calzaturiera italiana". https://www.assocalzaturifici.it/ancimain/doc.html?id=18290 .

aspect of the value chain is represented by the presence of these multinational enterprises, which does not represent a threat, rather an opportunity for the district, allowing tacit and explicit knowledge held by local firms and workers to be empowered by the assets and capabilities held by global brands. Figure 10 summarizes the analysis of the Riviera del Brenta value chain that will be described in the following section.

According to the models of ID-GVC involvement seen in section 2.3.4, Riviera del Brenta can be classified as a *locally rooted* industrial district: it is deeply embedded in the system of relationship with local suppliers, and this allowed the firms involved to keep on monitoring quality and lead times. This aspect can be considered as a key driver in the choice made by fashion groups who decided to establish contracting agreements with the shoe factories located in this area. Riviera del Brenta has proven to be an interesting location for GLFs, since the local system is capable of improving its production capabilities, managing the challenging requests of global brands and leveraging the local ecosystem to be competitive (Giuliani & Rabellotti, 2017).

Figure 13 – The value chain of Riviera del Brenta footwear cluster
Source: Author's elaboration

4.2.3. Inputs and components of the shoe

In the first place, it is important to understand which are the main components that are used in the production of a luxury shoe, considering that most of them are finished products.[92]

[92] The list of the components derives from the personal work experience of the author in Rossimoda and from the educational materials provided by the firm.

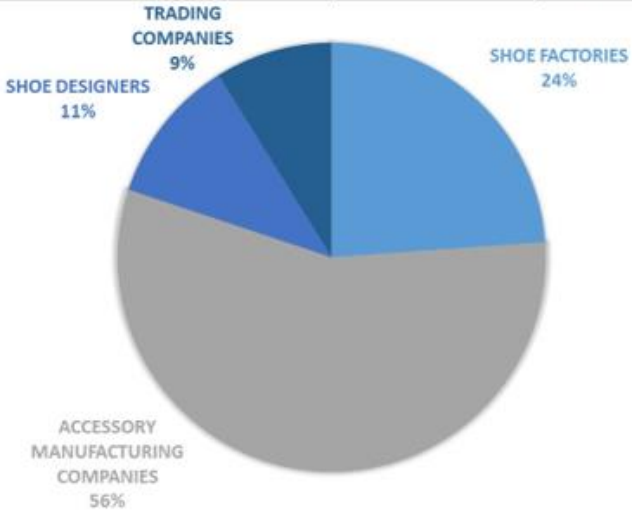
- The first component is the last. The last is not a proper part of the shoe but rather a tool, since it is not present in the final product, but it is used in the assembling phase, representing an essential element to determine the final shape it will have. It is usually made of wood, since it can be easily shaped according to the need.
- The second component, and the one that will determine the final look and colour of the final product, is the material used to realize the upper and the lining. Traditionally, luxury shoes were made of leather, but in recent years many other materials have been introduced which still make the shoe look elegant and luxurious, such as woven fabrics with different finishing and prices.
- The third basic element to realize a shoe is the insole, an element which could be considered as the skeleton of the footwear, being in charge of maintaining the shoe in shape, giving it resistance and robustness. It is different according to the type of last used, the model of the shoe and the height of the heel.
- The fourth component is the heel. It can be realized in different heights and finishing, and made in different materials, such as plexiglass, which is expensive since it is not realized through injection, ABS (Acrylate, Butadiene, Styrene) which is more convenient since it is injected with a rubber compound, polystyrene and polycarbonate.
- The fifth element of the shoe is the sole. It can be made of leather or various kinds of rubber, depending if it is an elegant type of footwear or a sneaker.
- The final component is represented by accessories: they are not present in all shoes, but they still represent an important input. Accessories can be standard or designed and realized according to the specific requests of the customer. Some examples of accessories are buckles, metal components, laces, etc.

In the Riviera del Brenta area, starting from the 1970s many leader companies emerged as suppliers of particular components and productions, as a consequence deriving from the enlargement of the labour division. Among these, it is notable how companies producing soles, insoles and heels have developed during the years, establishing productive and cooperative relationships with local companies that usually compete against each other. Supplying different firms have allowed them to keep an independent status with respect to the shoe factories with which stable commercial relationships had been set up. In addition to this, these suppliers were able to take advantage of the technological advancement of the machinery used in the footwear production to benefit from economies of scale and joint specialization and standardization, that

were difficult to reach from a single shoe-making factory. This was furtherly facilitated by the fact that they supplied components also to factories that were external to the district, responding to their specific needs and requirements. The specialized companies grew during the 1980s as well: for instance, the artisanal sole makers were only 5 units in 1970, increasing up to 21 units in 1980 and to 37 units in 1989, but tended to slightly decrease in the 1990s (Belussi & Scarpel, 2002) [93]. Regarding industrial sole makers instead, their trend is continuously growing, reaching 28 units in 1999. A similar growth path can be found in other suppliers: accessories makers, welt makers, leather tanneries, etc. Table 8 shows the situation in 2018: companies manufacturing accessories and other components are currently 311 units in the Riviera del Brenta area, representing the 56,24 % of the total firm presence in the district, being more than double the number of shoe factories.

Table 8 - Number and type of companies in the Riviera del Brenta district in 2018.
Source: Acrib website: statistical data[94]

	VENICE	PADUA	GRAND TOTAL
SHOE FACTORIES	83	49	132
ACCESSORY MANUFACTURING COMPANIES	218	93	311
SHOE DESIGNERS	38	23	61
TRADING COMPANIES	30	19	49
SUM TOTAL	369	184	553



4.2.4. Process: the role of subcontractors

The process of creating a brand-new model of shoe is very long and complex, going from the first sketch of the designer to the careful activities of product development, including the

[93] Belussi, F., & Scarpel, M. (2002). L'evoluzione recente del distretto della Riviera del Brenta: un approccio organizzativo. *Economia e politica industriale*.

[94] A.C.Ri.B. Dati Statistici. http://www.acrib.it/1_4.asp?sec=1 .

selective choice of the materials and components to be used. Considering skipping all the product development phase and to have an already confirmed model, the phases of the production are the following[95]:

- Cutting is the first step of realizing a shoe. It is based on the work done by the CAD[96] designers and it can happen in three main ways: manual cut with the help of paper patterns, cutting die using a press with metal moulds and automatized cut, using a CAM[97] software ensuring speed and reduction of waste.
- Stitching is the second step, and it starts by giving the material the right thickness thanks to specific machines, followed by the sewing of the upper, the assembly of applications and accessories, the addition of decorative stitching, the application of the lining and the insertion of reinforcements to provide a better support to the shoes.
- Lasting is the third step, and it consists of bringing together all the components on the assembly line, which involves the use of hand and machine-assisted operations oriented towards creating a very high-quality product. During this phase, strict controls are carried out by expert craftsmen to ensure the optimal result.
- The last phase is the finishing, which is related to cleaning the inside and outside parts of the shoes and giving them the final touch in order to make it perfect. Afterwards, the pairs are carefully packaged in order to be ready to be shipped to boutiques.

The footwear district of the Riviera del Brenta area is characterized by many shoe factories which keep the whole process inside the firm, performing all the main activities to get the final product, starting with the main inputs and components. However, the district has been characterized, starting from the 1970s (Belussi & Scarpel, 2002), by the increasing specialization of factories on the final phases of the productive process, namely lasting and finishing. This led to the need of having external firms that were able to supply parts and components and work on some phases of the process, allowing shoe factories to focus their competencies on a very specific segment. In this case, the subcontractors were provided with the basic materials and were mainly

[95] Rossimoda. Il processo. https://rossimoda.com/il-processo/ .

[96] Computer-Aided Drafting.

[97] Computer-Aided Manufacturing.

dedicated to the phases of stitching, cutting and covering heels in leather. These activities are simple, labour intensive, task repetitive and with a low profitability, so for some shoe factories it is more convenient to externalise them. For instance, upper-stitching firms were able to work on many different models, being flexible and not investing on specific machineries. These firms can be defined phase-businesses, since they are specialized in a given phase of the production process, and they do not keep commercial contacts with the final market, but only interrelate with their local buyers. In the years, these firms have suffered cost competition more than others, because of their low specialization and since they were easily replaceable with more convenient competitors. The competition was made even harder by the entrance in the market of international subcontractors, able to charge an even lower price by being located in countries with less expensive labour force. The same did not happen to the suppliers of specific components, since they were able to realize customized products, leveraging on new technologies. Therefore, together with some shoe factories in the district that were able to create their own brand such as René Caovilla and Ballin, most of the SMEs which are present in the area is specialized in some phases or in the whole production, working for some other companies or for international luxury brands (Crivelli, 2018)[98].

4.2.5. Final product and distribution

Shoes can be divided in many different categories, depending on their look, the final use, their components. The Riviera del Brenta industrial district, despite having incorporated other types of models, is historically specialized on the production of luxury woman shoes. In fact, of the 20 million pairs that were produced in year 2017, only 5 % were man shoes. (Crivelli, 2018). Considering the whole production, in year 2018, the number of pairs that have been produced in this area represents 30,01 % of the production in the Veneto region and 10,9 % with respect to the Italian one. Regarding the total sales value, shoes produced in this area represent 52,9 % of the turnover realized in the region and 22,3 % of the whole country. Considering instead the entire shoe-sector, namely shoe factories, accessory manufacturers, designers and trade companies, the total value of sales goes up to 62,1 % with respect to the regional data and 20,7 % compared to the national one. Table 9Table 9 displays the turnover data related to the companies in the Riviera del Brenta footwear district. As highlighted in the last row, the export quota is of 92 %: this

[98]Crivelli G. (2018). Made in Italy: Riviera del Brenta cuore della produzione globale delle scarpe di lusso. Milano: Il sole 24 ore.

information allows to understand the extent to which the success of the district production is related to internationalization.

Table 9 - Total sales value of shoes (in millions)
Source: Assocalzaturifici Web Site: Riviera del Brenta: dati statistici A.C.Ri.B_Anno 2018[99]

	VENICE	PADUA	GRAND TOTAL
SHOE FACTORIES	829,39	568,03	1.397,42
ACCESSORY MANUFACTURING COMPANIES	227,41	127,12	354,53
SHOE DESIGNERS	43,64	56,15	99,79
TRADING COMPANIES	132,14	102,69	234,83
SUM TOTAL	1.232,58	853,99	2.086,57
EXPORT QUOTA			92%

The way the distribution is carried out depends on the type of shoe factory and which are the functions within its structure: companies producing their own branded shoes usually are in charge also of the distribution in flagship stores or high-end shopping centres, while contractors send the finished pairs to the brands headquarters, not being involved in the distribution process. In the last years, the role of online shopping is increasing its important for luxury products as well: customers are increasingly relying on online platforms such as Farfetch.com, Mytheresa.com, Luisaviaroma.com, which focus on giving a wide choice of products maintaining the luxury customer experience that can be lived in brick-and-mortar fashion shops.

4.2.6. Geographic scope: outsourcing and the role of global brands

Since the beginning of the 1990s, the footwear industry has been involved in major global changes, like most traditional labour-intensive sectors, due to the role of emerging economies, that gradually displaced industrialized countries as producers of labour-intensive goods. This resulted in industrial countries losing their comparative advantages in producing this type of commodities. The competitive pressure from emerging low-labour cost countries has forced footwear producers in Italy to increasingly specialize in the high-quality segment of the market, pursuing a strategy of vertical product differentiation. One of the most relevant changes globalization brought in the industry was the international fragmentation of the production process, namely the splitting of the production cycle over facilities located in different countries in order to reduce costs (Amighini & Rabellotti, 2007)[100]. This phenomenon has affected not only the footwear sector, but also the other

[99] Assocalzaturifici. Riviera del Brenta: dati statistici A.C.Ri.B Anno 2018. http://www.assocalzaturifici.it/ancimain/doc.html?id=18354 .

[100] Amighini, A., & Rabellotti, R. (2006). How do Italian footwear industrial districts face globalization?. *European Planning Studies*, *14*(4), 485-502.

Italian traditional manufacturing industries, such as textiles, clothing, apparel, leather and leather goods, since they are all facing the increasing competitive pressure from international low labour-cost producers (Corò & Grandinetti, 1999)[101].

