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"The role of manufacturing in the Industrial District through the analysis of the Global Value Chain framework: the case study of Belluno Eyewear Industrial District"

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Introduction

The theme of manufacturing has always been a subject discussed in the international scholar's studies. Recently, a new phenomenon (re-shoring effect) and the resulting changes of the markets have redefined the role attributed to this core activity, especially with regard to the strategic choices of the companies, in the international competition.

Therefore, the aim of the research is to analyze the role of manufacturing in the industrial district, in order to underline the evolution and the development of the district, as local manufacturing system (Nassimbeni, 2003). Through the analysis of the Global Value Chain framework, described by Gereffi (2014), it was possible to put in evidence the industrial district's position, in the global competition and to describe the possible future development scenarios of the district.

The research is organized in five chapters.

The first three chapters analyse the theories on the manufacture activity, at the global and local level. In particular, the first chapter focuses on the introduction of the most famous analytical models that describes the strategic choices of the companies, in the global competition. During the internationalization phenomenon, the firms have delocalized the production abroad, mostly towards the emerging economies. While, in recent years, the re-shoring effect has influenced the return, albeit partial, of the firms' productions in their places of origin.

The second chapter describes the Global Value Chain framework of Gereffi (2005). The main concepts present are the governance and the upgrading of the GVC evolution. The upgrading processes and evolution of manufacturing described by Gereffi (2011), from the primary process of Original Equipment Manufacturer to Original Design Manufacturer, and finally, the upgrading to Original Brand Manufacturer, suggest (in order to gain more value) an orientation towards the "intangible assets" of the value chain. This concept is reinforce by Mudambi (2008) in the theory of the "Smiling curve", in which it is described the manufacture as a "tangible asset" with a limit role in the value creations process.

Instead, the chapter three puts in evidence the local aspect of the manufacture in the industrial district model by analyzing the evolution of the local system of manufacturing, during the years. From the Marshallian original concept of the industrial district to Becattini and Porter's

re-definitions and, finally, up to the new re-configuration of the district in the modern competition (De Marchi and Gradinetti, 2014).

In the last two chapters of the research, are described the analytic study, based on primary and secondary data.

The fourth chapter evidences the link between the local and global dimension of the competition, through the relationship between the industrial district and the Global Value Chain framework. In particular, the attention has been focused on the eyewear industry sector and it has been analyzed a specific case study, the Belluno eyewear industrial district; one of the most famous and historical districts in the eyewear industry, as well as, the most profitable Italian district, in 2015 (Intesa San Paolo, 2015). Moreover, an experimental framework of GVC on the eyewear industry highlights the main stages of the production process for the realization of spectacles.

Finally, the fifth chapter describes the three companies interviewed, such as Luxottica Group, Visottica-Comotec Group and Dolpi Ltd., which have contributed to emphasize the strategic decisions about the localization of the production, in the global competition. The contribution of the companies and the local institutions of the Belluno district, including Certottica and Confindustria Belluno Dolomiti-Sipao, allowed developing of Belluno eyewear industrial district framework, which highlights the limitations and the opportunities for growth of the Belluno district and shows the role of manufacturing in driving the competition.

Chapter 1: Manufacturing becomes International

1.1 Internationalization

"*The internationalization is as a gradual, incremental process of evolution, which manifests itself with greater involvement of businesses in foreign markets*" (Yu & Si, 2012).

In the definition, the concept of process highlights the evolving nature and dynamics of the phenomenon, while the space dimension considers the stretching of activities in regional, continental and global contexts (Saviolo, 2013). The reasons that lead companies to internationalize can be of different perspectives, for example: internal, in order to reinforce an existing firm's competitive advantage or its products in international markets (Hymer, 1970) or external, since the firm acts as a follower because it perceives competitors' internationalization as a threat (passive internationalization) (Saviolo, 2013). However, companies consider the internationalization strategy as a key factor in achieving a sustainable competitive advantage and the phenomenon influences one or more activities of the value chain.

1.1.1 Internationalization theories

During the years, were been developed many theories about the reasons and the objectives for internationalized. The first economist that had elaborated internationalization theory centered on the company prospective, in the market, was Stephen Hymer in 1960; the assumption in the analysis focused on some firms' capabilities to gain competitive advantage in perceiving specific activities of their businesses. These competitive advantages were related to cost advantage and differentiation advantage (Peretti, 2013). The Hymer's contribution gave the foundation to the multinational firms' theory and changed, dramatically, the prospective of analysis from national point of view to company point of view.

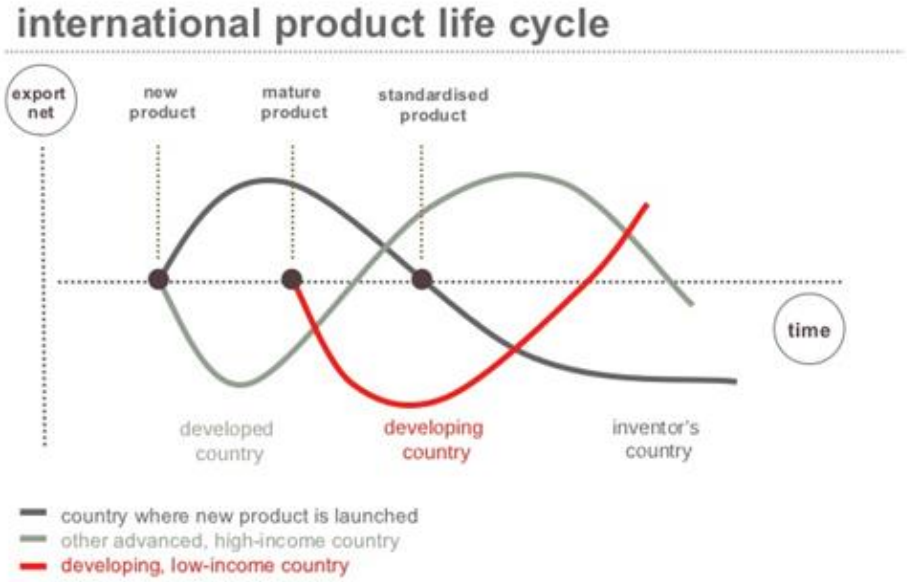
In the post-Hymer theory, the international scholars were been influenced by the original assumptions of the Canadian researcher and the main concepts have been revised and adapted to the historical period. The most important and well-known models, in the studies and development of the internationalization process, will be described in this section.

The *Product Life cycle* theory was introduced by Vernon in 1966 and it analyzed the "innovative advantage" of firms located in advance markets in order to be capable to anticipate the dynamic of the demand in other countries. As showed, in the figure 1:

International Product Life Cycle, Vernon defined the evolution of the company's products, according to the market in which are located, developed market or developing economies, and the consequences of the strategic internationalization decisions related to the characteristics of products.

In the first phase, introduction stage, the firm has to be locate the production close to R&D headquarter in order to be able to communicate the new product to the market in the best way. In the growth phase the product, already know by the market, could be exported abroad in order to gain the differentiation advantage in the markets, where it is not present. In the maturity and decline phases, instead, the product is totally standardized, so in order to be more competitive in market the firm has to follow the cost advantage and it has to locate the production where the cost of manufacturing are lower, such as developing countries. In this way from an exporter country/firm, it will become an importer country/firm (Vernon, 1966).

Figure 1: International Product Life Cycle

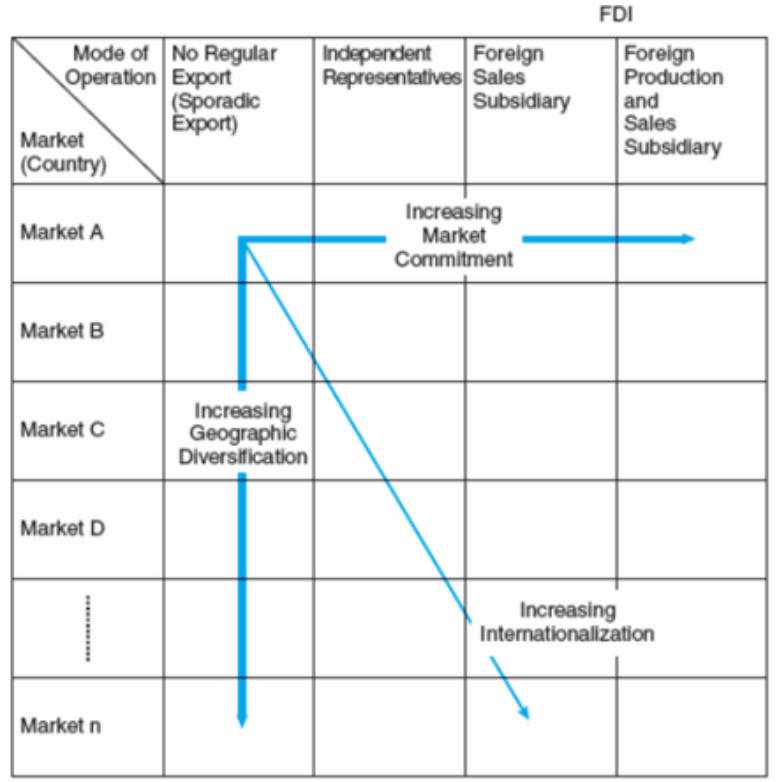


Source: Raymond Vernon, 1966 *International investment and international trade in the product life cycle,* the quarterly Journal of Economics, 80(2), pp 190-207.

The *Uppsala Model* (Johanson & Wiedersheim-Paul, 1975) sustains this theory, emphasizing the psychic distant of the internationalization process. The firms decide to enter in countries that are closer psychically to their domestic markets and later explore others foreign countries. Hence, in the model the previous stages will consider entry modes related to the exports, later the necessity to control the product will bring them to implement foreign sales subsidiaries and then it will establish manufacturing subsidiary, in order to compete on price/cost.

The figure 2, Uppsala Model, puts on evidence that when it increases the geographic diversification, as well, it grows the market commitment because of the expansion of the internationalization process.

Figure 2: Uppsala Model



Source: "*Learning in the Internationalisation Process of Firms*", p.261 Johanson & Wiedersheim-Paul (1975).

However, there are some criticisms on the assumptions of these models, which are distant from the Hymer's theory, because the attention is focus only on specific product, instead to analysis broadly what are the capabilities of the firms in general or of the firms that dealing with multi-product business. Moreover, they did not take into account the impact of innovative "*technology-push*" as a driver for the international expansion of the company abroad (Peretti,2013) and one other exception to the concept of international product life cycles (PLC) is the existence of the "born global firms", which have access, at the same time, to all the global market.

Later, Dunning introduced in 1977 the *Eclectic Paradigm*, that highlighted the reasons to internationalize of the firms according to some specifics objectives in the long-run. The four principal categories, that we are going to analyze in detail later in this paragraph, are: natural resources seekers, market seekers, efficiency seekers and strategic asset seekers. Anyway, according to the *Eclectic Paradigm* in the internationalization of the firms, whatever is the

goal that the company wants achieve, the competitive advantage is based on three interdependent variables (OLI): Ownership, Localization and Internalization (Dunning, 1977).

- Ownership Advantage entails that the international company has to own a unique and sustainable competitive advantage. The scholars and the international studies highlight four types of advantage: national advantage, exploitation of national resources; sector advantage, exploitation of monopolistic and oligopolistic powers; firm advantage, resource-based of skills unique or limited; manager advantage, coordination and good management. By the way, it is possible to give another classification of the advantages described, based on the stability of knowledge and resources or on the dynamic skills (Peretti, 2013).
- Localization Advantage explains the attraction of nations or regions for the multinational company activities. The heterogeneous theories that describe the localization advantage are: traditional localization theory about the production centers; internationalization processes, focus on the territorial expansion through the concept of psychic distance (Uppsala model); agglomeration theory on the concentration in specific countries through the interaction of centripetal[1] and centrifugal[2] forces and spatial transaction costs theory (Peretti, 2013).
- Internalization Advantage comprehends the modes of entry abroad. The theories that support this advantage are: hierarchical transaction costs theory, agency costs, opportunism and principal-agent relationship; international transaction costs theory (Peretti, 2013).

The three components all together response to the "Why", "Where" and "How" a company internationalized and they are influenced by: the firm's goals (listed above), the firm's sector and variables at macro (nation) or micro (company) level (Peretti, 2013).

As we have described in the Dunning OLI theory the *Transaction Costs Theory* is a fundamental aspect for the establishment of the economic policy. Ronald Coase, in 1937 in his paper "The Nature of the Firm", highlights the reasons that lead companies to expand or source out activities to outside.

The theory, redefined by Williamson in 1981, is based on "*a trade-off between the minimization of the costs in exchanging resources with the external environment and the internal expansion of the company, as long as, the internal transaction costs are cheaper than*

[1] Centripetal forces: market size, labour market size, external economies (Peretti, 2013).
[2] Centrifugal forces: immobile resources, external diseconomies (Peretti, 2013).

external transaction costs" (Williamson, 1981). Transaction costs are composed by search and information costs, bargaining and decision costs and policing and enforcement costs.

According to the relevant amount of costs for such components, it becomes critical the decision to make a product or buy it (frictional cost).

Moreover, in this theory is put in evidence a fundamental observation on human behavior that have a great impact on the transaction costs and that distinguish this approach from neoclassical studies on economic. In fact, the theory describes two behavioral assumptions: bounded rationality of human being and the possibility of an opportunist behavior in the relationship principal-agent (Williamson, 1981). Anyway, the theory is based on assumptions that it is possible to measure the impact of transaction costs in advance before the strategic decision of the entry modes, but this consideration is difficult to implement. Furthermore, the strategic choices of expansion, in order to gain new resource, it has not been taken into account by the model.

Last but not least, a great contribution on the international studies has been given by the *International Network theory*, (Hertz et al., 1998) that focuses on the capabilities resources of small-medium firms that rely on "*interdependent exchange of relationships between the participants of the network, rather than through the market*" (Hertz et al., 1998). The network put in connection different stakeholders of the business, such as, for example buyer and supplier that can share knowledge of their inventories capacities or the implementation of best practices between the partners.

The learning process and mutual trust built, in this international theory, influence the strategic decisions of the expansion abroad. A central role of the network theory is linked with the analysis of the direct or indirect network in which the company is part; in this way, it will be possible establish a sustainable network for the success of the small-medium firms (Hertz et al., 1998).

1.1.2 Internationalization of Manufacturing

In particular, all the theories, described above, highlight the tendency of the firms to internationalize the manufacture. The manufacturing strategy is the result of an evaluation process between the characteristics of the industry (such as competition, economic and technological situation) and the internal characteristics of the firm (such as resources and skills) (Peretti, 2013).

The international localization of the manufacture is linked to specifics objectives that companies want perceive. These objectives can be grouped into different strategies: "*resource seeking, market seeking or knowledge seeking*" (Peretti, 2013). In the first case, the firm needs to catch resources (raw materials, components, labour) that are not present in the domestic market or available at the lower costs. In the second case, the advantage to be closer to the market is determined by a reduction of the costs in communication and transportation or adaptation, related to the local needs (i.e. transaction costs). In the third case, it is possible to "*gain new knowledge and information useful in order to deal with innovation of product or of process*" (Leonard-Barton 1992).

The mode of manufacturing internationalization could be conduct in different ways, according to the specific objectives discussed above. These categories of internationalization are driven by proactive motives, which are based on the management's beliefs that there are firm-specific assets that can be exploited abroad. In fact, according to Dunning as we had already mentioned above, it is possible to develop the knowledge seeking strategies in a deeper analysis in order to highlight, on one hand, the efficiency seeking, focus on gaining economies of scale and of scope and, on the other hand, the strategic resource seeking, by acquiring assets for long-term objectives. Others motives that drive the internationalization are linked with the possibility to have a response to unfavorable conditions in current markets; thus reactive motives. For example, the firms is forced to exploit new markets because it presents excess capacity or, instead, the current market is saturate (in a mature-decline phase of PLC) for that specific product or service (Peretti, 2013).

The localization of the manufacturing phase abroad could be realized with the use of existing manufacturing plant (brownfield) or in building new plants *ex novo* (greenfield) (Peretti, 2013). The difference between the modes of entries is in the resources and transaction costs deployed by the firm. Other solution in the localization of the production that considers contract-based modes, rather than equity-based modes, is the *Contract of manufacturing* or *Outsourcing.* An important aspect to take into account in this strategy is that although the investment required is less onerous the possibility of the loss of the control over the manufacturing process, it could be manifested in a poor publicity for the company.

As discussed above, the first theory of the internationalization of enterprises was developed in 1960 by Stephen Hymer (centralized on cost advantage and differentiation); over the years have been followed many theories, while, in the strategic management field the studies have considered the internationalization phenomenon relatively late.

1.1.3 From the international economic to the strategic management: the Value Chain

Finally in 1985, Michael Porter introduced the concept of value chain, in his book "*Competitive Advantage: Creating and Sustaining Superior Performance*" and the internationalization began to get an increasingly important role in business strategies.

The value chain comprehend all the activities in a business, starting with raw materials till the conversion into final goods or service and it is composed by two sets of activities: primary activities and support activities, as showed in Figure 3.

The primary activities are (Porter, 1985):

- Inbound/outbound logistics entails all the necessary information in order to move and organize the production from the raw materials and work in progress products (first part) to the final products or services (second part);
- Operations comprehend the transformation process of the input into the final output;
- Marketing and sales are those activities related on the communication, the delivery and the sale of the final products to the end user;
- Service entails the taking care of the efficiency of the product after the sale and in assisting the customer.

The support activities are (Porter, 1985):

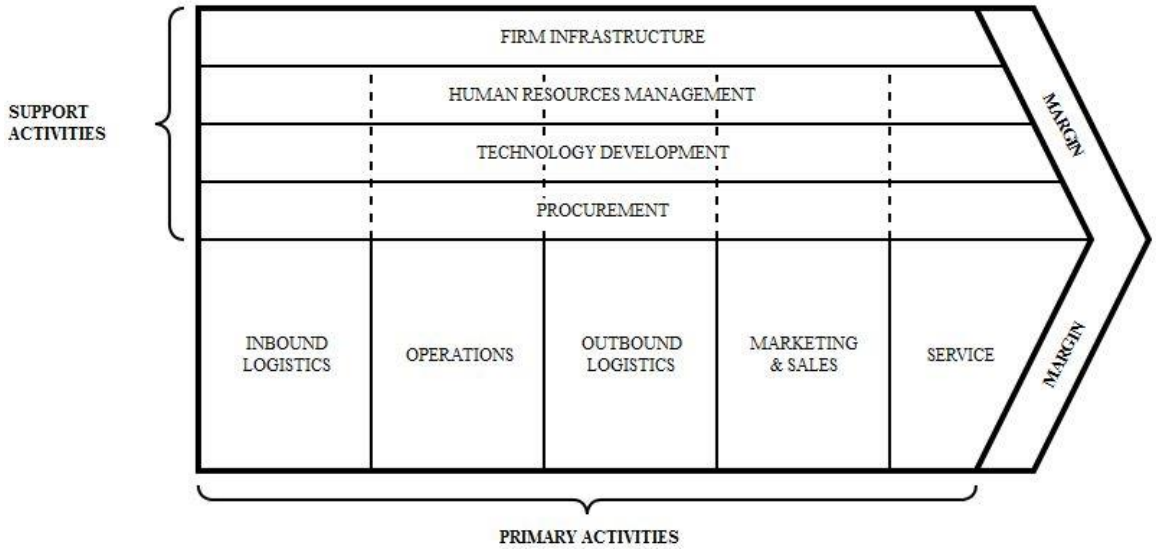
- Firm infrastructure are a bulk of activities, such as for example: legal, accounting, control, finance management necessary in order to run a business;
- Human resources management;
- Technology development is the IT system of the firm;
- Procurement comprehend the acquisition of new resources from outside.

The margin that derived by the collaboration and the synergies of the all activities involved in the business, according to Porter, entails the achievement of a sustainable and competitive advantage for the firm. This enables managers to focus "*on comparable buyer value more efficiently than competitors provide, by competing on low cost, or performing activities at comparable cost, but, in unique way, that create more buyer value than the others can create and command a premium price using the technique of differentiation*" (The Economist, 2008).

In fact as reported in his book: *"Competitive advantage cannot be understood by looking at a firm as a whole. It stems from the many discrete activities a firm performs in designing, producing, marketing, delivering and supporting its product. Each of these activities can*

contribute to a firm's relative cost position and create a basis for differentiation" (Michael Porter, 1985).

Figure 3: Michael Porter's Value Chain



Source: Competitive Advantage, (Porter, 1985).

The manufacturing phase is a primary activity in the model and, according to a specific type of organization; it may have a major importance in creating value for the firms.

Since then, international scholars have reviewed the Value Chain model; taking into account the global environment that affects countries and firms.

1.2 Smiling Curve model

After the first industrial revolution, "*the concept of value creation has been moved from direct application of human labour to tangible assets, like industrial plants and machinery*" (Mudambi, 2008). Nowadays, the creation of wealth is moving the world economy from tangible assets to intangible ones at a very high speed (Mudambi, 2008).

Focusing on the intangible assets, as the core of the knowledge-intensive industry, Mudambi introduced, in 2008, the "Smiling Curve Model[3]". In the model, with the terminology "intangible assets" we are considering the "*future benefit that does not have a physical or financial embodiment*" (Mudambi, 2008). Such as patents, copyrights and brands or valuable relationships in the inter-organization structure.

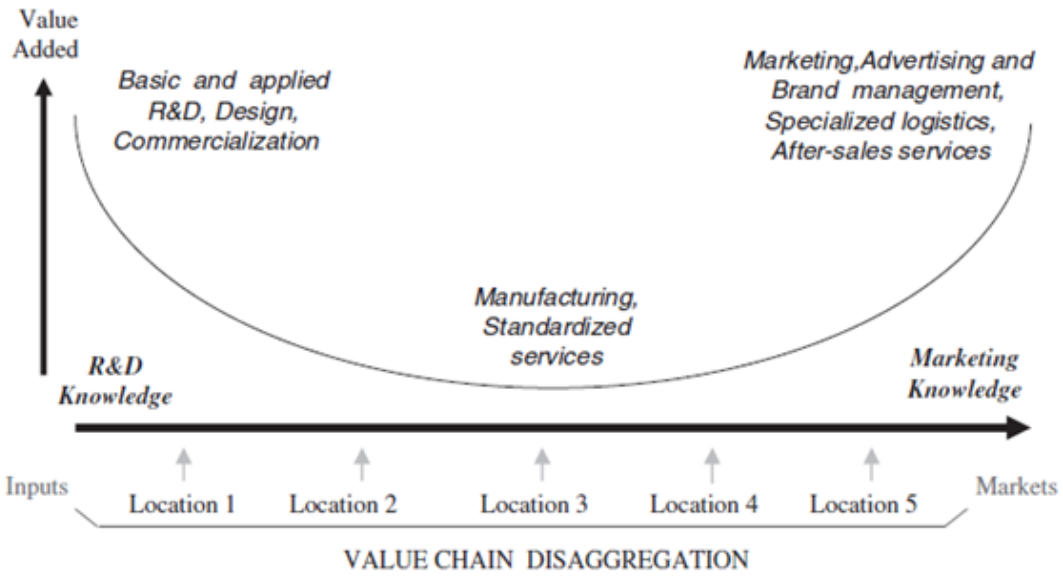
[3] Stan Shin, the founder of Acer (Taiwanese company), first proposed the model around 1992.

In the global competition, the firms are dealing with the creation and the effort in capturing the value generated from these intangible assets.

For what concern the definition of value chain activities, we are considering three main categories illustrated in the Figure 4 (Mudambi, 2008):

- Activities at the upstream (input), like: R&D, Design and Commercialization;
- Activities in the middle, like: Manufacturing and Delivery standardized service;
- Activities at the downstream (output or market), like Marketing, Brand management and Service after-sales.

Figure 4: The smile of Value creation



Source: Mudambi, 2008.

In this Value Chain Disaggregation, the competitive strategies adopted by the companies depend on two key factors: the control and location of value chain activities.

As showed in the Table1 "matrix on strategic choice"; the control strategy are divided in (Mudambi, 2008):

- Vertical integration approach, which considers a full control on the value chain activities
- Specialization approach, which is focus on a specific key activity, while outsourcing the others.

As well, the location strategy is dealing with the concentration or the dispersion of the firms' business activities.

Table1. Strategic choice: location and control.

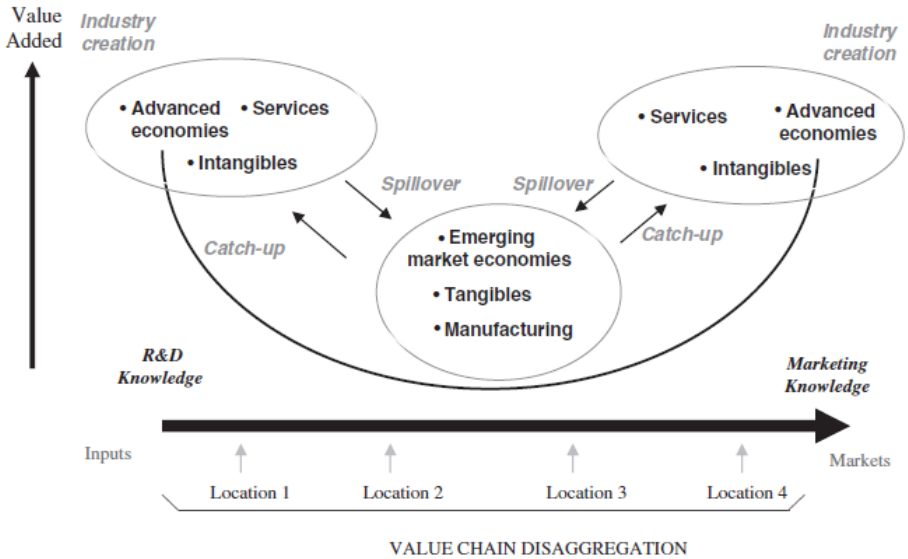
		Geographical location strategy	
		Concentrated	Dispersed
Control strategy	Vertical integration	1. Onshore in-house	3. Captive Offshore
	Specialization	2. Onshore outsourced	4. Offshore outsource

Source: Mudambi, 2008.

Increasingly important is the role of the geographical location choice, as a comparative advantage for the companies. Nowadays, the geographical dispersion of firms' activities has a direct implication on what will be the future industries' global value chain scenario (Mudambi, 2008).

In the globalized environment, the world could be divide in advanced economies and emerging market economies. As Mudambi emphasized, in the "Smiling curve model", the advanced economies try to catch the highest value focusing on the pre-manufacturing phases or in the post-manufacturing phases, according to the main characteristic of the business, while the lowest level of value creation is located in the emerging economies, where the cost of production is lower. Hence, the control of the intangible assets seems to be a prerogative of the advanced economies in order to obtain a competitive advantage. The tangible activities (manufacturing) is completed left to the emerging economies, as we can analysis in the Figure 5, where the advanced economies spill-over the low profitable value chain activities, while the emerging economies are trying to catching-up the higher ones.