However, the outsourcing of low-value added activities is not the only way in which globalization has affected the Italian footwear industry: in fact, the arrival of large fashion groups, which are in most cases multinational corporations is also a source of the changes that have happened in the organizational structure of footwear industrial district and Riviera del Brenta among them. In fact, the case of Riviera del Brenta suggests that local producers' control over key activities such as design, branding, marketing and sales decrease as they enter in global fashion production networks (Rabellotti, 2004).

A research carried out by Amighini and Rabellotti (2007) highlighted how the main outsourcing strategies for industrial districts were subcontracting intermediate phases or subcontracting assembling and final processing. Despite this, Riviera del Brenta appeared not to rely heavily on international delocalization of both intermediate and final processing as a competitive strategy, but when this happens, the preferred partner has been Romania since 1999, while in the mid-1990s the district used to delocalize towards Ukraine. According to Amighini and Rabellotti, a possible reason why companies in Riviera del Brenta do not rely much on outsourcing assembling operations is that the very high quality of its final products does not allow for a massive delocalization of operations. The author then compares this situation with the one of the footwear district of Barletta in Apulia, which produces low-price footwear. Contrary to Riviera del Brenta, Barletta pursued a strategy of mass delocalization of production of intermediate phases and is a net importer of parts from foreign subcontractors. Moreover, this district orients its sales mostly to the domestic market, since international competition in their segment is not sustainable.

As mentioned before, another distinctive element for the Riviera del Brenta footwear district is the role of top global brand leaders. In the last decades, the luxury fashion system has undergone through major changes which have turned out to become an oligopoly dominated by a small number of multi-product giants. These multinational companies follow a homogeneous growth pattern which starts with the successful establishment of their own brand names in specific product lines, as happened in the case of the most important players in the industry, namely LVMH (Moët Hennessy Louis Vuitton), Gucci and Prada, which began their businesses producing and

[101] Corò, G., & Grandinetti, R. (1999). Evolutionary patterns of Italian industrial districts. *Human Systems Management*, 18(2), 117-129.

selling leather goods. After their establishment, fashion brand names have pursued their development through the capitalization of their brand names, operated with the diversification to various segments, such as clothing, footwear, glasses, perfumes and wines, followed by a strategy of growth through acquisition of other well-known brands. The logic behind this kind of strategies is to reach scale and scope economies in activities different from manufacturing, such as branding, marketing and advertising, trough opening mono-brand shops in the most exclusive and expensive streets worldwide. Fashion enterprises are increasingly concentrating their activities in the intangible phases of the value chain, and this can be explained by the growing concentration of rents in these activities, which are considered as high value-added. Therefore, leading luxury firms expand themselves through mergers and acquisitions, capitalizing on their core competencies such as design, advertising marketing and brand naming, which are not sector specific. On the other side, they look for highly skilled manufacturing capabilities to produce different products that are then sold with the brand name on them.

This is why Riviera del Brenta has been addressed as a preferred area where to find subcontractors for the footwear segment. The findings of a survey done by Rabellotti (2004) showed that already in 2004 almost half of the sample firms worked as subcontractors for high fashion companies producing shoes with top brand names. Recent interviews report that now 90 % of the district's production is carried out for global brands (De Marchi et al., 2017). Based on this information, is it possible to affirm that Riviera del Brenta has undergone a process of functional downgrading. In the past, the district firms were in charge of the whole design activity and of the acquisition of inputs, while in recent years luxury MNEs led local enterprises to move out from the typical core cross-sector competencies such as design, branding and sales. Anyway, Rabellotti underlines how this is not an impoverishing strategy for Riviera del Brenta district: in fact, top brand companies are able to exploit the willingness to pay of final customers to a higher extent, being already well-known and consolidated in the market. Therefore, clients are willing to pay very high prices for luxury goods, bringing high profits that are above production costs and which are to some extent shared with the rest of the value chain in order to guarantee a constant high level of quality and compliance with delivery conditions. The decentralization strategy towards Romania and other Eastern European countries is pursued in order to reduce costs, since competition on price is present also in high quality markets. This represents a functional upgrading strategy for Riviera del Brenta firms, given that they move low value-added activities and products abroad, in order to maintain in the headquarters the focus on the production carried out for rent-rich luxury markets.

In conclusion, in Riviera del Brenta, top brand companies set the parameters local firms have to comply with, but at the same time both cooperate to melt their specialized skills and competencies to obtain high quality products. Luxury MNEs are willing to share part of their rent with them in order to internalize their unique production skills. Even if some firms in the district have abandoned key functions which are high-value added, their performance is still positive thanks to this mechanism of sharing rents with the luxury industry. Global luxury MNEs are in need of establishing lasting relationships with subcontractors which are able to meet their quality standards, and the cost of establishing these relationships and to switch from one partner to a new one discourages them to rely on distant and less qualified subcontractors in low labour cost countries, favouring the partnership with Riviera del Brenta district firms.

4.2.7. Relational governance: luxury groups as global lead firms

The Riviera del Brenta district has been characterized by a wave of acquisitions from two of the most important fashion and luxury groups: LVMH and Kering. The presence of these MNEs transformed the cluster, as they assumed the role of GLFs in the district, coordinating local supply chains and creating a fully place-anchored value chain (Belussi et al., 2017). As GLFs, when they first entered in the cluster, they acquired some of the local firms and posed themselves as knowledge gatekeepers, enriching the established skills and competencies in making shoes detained by the locals with the deep knowledge about fashion trends and design that they carried. This transformed what was a typical Marshallian district into a hub-and-spoke model. The MNEs acquired various companies within the district, such as Rossimoda, acquired by Monique and Arcad, now Manufacture de Souliers Louis Vuitton – LVMH; Guardi by Armani, Lamos and Moretto by Prada and Iris by Gibò, now Onward Luxury Group. Local firms, started to produce fit-to-the-market luxury shoes, and only in a few cases tasks with a high level of labour intensity were outsourced to low labour cost foreign countries, mainly in Easter Europe, as previously mentioned. At the same time, Dior established its business in the area through a greenfield investment, and the same strategy was pursued by François-Henri Pinault with Kering, Yves Saint Laurent, Balenciaga, Stella McCartney and Gucci, which entered the cluster with the brand Bottega Veneta. Regarding local firms, only two of them remained independent, pursuing an aggressive strategy to consolidate the presence of their own brand in the market: the medium-sized firm Ballin and Calzaturificio Renè Caovilla. Beside these two, many other subcontractors which did not start to work for the MNEs had to close down their businesses.

Therefore, the pool of local knowledge in which the district is embedded is captured and used by MNEs that have entered the cluster through acquisitions and district investments, giving firms the opportunity to find new uses for their old knowledge base, following the current fashion trends and the brand identity of globally famous luxury groups. This leads to the conclusion that the usual relationship that is established between an international fashion group and a local firm in the district can be associated with a relational type of governance. The exchange of information among the actors is very complex and require a strong tie based on trust and mutual reliance. The process of making luxury shoes is very precise and characterized by many different variables to be considered and controlled: product specifications are codifiable, but the supplier plays a fundamental role in defining the quality level, and even the technical characteristics of the product itself, detaining a set of capabilities which are at the base of the whole process. The high competence of suppliers provides a strong motivation for global lead firms to outsource the production with the aim of gaining access to complementary competencies with respect to the ones already held (Gereffi et al., 2005). The mutual dependence is then regulated mostly from reputation, since in this case there is no spatial proximity, given most of the luxury MNEs headquarters are abroad. Anyway, the exchange of complex tacit information is accomplished though frequent face-to-face meetings and high levels of explicit coordination. These set of conditions establishes the bond between supplier (shoe factories acting as LDAs) and buyer (luxury MNEs acting as GLFs), and for both of them it results to be very costly to break this relationship in order to change partner, given the amount of knowledge and competencies they share.

4.2.8. Upgrading

In the early 2000s the Riviera del Brenta district was characterized by two simultaneous phenomena: local companies producing lower-end footwear moved to low labour cost countries or closed (e.g. Donna Carolina, Calzaturificio Ca' D'Oro), while companies specialized in high-end shoes gradually gave up their own brands in order to start producing for luxury global brands such as Kering Group, LVMH, Prada and Armani. These global lead firms are in charge of design, marketing and distribution of the final products, while local firms work on the development, prototyping and manufacturing of the shoes. The LDAs in the district are local firms, that could be defined OEM suppliers which are also in charge of performing some activities which are proper of ODMs (De Marchi et al., 2017). In order to meet the requirements of these global brands, local

firms invested heavily on upgrading their processes to be able to produce at the requested scale and with the needed level of quality.

In the district there are firms pursuing different strategies. Some OEMs work for several brands at the same time, but others pursue a "hybrid strategy", meaning that they get a small part of turnover from their own brand as well, such as Ballin[102] shoes. Then, other firms can be considered well-established OBMs which are present in the luxury market only with their own brand name: this is the case of Renè Caovilla[103], shoe factory founded in 1934 which now has its own mono-branded shops and sells its products in the most exclusive shopping centres in the world. Caovilla started as a contractor of high-end brands such as Valentino, Chanel, Christian Dior and John Galliano; in the 2000s the company started to focus on its own brand, with the opening of the first mono-brand shop in Milan in 2004, followed by another one in Rome. In the years, the company was able to affirm its own brand among the most important fashion labels, and now it counts around ten flagship stores and a strong presence on most important luxury e-commerce platforms. Other OBMs instead are specializing their production on different kinds of products, such as fashion, high-end sneakers for women, like Philippe Model.

The presence of global fashion multinationals downgraded some of the firms in the district by limiting their commercial capabilities and influence, but at the same time it did not penalize the overall innovative capability of the cluster, that is still flourishing thanks to the role of Politecnico Calzaturiero, which is specialized in training activities to gather the district knowledge.

4.2.9. Local institutional context and stakeholders: ACRIB and Politecnico Calzaturiero as knowledge gatekeepers

The local industry association A.C.Ri.B[104] developed at the beginning of the 1960s in order to provide services for shoe factories that were present in the district, and among its presidents during the years there are the most important entrepreneurs of the area, such as Giorgio Ballin, founder of Ballin shoes, and Luigino Rossi, founder of Rossimoda. This institution still plays an active role within the district, and during the years the connected system has evolved: in 1976 the Consorzio Maestri Calzaturieri del Brenta was founded, followed by A.C.Ri.B Servizi in 1999, which realizes studies and projects at an individual level, providing specialized services for shoe

[102] Ballin. Corporate. http://www.ballin-shoes.com/it_it/corporate .

[103] Renè Caovilla. Caovilla World. https://www.renecaovilla.com/it/storia-artigianalita/ .

[104] A.C.Ri.B. La storia. http://www.acrib.it/1_1.asp?sec=1 .

factories in order to promote and sustain initiatives regarding internal and international trade. Moreover, A.C.Ri.B Servizi organizes events and meetings, information and customized counselling services, together with the coordination and management of innovative projects at a European level.

The need for firms to employ skilled pattern-makers was fulfilled by the presence of the school called Scuola Modellisti Calzaturieri della Riviera del Brenta (Riviera del Brenta shoe pattern-making school), that was initially founded in 1923 as a school for various artisanal works and that then ended up specializing in shoe designing. Between World War I and World War II the school acted as a know-how catalyst, fostering a mechanism of knowledge and skill exchange among the students, the enterprises and the laboratories. The school during the years was able to switch the set of competencies from general concepts of fashion to specific and modern design procedures. This institution was recently transformed in the so-called Politecnico Calzaturiero[105], which currently offers three main functional areas: education, research, technological transfer and services for companies. The education path is mainly oriented towards helping young students acquiring the technical skills needed in the industry, during a three-year programme which offers different specializations and the possibility to do internships in local firms to benefit from on-the-job training. At the same time, courses are organized for experienced employees and managers, to embrace the perspective of continuous education: these are mainly directed to formalizing tacit knowledge and transferring artisanal abilities. The research function is in charge of favouring the technological transfer on innovative systems, processes, products and materials, helping the growth of the footwear-making companies and of the whole district. In addition to this, Politecnico offers a wide range of services for local firms, which include both standardized activities and customized intervention, such as:

- Quality control of the materials used, in the context of a laboratory that was born in 2015;
- Counselling and education about security in the workplace;
- Rapid prototyping services;
- Analysis and counselling oriented towards the reorganization of the main processes of the firm.

[105] Politecnico Calzaturiero. http://www.politecnicocalzaturiero.it/ .

All the activities performed by the school allow it not only to be perfectly integrated in the local business framework, but also to be a proper actor within the district, having the fundamental function of transferring knowledge from one generation to another and gathering the artisanal know-how of the district.

4.3. LOCAL FIRMS RETAINING HIGH VALUE-ADDED ACTIVITIES: THE PRODUCT DEVELOPMENT FUNCTION IN ROSSIMODA

4.3.1. The acquisition of Rossimoda by LVMH

Clusters are manufacturing systems where localized innovation occurs thanks to learning-by-doing processes which characterize both the single firm and the external network of linkages among different companies (Bettiol et al., 2017)[106]. As stated by Camuffo and Grandinetti (2011), the cluster can be considered as a cognitive system, where localized knowledge is embedded in a specific setting which includes particular economic, social and institutional conditions that favour the creation and spread of specialized knowledge which is oriented towards manufacturing and innovating. This framework is attractive for multinational companies, which decide to invest in clusters to exploit local know-how in a particular type of production, as happened when the French multinational group LVMH acquired Rossimoda, a shoe factory located in Vigonza, in the Riviera del Brenta footwear district.

Rossimoda is currently one of the most important companies in the district, both for productive dimension and for the high quality of the shoes produced, which are placed in the market segment of luxury footwear. Since 1960 it collaborates with some of the most relevant international and Italian luxury brands; the company produced also its own branded shoes for a small period of time, but then opted to keep on focusing only on producing for licensed brands.

In year 2003 the ownership of Rossimoda passed in the hands of LVMH, the famous luxury group that was originated in 1987 after the merger between the fashion house Louis Vuitton, founded in 1854, and Moët Hennessy, a company producing wines and spirits, founded in 1971. Nowadays, LVMH counts 75 Houses rooted in six different sectors: wines and spirits, fashion and leather goods, perfumes and cosmetics, watches and jewellery and selective retailing. LVMH

[106] Bettiol, M., Chiarvesio, M., Di Maria, E., & Micelli, S. (2017). Manufacturing, where art thou? Value chain organization and cluster-firm strategies between local and global. In De Marchi V., Di Maria E., Gereffi G. (Eds). *Local clusters in global value chains*. Routledge.

currently employs 156,000 people across the world and reported sales of 46.8 billion euros in 2018[107].

The group is focused on developing each of the houses while respecting their identities and autonomy, providing them with the resources they need in order to create, produce and market their products and services through carefully selected channels. LVMH owner, Bernard Arnault, has built the company's vision on three main values[108]:

- *Creativity and innovation*: finding the delicate balance needed to continually renew the products offered, looking at the future, but always respecting the unique heritage of every house;
- *Deliver excellence*: quality should never be a compromise. LVMH incorporates the world of craftsmanship in its most noble and accomplished form, therefore meticulous attention has to be payed to details in order to achieve perfection. From products to service, the objective is to reach excellence;
- *Cultivate an entrepreneurial spirit*: LVMH is based on an agile and decentralized organization in order to favour efficiency and responsiveness. This stimulates individual initiative, and each person is entrusted with significant responsibilities. The entrepreneurial spirit which permeates the group sustains risk-taking and perseverance, requires pragmatic thinking and ability to motivate teams, leading them to be ambitious and reach their objectives.

The process of acquisition of Rossimoda has been gradual: first, LVMH entrusted the firm of some of its licenced brands, Emilio Pucci and Givenchy. In this period, the former president Luigino Rossi kept the 3 % of the shares. After the change of ownership in 2003, he has still remained for other five years as CEO, on request of the group itself. Gradually, in the years managerial team has been reshaped also thanks to the contribution of Top Manager coming from LVMH. In 2007, after the transition period between the two ownerships, Rossimoda counted 360 employees and more than 200 contractors, realizing a total turnover of 68 million euros[109].

[107] LVMH. About LVMH: The LVMH model. https://www.lvmh.com/group/about-lvmh/the-lvmh-model/ .

[108] LVMH. About LVMH: The LVMH Spirit. https://www.lvmh.com/group/about-lvmh/the-lvmh-spirit/ .

[109] Belussi, F., Caloffi, A., Contin, M., & Sedita, S. R. (2017). Le imprese del distretto della riviera del Brenta tra global brand e multinazionali. *Economia e società regionale*, XXXV (2).

Rossimoda has currently the licenses of four brands of the LVMH group: Givenchy, Celine, Emilio Pucci and Nicholas Kirkwood[110]. The activities that are carried out by the firm are mainly related to product development, research and production: the company is equipped with machines to reduce leather thickness and for uppers stitching, together with two assembling lines, two finishing departments and a quality department at the end of the cycle. The suppliers on which Rossimoda relies are mainly located within the district, especially for what regards the supply of components and accessories such as heels, soles and insoles.

4.3.2. The product development function in Rossimoda[111]

The changes in competition brought by globalization had a huge impact on the value chains, causing a global dispersion of the activities that are included in it. Novel organizational arrangements, and the development of information technology, allow tangible and intangible functions pertaining to one firm to be separated and located where it results to be more convenient. Companies which have undertaken this process of separation have favoured of the benefits deriving from focusing on innovation and product development, while at the same time delegating to foreign suppliers labour-intensive activities (Sturgeon 2002)[112]. Despite this traditional view, recent literature (Christopherson et. Al., 2014; Buciuni & Finotto, 2016) has shown that the positive effects of co-location of manufacturing and research and development resist the advantages deriving from the global organization of production, as demonstrated by the recent re-shoring phenomenon that has interested many industries and which signals a reaction to the previous waves of offshoring.

Rossimoda can be considered a great example of the positive synergy between the product development and innovation phase and the manufacturing activities. The luxury group LVMH has retained the distribution and marketing activities but has left to the firm all the product development-related activities, which can be considered as high value-added in the value chain, allowing the company to perform an upgrading process with respect to just manufacturing. In the following sections, the product development activities in Rossimoda will be described and

[110] Rossimoda. Gruppo LVMH. https://rossimoda.com/gruppo-lvmh/ .

[111] The source of the case study about Rossimoda is the personal work experience of the author in the Product Development function of the firm, started in February 2019.

[112] Sturgeon, T. J. (2002). Modular production networks: a new American model of industrial organization. *Industrial and corporate change*, 11(3), 451-496.

analysed: the source of the information is the personal work experience of the author in this function of the firm.

Rossimoda is organized according to a functional configuration, and the main functions that are present within the company recall the process needed to go from the initial design to the final product. In particular:

- *Design*: the design is not internal to the company, since the first sketch comes from the style department of the fashion house. It defines the general look that the shoe will have, its shape, lines and colours;
- *Product development*: as will be better explained in the following sections, the product development department defines the technical aspect of the model, the materials that will be used and the structures needed (heels, sole, etc.). In this phase the definition of the costs starts, which is crucial to determine the future sales;
- *Industrialization*: the models are furtherly analysed to understand if they are producible on a larger scale, both on the economic and technical side;
- *Production planning and manufacturing*: the production is scheduled according to the timing decided in accordance with the brands and the workload. The quality department and the costing department act as support functions especially in this phase. Manufacturing is then divided among internal and external, resorting to both its internal capacity and subcontractors.

First, it is important to explain why the product development function is so important. In Rossimoda, product developers act as a bridge between the designers coming from the licensed fashion brands and the actual reality of manufacturing. Therefore, they are the key figures for what regards the transfer of knowledge and information: they regularly meet the style department referees to exchange ideas and notions about the new models that will be developed.

4.3.3. The prototyping phase

The brands that are licensed to Rossimoda have decided to keep the product development in the Italian firm, to benefit from the proximity between this initial phase and the manufacturing, and to get advantage from the broad set of skills and competencies that characterize the area, both thanks to the presence of the specialization school Politecnico Calzaturiero and the tradition of shoe making which is embedded in the area.

The sketch that is given to the product development team is the first step of the prototyping phase: this phase is fundamental to make the ideas of the designer becoming reality. The launch of the new prototypes is done during what is called a proto meeting: in this meeting the product development team and the technicians have an exchange of information with the style department, that explains the idea behind every model and how they want it to be made, confronting what the designer would like to realize with what is technically feasible. Every new prototype launched is then carefully described in all its characteristics thanks to a standardized template which is used by every team. Figure 14 represents an example of prototype sheet: first, the sheet reports the code of that particular model, which is needed to make it recognizable in all the phases of the process. Then, all the main components of the shoe are described in detail, such as the last used, the type of sole, the materials used for the upper and the lining. When there is more than only one material used for the upper, each one is indicated with a letter (material a, material b, etc.) which is then written in the drawing. Moreover, a section to describe the accessories used is present, which is needed when there are zips, buckles, or more elaborated accessories to be applied on that particular prototype. It is fundamental to describe precisely all the components with their codes to allow all the people involved in the process to get the best information possible, in order to avoid mistakes and misunderstandings.

The number of prototypes that are launched for every meeting depends on the brand and on the requirements of the designer in that particular moment, depending on how close the launch of the samples is. The sheets of all the prototypes are then summarized in a document called protorecap, which reports all the models that are currently in the making and the information regarding components and materials. This recap of the launches is useful for everyone involved in the process, and especially for the product developers, in order to keep track of all the shoes that must be ready for the delivery date, and to follow their advancement having a clear idea of how many models and which ones are being worked upon. The protorecap up to September 2019 used to be done manually on an Excel sheet, filling an existent template, but recently has been replaced by a document which is automatically created by one of the software used by the firm. This software picks the information from the main information system used internally and creates reports which indicate the current advancement status of every shoe launched.

BRAND NAME		RM CODE/ART.RM:	8079021
		STAGIONE:	SPRING 20
		LAST/FORMA:	ROSSIMODA 105
PROTOTYPE/PROTO	PROTOTIPO	COMM.GROUP/GRUPPO:	
SIZE/TAGLIA:	37	DATE LAUNCH/DATA LANCIO:	14/10/2019
TARGET RP/PREZZO RTL:		DATE DELIVERY/PROTO CHECK:	31/10/2019

STRUCTURE/STRUTTURE			
INSOLE: SUOLETTA TEXON:		CONTRAFFORTE PUNTALE	
SOLE+EDGE: SUOLA+LISSA:	NATURAL LEATHER SOLE BLACK	HEEL: TACCO:	STILETTO 105
DOWEL LIFT: SOTTOTACCO:	BLACK	PLATFORM: PLATO':	
MATERIAL/MATERIALI		**OTHER/ALTRO**	
MATERIAL A : MATERIALE A	BLACK SUEDE MATERIAL CODE	STITCHING: CUCITURE:	THREAD 80 MATCHING COLOUR
MATERIAL B: MATERIALE B		STITCHING SOCK LINING: CUCITURE SUOLETTA:	THREAD 30 MATCHING COLOUR
MATERIAL C: MATERIALE C		STAMP: MARCHIO:	GOLD
TACCO HEEL	COVERED IN BLACK SUEDE MATERIAL CODE	ACCESSORI: ACCESSORIES	
FILETTO E PUNTINA	BLACK SUEDE MATERIAL CODE		
FODERA: LINING:	NUDE KID LINING MATERIAL CODE		
SOCK LINING: SUOLETTA:	NUDE KID LINING MATERIAL CODE		

Figure 14 - Example of a prototype sheet

Usually the delivery date of all the prototypes is two or three weeks after the proto meeting. During this period, a lot of people with different roles are involved in the process, everyone with a specific task. The product development team is responsible for coordinating the work of everybody and making sure that every person participating to the prototyping phase has the correct

information to work on the new models. At the delivery date, the product developers have to make sure that every model requested by the style department is ready to be presented in a new meeting. In case of problems or criticalities during the making of a prototype, the team has to promptly inform the designers and eventually find a different solution through the making of various trials: this is why communication with the fashion house is fundamental at every stage of development.