Figure 5: Value Chain Disaggregation



Source: Mudambi, 2008

Hence, considering the role of manufacturing argued until now, the analysis seems to underlying that focus all the efforts on managing the manufacturing phase is a waste of resources and competitive advantage. Instead, in many business and in specific environmental context, where the cost is not the unique variable taking into account by firms, the manufacturing phase is a relevant component of the value chain that could drive the durability competiveness of a company in the market. As the tendency of these, last years shown: the firms are re-localized their manufacturing plant closer to their country of origin (near shoring) or exactly in the traditional home market, where the firms were born.

1.3 Manufacturing moves back

In the last few years, the new tendency of manufacturing firms, both big and small/medium size companies, was to re-localize part of their offshore production to their home countries. Many international scholars observed and studied this important aspect. We could define the Re-shoring effect as, "*moving manufacturing back to the country of its parent company*" (Ellram, 2013).

On one hand, this tendency could be linked to the governmental policies, using incentives to bring jobs back[4], and in the short–term consequences of the global crisis (Frattocchi et al., 2014). On the other hand, it could be focused on different aspects that are taking into account the relevant role of the manufacture as driver for the competitive advantage.

In the first case, the governmental policies implemented by Western countries are moving towards the reinforcement of the manufacturing phase in the high-wages countries; in order to reach strategically the dynamic changing of the global markets. In fact, most of the back shoring companies seem to be characterized by a short/mid-term strategy, focusing on the "correction mechanism"[5]. "*This trend is driven by the assumption that the increasing of wages in Eastern countries, in particular in China, will perish the cost advantages*" (Kintel, 2014).

Nevertheless, these policies of "bring jobs back" are difficult to implement in a vision of short timeframe.

[4] During the Obama's administration, the incentives concerning the repatriation of the production from the off-shored localizations were used as a key factor in order to increase the appeal of the US a manufacturing location (Fratocchi et al., 2014).

[5] The *correction mechanism* is a managerial tool to re-adjust the development of internationalization strategies towards localization choices coherent with the maximization of the competitiveness of the firms in the market (Kinkel, 2014).

Other reasons of re-shoring are linked with the lack of control (cost related in monitoring the system) and lack of systematic localization planning originated by the transaction costs theory. The managerial issues increase, also in the difficulty to manage the foreign cultural setting and to transfer the companies values (Kinkel, 2014).

In fact, the internationalization process entails the capacity of the firms to deal with the changing of economic processes both in quantitative and in qualitative terms. The diversity of the social and cultural context leads to a change in the nature of the international approach perceived by companies (Peretti, 2013). Moreover, according the studies of Kinkel focused on the German SME, only few firms of the sample analysed in Germany[6] seem to be characterized by a mid-term or long-term reactions to a changing local environment and its location advantages.

However, nowadays, we are observing that the companies are more critical in focusing on the strengths and the potential of their home base countries and, at the same time, they are increasing a new strategy centred on regional concentration and specialization of manufacturing skills.

1.3.1 Relationship between manufacturing and others Value Chain activities

The relevant role of the manufacturing phase is increasingly important in specific business that are dealing with a demand less sensitive to a variation of the price (less price-elastic) and for which technology, innovation, know-how and craftsmanship shape the competitiveness contest (Bailey and De Propris, 2014). Nowadays, the potential to re-localize the production is linked to the necessity of the firms to differentiate themselves from the rivals. The *servitisation* of manufacturing, a mix between the manufacturing phase and the post service purchase, answers "*at the need of the final customers to rely on the customization of the products and to the dependability of the process at the delivery phase*" (Bailey and De Propris, 2014).

The collaboration of manufacturing on the others value chain activities is a way, for the firms, to be more flexible in the market and capable in dealing with the direct or indirect involvement of the customers. For example, the relationship between the manufacturing and the designing phase gives solutions in modifying and adapting standardized product according to the customer needs (Bettiol and Micelli, 2014) or it can implement new forms of innovation to the products in order to add more value. The collaboration at the level of

[6] The analysis conduct by Kinkel is focus on a research that has last 15 years on German practices.

Resource & Development by the hybrid form of the manufacturing phase "*could lead to the discovery of new materials or of new technology processes that will be embedded in the production itself*" (Bailey and De Propris, 2014). The competitive advantage that is derived by these kind of relationships shape a new hybrid business model for the firms, more focus on the possibility to implement sustainability in the process. With the new technology and the acquired capacity to adapt products and services more on the customer and environmental perspective, the companies have to re-think critically on the location choices.

1.3.3 Country of origin

Another important aspect is the *country of origin effect* that can influence the decision strategies of the firms. In the customers perspective the country of origin or the famous "made in" acts as "*a cognitive cue in order to influence the beliefs that a customer has in relation to a specific country*" (Fetscherin and Toncar, 2010). The intangible assets generated by the feelings and the beliefs of the customers in the identity of a country influence the purchasing behaviour of the final users. In this prospective the manufacturing phase enforces the concept of value-add embedded in the final products. Especially the *made in Italy* contains values and implicit characteristics of knowledge that provides a remarkable competitive advantage for the firms.

In fact, as reported by KPMG in a survey conduct in 2010 about the intrinsic value of the brand, Made in Italy, it is emphasized that the some of the main competitive advantage of the brand recognized by the customers are: excellence quality, aesthetic (sophisticated products according to the style and the taste) and the flexibility in the business model.

Despite, the evolution of the re-shoring or near shoring phenomenon and the interest generated around it; the trend is considerate relatively new for the firms. "*The lack of the shared information in the researches and the difficulty in gaining relevant data by the companies entail a lag in the academic studies*" (Fratocchi et al., 2014). Hence, in order to have a complete view of the role of manufacturing, it is important to focus the attention on two dimensions, control and location, that characterized the development and the change during the years of this activity of the Value Chain. Therefore, in the following chapters of the research, it will be analysed: the Global Value Chain perspective, which consider the globalization environment of the value chain activities and the Industrial District environment, which highlights the evolution and the relevance of the manufacturing phase for the firms in the local network.

Chapter 2: Manufacturing in Global Value Chain Framework

2.1 Global Value Chain

"*Globalization is a process of interaction and integration among people, companies and governments of many nations; it is driven by international trade and investment and has resulted in what some call global economy*" (Alon et al., 2012 pp3).

The global economy developed during the 1960s, as a simple internationalization of the production activities of the Western countries in the "low-cost countries", but it is with the advent of Internet and with the technological breakthrough that the economy increased rapidly until now. The impact of the global economy influences the performance of large and small companies in the world and the competitive scenario; creating the conditions for an economic system increasingly interconnected and sensitive to external environment changes (Alon et al., 2012).

The difference between the concept of internationalization, which we had already discussed in the previous chapter, and the idea behind the phenomenon of globalization is highlighted by the fact that the latter refers to the integration of different national economies into one single global economy and the establishment of a universal way of thinking and practice among different countries.

In 1964, Marshall McLuhan described this new event with the term: *Global village*; emphasizing "*the dynamism of the interconnections and the speed of information in the world as if we were living in a small village*" (McLuhan, 1964).

The scale of the phenomenon is proportionate to the radical change in the technologies and it had evidence in the dramatically decreasing of trade costs and as a consequence in the incremental fragmentation of the production worldwide. For what concern the trade costs, we are including: "*transportation of raw materials and finished products, communication costs in case of services, port costs, freight and insurance costs, tariff and non-tariff (mark-ups of the intermediaries) costs*" (De Backer and Miroudot , 2013).

Furthermore, an important driver in reducing the co-ordination costs, across the globe, was given by policies in the liberalization of investments, that had leveraged the efficiency of the system.

Lastly, the appearance of new player in the global scenario had radically changed, on the demand side, the world economy and boosted the international trade. In fact, after 1989, with the fall of the Berlin Wall and with an increasingly opening of Easter countries to international trade, large economies known as the BRICs (Brazil, Russia, India and China) entered into the global stage and influenced the globalization process (De Backer and Miroudot , 2013). In the GVC organization, these emerging economies became the production center of the world (Gereffi, 2014).

Therefore, in order to capture and analyse the characteristics of the world economy, in the early 2000s, was introduced the concept of Global Value Chain. The model has the function to help the policymakers to understand better the dynamism of the competitive scenario.

The rise of GVC underlines some aspects as (De Backer and Miroudot and, 2013):

- The link between the activities geographically dispersed and the headquarters of a single company;
- The shifting patterns of trade and of production;
- The interconnections of the economies and the competition on the economic role of a single country;
- The relevance in identifying the actors and firms that have a primary role in influencing the production networks and in affecting the localization of the activities.

2.1.1 Evolution

The first studies, about the concept of Global Value Chain, were traced in 1970s with some researches on the concept of "Commodity Chain", which highlighted the path from all set of inputs and transformations to an "ultimate consumable" product and the process in between (Hopkins and Wallerstein, 1977).

In 1994, Gereffi[7] introduced the "Global Commodity Chain", a model focus on tracking the different processes of the apparel industry, from the procurement of raw materials to the sales of finished products across the globe.

[7] *"Gary Gereffi is Professor of Sociology and Director of the Center on Globalization, Governance, & Competitiveness at Duke University, where he teaches courses in economic sociology, globalization and comparative development, and international competitiveness. He has published numerous books and articles on globalization, industrial upgrading, and social and economic development in various parts of the world*" (http://www.cggc.duke.edu/whoweare/cggcteam.php).

In the 2000s, the terminology changed in "Global Value Chain" in order to capture the determinants of global industries at the organizational level. This model took into consideration the studies of Porter on the "Value Chain Model" (1985), emphasizing the industrial organizational dimension of the companies and the global dimension of the business given by the international trade. The framework of the value chain defined different type of governance and analyzed the relationships between "*the organization of the companies and the dynamism of the global economy*" (Gereffi et al., 2005).

Recent researches highlighted the interconnection dimension of the business and preferred to describe the model in term of "network" instead of "chain" (Coe et al., 2008). The concept, defined in this metaphor, drives the idea of complexity in the system and avoid the simplistic view of linearity or flow of the processes.

The "Global Value Network" reacts to the instability of the economy and to the environment changes rapidly, considering the relevance of the environment changes in relation to the internal organization of the companies.

In the new GVC paradigm, the dimension of firm is still relevant, but is passed by the consideration of trade and investment liberalization, as concepts related to the intra-firm organization of the businesses.

The relocation of the resources, as well as, the multi-tasked formation of the workers reflect the trend of the countries to specialized in specific business functions, rather than specific industries (Gereffi et al., 2005).

The emerging pattern of global trade, called "*trade in goods*" is moving to "t*rade in value added*" and "*trade in tasks*" (Gereffi and Jookoo, 2012). It is possible to have a clear vision of this trend in the BRICs countries: India, considered the "*world's back office*"; China, described as "*the factory of the world*", Brazil, called "*the agricultural commodities of the world*" and Russia that has natural resources and military technologies (Gereffi, 2014).

Most of the support activities are common to all the industries and the role of the specialization is becoming a key factor in the specific functions of the value chain. More effort and more resources should be followed this phenomenon by the policy maker in analyzing the industries (De Backer and Miroudot, 2013).

2.2 From ISI to EOI Model

"*The organization of the global economy is made up of complex and dynamic policies oriented on the management of economic networks that analyse the inter-firm and intra-firm relationships*" (Gereffi, 2014).

The key players on the global scenario at the beginning of the globalization, in the 1960s and 1970s, were transnational corporation grown up with *import-substituting industrialization model* (ISI) and well established in Latin America, Eastern Europe and parts of Asia.

The ISI theory is by definition a: "*trade or economic policy theory that advocates replacing imports with domestic production, on the principle that countries should reduce their foreign dependency through local production of industrialized products to create self-sufficient economies*" [8]. The primary aim of the ISI model was to protect and strengthen the local industries with protectionism policies, such as "*tariff barriers and import quotas, using subsidization both private and national*" (Gereffi, 2014).

The model is directly opposed to economic theories analyzed so far, on the competitive advantage[9] and it is seems to be a prerogative of a *"limited number of emerging economies with large domestic markets*" (Gereffi, 2014). After the oil "shock" and the debt crisis in the late 1970s, the ISI approach suffered by the incapacity to create a sustainable economy of foreign exchange and it has halted the growth (Gereffi, 2014).

Later on, in the 1980s, under the pressure of the International Monetary Fund and World Bank oriented toward liberalization policies, "*many developing countries re-organized their strategies of transnational corporation*" (Gereffi, 2014). The economic development was boosted by a contrasting model, known as *export-oriented industrialization theory* (EOI) or as *Washington consensus*[10]; especially in East Asian countries, such as: the East Asian Tigers (South Korea, Taiwan, Hong Kong and Singapore) and in the New Industrialized Economies (Malaysia, the Philippines, Indonesia and Thailand).

[8] The definition is provided by the website www.Businessdictionary.com

[9] http://www.investopedia.com/terms/i/importsubstitutionindustrialization.asp

[10] With the terminology, *Washington Consensus*, is defined a set of ten economic policies prescriptions; aimed in boosting the economic growth and the stability in the short-term of the emerging economies. The name was given by the institutions (the International Monetary Fund, World Bank, and the US Treasury Department), all based in Washington DC, that promoted this neoliberalism approach. During the years, this term was a long discuss and sometimes it got the appellative of *laisser faire*. This policy received mixed reviews: some critics to the theory had been addressed to the pressure exerted by institutions for pursuing open market policies; others studies highlighted the contribution in the improvement of individual countries under specific circumstances (John Williamson, 1989).