When the prototypes are ready, the designers and people from the style department of the brand usually come to Rossimoda to take part to what is called proto review: a meeting in which both designers and developers analyse the finished prototypes, trying them on a model to see the fit and potential defects. During this meeting, the designer can decide to launch again the same prototype applying some modifications, that can be related to the materials, the lines or technical aspects. The prototyping phase usually lasts for about three months, during which there can be a variable number of proto launches and proto reviews, which are fundamental to define the collection. Every launch is composed by the remaking of existent prototypes to improve them according to the requirements of the designers, and by new prototypes that will be made for the first time.

4.3.4. The importance of communication: the Open Space

The development and production process of shoes is very complex and characterized by a lot of variables: this requires a lot of different professionals coming in contact with each other to define the characteristics of the product. Communication is a fundamental aspect, especially in the embryonal stages of a new model: this is why Rossimoda has organized its product development teams within a big open space office, where they are able to communicate with most of the figures that are involved in the prototyping process and further stages. This change has been done in recent years, and it is aimed towards favouring a faster and more efficient exchange of information among all the actors involved. The key figures that are present in the open space will be described in the following sections.

4.3.5. Product development teams

In Rossimoda, every brand has its own product development team, which is generally led by a product manager supported by one or more assistants. Usually every team is composed by people that are performing the same job but come from similar backgrounds: taking as an example the team of brand A, two people have an economic background and one has studied at the Politecnico Calzaturiero, therefore has a deeper technical knowledge of the shoes components. In

this way the figures within the team are complementary with each other and can fill their respective gaps, enriching the set of competencies of everyone involved, that will benefit from being close to a colleague coming from a different educational background.

The product development team acts as a bridge between the brand and Rossimoda: in fact, it meets regularly the designer, who provides the sketches for the new models that will be launched. The designer decides the look of the shoes, but then the product development is in charge of making the models feasible. First, the team has to go through a research process with regards to the materials, accessories and eventual applications, prints or embroidery that will be used, keeping in constant communication with the team technician, to understand if the proposed leather, fabric or accessory is suitable for that model of shoe. The process of research starts when the prototypes are launched, and its difficulty depends on the typology of material searched and its technical suitability: if the designer has requested innovative and particular materials, the team will have to contact a high number of suppliers to find a proposal that fits well with the idea of the style department. An example of a quite difficult research could be the one related to ecological materials, such as fabrics made out of recyclable threads. This consciousness towards the environment is quite recent in the fashion industry, therefore it could be harder to find suppliers that have that particular kind of material. Another type of research is the one related to accessories: they span from a simple buckle to more complex customized objects that are realized according to the requests of the designer. During the research, the team has to collect all the information regarding the proposals of every supplier, such as minimums to order, prices and lead time; then, all the data collected are reported on an Excel file, to keep track of how the research is proceeding. The final choice of the material that will be used on the prototype is done by the designer, but the developers have the task of excluding some proposals if the technical developer of the team considers them not to be suitable for the use on that particular model.

The innovative aspect of prototypes is mainly related to the materials and accessories used, this is why the development team has to constantly keep in contact with suppliers to be informed of the latest materials available. Usually the conversation with the supplier is done via email or phone, and the team receives daily references or colour cards, after communicating what the designer is looking for. Together with maintaining the network of relationships with materials suppliers, the product development team is directly in contact with the external subcontractors: they are shoe factories that can be internal or external to the district which help Rossimoda in manufacturing shoes in the phases of prototyping, samples making and production. The firm relies to these subcontractors when the internal capacity is full, or when it comes to realizing particular

types of shoes, such as sneakers. Being specialized in the luxury woman segment, Rossimoda finds external suppliers to manufacture other shoes which require a different production process (e.g. sneakers), in this way all the companies involved are able to deepen their own ability to produce a narrower range of models.

Therefore, the product development team is at the basis of the whole process, in particular because it establishes and maintains relationships with suppliers, subcontractors, the brand, and the other colleagues working in the Open Space, in the Atelier and in the whole company. They are in charge of filling the prototypes sheets and giving a copy of them to every person involved in the prototyping and sampling phase. In addition to this, they support the product development director in communicating the prices of prototypes and samples to the fashion house, and in defining the calendar of the meetings, together with the milestones of the collection.

The process of product development ends with the launch of the samples, that are based on the prototypes made, and are presented to the customers in a selling campaign in order to understand their tastes: in this way the models that will be then manufactured are selected according to the trends and to the opinion of the final clients. In this phase, if the sample is confirmed by the style department in a meeting called Technical Review, the development phase ends and the remaining part of the process is left to the industrialization department.

4.3.6. The technical developer, the components developer and the pattern-makers

Every product development team works in contact with a technical developer and a components developer, who can be devoted to a single brand or work for more than one brand at the same time. They take part to the proto meeting and discuss with the designer about the new models that will be launched; then, they receive the prototype sheets and the protorecap from the development team.

Afterwards, the technical developer goes to the *formificio*[113], sometimes together with the designer, to work on the new lasts that will be used: Rossimoda owns an entire department which is responsible to creating shoe lasts that give the shape to the shoe. This department is right outside the main building of the firm, so it is very easy for the technician to go there every time it is needed and to exchange information with the lasts manufacturer. The technician explains how to hand-craft the piece of wood that then will become the last; once it is confirmed a numerically-controlled

[113] Where lasts are produced.

automated equipment precisely replicates the last in recycled plastic to be used for sample making and eventually for production[114].

The second component that requires to be made in the prototyping phase is the heel: the technical developer and the components developer go to the heel factories to work on the new heels. The heels that are be assembled on the final shoes are made of ABS, wood, plexiglass or other materials, but they require a long time to be made and the setup of a dedicated mould, this is why usually the heels developed for the prototypes are made of resin: this allows them to have the same look of the proper heel, but with the advantage of being faster to make and less expensive, in case there are further modifications later on.

The lasts and heels chosen for the prototypes are then used by the components technician to develop the remaining components of the shoe: the sole and the insole. The insole can be considered as the most important component of the whole shoe, since it is the basis for the assembly of all the other parts. The firms providing these products are located in the Riviera del Brenta district and some are very close to Rossimoda, therefore for the components developer it is very easy to physically go to the suppliers and communicate with them about the products that should be developed.

When the last is ready, the technical developer draws the model of the shoe directly on it, using adhesive paper which can be attached to the last. In this way, the technician creates a 3D version of the model, which is then passed to the pattern-makers, who are in charge of reproducing the exact lines done on the last in a 2D version, using the programme CAD[115]. Usually the pattern-maker realizes a first trial that is tried on the foot to understand in which ways it should be modified and adjusted: once the technical developer has communicated to the pattern-maker which are the changes to be made, the latter proceeds with creating the patterns. These patterns are usually put into an envelope which is given back to the product development team, that has the task of collecting the correct materials to make the prototype and bring both the leather or fabric and the mould to the cutter, to start the actual making of the shoe, which in case of prototypes is the right half pair in size 37.

[114] Rossimoda. Il processo. https://rossimoda.com/il-processo/ .

[115] Computer-Aided Drafting.

4.3.7. The technical department

In the Open Space, close to the product development teams there is also the technical department. The department is composed by employees who are in charge of the codification for a particular brand, but some of them work for more than one brand. The head of the department is also the responsible of the whole Open Space and Atelier and has the task of planning the activities of all the brands in order to improve the workflow and cope with all the deadlines. In the department there is also a person in charge of monitoring the advancements of all the prototypes and samples that are currently into work: she talks daily with the product development teams to inform them at which stage the shoes are. She monitors the advancements both using a computer software and going physically to the Atelier or to the factory to see at what stage of the process the prototypes or samples are. This figure and the head of the technical department both maintain a constant communication with the product development teams, since they establish the planning of activities and launching depending of the overall workload given by every brand.

The other people in the department are in charge of codifying. This activity starts in the prototyping phase, when the product developers give the prototype sheet to the codifier. The codifier puts the information written in the prototype sheet in the information system, in order to create the bill of materials, which is then printed and given to the pattern-makers, who include it in the envelope with the patterns as well. Codifying all the prototypes with their precise list of components and materials, from the leather to the sole, is crucial to keep track of all the models that are being made, to be able to find the information also in future times and to order the inputs needed. The codification process is particularly relevant when it comes to the sampling phase: the samples define the characteristics of models in the collection, and their bill of materials is the basis for the one of the pairs that will go into production.

4.3.8. The relationship with the warehouse

During the phases of prototyping and sampling, the product development team is constantly in contact with the warehouse. Usually this task is attributed to the product manager assistant, who is in charge of sending emails to request materials to be prepared, or who physically goes to the warehouse when needed. Product developers can easily reach the warehouse through a lift which is located between the Atelier and the Open Space, and this is fundamental in order to check the arrival of materials, especially in the sampling phase.

When it comes to cutting prototypes, the developer sends an email to the warehouse worker, indicating the code of the material needed and the relative quantity. In the email it is important to indicate if the material is needed urgently or not, in order to allow the warehouse worker to manage his own workload according to the requests of the different teams.

In the sampling phase, in particular after the materials order, the developers have to go daily to the warehouse, in order to check if the leathers, fabrics and accessories ordered have arrived and if they correspond to the initial request. In fact, it may happen sometimes that the material arrives in the wrong colour, or that the customized leather is not exactly of the nuance chosen by the designer. If the materials are correct, the developer has to communicate to the warehouse worker that they can be stocked.

4.3.9. The purchase department

Rossimoda has two purchase departments: one is in charge of purchasing materials in the production phase and the other orders the materials used in the development phase, namely prototyping and sampling. The purchase department for the development phase is not located within the Open Space, but is still very close to it, therefore the product developers finds it easy to directly communicate and exchange the information about the materials and accessories to be ordered. The product development teams have to be constantly in contact with the purchase department, since they are in charge of the research phase, but then the actual orders of materials are done by the dedicated employees. Their figure is particularly important in the sampling phase, when the developers pass a list of materials that must be ordered in a very short period of time. Receiving materials and accessories on time is really vital in order to cope with deadlines, so the employee doing purchases has to be very fast and responsive to the requests of the developers.

4.3.10. The Atelier

Right beside the Open Space, there is the Atelier. The Atelier is a reproduction in small scale of the actual production department: here all the phases of shoe making are concentrated in a single area. The presence of the Atelier is fundamental for the processing of prototypes, even if sometimes also urgent pairs of samples are made here. The closeness to the Open Space allows the product developers to monitor the advancement of prototypes, and in particular it permits to the technical developer to constantly exchange information with the artisans that are actually making the shoes. The presence of the Atelier is a peculiarity of Rossimoda that has been implemented to improve communication and constant knowledge transfer: the technicians and

developers do not have to go to the factory downstairs, but have the whole process right beside their office. The activities which are included in the Atelier are all those required for the shoes making process:

- *Cutting*: the product developers bring the envelope containing the patterns and the bill of materials to the cutter, together with the materials of the upper and lining. The cutter uses a laser machine to cut the leather, based on the shape of the pattern.
- *Stitching:* the stitching in Rossimoda is done only by woman who have a long experience in doing this job and carefully put together all the pieces that have been cut to give shape to the upper. The stitching department of the Atelier is located inside the Open Space: this allows them to communicate with the technicians, pattern-makers the developers to get the correct information about every prototype.
- *Lasting*: in the lasting phase, the technical developer gives the last to the assemblers, while the components technician provides the heel, sole and insole; this allows the prototype to be finally assembled, with the help of dedicated machines for every delicate step of the process.
- *Finishing*: the finishing phase is the last one in the shoe making process, and in the Atelier it is performed by a lady who has the task of controlling the finished shoe in every single detail, to check if there is any defect to be covered. She also cleans up the shoes inside and outside after the assembling process and gives them the final touch before they are ready to be shown to the designer.

4.3.11. The launch of the samples

Contextually with the final proto review, the fashion houses do the launch of the samples, which are the pairs of shoes that the designer will analyse to define which to include in the final collection. The delivery date of the samples is usually one month after the launch, so it is important that most of the materials needed to realize the shoes have already been arrived and stocked in the internal warehouse of Rossimoda. In order to do this, generally the style department of the brand gives the product developers a main list of materials to be ordered at least a month before the launch, in order to allow them to coordinate the codification and order of the materials on time. Some materials can be available at stock and arrive in a few days, but some others may require even a month to be produced and delivered. The materials that are ordered are the result of the

research activity done by the teams during the prototyping phase and of the autonomous research done by the style department.