The EOI theory is by definition an "*industrial development policy based on the promotion of exports of manufactured goods. It is implemented mainly through export subsidies, tax incentives and opening up the economy to foreign trade*" [11]. The EOI approach allowed many small developing economies to benefit of new opportunities of growth on the base of the competitive advantage principle. The increase in the exportation permitted the exploitation of the competitive resources of the country, typically labor-intensive, and optimized the economies of scale and of scope in the emerging economies (Gereffi, 2014). The expansion of industrial capabilities, derived in outsourcing standardized activities in low cost-countries, brought the change in the strategy from ISI to EOI model and it corresponds, *"at the level of global industries, to the shit from producer-driven to buyer-driven commodity chains*" (Gereffi, 2014). However, the level of industrialization, in the different economies, is not only explain by the contrast of the two models, but it is, also, the result of the recent economic crisis of 2008-2009 and the expansion of the big giants, China and India, that have affected the demand side at the global level (Gereffi, 2014).

Nowadays, the role of the emerging economies in relation to the advanced economies are changing and moving on a different level in GVC model. The new tendency of the emerging economies is to catch up the more value-added activities of the GVC and to reinforce the idea of interdependence between the organization consolidation and the new players (Gereffi, 2014). As it was emphasized by Mudambi (2008) in the "Smiling curve theory". The radical change in the concept, *economic development*, was redefined by the analysis on the GVC model. The assumption, at the base of the ISI approach, highlighted the idea of a deep-rooted development through the construction of a solid industrial base by which it is possible to compete globally. Hence, in the model was crucial to obtain the capital, the technology and the workforce required (Gereffi, 2014).

The organization of the transnational corporations replicated gradually, along the value chain, as producer-driven system, while in the EOI approach the economic development is pursued "joining" a supply chain of assembly or of making customization of final products. In this view, "*the geographical configuration of GVC changes over time in regional or global environment*" (Gereffi, 2014). The simplification and the rapid industrialization, that the EOI model seems to allow, has implications on the innovation and international competitiveness side.

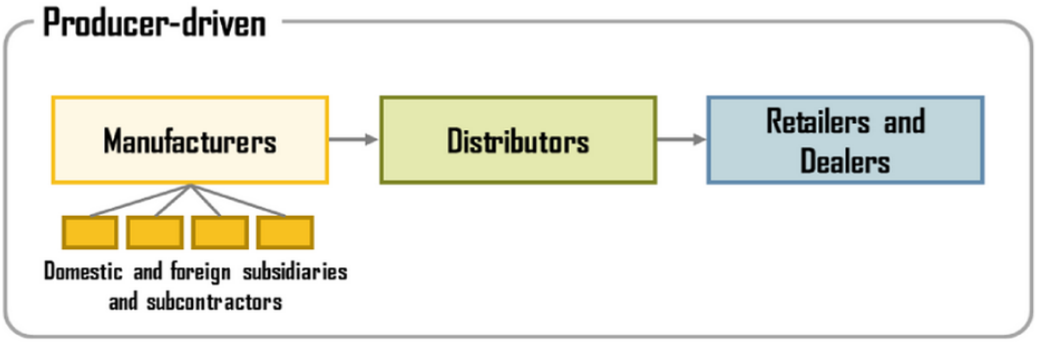
[11] The definition is provided by the website www.treccani.it/Dizionario-di-Economia-e-Finaza

This is the reason why, nowadays, it is relevant understand and implement the links between the different activities of the GVC in order to have a better control and long-term vision of the strategies to develop with the aim of capturing the higher possible value from the market.

2.2.1 From "Producer- driven" to "Buyer-driven"

"Producer-driven" GVC is a well-defined characteristic of industries that rely on capital-technology and R&D with workers skill-intensive such as, high-tech and pharmaceutical sectors. The control on the value chain is exerted from upstream by the lead firms in all the primary activity of the value chain even if part of the assembly is fragmented across the globe (Gereffi, 2001).

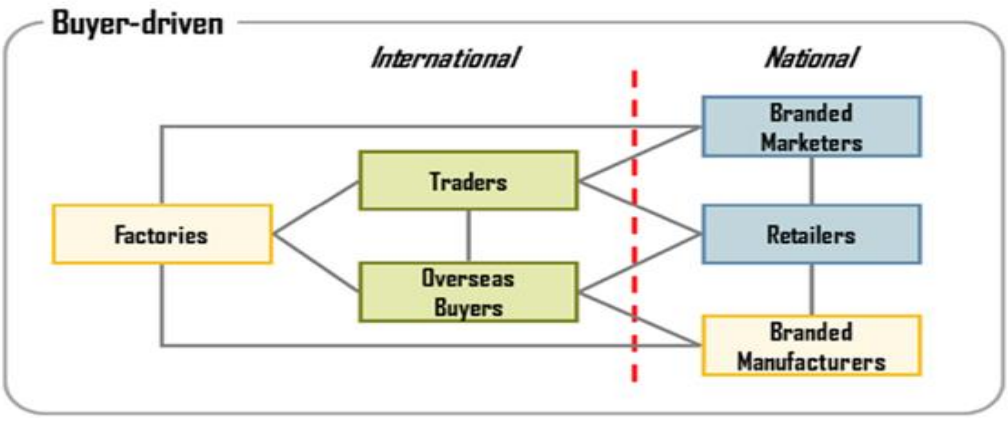
Figure 6: Producer-driven Commodity Chains



Source: adapted from G.Gereffi (2001) "Shifting Governance Structure in Global Commodity Chain, With Special Referenced to Internet", American Behaviour Scientist, Vol 44 No 10, pp 1616-1637.

In the "Buyer-driven" GVC, the control is held by retailers and branded marketers, which have the ability "*to shape mass consumption via strong brand names*" (Gereffi and Joonkoo, 2012) Marketing and sales are the most profitable activities to perform, while the others activities are outsourced abroad, usually in low cost countries. Well-known GVCs, that requires few specialized workers, are in the apparel industries (Gereffi, 2001).

Figure 7: Buyer-driven Commodity Chains



Source: adapted from G.Gereffi (2001) "Shifting Governance Structure in Global Commodity Chain, With Special Referenced to Internet", American Behaviour Scientist, Vol 44 No 10, pp 1616-1637.

The role of global buyers in the GVC organization has grown of importance during the years; organizing internationally the fragmentation of the production and the trade networks (Gereffi and Joonkoo, 2012). "*Retailers and brand-name merchandisers strengthened their position with the concentration of the supply chain in the retail segment and established specific standards for their suppliers in order to meet the pace of the market*" (Gereffi and Joonkoo, 2012). The bargaining power is shared, also, with large brand-name manufacturers. For example, the American company: "*Apple guarantees the dependability of the products on time to the market, placing large-volume of orders and using prepayment for his relevant suppliers*" (Gereffi and Joonkoo, 2012).

The driver that led toward the rise of the global buyers is focused on quality standards. The awareness of the final consumer on social and environmental issues, thanks to the speed and the spread of the information, introduced a new phenomenon of private quality standards. The capacity of the intermediaries to control and communicate the quality of the products delivered, because closer to the market, set a tight coordination between retailers and suppliers in providing certain standards.

The consequences of these defined standards provide a consolidation of large-scale suppliers capable to meet the costly requirements, the marginalization of the small firms unable to sustain such investments and, lastly, to the concentration on specific niche of the markets in which, it is possible to compete successfully (Gereffi and Joonkoo, 2012).

The distinction between the two drivers arose during the 1970s and the 1980s, "*when retailers and brand marketers arranged an international sourcing of networks widespread in offshore locations, in order to have a direct control of the procurement of the goods*" (Gereffi, 2014). Anyway, in the growth of the networks the distinctions of the two systems of control became too broad to define the complexity of the GVC organization (Gereffi, 2014).

In the following paragraph, we are going to analyze the dynamic of the system and the different organization involved.

2.3 Governance and Upgrading

In the holistic organization of the GVC framework, described by G. Gereffi, in his abstract "*Why the world suddenly cares about global supply chains*" (2012), are highlighted two contrasting topics: "Top Down" approach and "Bottom Up" approach.

In the "Top Down" approach, the focus is represented by the concept of "Governance" of global value chain, in particular, on the role played by "*the lead firms and the organization of industries across the globe*" (Gereffi and Joonkoo, 2012).

The concept of "Governance" is a key factor in setting standards and improving the performance for all the players involved in the value chain, "*through the introduction of innovations and the sharing of diffuse knowledge*" (Gereffi and Joonkoo, 2012)..

The analysis of the relevant role played by the lead firms in the market, help small and medium enterprises to re-organize their activities towards a strategic purpose of collaboration and coordination at all levels of the value chain (Gereffi, 2014).

The awareness of the companies, about the critical aspects of their governance structure, provides the necessary information and skills in order to improve and implement their position in the chain.

The reasons that put in evidence the relevance of the concept "Governance", according to the economists Humphrey and Schmitz (2001) are:

- "*Fast track to acquisition of production capability*"

  The need to support a sustainable competitiveness over time brings the lead firms to exert pressure on the suppliers' side in order to gain efficiency and effectiveness in the process.

  In setting high standards, the lead firms are transferring best practices and are supporting the needs of their suppliers; in particular, they are "*enriching the network of new knowledge and upgrading certain activities"* (Humphrey and Schmitz, 2001).
- "*Market access*"

  The characteristics of many lead firms to fragment the primary activities internationally give chances to the small and medium-sized enterprises to gain access to the market.

  The key factors, in determining the market access, are the acquisition of communication skills and the ability in differentiate from competitors through the customization of products.
- "*Distribution of Gains*"

  "*Understanding the governance of the chain helps to understand the distribution of gains along the chain*" (Humphrey and Schmitz, 2001).

The ability to capture the added value generated from the business is generally linked to the intangible competences (R&D, design, branding). Because of, the high entry barriers and the relevant amount of capital need, most of the time; these activities are performed by developed countries. Nevertheless, an important aspect to take into account is the possibility, for the developing countries, to develop skills and to establish valuable relationship with the lead firms in the chain.

The goal is to exploit the manufacturing skills with other value chain activities in order to be flexible enough and freedom to upgrading new function in the chain and relocate in the best way the resources.

- "*Leverage for policy initiatives and the funnel for technical assistance*"

  In the globalized world, the environmental and social issues have become one of the most fundamental aspect to run a business.

  The actions of lead firms, that want to preserve reputation and credibility, have an impact in setting high standards in order to improve work conditions and to introduce green innovations for the market.

  The co-working of institutions and lead firms in pursuing policies of growth, respecting the environment and in the work conditions, builds a new type of industrial organization.

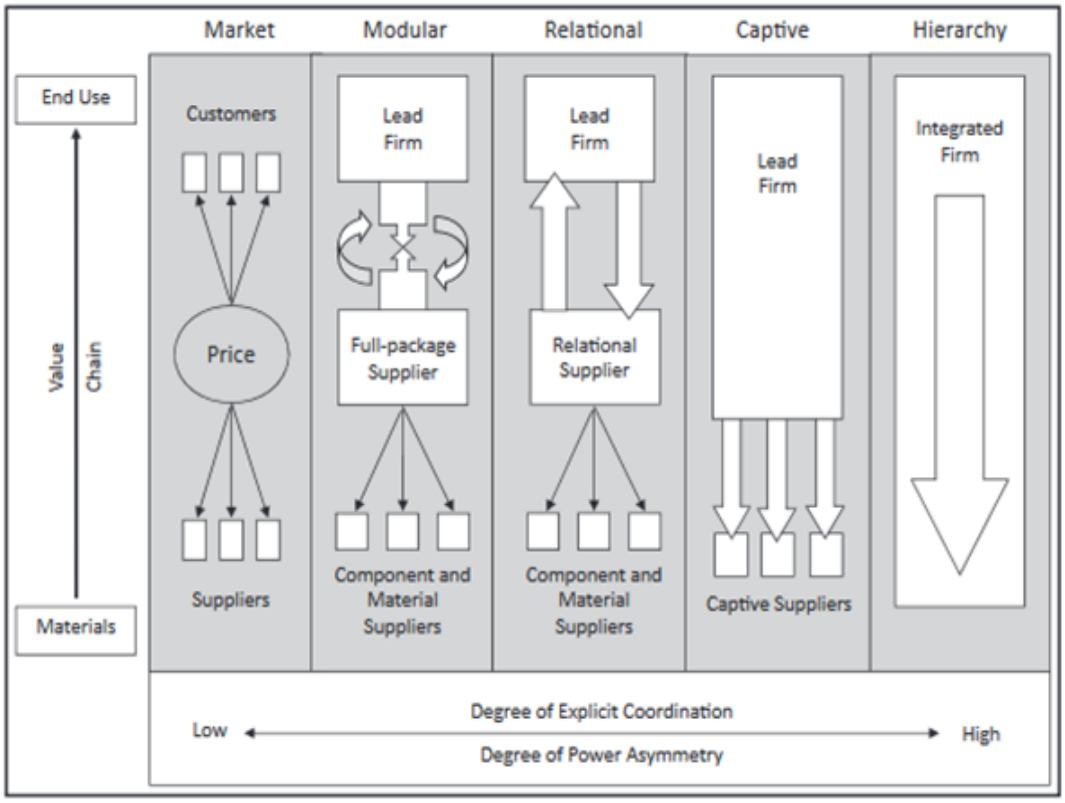
2.3.1 Governance framework

As was mention before, in the Global Value Chain Governance model, are emphasizes five forms of organization (Gereffi and Joonkoo, 2012), that are summarized in the Figure 8:

- Market governance is characterized by simple transactions with suppliers (minimal input) and buyers (little coordination). The central role in this system is covered by the price;
- Modular governance entails that the supplies are able to codify the complex requests of customer's specifications. The information exchanged are standardized in order to reduce the coordination costs;
- Relational governance describes the exchange of complex information that are not easy to codify. For this reason, the social ties and mutual trust, based on sharing knowledge, are the critical components in coordinating relational chains.
- Captive governance entails that a group of small suppliers establish a specific relationship with one or few buyers;

- Hierarchical governance involves vertical integration and managerial control in the manufacturing activity developed in house.

Figure 8: Five Types of Global Value Chain Governance



Source : Gereffi et al. 2005, pp 89

Furthermore, an important aspect to take into account is the concept of *Dynamism* in the industry and the evolution in maturing and modifying its forms of governance from one stage of the chain to another.

Moreover, recent global industries showed "*a mix of these governance structures and the change occurs over time across different regions and counties setting*" (Gereffi and Joonkoo, 2012).

The variables considered are three: the complexity of information or of transactions; the ability to codify the information gathered; and the capabilities of existing suppliers have in producing (Gereffi et al., 2005). The alternation between one or more parameters leads to a change in the governance structure adopted by the firms.

The Table 2 shows the dynamic nature of the system.

Tab.2: Dynamism in Global Value Chain governance types

Governance type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base
Market	Low	High	High
Modular	① ↓ High ② ↑	③ ↑ High ④ ↓	High
Relational	↓ High	Low	⑤ ↑ High ⑥ ↓
Captive	High	High	Low
Hierarchy	High	Low	Low

Dynamics of changes in governance:
① Increasing complexity of transactions also reduces supplier competence in relation to new demands.
② Decreasing complexity of transactions and greater ease of codification.
③ Better codification of transactions.
④ De-codification of transactions.
⑤ Increasing supplier competence.
⑥ Decreasing supplier competence.

Source: adapted from Global Value Chain governance types (Gereffi et al., 2005)

The Captive structure represent one of most common initial form of governance. This typology of governance is chosen by the lead firms that want to exercise control over the actors in the chain; while the Relational structures is less common to implement as initial form of governance, because of, lack in technical knowledge and cultural differences.

Others variable that influences the structure of the governance are: the regulations imposed by institutions, that affects the competitive scenario; the relationship between suppliers and consumers and the different power exercised by the parties in reshaping the distribution of advantage and disadvantage in the chain; the stability in the system and the business environment (Gereffi et al., 2005).

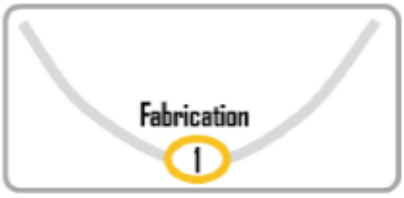
2.3.2 Upgrading development

In the "Bottom Up" approach, the focus is represent by the concept of "Upgrading", in particular, on strategies used by "*companies and countries in order to maintain or improve their positions in the global economy*" (Gereffi, 2011).

The complete or partial evolution of the Upgrading's concept, over the years, followed the trajectory of these four steps, "*from process control to product control and, finally, towards the brand control*" (Gereffi, 2011):

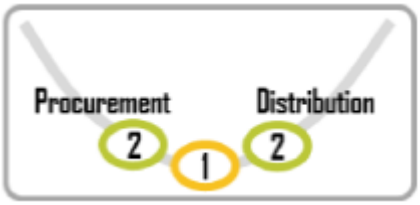
1. Assembly: In the production activity (Fabrication activity), the simplest process is to assemble the product under the specifications of the buyer, and after receiving the

components from the supplier. No particular skills are required and the activity is at the lowest level in the value chain.



[12]

2. OEM: Original Equipment Manufacturer entails the "full package" of production. Adding new skills in the procurement of inputs and in managing the logistics and distribution of the outputs.



[13]

3. ODM: Original Design Manufacturer is the evolution of the manufacture phase with the complete or partial collaboration of the buyer. The design activity entails the acquisition in new competences in the development of the products.

[14]

4. OBM: Original Brand Manufacturer is the last step of the evolution in the function of Upgrading, in which the supplier produces the products under his own brand. The possibility to attach a brand and develop a campaign of brand awareness can lead the company to exert high bargaining power in the market.

[12] Source: adapted from K. Fernandez-Stark, S. Frederick and G. Gereffi (2011) The Apparel Global Value Chain: Economic Upgrading and Workforce Development, Duke University Center on Globalization, Governance and Competitiveness.
[13] Source: adapted from K. Fernandez-Stark, S. Frederick and G. Gereffi (2011) The Apparel Global Value Chain: Economic Upgrading and Workforce Development, Duke University Center on Globalization, Governance and Competitiveness.
[14] Source: adapted from K. Fernandez-Stark, S. Frederick and G. Gereffi (2011) The Apparel Global Value Chain: Economic Upgrading and Workforce Development, Duke University Center on Globalization, Governance and Competitiveness.

[15]

Last but not least, the possibility to implement the others functional activities of the value chain could lead the company towards a vertical integration process or to concentrate the resources in activities considered more profitable of the value chain without losing the control on the others such as, R&D and Services in the post-sale phase.

[16]

The dynamic nature of the systems is define by Gereffi (2011) in different types of Upgrading, as we have discussed above:

- Market entry is considered a primary factor in upgrading when entering new markets and new value chains. Business management incorporates new knowledge and skills;
- Product upgrading is related to an improvement of the product due to the acquisition of new skills by the companies or because the product is manufactured with higher quality standards than before;
- Process upgrading is a re-organization in terms of efficiency and effectiveness of the production system and other processes in the value chain; thanks to the introduction of new technologies or of new management systems such as, the lean or *just in time* approach;
- Functional upgrading is a process of enrichment of the value chain with the addition of primary activities of different stages of the chain "forward or backward" or in abandoning existing ones in order to focus on higher skills and competences. One of the most known Functional Upgrading is the vertical integration process. This type of Upgrading has been well-defined above, in the evolution of the Upgrading's concept;

[15] Source: adapted from K. Fernandez-Stark, S. Frederick and G. Gereffi (2011) The Apparel Global Value Chain: Economic Upgrading and Workforce Development, Duke University Center on Globalization, Governance and Competitiveness.
[16] Source: adapted from K. Fernandez-Stark, S. Frederick and G. Gereffi (2011) The Apparel Global Value Chain: Economic Upgrading and Workforce Development, Duke University Center on Globalization, Governance and Competitiveness.

- End-market upgrading is the concentration on the end market of the value chain in establishing directly communication with the final consumers. This process could lead to a shift in the re-organization of the industry or of the geographic context;
- Chain upgrading is the application of competences, acquired on specific functions in one chain to others value chains in order to implement a diversification of the business.

The dynamism in Upgrading of GVC is different according to the industry and the actors involve in the business.

However, the most common are the upgrading of process and of product, because of the pressure exerted by the lead firms in increasing the efficiency and effectiveness of their suppliers.

Through the sharing of knowledge and introducing new technologies, in the business, the lead firms give the possibility to the suppliers to develop a certain degree of upgrading. Nevertheless, at the same time, the lead firms in order to preserve their bargaining power with suppliers and avoid the rise of future competition with new players hamper the upgrading in functions and the upgrading between the chains.

Moreover, the developing countries do not have, most of the time, the financial capability to invest in the acquisition of new skills in the short period. The upgrading, as defined above, "*refers to the acquisition of technological capabilities and market linkages that enable firms to improve their competitiveness and move into higher-value activities*" (Gereffi, 2014).

The achievement of a sustainable growth in the long run, is determined by the melting point of three macro categories of upgrading: economic, social and environmental dimensions. The diversion in a common scope of institutions, companies, workers and technologies are associated with the upgrading success.

2.4 Global Value Chain and local cluster

In the previous paragraph, the attention was focused on the different types of *Upgrading*, in the GVC model, and in studying the link between the organizational structures and the possibilities for growth of single firm or of a country.

The analysis in the development of the business environment and in the economy upgrading cannot ignore the role played by the business clusters and how the local entities are.

According to the economist Porter, in his book *"The Competitive Advantage of Nations"* (1990), the concept of local cluster was defined "*critical to competition*" (Porter, 1990).

"*The GVC model is a direct example of the radical changes in the economic structure underlined through the relations that are established between the actors of the value chain across the globe, in different locations*" (Ketels and Memedovic, 2008). Hence, the consideration of the right place to situate specific activities is moved from an operational to a strategical decision, as reported Porter in his book "*On Competition*" (1998).

In particular, in the GVC framework it was highlighted the role that leading companies with a governance purely captive have conditioned the development of companies and small realities in emerging countries. China in one of the country that better than the others was able to upgrading its function and competences in other areas of the value chain. In fact, the aspect that more is emphasized in the model is the *Upgrading* of the clusters in the emerging countries. The exchange of knowledge and the production facility of the big multinational companies resulted in an important growth factor for the businesses models of simple suppliers operating in the assembly line. They have gradually implement competencies and skills in other areas and now are able to be more and more autonomous for the competition on the global market (examples Foxcom, Acer, etc.). Indeed, the large suppliers are able, even to influence the market (Sturgeon and Kawakami, 2011).
The agglomeration of the activities under the model of GVC is related to the presence of supporting industries, which transfer knowledge and information, at a global or regional level, through the development of interconnected networks.

Nevertheless, at the same time, there are different types of knowledge, called *tacit knowledge*, that are difficult or almost impossible to transfer, for this reason are well concentrated "*in the local cluster, and deep linked to the social and geographic environment*" (Ketels and Memedovic, 2008).

The importance in establishing links with local clusters increases the integration of local small-medium enterprises situated in developing countries, in joining the competition across the globe into the GVCs model, as mentioned before, (UNICTAD, 2010). It boosts innovation for all the activities performed in the value chain and enriches the business environment with the attraction of foreign investment (Porter, 1998).

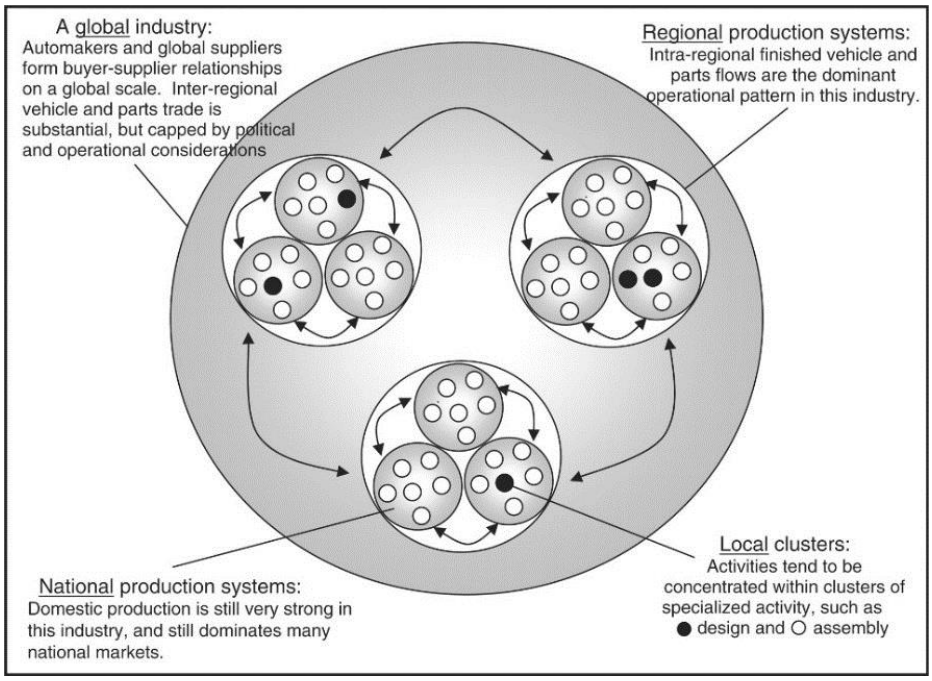
In the studies of the interconnections between these two entities: GVC and local cluster, Stopper and Harrison (1991) define the concept of network "*as a third entities in filling the*

gap" (Stopper and Harrison, 1991) and in linking the geographical dispersion of the production and the other activities with the governance of the structure.

In order to have a clear picture of the geographical dispersion of GVCs, in the Figure 9 are analysed the different level of upgrading: local, national, regional and global dimension of the evolution of a single company in the industry.

The Figure 9, puts in evidence the interconnection of the geographic dimension in the industry, in this case, is shown the automotive industry. In this network, the characteristics of the GVC, according to the scope, could be national, regional or global. The differentiation is determined by the localization of the production activities through the chain and according to the key markets in which it operates.

Figure 9: Geographic dimension of GVCs



Source: Sturgeon, Timothy, Johannes Van Biesebroeck and Gary Gereffi. (2008). "Value Chain, networks and clusters: reframing the global automotive industry". Journal of Economic Geography, 8(3): 297-321.

In the following chapter: *Cluster and Industrial Network as local manufacturing system*, the attention will be driven to the analysis of the main characteristics of the concept "cluster". In particular, the evolution of the ID in the global scenario and, especially, in Italy with some references to the Belluno Eyewear Industrial District.