Usually the designer chooses a particular set of colours and wants more than one material to be dyed the same way, in order to create a higher homogeneity in the collection. Therefore, the product developers have to send a reference of the chosen colour (for instance a Pantone or a piece of material) to the tannery, which takes around three or four weeks to reproduce that exact colour on its existing products. In the sampling phase customized colours are not the only time-demanding aspect: in fact, the designer may want to include in the collection also particular prints, embroideries or applications, that require the team and the technical developer to find the right suppliers and to be careful to delivery dates, since generally these particular requests take some weeks to be fulfilled.

The launch of the samples happens when the style department meet the development team to pass a series of documents, which are pre-existent formats done in Excel, filled with all the information regarding every pair of samples and the materials and structures to be used. The developer then completes the sheets with the codes of the model and of the materials, and passes them to the codifying department, which reports all the voices on the information system, in order to create the bill of materials. The bill of materials is the basis for the creation of a document that will give the input for the start of the shoes making and will be attached to the shoes in every processing stage. This document is then given to the cutter of the main factory, that will start to work on the samples after being given the materials from the warehouse. Inserting the bills of materials in the information system allows also the purchase department to verify if some other materials have not been ordered yet, since the system automatically generates the missing quantities.

The samples launch leads to a consistent workload, this is why all the main figures involved in the process need to meet in order to define the deadlines and eventual criticalities. Communicating deadlines and advancements is particularly important also to grant that the requirements of every brand are fulfilled, and that the production line is not overload. The meeting with the heads of the departments involved allows the product developers and the technical developer to define how many samples will be produced by external subcontractors, depending on the type of shoes, its difficulties and the lead time.

Before the samples are cut, the technical developer has to constantly communicate with the pattern-makers, who are in charge of creating the 2D design of the models based on the prototypes:

even if the patterns have already been realized, the design of the same model requires modifications if a new material is used for the upper.

Once the new patterns and the bills of materials are ready, they are given to the cutters of the factory, which is downstairs with respect to the offices. At this point, the product developer has to inform the warehouse worker that some samples have been launched, in order to allow him to prepare all the materials that must be given to the cutter. This process is managed automatically: the warehouse worker through the information system can visualize the leathers and fabrics the cutter needs to start to work on the samples and the relative quantities.

The samples are made in the main factory and not in the Atelier, so it is more difficult to monitor their advancements with respect to prototypes. The product developers have to carefully control the stages of the process together with the responsible for advancements, in order to be sure that the delivery date will be respected. Once all the samples are ready at the delivery date, they are photographed and labelled, and then they are shown to the designer. All the main figures involved in the process of sampling and production then participate to a meeting called Technical Review, in which every single pair of shoes is analysed and tried on a model, in order to notice eventual defects or modifications that should be made before starting the actual production. The Technical Review can take place either at Rossimoda or at the headquarter of the fashion house, depending on the requirements of the brand. After the Technical Review the samples are shipped to the showroom where the brand has set up the sales campaign: the reaction of potential customers to the samples is fundamental to determine which pairs will be industrialized.

4.3.12. The industrialization phase

The industrialization phase starts after the Technical Review, the meeting where the samples are analysed under a technical point of view in order to minimize the defects that could bring difficulties in the production stage. Any modification could be referred both to the look of the shoes and their technical aspects. For instance, the designer may want to modify some details of the shoes, or the suitability of some materials could be furtherly verified on the final pairs by the technicians. During the analysis, every participant has a book with the pictures of all the samples that are being reviewed and takes notes about the changes or comments that are being made. At the end of the meeting the product developers report all the comments in a file that is then shared with the fashion house and with the industrialization department. This allows all the key figures involved to be aligned on the way all the models will be manufactured. Moreover, the industrialization department is located inside the Open Space as well, so in case of doubts or

questions it is possible for them to easily communicate with the product developers, in order to be sure to work with the right information. The industrialization department in fact has the task of making the production the most efficient possible, this is why they carry out a further analysis which is aimed to grant that every model will be produced minimizing eventual problems.

4.3.13. The product development department managing relationships

From the brief description of the shoes making process from its beginning to its end it is easy to understand how relevant the role of the product development department is: product developers act as a glue which keeps together the other key figures involved in the process, and especially maintains the relationship with the designer and the fashion house. Product development is the heart of Rossimoda, and the idea of creating the Open Space in 2012 has given origin to a proper centre of skill and technical competency, where the constant communication and exchange of information among people with different tasks allow everyone to enrich his own set of notions and to work efficiently and effectively on the making of new shoes. In a reality such as Rossimoda, which gathers a long history of tradition and peculiar capabilities, relationships are fundamental to improve the process day by day. Relationships with suppliers have to be managed as well, and the closeness to most of them facilitates communication and cooperation in new developments. Therefore, being in a cluster brings advantages to Rossimoda under a relational point of view as well, and for people inside the company it is crucial to keep this network of knowledge alive, to be able to continue granting the realization of unique high-quality footwear.

4.4. CONCLUSIONS

The analysis of the Rossimoda case has been done on the basis of the personal experience of the author in the Product Development function of the firm, which started in February 2019. Working in such a dynamic firm helps to understand the relationships taking place between the firm and its local suppliers, but also how it relates to companies operating in other districts. Moreover, working in the Product Development office allows to experience the relationship with the global fashion brands and witness the way in which the capabilities and experience held by the company is mixed with the design abilities and knowledge about trends which are detained by the fashion house. In this sense, Rossimoda is located in a peculiar GVC: from one side it relies on local specialized suppliers and subcontractors to grant a high level of quality of the final product and a better monitoring of the suppliers activity, while on the other side it is embedded in a global context thanks to the daily communication with the fashion houses, most of which are located in other

countries such as France and England. The fashion houses have recognized the ability of Rossimoda not only in manufacturing, but also in developing and prototyping new models, this has led to the choice of licensing the brand and keeping in the hand of the Italian firm the entire Product Development process. Product Development is considered as a high value-added activity, this is why maintaining this function results as a strategy of process upgrading with respect to manufacturing alone. In the context of global value chains usually manufacturing is considered as a low value-added activity, but the Riviera del Brenta and the Rossimoda case show how the district system has its role in pooling specialized product know-how and competences which are determinant for MNEs innovation and ability to be responsive on the market, therefore making the manufacturing and Product Development activities as fundamental parts of the global value chain. The process of interaction between the footwear firm, in this case Rossimoda, and the GLF which is represented by the LVMH group is favoured by the fact that their relationships is a relational type of governance. Therefore, their mutual reliance is regulated not merely by transactions, but by trust and reputation. The information regarding the product is not properly tacit, but it is embedded in a complex context of knowledge and artisanal tradition. Switching to other partners would be costly for both the MNE acting as GLF and the local firm; the MNE would have to look for another contractor with the same abilities and product know-how in order not to get the quality level to diminish, and at the same time the firm would be affected by the loss of the value of the licensed brand. Moreover, if recalling the definitions of the previous chapter, it is possible to state that the Riviera del Brenta district is an example of locally rooted and resilient district, characterized by process-embedded innovation and a relational type of governance between the global fashion groups licensing brands and the local manufacturing companies, which still detain high-value added activities in the smile curve thanks to the development and prototyping activities they carry out.

5. CHAPTER

INNOVATION TRAJECTORIES IN THE RIVIERA DEL BRENTA CLUSTER

5.1. INTRODUCTION

Despite being considered a traditional sector, footwear manufacturing has still space for innovation. The sources for innovation can be many: it can come from the company, from its suppliers or from local institutions. Therefore, being embedded in global value chains can bring advantages to companies, since also other actors within the chain perform upgrading strategies. In the following chapter, two examples of how innovation is vehiculated into the Riviera del Brenta district will be presented. The first example is represented by the role carried out by Politecnico Calzaturiero, the local specialization school which takes part to international projects to bring innovation to companies in the district, while the second one is the case of a heels supplier, Del Brenta, which implemented a technique to efficiently communicating remotely to its suppliers and customers to make the heel-making process faster from the start to the end and meet stringent lead-times. These two actors represent stakeholders for shoes making companies, and they demonstrate that innovation does not only come from the company itself: also other actors operating in the same context in which the company is embedded can follow innovation paths and generate positive externalities.

5.2. THE INNOVATION PROJECTS

5.2.1. The role of Politecnico Calzaturiero

The main channel to bring innovation in the Riviera del Brenta footwear district is Politecnico Calzaturiero: in fact, it represents not only a specialization school, but an actual point of reference for all the firms in the district. The way in which this important local institution vehiculates innovation happens in many different ways. First, it is in charge of the education of all the future professionals who will work in local firms. Teaching them how to use new technologies and how to approach new methods to combine tradition and innovation represents a good channel to transmit these notions to the final firms, especially given that almost all the students have already

a working position and attend the courses to increase their knowledge. Second, Politecnico Calzaturiero is recognized in the district as a knowledge transfer institution, since it acts as a bridge between wider clusters, both in Italy and on a European level, providing services to companies and involving them in developmental projects entailing the adoption of new technologies. From an interview with the current responsible for innovative projects of Politecnico Calzaturiero, it emerged that the institution is actively working on finding new paths to make the traditional shoes production more innovative by applying the latest technologies available.

The projects carried out by Politecnico can be articulated in the following categories:

1. *Funding sources*: the projects related to funding are carried out at a regional, national and European level. On a national level, Riviera del Brenta and Politecnico belong to a recent born cluster, called the Made in Italy cluster, which includes not only shoe making, but also textiles, eyewear, food etc.
2. *Technological innovation projects*: they can be related to the product (e.g. new materials) or to the process innovation (e.g. new equipment and machinery). In the footwear industry innovation can be reached through working on the final product, namely the shoe itself and on its process, but also on the value chain behind it, therefore all the suppliers and the innovation of the components.
3. *Educational projects*: when introducing new technologies, Politecnico Calzaturiero is also in charge of providing the proper education to students in order to enable them to use these innovative methods in their future career path. Education is not only addressed to students, but also to workers, in order to let them be updated about the new approaches to their tasks. For instance, the use of a new CAD programme implies improvements in the designing phase, but previously its use has to be implemented by teaching both to students and to experienced pattern-makers how to use this new technology. Innovation can be applied to education as well, through new teaching methods involving e-learning and augmented reality, in order to make it usable also by who cannot be physically present in the school.

The traditional configuration of the district does not make it easy to apply new technologies and innovations to all the companies. A difference under this point of view can be identified among firms producing their own branded shoes and other firms which are contractors of famous international brands: the brands can be seen as the real fuel of innovation in the district, since it is required by them in the first place, marking it an important factor for being competitive in the ever-

changing global market. Therefore, contractors are more incentivized to pursue innovative methods for production with respect to a firm that can set its own rules and decide whether to adopt new technologies or not. Notwithstanding, in the fast-moving fashion world it is crucial to embrace the latest trends in order to be competitive, therefore also the most traditional firms are usually open to innovation.

In the following sections, three projects regarding innovation in which Politecnico Calzaturiero is participating will be presented.

5.3. FEET IN 4.0

5.3.1. The impact of industry 4.0 on manufacturing

"Driven by the Internet of Everything, Industry 4.0 offers high potential impact at a relatively low cost. Every company and every industry will become a digital company resembling a technology stack – software apps enable agile processes and new revenue streams, as they turn data from connected "things" on the plant floor into real business outcomes. Investment is required in the right technologies and platforms. On the infrastructure side, the IT-centric centralized cloud model is not always complete – technical infrastructure must be tailored to work in tandem with the hyper-distributed Edge, millions of "things," running apps locally, self-learning, and in real time."[116]

Industry 4.0 involves the digital transformation which is rapidly changing the economic scenario through the breaking through of modern information technologies which allow the immediate diffusion of digital data and the possibility to elaborate and convert them in a powerful source of knowledge. Regarding manufacturing, these improvements imply the opportunity of pursuing new paths concerning the development of the products and the efficient management of processes, which consequently bring notable competitive advantages. Industry 4.0 is usually referred to as the fourth industrial revolution, since it is bringing a higher degree of automation and interconnection in the industrial production processes. The objective of this improvement is not only creating new technologies and new materials, but to develop a concept of factory which should be integrated with its whole supply chain. The use of IOT (Internet of Things) and the automated management of the processes allows to implement a new kind of manufacturing which is characterized by networks determined by the coexistence of real and virtual worlds.