Chapter 3: Cluster and Industrial Network as local manufacturing system

3.1 Industrial District

"*An industry concentrated in certain localities is commonly, though perhaps not quite accurately, described as localized industry*" (Marshall, *Principles of Economics*, 1890, Book IV, chapter X.1).

The economist Alfred Marshall[17] in his book, "*Principles of Economics*" introduced, for the first time, the term "industrial district". In particular, in defying the concept of "industrial district", such as "*an area where a concentration of firms has settled down*". The Cambridge scholar analysed, in deep, the industrial characteristics of the British economy and the derived competitive advantage at that time.

A fundamental aspect is played by the consideration of the geography territory: "where is localized the industries". In the first chapter of this research, it has been well established the relevance of the location, as strategic variable and the different implications in the competitive scenario. The chapter: *Cluster and Industrial Network as local manufacturing sustem* will point out, at the local level, the involvement of the territories, where developed a concentration of industries (industrial district) and the evolution of the concept, over the years, influenced by the phenomenon of globalization.

3.1.1 It all started with Marshall

According to Marshall, three variables influenced and characterized the concentration of industries in a specific territory. First of all, the physical condition "*such as the character of the climate and the soil, the existence of mines and quarries in the neighbourhood, or within easy access by land or water"* (Marshall, *Principles of Economics*, 1890, Book IV, chapter X.3). The second one is the so-called "the patronage of the court", i.e. the growth in demand for high quality products; the third one is the presence of a town, as a reference point for the district, and around it, the development of the district in small towns and in rural areas (Belussi and Caldari, 2009).

[17] Alfred Marshall (26 July 1842-13 July 1924) was a brilliant economist and professor at the prestigious University of Cambridge (1885-1908). He is famous worldwide for the publication of his book *Principles of Economics* (1890) and to be considered one of the founders of neoclassical economics (Belussi and Caldari, 2009).

Afterwards, the Marshall's pupils of the University of Cambridge re-defined the localization reasons adding new interpretation of the concept mentioned above. For example, Sargant Florence introduced the logic of aggregation of firms. He differentiated the "industry" agglomeration from the "localized" aspect. For what concern the industry, he is not referring on a simple sum of firms or plants but it is implied a pre-organization plants that perceive a progressive specialization in the different phase of the production. While, the localized concept is related on the fact that exists "*an economic advantage in the territory and the synergies between the firms increasing the establishment of production chains*" (Belussi and Caldari, 2009). Roberston described, with emphasis, the role of the time in strengthening the heritage dimension of the territory, apart from the access to the raw materials and to the access of sources of power[18] (Belussi and Caldari, 2009).

Moreover, Marshall described the creation of a special atmosphere that is widespread in the air, throughout the industrial district: *"When an industry has thus chosen a locality for itself, it is likely to stay there long: so great are the advantages which people following the same skilled trade get from near neighbourhood to one another. The mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously"* (Marshall, *Principles of Economics*, 1890, Book IV, chapter X.7). The atmosphere[19] of knowledge and innovation represented floating "in the air" as if it were oxygen is related to the development of an important competence: *Hereditary skill*, that connected the industries with the the "place of birth" (Belussi and Caldari, 2009).

Furthermore, the Cambridge scholar emphasized a determine circumstance that develop a favorable environment for the new ideas and innovations; adapted to the needs of the local territory:*"…if one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas"*(Marshall, Principles of Economics, 1890, Book IV, chapter X.7). The growth of local subsidiaries to supply the requests of the district: *"and presently subsidiary trades grow up in the neighbourhood, supplying it with implements and materials, organizing its traffic, and in many ways conducing to the economy of its material"* (Marshall, Principles of Economics, 1890, Book IV, chapter X.7).

[18] With the term *source of power*, Roberston is describing the natural resources, for example, such as gas, oil, petrol and electricity easily to transfer from one place to the other.
[19] Marshall introduces the term *atmosphere* in his book "Industry and Trade" (1919) in order to deliver better the message of source of innovation in the industrial district.

The creative environment implementation of the district is the result of exchange of knowledge, especially in the innovation side. Thanks to, the sharing of production and procurement costs, it was possible to increase the innovativeness and allocate better the resources, such as: "*innovation of the raw materials used or in the innovation in the process applied*" (Belussi and Caldari, 2009).

Moreover, an interesting aspect is the flexibility of the districts to adapt to the technological changes. From the resources to the organization of the company and external economies, to the intercommunication of information, between the different firms, up to the sharing in the cost of production and in the access to skilled workers (Belussi and Caldari, 2009).

The keys elements, in the characteristic of this industrialized concentration of firms, are *the development of divisions of labor* and the *specialization* (from the machineries used to the training of the workers) in the local market. "*The nature in the industrial district considers the combination between competitive and cooperative forces*" (Belussi and Caldari, 2009). The specialization is highlighted in the division of the different phases of the productive process without isolating the different functions, but rather integrating them with high exchange of information flows. The cooperation among the firms stimulate and implement the "industrial atmosphere"; giving the shape to modern industrial organizations, nowadays, called "network".

Over the years, the studies on "industrial district" have led to the changes in perspective on the major concepts introduced by Marshall. Becattini[20] gave a special contribution in presenting a modern version of the "Marshall industrial district" that had influenced at the international level the modern literature on the notion of local development and international trade.

3.1.2 Becattini's proposal for the neo-Marshallian Industrial District

In the late of 1970s, Giacomo Becattini defined the concept of "industrial district", as: *"a socio-territorial entity characterized by the active presence within the territorial area circumscribed, naturalistically and historically determined, to a community of people and a population of industrial enterprises*" (Becattini 1989, p. 112).

With this definition, the Italian economist emphasized the relationship that is established between the community and the firms situated in the territory.

[20] Giacomo Becattini (Firenze, 1927) is an Italian economist and professor at the University of Florence. Internationally acclaimed for his works on the local development and the studies on the definition of industrial districts and the role-played in the Italian economy's growth (www.treccani.it).

The primary characteristic that it is possible to notice, "*By analysing the agglomeration of firms, is the predominance of industrial activities and this aspect differentiate the district to the economic region*"[21] (Becattini, 1990).

In the district are produced a growing *surplus* of products, due to the higher specialization of the labour and of the activities. Hence, "*the overcapacity generated leads the local district to sell the products in external markets, in order to search new demand*" (Becattini, 1990). With the openness to new markets is necessary to establish, in the district, a stable network of relationships between buyers and suppliers (Becattini, 1990).

"*The increase of labor productivity is influenced by how the local community is related to the production system, i.e. it depends on the capabilities of values and knowledge of the population in pervading the production system*" (Sforzi, 2008).

International scholars emphasize the specialization of the labour, which we have already mentioned in the Marshall's studies, in the modern literature, in order to consider the relations of interdependence that is established among the actors of the economic scenario, through the historical settled combination of communication and cooperation in the district (Gradinetti, 1996).

In the book "*The Marshallian industrial district as a socio-economic notion*" (1990), Becattini underlined an important aspect that characterized the modern vision of the concept industrial district, at the international level, i.e. the role of the territory as a *medium* in the transmission of values to the local district.

The values shared by the community of the people in the territory is one of the prerequisites to the creation of a district identity. In fact, the radical link between the territory and the community, that cannot be separate from the process of realization, put in evidence the difference with the simple term of "localization", that, at the contrary, does not presuppose a natural and historical link with the territory (Becattini, 1990). Moreover, in order to spread the values in the district is fundamental, the concentration of a system of institutions that comprehend public and private entities.

From the point of view of the industrial organization, the firms, in the industrial district, are of the same sector, albeit are present common productive activities that are used in many industrial sectors. Marshall had differentiated these activities as *subsidiary trade* and primary

[21] With the term *economic region* is emphasized a specific area, where different types of trades and policies take place based on administrative or geographical boundaries.

activities; in the modern literature are considered vertically integrated systems of production. The production processes that best achieve the district features are determined by variable demand in time and in space; for this reason, the production of customized products complies with the particularism of district (Becattini, 1990).

Furthermore, the identification of a specific district in the market and the subsequent growth, at the level of bargaining power with the buyers, is given by the capacity of the district to work on his image and to be recognized for a specificity that guarantees uniqueness in relation to the others districts.

It is important to evidence that the studies of Becattini and others international scholars analysed the industrial economy in the late 1970s, in which, as we have emphasized in the "*Manufacturing in Global Value Chain framework*" chapter, the appearance of new player on the competitive scenario changed the perspective of economic growing.

The necessity for the district to evolve towards a global competitive scenario cannot compromise the identity of the district that, on the contrary, has to maintain as competitive advantage the competences and the inherited values. In fact, the social-cultural aspect of the district that was emphasized above reflects the acceptance challenges of the modernization (Gradinetti, 1996).

3.1.3 Porter and the notion of cluster

"*Cluster are geographic concentrations of interconnected companies and institutions in a particular field*" (Porter, 1998).

In recent time, the notion of "cluster" introduced by the economist Porter in the late 1990s has become a synonymous of the traditional concept of "industrial district", albeit with some modifications to the original meaning given by Marshall and later by Italian economist, Becattini (Sforzi, 2008).

In fact, Porter defines the geographical aspect of a district in different territorial dimension: "*the territorial scope of a cluster can range from a single city or region up to an entire country or even a network of neighboring countries*" (Porter, 1998). Moreover, the primary unity of analysis, assumed by the American economist, is the industrial sector, albeit Becattini put the attention on the concept of industry as a unity of analysis and tried to identify the derived value within the districts.

The geographical dimension considered a key aspect of the industrial district or (in this case) of the cluster, is conditioned by the proximity of the institutions in the territory: "*a cluster's boundaries are defined by the linkages and complementariness across industries and institutions that are most important to competition*" (Porter, 1998).

The role of the institutions is fundamental to influence and sustain the competition: from the local support through infrastructure (railways, ports, public service, administration offices, etc.) (Belussi and Caldari, 2009) to the boost in the competiveness of the cluster through the introduction of new technology and supporting the financial credit of the small business with the development of local banks[22] (Becattini, 1990).

An important aspect to highlight is the social side of technology and technological advancement, mixed with the traditions and the values of the local institution and that it can slow down the innovation development. "*Technological progress is a social process, which is accomplished gradually, through a progressive conscience of all stakeholders in the territory*" (Becattini, 1990).

The Porter's aim is to comprehend, the analysis of the synergies established between the firms in the territory and the institutions; called "*local industries-cum-institution*" (Belussi and Caldari, 2009). In fact, "*the proximity of companies and institutions in one location fosters better coordination and trust"* (Porter, 1998) and that "*what happens inside companies is important, but cluster reveal that the immediate business environment outside companies plays a vital role as well*" (Porter, 1998).

According to Porter (1998), cluster boosts the competition on three aspects: the first one is the increase of the productivity, the second one is the growth in percentage of innovations and last but not least, the third one is the stimulation on new form of business. In fat, the concept of cluster is defined as *"an alternative way to organize the value chain"* (Porter, 1998), and it is organized in the mix between the arm's length market and the hierarchies or vertical integrated system, without neglecting the strong relational component that is based on trust and on the district's values.

Moreover, the Porter's vision of the modern competition is all centered on productivity, while access to inputs and the scale of induvial enterprises become marginal variables. At the same

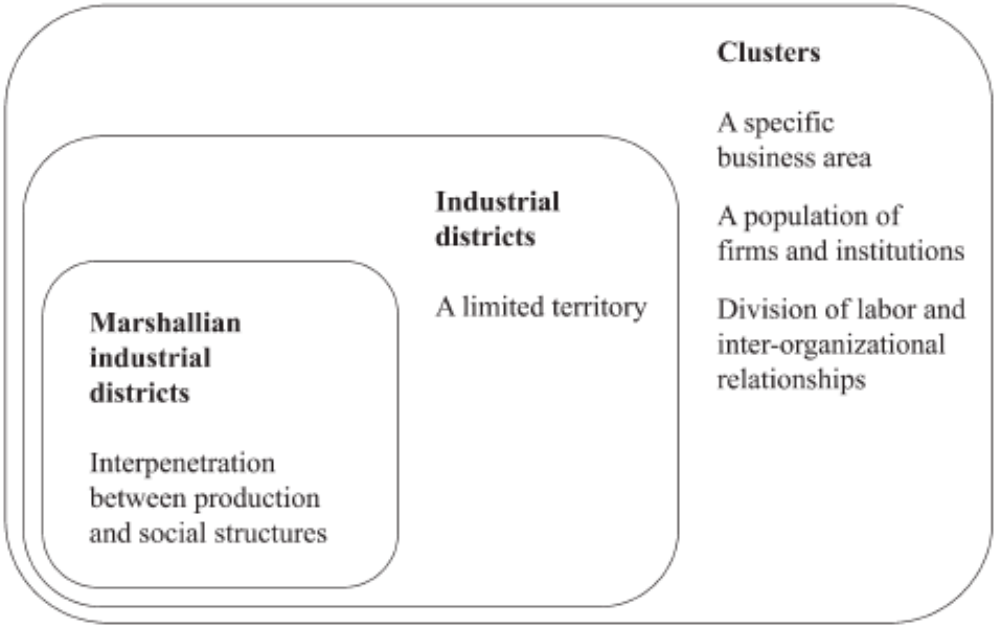
[22] "*The local bank is an organization born and raised in the district, very well connected to local entrepreneurs, heavily involved in the local life, which knows its details and helps to guide the choices*" (Becattini, 1990). The involvement of the local banks in the strategic decisions of the districts has a double result: it could increase the innovation and competiveness of the firms or it could introduce a chain of negative effects in the district, because of the interdependence between banks and enterprises.

time, for the lead firms of the market that are getting bigger and increasing their market share globally through the growth in the productivity, the access to the raw materials and critical inputs represent vulnerability factors (Gereffi, 2014).