[116] Leonard Sussenbach, Head of IoT Strategy at Cisco.

5.3.2. Applying Industry 4.0 to the footwear industry

Implementing the principles of Industry 4.0 on the footwear industry could lead to a higher level of flexibility and faster responsiveness to market changes, since the possibility to access to a wide range of information and data about the processes could contribute to an improvement in efficiency. Shoes manufacturing is also deeply embedded in a set of traditional skills and competencies, therefore applying industry 4.0 should be carefully combined with craftmanship in order to reach an equilibrium between manual work and automation. These new technologies could also allow many firms to bring back to the local territory the phases of the process that were previously offshored. Industry 4.0 could not interest only shoes making factories, but their whole supply chain: from the suppliers, to the equipment producers and the final consumers. In fact, if considering the example of retail, new technologies could convert a simple purchase in an emotional experience, related both to the possibility to have a customized product but also to the environment of the shop itself.

5.3.3. The project

Feet in 4.0[117] is the name of the project dedicated to workplace inclusion in the digital era for the footwear sector across Europe. It started in October 2018 and will end on September 2020 and it aims to bring Industry 4.0 to footwear companies and to their employees, especially those who have a few or no access to centres of knowledge like universities. The project has been started to support individuals in acquiring and developing basic skills and digital competences in order to make them able to face the challenges of Industry 4.0, in particular through training programmes. This involves a group of institutions, SMEs and intermediary bodies with the objective of promoting life-long learning. If people can become more open to learning and prepared to face the changes brought by technological advancement, they will be more likely to benefit from innovative contents. Feet in 4.0 aims to find a methodology to bring new technologies to traditional and established shoes making companies, especially regarding new training approaches oriented towards reducing disparity among workers when it comes to digital technologies and ICT usage. This is managed through a work plan which is divided into four main activities:

1. The first activity is related to adapting the Industry 4.0 guidelines to the footwear industry, considering the professional profiles that are currently on the labour

[117] Feet in 4.0. https://www.feetin40.eu/ .

market and the educational programmes that are being taught in specialization schools;

2. The second activity is setting a list of the competencies that will be regarded to as the most important to have for the future of the footwear sector. These competencies should combine the traditional skills and the new Industry 4.0 key competencies. In order to do this, the partners involved in the project had to interview experts, managers, trainers and employees in order to understand the state-of-the-art of the sector
3. The third activity is related to designing a tool kit to be provided to footwear firms and their employees in order to develop new knowledge and new abilities related to their day by day working activity;
4. The fourth activity is related to testing this training tool kit in a real context. Hence, once designed, this tool will be tried by real companies through training pilot sessions that will be carried out in the partnership countries with the help of the national technological centres involved.

The project has been organized on a European level, and the co-founder is the Erasmus^{+} programme. The partners come from Italy, Portugal, Spain and Poland, and are the following:

- Politecnico Calzaturiero;
- Edit Value, a Portuguese consulting company;
- Centro Tecnológico do calçado de Portugal, a Portuguese organization supporting footwear companies and providing training;
- Research Network Lukasiewicz, a Polish institute for research and training;
- Centro Tecnologico del Calzado de la Rioja CTCR, a Spanish centre for innovation in shoes manufacturing;
- EuroProfis, a Polish consulting company.

In order to understand to what extent workers in the footwear sector are involved in the dynamics of Industry 4.0 and to design training programmes accordingly, the partners have done a survey in the interested countries. The aim of the survey was being aware of the current state-of-the-art of shoes making companies regarding Industry 4.0[118]. In particular, the objective was understanding

[118] Feet in 4.0, Survey report.

if companies in this sector were aware of the potential of new technologies and how large was the gap of knowledge among the different level in the organization hierarchy. Interviewing actual workers in the field also allowed to collect the list of information that would be useful in the daily work in a perspective of global improvement.

The output of the survey is needed to list which are the professional profiles, also at an operational level, that are involved in Industry 4.0, or that could be in the future. In fact, the projects would like to redesign traditional job descriptions with the integration of new technologies, and to do this it is necessary to point out which are the actual roles that could benefit from these changes in the shoes making process.

Moreover, the survey allows the partners to understand the differences among the countries involved (Italy, Poland, Portugal and Spain) regarding the approach and their actual participation in the themes of Industry 4.0. The main objectives of the survey can be summarized as follows:

- Describing the actual level of knowledge about Industry 4.0 among the employees of footwear companies;
- Identifying the specific lack of knowledge;
- Establishing a standard of knowledge about Industry 4.0;
- Discovering which kind of information could have a greater impact on firms;
- Understanding how the contents should be proposed in order to be easily comprehensible;
- Define the professional profiles in the footwear industry;
- Find conclusions that can be useful for further stages of the project.

5.3.4. Survey results

A total of 63 people working in different firms of the footwear sector replied to the survey: 16 from Italy, 18 from Portugal, 18 from Spain and 11 from Poland. The countries where the awareness about Industry 4.0 is higher are Spain and Portugal (17 and 16 people over the total of 18 interviewees in every country). Italy is in the middle with only 3 interviewees not knowing the meaning of Industry 4.0. The country with the lowest level of knowledge resulted to be Poland, where only 7 people on 11 knowing Industry 4.0. According to the survey, the implementation of Industry 4.0 in companies is higher in Spain and Italy and generally in these two countries the level of knowledge is average, with a score of 5 on a scale from 1 to 10. In Poland and Portugal instead, the knowledge level resulted to be under the average, with a score of 2 and 3 over 10. The survey tried also to investigate if the scarce knowledge about Industry 4.0 concepts in some

countries could be a result of the lack of education on it, and it emerged that in Poland, only 1 firm on a total of 13 had organized training courses about this topic. In Italy the situation seems to be better, since 14 companies within the sample of 16 had organized courses for employees, while in Spain and Portugal half of the firms had invested on training. The reason behind the lack of education might be the budget: in Spain, only half of the companies had a budget dedicated to Industry 4.0 training, and also in the other countries most of the companies do not have a budget specifically oriented towards this type of education: only 14 firms over a total of 63 do have a budget for training on this topic. Moreover, in Spain and Italy there is a good number of providers of specialized education about Industry 4.0, while the interviewed people in Poland and Portugal underlined how according to them there is an actual lack of trainers about the topic. The questions asking why Industry 4.0 is important were only given by Italian interviewees, confirming that in the country the knowledge is higher; people from other countries instead did not provide specific answers about this point.

A second point on the survey aimed to list the key professional figures in the footwear sector, that resulted to be the following:

- Operator of footwear manufacture (EQF[119] level 2), which has been mentioned by 50 people over 63. This job is equally distributed in all the countries;
- Warehouse clerk (EQF level 2), mentioned by 46 people and distributed in all the countries;
- Designer and constructor (EQF level 5), mentioned by 41 respondents and only by half on the Italian ones;
- Footwear pattern making technician (EQF level 4), mentioned by 38 people, is most frequent in Italy and Spain and less in Poland and Portugal where it is present in only half of the companies;
- Management technician of the production of footwear and leather goods (EQF level 4) appeared most often in Spain, and only in half of the firms for Italy and Poland, with a total number of 37 mentions;
- Maintenance technician of machines of footwear and leather goods (EQF level 4), which is the least mentioned, with only 31 respondents over 63 and none in Italy.

[119] European Qualification Framework.

The objective was finding the roles that have a low or medium EQF, therefore who usually are not in possession of a degree and do not need it for their work, in order to try to update the job descriptions according to the impact that Industry 4.0 could have on these jobs. This is going to be pursued in a further stage of the project which is still in the making and which aims to convey the traditional roles with the new technologies, in order to be able to offer training modules that are suitable for the target. The modules will be useful to experiment whether applying the new principles of Industry 4.0 could be effective for their own businesses.

5.4. TRACEABILITY AND CERTIFICATION OF MADE IN ITALY PRODUCTS

5.4.1. The innovation network Face Design

The innovation network Face Design[120] represents companies and research centres which can be categorized in the specialization called "Creative Industries": specifically, companies in Veneto which are carrying out a typical Made in Italy production. The actors which are involved in this network pertain to knowledge fields that are complementary and multidisciplinary, such as the departments of the universities of Veneto and national and international research centres. This network aims to support and contribute to the development of companies pertaining to Made in Italy industries, such as textiles, clothing, footwear, furniture and design. It operates following a dual approach:

1. A multi-sectoral and transversal approach, in order to elaborate new projects about processes, production, communication and distribution to allow companies to act on an international dimension;
2. A vertical approach, with respect to the different supply chains, to invest on research and development, new technologies, innovation and human capital through the use of digital technologies as enablers of new value chains and new business models.

Therefore, the general objective of the network Face Design is to perform and activity of study and research which stimulates the connection among firms and universities, and the multidisciplinary interaction about design, processes, technologies and materials, communication

[120] Veneto Clusters. Le reti innovative regionali: Face Design. https://www.venetoclusters.it/area-reti-innovative-regionali/face-design .

and product in the fashion and design driven sectors. This is aimed to help combining the traditional peculiarities of these companies with the innovations that are characterizing this type of industries.

5.4.2. Objectives of the project

Face Design is involved, together with Politecnico Calzaturiero, in a Project called "Traceability and Certification of Fashion Made in Italy products", which will be pursued through the following actions:

- Enhancing the value of the fashion products of the territory by proving them with technological devices capable of certificating their origin and suitable to transmit the intangible components of the product;
- Communicating to the final customers which are the features of uniqueness and quality that distinguish Made in Italy products from others;
- Innovating the communication processes of companies through the use of web and social channels.

In order to reach the above-mentioned objectives, the project will be carried out following four main stages:

1. Research laboratories held in collaboration with the universities concerning the traceability to grant authenticity, the traceability for marketing and the traceability for sustainability;
2. Experimenting the technological device that has been developed by the pilot project organized by the Regione Veneto about the "talking tag". This device allows to apply a tag on all fashion products, under the form of QR code or RFID[121], that certificates the place of origin of the item and allows to transfer to the final customer information about the value of the product, at the same time transmitting to the producers data about the consumers;
3. Definition and experimentation of new forms of communications able to enhance the value of Made in Italy;

[121] Radio-frequency identification.

4. Implementing activities of promotion in the local territory in order to involve companies and other institutions in the project, and to stimulate the bond between citizens and Made in Italy products.

5.4.3. The role of universities

The project is being carried out in collaboration with the universities present in the Veneto region, through three laboratories, each with a particular theme. All the themes have in common the relation with the main object of the project, which is traceability. The involvement of universities is oriented towards stimulating the interaction of academic institutions and companies, and the setup of laboratories allows to create a space for applied research to reach innovation-related objectives of which the firms will benefit.

Laboratory 1: Traceability for authenticity

The first laboratory is in collaboration with the University of Verona, and it has the objective of defining the state-of-the-art of technologies and of how final customers perceive them, in order to understand how traceability could contribute to the implementation of practices useful to make products recognizable and to prove their authenticity. The main themes of the laboratory regard organization and management, taking into consideration the aspect of the whole supply chain and of brand dynamics. The university department involved in this laboratory is the Law Department, since it can contribute with research on the topics of made-in and forgery, analysing the national and European law.

The University of Padua is involved in this laboratory as well, with the participation of the Department of Managerial Engineering based in Vicenza. This department is in charge of a competitive benchmarking activity aimed towards comparing the traceability practices that are currently present in the market, especially in the fashion industry. The laboratory will allow to identify the impact of the new traceability systems not only at a company level but will also analyse the effects on the supply chain through the mapping of the existing relationships in the various stages of the network.