Furthermore, in addition to the definition proposed by Porter on "cluster" and by Becattini on "industrial district" there is another concept: the "industrial hub", defined as "*a group of companies capable of generating cultural and economic effects that improve the development*" (Perroux, 1964). Albeit, all the three definition have some similarity and share the same key elements, such as the agglomeration of firms and the relationship with the territory; the difference, attributed by Perreux, is emphasized on the exogenous forces, which boost the growth of the district.

In the Figure 10 are summarized the definition described in this chapter.

Figure 10: Cluster, Industrial Districts and Marshallian Industrial District.



Source: De Marchi and Gradinetti, 2014.

Nowadays, the definition of the Industrial District has changed dramatically, over the past 15 years. It will be highlighted the change in the following paragraph on the evolution of district in the internationalization phenomenon.

The district known "*as a local manufacturing system*" (Nassimbeni, 2003) has been re-defined in each single companies located in the territory and as a whole system. "*The relationships among the companies become increasingly codified and the knowledge shared*

by the district are rationalized and concentrated within the firms" (De Marchi and Gradinetti, 2014). This change, surely is the result of the increase of the global competitions, but it includes other variables, such as the "*cultural discontinuity induced by the generational turnover*" (De Marchi and Gradinetti, 2014), the fragmentation of the production structure and the evolution of the market and customer needs in the delivery time and in the product characteristics offered.

One of the concept that we are going to study in the following paragraphs, it will be the phenomenon of internalization that have characterized the global economy, in particular the Italian case for what concerns the industrial district economies composed for most of the time from small and medium firms.

3.2 The Italian case

The Italian economy is characterized by the presence of small and medium-sized firms located in industrial districts. The organizational model is based on relations of interdependence and cooperation between companies with high specialization in the activities of the production system and a strongly integration with the local socio-economic environment (Osservatorio Nazionale dei Distretti Italiani-Report, 2014).

3.2.1 The genesis of industrial districts

During the so-called "Economic Boom", in the 1950s and in the 1960s, the Italian economy rapidly grew and the industrial districts started to appear on the competitive scenario. In the 1970s and 1980s, albeit the slowdown in the growth especially for large Italian companies, the development of the districts reached the Northeast area and the Central regions of Italy. Later on, in the 1990s, the industrial district model (as defined by the modern interpretation of Becattini) was present, also, in the South of the country[23] (Ricciardi, 2013).

In the early 1990s, the concept of industrial district obtained a legal recognition (L. 317/91)[24]: "*as a legal instrument to support industrial policy*" (Becattini et al., 2009), and, few years

[23] It is important to point out that the few decades before the introduction of the concept of *industrial district* by Becattini, in the South of Italy the predominant organizational model of the industry was the *traditional artisan* model. At that period, around the 1950s, the academic discussion on the small firms were oriented on the dualism between North and South (F. Alberti, *The governance of industrial districts: a theoretical footing proposal*, 2001).
[24] Law 5 October 1991, n. 317

later, in the 1993[25], it was established by the Ministry of Industry the adoption of specific criteria in order to identify the industrial districts in each Italian regions. By using "*the local labour market areas (LLMAs[26]) as appropriate units of analysis*" (Becattini et al., 2009).

In the application of these criteria for the analysis of the Italian Industrial District in the year 1991, have been identified: 199 IDs. The weight of this organizational model was account for 25.4% of Italy's LLMAs and 71.3% of the manufacturing ones (Sforzi and Lorenzini, 2002).

The dispersion of industrial districts, at that time, was more localized in the central and northern part of Italy, in a similar measure between the North and the Centre and the specialization of the productive sectors were in textiles and clothing (34.7%), in household goods (19.6%), in the mechanics (16.1%) and in the production of leather and footwear (13.6%).

Moreover, an important role, was played by the supplementary industries (8.5%): in the manufacture of paper products and printing industry (3.0%), in the jewelry (2.0%), in the manufacture of rubber and plastic products (2.0%), and even in metallurgy (0.5%) (Sforzi and Lorenzini, 2002).

Therefore, the *Made in Italy* was characterized by a variety of industrial sectors and, mainly by, the diversity in the nature of the industrial districts; ascribed to their historical formation and their ties with the communities and the local territory or social *milieu*[27]: *"IDs are not all the same. Among them, there are historical IDs and IDs newly-shaped, as there are also 'potential' IDs identified"* (Becattini et al., 2009).

In addition to the "territorial" identification of IDs, over the years, more and more attention, in the international academic environment, has been directed towards the study of the internal and external organizational structure that determines the development and character of the Italian districts.

The organizational model of the industrial districts has led many scholars to analyze the evolution and consolidation characteristics that influenced the nature and diversity of Italian industrial districts. According to Ricciardi in his research on "*I distretti industriali italiani: recenti tendenze evolutive*" (2013) are underlines four typologies of districts, based on the

[25] With the Ministerial decree of 21 April 1993.

[26] "*LLMAs were defined on the basis of inter-municipal daily journey-to-work flows by using a quantitative approach and it had been introduced years before by the Italian national Institute of Statistics for the purpose of economic and social research*" (Becattini et al., 2009).

[27] *Milieu*: is a French word used to emphasize the role of the local territory as a *medium* in the connection of the social environment with the nature of the district and its genesis.

governance and on the strategy adopted, in order to compete in the local and in the international markets:

- Dynamic districts are characterized by a high interdependence on the productive cycles among the firms in the district and a strong cooperation in sharing information and knowledge.

  The presence of *leader firms*[28] feed the development of innovativeness and strengthen the strategic competition of the district;
- Mature districts are closely linked to the territory of origin and have established spontaneous relationships with the others firms of the district, rather than planning a strategic cooperation among them;
- Vulnerable districts describes an isolationist behavior of the firms in the district, always, aimed at the establishment of an internal competition, rather than cooperation among them.

  The performance are very instable, due to the lack in investments on innovation and on marketing strategies;
- Virtual districts have legal status, thanks to the regional decrees, but formally, they are industrial areas.

Furthermore, another classification of the Italian district is given by the analysis of the degree of learning system developed in the district, which defined three different categories (Belussi and Pilotti, 2002):

- Weak learning system are predominant in the district with a direct link to the local territory with mainly craft-based skills and with low external economies. Small firms with a low inclination to invest in innovation compose the fragmentation of the industry.

  In order to integrate the categories described above with the development of the core competence of the districts, it is possible to consider this category as an important feature of the most *vulnerable districts*.
- "Intermediary"[29] learning system is characterized by the presence of local agents that allow better transmission of information and increment the sharing of knowledge among the networks. The institutions are well-establish in the territory and guarantee a

[28] The leader firms are have well-established organizational structures and have a direct presence in the markets, -92also at the international level (Ricciardi, 2013).

[29] With the term intermediary, the intention is to consider "*systems characterized by significant absorptive capability from the outside circuits of knowledge matched with incremental innovation*" (Belussi and Pilotti, 2002).

significant level of investments in innovation. The type of district that fits into these features is the *mature district*.

- Dynamic evolutionary system are focused on the design and development of radical innovations. Some leader firms that are able to invest in new technologies and to ensure a high level of specialization to their employees compose the district.
  Certainly, this learning system is distinctive of *dynamic districts*.

The evolution in the "Third Italy districts"[30] in the global scenario and the updating quantitative importance of the IDs in the Italian economy, it will be analysed, in deep, in the following paragraph.

3.2.2 Evolution through Internationalization

The transition from local to global dimension was, and still is, one of the biggest challenges for the Italian industrial district in pursuing theirs evolutionary path towards the modernization. Therefore, the challenge of the IDs was to develop skills that in the past, during the genesis and the evolution of themselves, have never had to implement or, in few case, had partially faced (Gradinetti, 1996).

In fact, the district known for its connection to the surrounding area, has always sought, especially in situations of crisis and during the slowdown in the Italian economic growth, the development through resources and abilities, which already had.

Hence, the inability to establish adequate relations with the external market was given by a lack of communication not yet developed. However, "*the internationalization, definitely, is an unavoidable outcome!*" (Gradinetti, 1996).

The necessity to implement efficient systems of integration, for better communication and cooperation with the external markets, led the district towards the specialization and the concentration in their *core business*. The ability to recognize the *core competences* and decentralize the other, by maintaining a controlling supervision and an efficient communication with suppliers and customers at the global level and no longer local, it is, certainly, a big challenge for the Italian industrial districts. Especially, when they are forced to change according to the time of development of the multinationals or leader firms in the district.

[30] With the term "Third Italy", introduced by the Bagnasco (1977), it is considered the area of the Central and North-East Italy, which characterized by basically similar characteristics, but that was remained marginalized compared to the areas of the country characterized by large industries and compared to the South of the Country. In particular, the regions of Trentino Alto Adige, Veneto, Friuli Venezia Giulia, Emilia-Romagna, Tuscany, Marche and Umbria.

In this change some of the firms in the district, due to the size or to financial issues, such as the highly exposition to short-term bank debts (Intesa San Paolo, Economia e finanza dei distretti industriali-Report December 2015), failed while others are born with an international DNA. Besides, the competition is fed by the entry in the global competitive scenario of new realities by lower production costs.

By pursuing the competitive advantage on costs, the large multinational companies have relocated part of their production to emerging economies. The new competitors from emerging countries have upgraded their processes, products and function as Gereffi (2011) has highlighted in his GVC framework, called "*bottom-up*".

The SMEs were used to strongly depend on the growth of the largest leading companies but with the internationalization phenomenon and the consequences on the radical delocalization, the smallest realities had to develop and to change their business model in order to focus on segments niches of the market. The role and functions of small and medium-sized businesses in the district changed towards new market principles.

The commercial side of the business became a fundamental aspect in order to create a contact with the end consumers (functional upgrading) and the re-organization of the production structure of the firms follows new logics in order to reduce the dependability with the large multinational companies.

According the international scholars, is possible to focus on one hand to the internationalization concept as phenomenon that generates new opportunities of exploit different and new paths and improve the technologies and the innovation of the local district itself. On the other side, the local context of knowledge and expertise formed by the supplier of the leading firms have dramatically collapsed and substituted with foreign supplier (other clusters) external to the district.

However, the relationship between the two dimension of the value chain at global and local level is characterized by complementarity, in fact:

- The global economy ensures the most extended division of labor both for production and for the transfer of knowledge;
- The local economy strengthens the relationship of the firms with the territory, in particular, in the protection of the *tacit knowledge*, which cannot be transferred, and it must be used locally (Gradinetti, 1996).

Therefore, the value chain is defined more in an "objective perspective", when the interdependence between firms in the district at the upstream or downstream level is realized among anonymity relationships. While, when the interactions increase the level of involvement and innovation of the firms, the value chain acquires a "subjective behavior": "*competitiveness is linked to innovation, not the mere preservation of existence*" (Gradinetti, 1996). Although the link with the past, that had created the identity of the company, cannot disappear.

In order to analyze the evolution of the Italian industrial district, during the years, it will be helpful to support the qualitative research with some quantitative data of the districts.

According to the studies[31] on the Italian industrial districts, monitored by Intesa San Paolo in the 2011-2014 period, are identified 147 industrial districts: 138 districts are directly involved in the manufacturing processes, while the last nine districts are in the agricultural sector.

Intesa San Paolo underlines the relevance role played by the industrial district, in 2014, with the weight of the export in the global scenario. "*The level of export amounted to 90.5 billion euro, of which 87.9 billion in the manufacturing sector (23% of the total exported by the Italian manufacturing industry) and 2,7 billion in agriculture (49% of total exports by the Italian agriculture)*" (Intesa San Paolo, Economia e finanza dei distretti industriali-Report December , 2015). Most of the districts are located in the North (Northeast account for 37% and North-West account for 24% of the total districts), while in Centre are present 20.5 % and in the South 18.5% of the total districts.

In the Italian geographic distribution is underlined, that most of the export derived by the North of the Country, around 40% of the total exports and that only 7.2% of the export is originated in the South; in which the agro-food district is predominant. (Intesa San Paolo, Economia e finanza dei distretti industriali-Report December 2015).
In the Figure 11, it is possible to consider the localization of the industrial district in Italy.

[31] "*The studies of Intesa San Paolo are based on objective criteria from data: on local drives, the number of employees, on the index of specialization, on the presence of a productive rich SMEs and reticular relations between businesses, as well as on literature and the regional laws"* (Intesa San Paolo, Economia e finanza dei distretti industriali-Report December 2015).

Figure 11: Mapping the Italian Industrial District

Source: Intesa San Paolo-Report on the Italian Industrial District, December 2015.

The dimension of the circle, in the Figure 10, shows the dimensions in revenues (2014) of the districts and of the number of firms involved. In the Table 3, are showed the peculiar characteristics of the industrial districts that iscomposed by a netwrok of small and medium-sized firms.