Laboratory 2: Traceability for marketing

The second laboratory has the objective of analysing how an integrated system of communication, distribution and service could represent a value added for Made in Italy products. The central themes are marketing and innovative models of communication, service and retail design. This will be pursued through the definition of the state-of-the-art of the business models and marketing strategies used by companies, trying to envision how the future ones will be. The

laboratory is held in collaboration with the Department of Managerial Engineering of the University of Padua, which will analyse the theme of traceability in the downstream stages of the supply chain of the fashion industry, understanding the impact on the final customers. The aim is the definition of the "best user experience" to be implemented for the traceability of products, considering the potentials that this will have on the interaction among product, customer and store. The traceability could be useful also under the point of view of customization, since the device would allow not only to get information about the product, but also to personalize it. At the same time, companies would get data about the habits of consumption of final users, in order to schedule the production and stocks accordingly. This aspect will be supported by a statistical analysis that will allow to segment the market in clusters of clients. Moreover, the traceability could bring advantages also if considering a multichannel communication system, to serve the customer better through the presence of both e-commerce and brick and mortar shops.

Laboratory 3: traceability for sustainability

The third laboratory is divided in two parts: one is coordinated by IUAV and the other by Ca' Foscari University. The first part aims to understand in which ways traceability could be useful to keep trace of the sustainability of products, especially regarding their re-use. For instance, knowing the entity of the wastes during the process could allow to establish a network with other firms to find a way to reuse them. The laboratory aims to define the state-of-the-art regarding the re-use and find new practices about sustainability and corporate responsibility. The theme of the corporate responsibility related to the fashion industry will be also furtherly analysed by the Law Department of the University of Verona, that will examine in depth the European regulation about this topic. The University of Padua will be involved in this laboratory as well, analysing the main strategic approaches regarding sustainability that are being used in the fashion supply chain, listing the drivers and the barriers that represent key factors in the definition of sustainable approaches. This information will be used to draft a roadmap able to guide companies towards the implementation of advanced sustainability practices. Moreover, traceability will be analysed under the point of view of sustainability, with the aim of understanding how traceability practices can contribute to the development of innovative and sustainable business models.

The second part of the third laboratory is related to traceability as an instrument of value creation in the supply chain. In particular it regards the analysis of the factors able to strengthen supply chain relationships and to diminish the differences among firms in terms of sustainability. This activity is aimed to design an approach of circular economy in the whole supply chain. In addition to this, the laboratory will consider which are the instruments to create a higher value in

the global value chains, especially through the reputation of the firms among the so-called evolved customers. In fact, traceability could allow to track the sustainable behaviours of companies, that would become communicable.

5.4.4. The “talking tag”

NFC[122] tags already exist in different formats and are widely used for many applications, but they are still not available in a very thin version that could allow them to be used on a wider range of products, such as fashion items. The project in fact proposes a research on a new type of NFC tag that could be used on clothing and shoes, maintaining its flexibility even after being applied on textiles or leather and without the possibility of removing it. The certification system and the technological device aimed to implement traceability will be developed within a project realized by Confartigianato and a pilot-project of Regione Veneto in collaboration with Cna[123], Confindustria Moda and Confesercenti, with the support of consumers associations[124]. The whole project is sustained also by the Regional Ministry for local development and customer protection, and by Unionfiliere, that will be in charge of certificating the product lines with its TF (Traceability and Fashion) system.

Tags on fashion products are useful for different reasons:

1. Tags allow to describe supply chains and processes: they become storytelling devices. The importance of communicating contents nowadays is important to establish a dialogue with the final customers, both actual and potential.
2. Tags grant authenticity: an example is Moncler[125], which recently applied in all its products a new anti-forgery system, which is composed by a unique alphanumeric code and a QR code, together with a NFC tag that is shaped like to logo of the brand. The authenticity of products can be verified by customers by visiting the company website or using the app and scanning the QR code.

[122] Near Field Communication.

[123] Confederazione nazionale dell'artigianato e della piccola e media impresa.

[124] Adoc, Adiconsum, Federconsumatori, Lega Consumatori and Unione nazionale consumatori del Veneto.

[125] Moncler. Brand protection. http://brand-protection.moncler.com/ .

3. Tags improve marketing and management: they allow to keep track of the statistics about production, sales and distribution of products. These data are fundamental for the quality control and to optimize the management of import-export.

5.4.5. The certification system

A company deciding to participate in the traceability system is subject to verifications to obtain the certification and signs an agreement with Unionfiliere. The inspectors then visit the company to understand it if has an organizational and reporting system which grants the authenticity of each phase of the manufacturing process, and upstream suppliers are then verified as well. After the verification, the documents are sent to the TF (Traceability and Fashion) committee, that decides if granting the certification. Companies can decide if they want to ask for the certification of their whole offer or only of one or a few product lines.

The certification system grants to the customer transparency regarding where the product has been processed and its characteristics, also in terms of environmental sustainability. Therefore, consumers will be able to deepen their knowledge about the product by using their smartphone, at the same time transmitting to the producer his own purchasing preferences in a anonymous way, combining traceability and marketing.

5.5. SKILLS4SMART TCLF INDUSTRIES

5.5.1. The project

The project Skills4Smart TCLF Industries[126] aims to sustain the modernisation and competitiveness of the European textile, clothing, leather and footwear (TCLF) industries, through the development of a strategy of sustainable upskilling and reskilling. Market dynamics are moving fast and require people to be constantly updating and enriching their own knowledge, in order to adapt to the changes in the work environment. The New Skills Agenda of the European Commission has launched the Blueprint for Sectoral Cooperation on Skills[127], which is a framework to implement strategic cooperation among the key stakeholders such as companies, education and training providers, research institutions, public authorities, trade unions etc. In

[126] Skills4Smart TCLF Industries. The Project. http://www.s4tclfblueprint.eu/ .

[127] European Commission. Skills and qualifications. Blueprint for sectoral cooperation on skills. https://ec.europa.eu/social/main.jsp?catId=1415&langId=en .

particular, Skills4SmartTCLF is a project concerning the TCLF industries, which objective is pursuing concrete actions to reach short and medium-term skills needs to support the overall strategy of the sector. The project started in January 2018 and will end on December 2021, with a total duration of 48 months. It counts 21 partners from nine European countries, which are both companies and educational and training institutes, and one of the partners is Politecnico Calzaturiero.

5.5.2. Objectives of the project

The project aims to support TCLF industries by helping the diffusion and update of new skills which are necessary to be competitive in the changing labour market. The main objectives are the following:

- Identifying actions to pursue and tools to use to anticipate the future need of skills;
- Improving skills intelligence and information mechanism trough the establishment of partnerships and networks;
- Increasing the attractiveness of these sectors;
- Creating a network among training and education providers, public authorities and other stakeholders which are crucial for skill development;
- Engaging regions and private stakeholders in promoting skills and innovation in TCLF sectors to ensure the project outcomes.

In order to reach these objectives, the project envisions to pursue the following actions:

- Identifying sectorial education and training providers to reach collaboration;
- Drafting four yearly reports which integrate the conclusions of the focus groups and of the interviews involving companies and education providers, together with an overall view of the work done up to that point;
- Identifying 8 new TCLF job profiles and corresponding curricula which are in line with the changing needs of the sector both in the short and long term;
- Describing existing MOOCs[128] or VOOCs[129] which are useful to the sector

[128] Massive Open Online Courses.

[129] Vocational Open Online Courses.

- Designing eight new educational and professional courses, including fully online and part on line and part in school ones;
- Implementing the system with at least 100 trainees per online curriculum, 10 trainees per country per traditional curriculum and 5 trainees per company per country for practical curricula;
- Creating a database to store all the research, projects and best practices carried out in the sector;
- Developing a promotional plan for the TCLF sector
- Creating a network of European training and education providers and signing a Memorandum of Understanding by at least twenty institutions by the end of the project.
- Establishing a network of European countries committed to invest on upskilling in order to favour innovation for a future "Smart Specialization Platform on Industrial Modernisation of TCLF".

The project aims to involve both companies and training institutions. By participating to the project, companies can actively work on the upskilling of their workers, while institutions providing education and courses will be still competitive by offering up-to-date courses and innovative learning methods, in order to ensure that workers have the key skills and knowledge to adapt to the major challenges faced by TCLF industries.

5.6. INNOVATION THROUGH COLLABORATION: THE DEL BRENTA CASE

5.6.1. Company's profile

Innovation does not only start from Politecnico Calzaturiero: an example is the case Del Brenta and its continuous searching for new techniques to communicate with its customers and suppliers. Del Brenta[130] is a manufacturer of heels, platforms and wedges for woman shoes, founded in 1968 in the Riviera del Brenta area. The firm works in the fashion business, it has 43 employees and in 2017 it registered a turnover of 9 Million euros. It counts two branches: the headquarter is located in Vigonza, while a second branch has been opened in central Italy. Del Brenta follows the whole process of the heel creation, starting from the R&D phase. This phase is

[130] Del Brenta. Company website. https://www.delbrenta.com/ .

done in collaboration with the customer who elaborates the style of the heel, according to which the company creates the first handmade prototype. The design is then realized with the use of 3D scanners which get the image of the handmade prototype and convert it in a digital file. Afterwards, replicas of the initial prototype are 3D printed, in order to allow technicians to furtherly work on the dimensions and the customer to have a copy of the heel as well. In order to produce heels on larger scales, the company creates moulds. The business in which Del Brenta operates is characterized by a very short time to market: the company is considered a Quick Response Manufacturer, so it has to start production just in time in order to fulfil the requests of its demanding customers, and also logistics has to be carefully managed to respect deadlines and remain competitive. In fact, quick response manufacturing is a source of competitive advantage that emerges as the pressure from customers demanding faster product delivery increases. Figure 15 summarizes the whole value proposition of Del Brenta, which touches the important stages of R&D, Design and Operations.

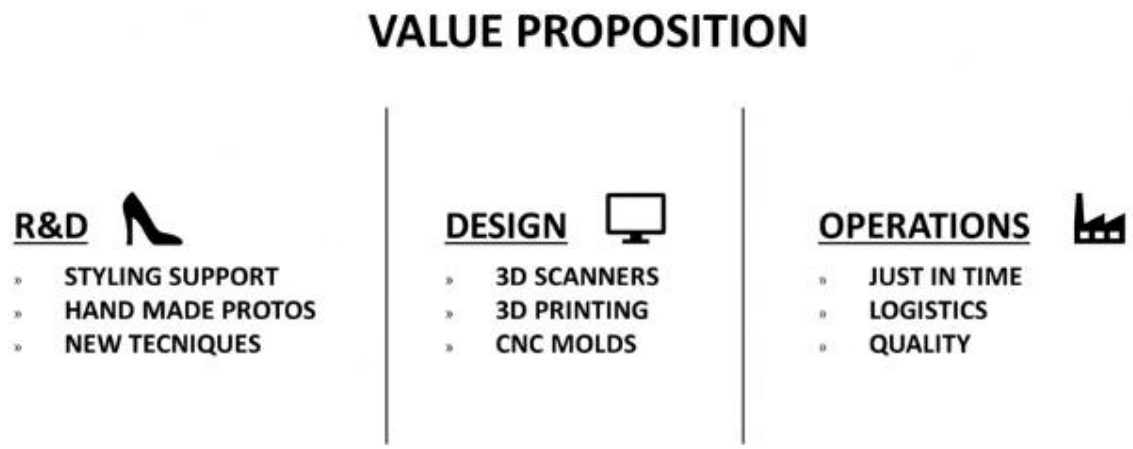


Figure 15 - The Value Proposition of Del Brenta
Source: Cisco website

The company has a client base which is composed mostly by luxury brands. As displayed in Figure 16, Prada, Kering and LVMH represent half of the customer base of Del Brenta. It has to be noted also that not all of these brands produce their shoes in the Riviera Del Brenta footwear district, meaning that the influence of the company and its relationships go beyond the boundaries of the local cluster. Luxury brands are very demanding and require high quality and fast delivery, this is why Del Brenta has to continuously reinvent the approaches to its business to be innovative and more efficient, since, as Stefano Bezzon[131] said, *every new heel is a new challenge*.

[131] Head of Innovation at Del Brenta.

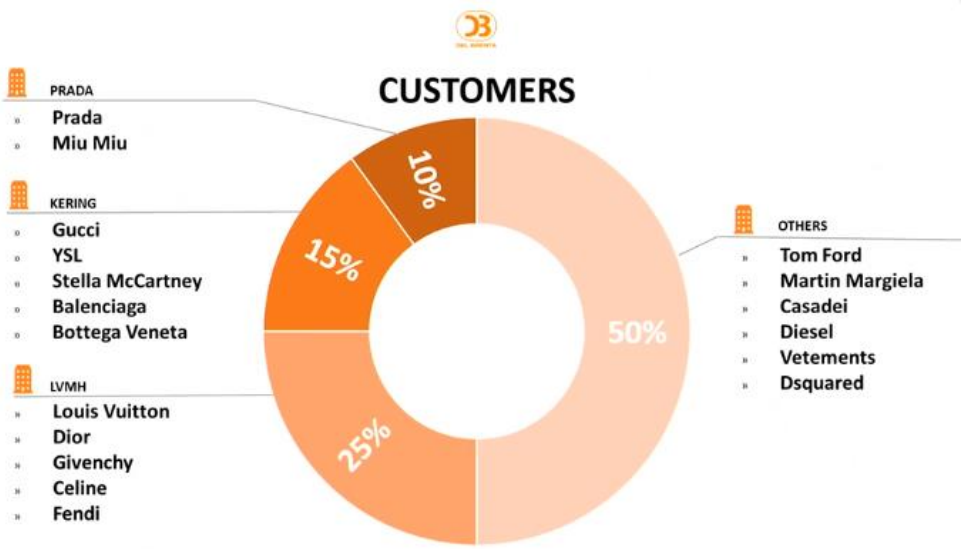


Figure 16 - Del Brenta customers
Source: Cisco website.

5.6.2. The use of Cisco Webex Teams

The process of creation of a heel is very complex and requires a close collaboration of the shoes designer and the heel technician, and the fast time to market implies a constant communication among all the key figures inside the company as well. Del Brenta used an Enterprise Resource Planning software to integrate all the relevant functions in the firm and to connect all the stages of the manufacturing process. Despite this, this system was still not giving a proper help to manage communications: customers were forced to travel to Del Brenta for meetings and internal communication was limited to emails, with the risk of misunderstandings or lost messages. In particular, the first phase of the creation of the heel requires the physical presence of the shoes designer to work together with the artisan on the design files and on the prototype. In order to solve these problems, Del Brenta decided to look for a teamwork tool that could improve both internal and external communication: the solution was found in the use of Cisco Webex Teams[132]. Webex teams is a set of tools designed to improve real-time communication and collaboration. It allows to do virtual meetings, send direct messages, files and screen sharing and interactive drawing. The heel making process requires collaboration among many different teams, from conception to creation. The entire company has to work together to be able to deliver the final product to customer on time. Together with internal communication, Del Brenta uses Webex Teams to stay in contact with suppliers and customers as well.

[132] Upshot Stories. Building a Culture of Collaboration: How Webex Teams Helps Del Brenta Keep Pace with the Fashion Industry. Cisco, July 2017.

Suppliers collaboration: Del Brenta works with a selected group of suppliers to realize the moulds for the heels. The production takes place in-house but working closely with suppliers is necessary in order to reduce waste and minimize the lead times. With the use of Webex Teams, the technicians of the firm can share their screen in order to work together with the suppliers on the CAD files, in an optic of real-time collaboration. With this system, the Chief Operating Officier of Del Brenta no longer has to travel to suppliers to check the production status, saving money and time: in fact, the previous hours spent driving are now substituted by a 10-minute conference call. Before Webex Teams, miscommunication could lead to mistakes, but the virtual connection has decreased the risk of mistakes in the manufacturing process from 10 % to less than 1 %. The time reduction in relating with suppliers allows to shorten lead times, bringing advantages to the customer relationships as well. Usually, when Del Brenta asks to customers when they want the delivery to be made, their answer is: as soon as possible. Therefore, time reduction is crucial to ensure the delivery of high-quality products in a very short time.

Customers collaboration: the use of Webex Teams has led to improvements in communicating with customers as well. Del Brenta has placed a Cisco hardware in the offices of its customers in order to have a dedicate phone line. In this way, the use of Webex Teams and the hardware allows to pick up the phone and connect directly with the customers. In addition to this, the company uses the Cisco Webex Board, a digital board which permits to share contents with all the participants during meetings, and Cisco DX80, a desktop allowing conferencing that can be integrated to the personal computer. These devices allow customers to show to Del Brenta technicians how they want the heel to be made, and they both can work on changes live, without needing to travel to meet in person. This represents a significant development with respect to the past, when customers had to physically travel to Del Brenta offices and often stay overnight, facing costs and losing entire working days. The equipment is present also in the prototyping office, therefore the artisans can talk directly with the shoes designer for the joint realization of the new heel. Feedback is fundamental in this phase, in order to be sure to create the product exactly as the customer wants it. This stage can be considered the most critical in the definition of a new heel, this is why virtual communication is important to be connected with designers located in Paris, London and across the world, who are able to approve immediately the final design to let the process move forward in a short time.

The case of Del Brenta and the application of Cisco technology show how a traditional company can pursue an innovation path that involves the improvement of the process through the enhancement of collaboration and relationships. Del Brenta conveys design and technology to

offer high quality products and to differentiate itself with respect to competitors. In a fast-moving world as fashion is, being responsive and reactive to customers' requests is vital to survive and to keep on being successful. Being faster and more efficient are key points in this type of business, and the integration between the traditional process and the use of technological devices allows to foster communication and feedback, and to reduce mistakes.

SMEs can be innovative and find new solutions to keep pace with industry changes. In a traditional sector like the footwear one, Del Brenta demonstrates that process innovation cannot be only reached through working on the way in which things are made, but also on the relationships amongst the actors involved. In this case, the use of Cisco Webex represents a proper innovative solution since it increases efficiency reducing the risk of mistakes, but all of this is reached thanks to the higher level of collaboration among the employees and outside actors. The presence of suppliers as Del Brenta in the footwear value chain allows innovation to be pursued not only by shoes making companies, but also by other firms in the value chain. In this sense, if a supplier introduces new technologies, also the companies performing further activities in the value chain will benefit from them, for instance by receiving products faster, or for being able to communicate more frequently.

5.7. CONCLUSIONS

In the context of global value chains, firms are not the only ones innovating: in fact, they can also benefit from improvements performed by other actors in the chain. In the case of Riviera del Brenta, the local dimension of the GVC can be identified with the industrial district and has its role in promoting relationships between firms and their suppliers, and between firms and local institutions. If taking as an example a footwear manufacturing firm in the district entailing relationships with both Politecnico Calzaturiero and the heel manufacturing Del Brenta, it is possible to say that its way of working will benefit from the innovation strategies performed by the other actors in the global value chain. From the other side, the global dimension of the GVC plays its role in innovation since MNEs licensing brands are willing to improve their processes to become more competitive on the international market. Understanding the activities performed by every company in the global value chain is fundamental in order to understand the role it plays in the industry, and in which way it contributes to the value creation. Nowadays, it is no more possible to understand how an industrial district has evolved without taking into consideration the GVC to which it pertains (De Marchi et al., 2017). The innovation activity of a company and its ability to react to global challenges is not only determined by the company itself, but also by the context in

which it operates and by the contribution of the other actors involved in the process. Districts and clusters which have been able to reinvent themselves in order to continue to be competitive attract global firms, which are interested in exploiting and enhancing the creativity and product innovation processes linked to manufacturing, but are also interested in monitoring quality and exploiting local competences to produce high-quality luxury items (Bettiol et al., 2017). In this context, the presence of specialized suppliers willing to improve their processes, as Del Brenta, and the activity of local institutions which are connected to others on the national and European level, like Politecnico Calzaturiero, contributes to the creation of a local system of innovation which foster the creation of value within the global value chain.

CONCLUSIONS

Industrial districts had their major period of success when they represented an alternative to the mass production that was preponderant on the economic scenario up to the point of their emergence. The activity of districts was based on location and proximity, since they applied the principles of the division of labour to an entire community, fostering the importance of relationships and giving origin to the so-called "communitarian factor". Nevertheless, all the advantages held by industrial districts seemed to be fading after the rise of globalization, which saw the arrival of emergent countries as new competitors, and the introduction of flexible manufacturing systems which allowed to realize customized products benefitting from economies of scope and economies of scale. In this new scenario, industrial districts have three choices: remaining competitive by acting dynamically, concentrating the business in the hands of a few players still able to compete, or declining irredeemably. Companies wishing to keep on being successful have to integrate themselves into global value chains, which represent the fragmentation of activities on an international level. Global value chains can represent both a threat or an opportunity to industrial districts: those willing to embrace the challenges posed by the new context have to adapt and to change their traditional way of operating, beginning to interact with international actors. In the global value chain framework, the typical manufacturing activity carried out by industrial districts is classified as low value-adding, and this explains why many firms in the last thirty years have started to outsource and offshore production phases in order to focus on high value-adding operations such as R&D, marketing and sales. Actually, researchers demonstrate that this choice could result not to be efficient in the case in which co-locating manufacturing and Product Development could create synergies able to foster the innovative behaviour of the company. This is particularly true for industries characterized by process-embedded innovation: this entails the deep integration of process technologies and the Product Development phase. Process-embedded innovation characterizes many traditional creative businesses, in particular high-end fashion ones. In these businesses, slight changes on the process can have a great influence on the final result, impacting on the quality and features of the product. In addition to this, evidence demonstrates that in many low-tech firms the core functions related to Product Development (prototyping, samples creation and industrialization) take place in the

same location of the manufacturing activities, in order to avoid initial mistakes and to keep a constant exchange of information among the actors involved.

The Riviera del Brenta footwear district can be considered as a case of resiliency: some firms pertaining to the district did not survive with the increase in competition from emerging countries, but many others were able to reinvent themselves, focusing on the luxury shoes niche and entering global value chains as licensee of international fashion brands. This district is composed by firms embedded in a strong social and local context which is characterized by a number of specialized suppliers located close to the shoes manufacturers. At the same time, most of the firms maintain tight relationships with the global lead firms in the district, namely the fashion multinational groups licensing their brands. One of the most successful firms in the district is Rossimoda, a licensee for the LVMH group, which is the perfect example of how co-locating manufacturing and Product Development can generate positive synergies which characterize the entire process. Rossimoda is not only in charge of carrying out an activity considered as low value-adding as manufacturing, but instead has kept inside the whole Product Development phase, which is a high value-added activity in the value chain and which entails daily relationships with the international licensed brands. This demonstrates how industrial districts can leverage their competitive advantage on exploiting their traditional manufacturing activity by combining it with Product Development in order to foster innovation and have an active role in global value chains, especially for what regards fashion-related sectors.

Local institutions acting as local dynamic actors have a role as well in promoting the innovative behaviour of companies: an example is represented by Politecnico Calzaturiero, the specialization school present in the Riviera del Brenta district which acts as a bridge between the innovative projects developed at an international level, usually in collaboration with the European Union, and the set of tradition and values held by firms in the district. Politecnico Calzaturiero is not only providing training and education, but instead represents a proper knowledge gatekeeper for the district, by looking for methods to apply recent technologies to the footwear production and for new competencies the workers of the future should have. Innovation does not come only from Politecnico Calzaturiero, as the Del Brenta case shows: even suppliers of footwear-making companies can embrace an innovation path on their own. The local heels manufacturer has used the technological devices provided by Cisco to improve the relationships with its suppliers and customers, namely shoes making companies and the designers themselves. Innovation carried out by suppliers represent an innovative way to reach upgrading, since companies themselves can benefit from the efficiencies generated by the new system of communicating. These case studies

demonstrate how a traditional industry such as the footwear one can pursue new paths to be competitive and innovative, and to perform process upgrading in the global value chain. Usually people think to the luxury shoes making as a process in which the artisan carefully assembles the shoes, but it must be taken into consideration that the dense network of relationships and the exchange of information with international brands, specialized suppliers and local institutions have a great role in fostering innovation even in such a traditional sector. These relationships are located into the global value chain framework, but in this case manufacturing represents a source of competitive advantage and not an activity which should outsourced in order to gain from cost differentials: if properly managed it could be, instead, the heart of the value creation of the company.

LIST OF FIGURES

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