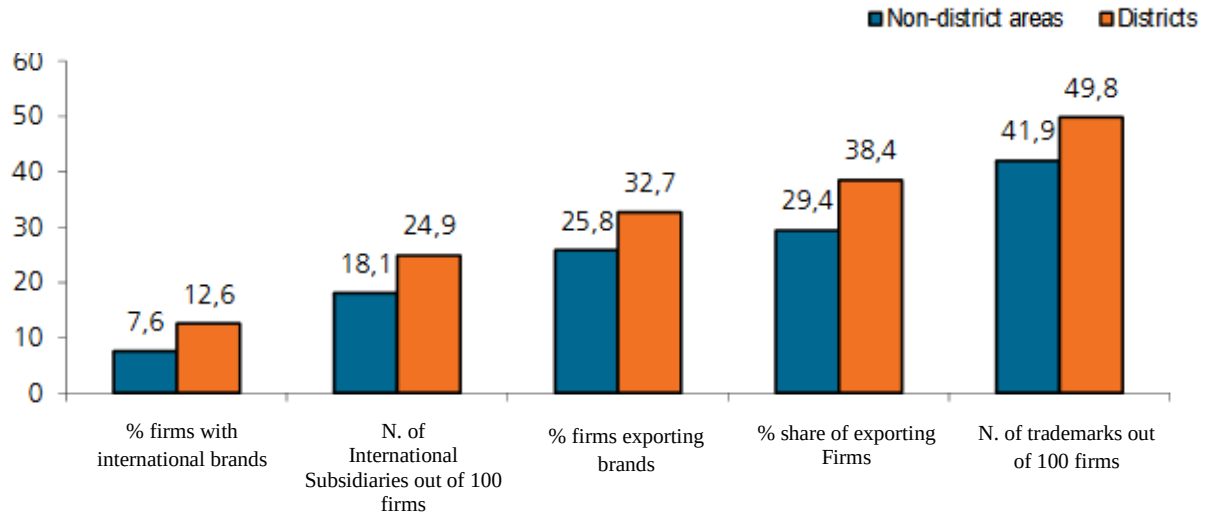
Table 3: Dimensional characteristics of sample firms in the districts

Firms size[32]	N. of firms sample 2008-2014		Turnover 2014	
	Unità	%	Bil in €	%
Micro	4,605	35.6	6,7	4.2
Small	5,814	45.0	28,5	17.8
Medium	1,972	15.3	42,2	26.3
Large	531	4.1	82,9	51.7
TOT.	**12,922**	**100**	**160,3**	**100**

Source: Intesa Sanpaolo Integrated Database (ISID)

In the 2014-2015 period, the turnover of companies in the industrial district has grown by an average of about 2% while the recovery of the firms, non-belonging to the district, is still slow. The positive results are due to a greater willingness, in recent years, to invest abroad (FDI) and to export. Furthermore, the combined efforts, of local institutions and the registration of new patents and trademarks, has led to strengthen, on the international scenario, the firms of the districts (Intesa San Paolo, Economia e finanza dei distretti industriali-Report December, 2015). The technological innovation, provieded by the indutrial distrcits, on processes and products (almost 50 patentes out of 100 firms) is manifested by an increasingly strong presence in international markets, as it is possible to notice in the chart below (Graph 1).

Graph 1: Strenghts of the Industrial districts



Source: adapted from Intesa Sanpaolo Integrated Database (ISID)

The most profitable districts in Italy are summarized in the Table 4. The ranking shows the top 15 districts ordered by the performance in the earnings and in the growth. In the first

[32] The composition class size is calculated using the revenues in 2011. Micro firms: income ≤ 2 million€, small firms 2 million€ ≤income≤ 10 million€, medium firms: 10 million€ ≤income≤ 50 million€, large firms: income ≥ 50 million €.

positions, we find the Venetian district: Eyewear Industrial District of Belluno that will be describe, in details in the following paragraph.

Table 4: The best districts for growth and profitability performance.[33]

	Ranking: (from 1 to 100)	**Var.%** 2008-2014	**Income** (a) 2014	**Var.%** 2008-2014	**Export** (b) gen-set 2015	**EBITDA** margin (a) 2014	**Difference** between 2014-2013
1. **Eyewear-Belluno**	92.1	17.8	14.1	61.2	13.2	9.9	1.1
2. **Prosecco Conegliano-Valdobbiadene**	89.0	37.4	5.8	89.0	21.3	9.4	1.0
3. **Marble-Carrara**	72.6	8.7	2.3	28.9	10.1	11.8	1.6
4. **Rubber-Sebino Bergamasco**	70.1	13.6	6.0	43.4	1.9	9.5	0.1
5. **Sweets-Alba and Cuneo**	69.0	25.5	3.2	11.8	8.5	11.5	-0.2
6. **Sweets and pasta-Verona**	68.6	16.9	1.2	10.5	33.6	9.7	0.8
7. **Leather goods and footwear-Arezzo**	68.6	30.5	2.6	220.7	7.4	8.3	0.6
8. **Alimentary-Naples**	66.2	11.9	3.2	53.6	17.6	7.8	0.3
9. **Wines-Chianti**	65.8	12.4	3.0	34.5	26.2	10.9	-1.4
10. **Plastics-Treviso, Vicenza, Padua**	64.8	4.7	5.0	28.2	1.1	8.6	0.5
11. **Leather goods and footwear-Florence**	63.5	26.5	4.1	69.2	4.7	7.8	-0.2
12. **Mechanical engineering-Vicenza**	63.3	1.1	7.5	9.8	8.7	7.8	0.1
13. **Graph paper-Verona**	62.2	-2.8	4.7	5.9	12.4	7.8	0.6
14. **Salami-Parma**	62.0	14.4	3.3	44.2	9.7	7.1	0.1
15. **Tannery-Arzignano**	60.4	44.5	8.1	37.5	8.5	5.6	0.0

Source: Intesa Sanpaolo Integrated Database (ISID) and Istat

The ranking takes into account, in addition to the growth data and the turnover performance, even the strategic position of the districts for what concern the capacity to gain value from the production activities, the technical know-how and the competences in the service and sales activities (Intesa San Paolo, Economia e finanza dei distretti industriali-Report December, 2015).

A great boost, to the growth of the first districts classified, has been given by the presence of leading multinational companies that have re-invested in the local area and the presence of an efficient network of interconnected institutions. For example, the eyewear district of Belluno,

[33] Note: districts with at least 30 corporate balance sheets and at least 200 million euro of exports in 2014. The list was obtained as a combination of six indicators shown in the table. The six standardized indicators have been added giving a weight of 25% to the change in turnover in 2014, 15% of the change in turnover between 2008 and 2014, and 15% of the variation trend of exports in the first nine months of 2015. The 6% to the change in exports between 2008 and 2014, 25% of the EBITDA margin levels in 2014 and 14% the difference between EBITDA margin in 2014 and EBITDA margin in 2013. There have been considered the districts with lower EBITDA margin to 5% in 2013, with a decline in exports in the first nine months of 2015 more than 7%, with a drop in sales between 2008 and 2014 higher than 10%. (a) Median of the financial statements; (b) % change trend ISTAT data aggregated foreign trade. (Intesa San Paolo, Economia e finanza dei distretti industriali-Report December, 2015).

are present local authorities, such as Certottica[34]and MIDO (the international event on the exhibition of the Eyewear, which is based in Milan every year, in February).

The growth, in the recent years, in the districts is the result, as we mentioned before, of the internal investment of large enterprises as well as foreign direct investment made by the international players that want to guarantee to their products the Italian quality; especially as regards the fashion industry.

Another aspect to highlight is the so-called *re-shoring* phenomenon and the apparent or real-found attractiveness towards their home industrial district, that had led some firms to rethink to the strategic choices made in the past.

3.2.3 Re-shoring digression

In the first chapter: *Manufacturing becomes international*, it was mentioned the *re-shoring* phenomenon and the impact on the performance of the industries. The fashion industry is the Italian industrial sector, that most of all has been involved in the repatriation of production.

The reasons that has led many firms of the districts to come back in their origin site of production are many, even if the trend of this repatriation is not documented clearly by the international scholars; both for the short time of the analysis (too short study period) and for the lack of data on strategic decisions of the companies. It is not possible to define accurately the evolution of this phenomenon in the short or, even in the long period.

Anyway, some of the reasons are illustrated in the Report 2015 of Intesa San Paolo on the Industrial Districts that it seems to focus:

- On the quality of Italian production,
- On the recognition and profitability that the brand, *Made in Italy*, has in the world,
- On strengthens of certain regional policies that thanks to the cooperation with local institutions are able to increase the attractiveness of the district.

Moreover, in the most of the cases the repatriation of the production is partial and covers the most delicate phases and higher value-added activities. Therefore, to increase productivity and reduce the *time to market* the firms are focused on skilled labor, that are familiar with *tacit knowledge*, difficult to implement abroad and for logistics issues choose to be closer to their markets.

[34] The National Institute for the Certification of optical products in Longarone (BL).

In particular, in the Industrial District of Belluno are highlighted two significant examples. The first one is the company, Safilo that has re-invested in the Northeast in order[35] to establish another (one of the three) production sites in Italy, with the final aim to bring back in Italy 60% of production. The second one is the Marchon Eyewear Group that has re-localized part of the production in Italy (precisely in Belluno); in order to development, a new category of products "handmade" for the eyewear of its main licensed brands (Nike, Lacoste, Calvin Klein etc.) (Intesa San Paolo, Economia e finanza dei distretti industriali-Report December, 2015).

Although the trend is only present for part of the companies involved in the district, more research on the strategies adopted by companies, to increase the market competitiveness, it must be investigated for each case.

To conclude the broad analysis of the Italian Industrial Districts, the final data on the future forecasts: in the 2016-2017, is estimated by the analysis of Intesa San Paolo, with a constant average growth of around 2.7% for the Italian industrial districts in the competitive scenario, sustained by the internal demand.

In the following chapter, we will be analyzed the relationship between global competition and the local structure of the district; in particular the eyewear sector will be analyzed in the foreground, in relation to the Belluno Eyewear Industrial District.

[35] Precisely the production site is located in Martignacco (Udine), where the investment is focus on the re-configuration of the plant in a production site.

Chapter 4: Eyewear Global Value Chain Model and Belluno Eyewear Industrial District

4.1 Methodology

In this section, it will be analysed, the evolution of the Eyewear Market in the global scenario through the knowledge and the methodology described in the second chapter: "Manufacturing in the Global Value Chain Model". The GVC framework guides the strategic decisions of the firms, involve in the business, in identifying new opportunities and in reinforcing their position in the market (Gereffi, 2014). Furthermore, it will be accurately analyzed the relationship between the GVC and the local district dimension, in the case study of Belluno Eyewear Industrial District.

The relationship between these two dimensions has the purpose to highlight the competitive factors and the limitations of the local district in competing in a global scenario. The evolution of the district model towards an increasingly internationalization competition will be the focus of this chapter, together with the strategic choices of localization of the manufacturing activity. Finally, it will be described, the role of institutions in promoting the district's skills, in order to understand the future development of manufacturing and of the small and medium-sized local realities.

The research is based on primary and secondary data. The secondary data, that described the broadly environment of the eyewear industry, are based on the information available on global market trend and by reports of relevant institutions, such as ANFAO[36] and ICE[37]. With the ATECO codes[38], provided by the "Osservatorio Nazionale del distretto dell'occhialeria di

[36] ANFAO is the Italian National Association of Optical products.
[37] ICE is an Italian Trade Agency for the the promotion abroad and the internationalization of Italian firms.
[38] The ATECO are codes for the identification of 2007 of the Classification of Economic Activity. In the eyewear industry according to *Osservatorio Nazionale Dei Distretti Italiani* these codes are:

ATECO Code 2007	Description
26.7	Manufacture of optical instruments and photographic equipment,
32.50.4	Manufacture of ophthalmic lenses,
32.50.5	Manufacture of armature for glasses of any type; frame in series of common glasses,
33.13	Repair and maintenance of electronic and optical equipment,
25.61	Treatment and coating of metals,
22.21	Manufacture of plastic plates, sheets, tubes and profiles in plastic materials,
25.99.9	Manufacture of other metal items and small metal parts,
32.99.9	Manufacture of other products nca.

Belluno", and with the use of the database, Aida[39], it was possible to develop a district mapping for the primary activities of the value chain[40].

In addition, in order to sustain and improve the research it has been conducted interviews with key players in the Belluno district and in the market. In fact, the primary data are the result of questionnaires with managers of some firms that belong, directly and indirectly, to the Belluno district, such as Luxottica Group, Visottica-Comotec Group and Dolpi Ltd. Other questionnaires have been conducted with the institutions of the Belluno, such as Certottica (the Italian Institute for the Certification of optical products) and Confindustria Belluno Dolomites - Sipao[41], in order to have an overview of developments in the district over the past 15 years. The questionnaires used to do the interviews is available on Appendix I.

Furthermore, through the participation in the project, ISPM (International Summer Program Management) in China, it was possible to enrich the research with a direct experience in the production facilities of two interviewed companies: Luxottica Group and Visottica-Comotec Group, visited in the Guangdong region, in the Southeast part of China.

4.2 Global Eyewear Market

The Global Eyewear Industry is worth, today, $90 billion, with a constant increment in the growth, for the year 2020, around 55% more, according to the analysis in the reports of Exane BNP Paribas on the trend of these recent years[42].

[39]AIDA is a database that permits a computerized analysis of the Italian Companies. However, there is a limitation in the database. The threshold for inclusion of the firms in the database is that the total value of production is ≥ 100,000 €.

[40] According to the regional decree n.79 of 22.11.1999 (BUR n.112/1999), the geographic extension of the Eyewear District comprehends:
Agordo, Alleghe, Auronzo di Cadore, Belluno, Borca di Cadore, Calalzo di Cadore, Canale d'Agordo, Cencenighe Agordino, Chies d'Alpago, Cibiana di Cadore, Colle Santa Lucia, Comelico Superiore, Danta di Cadore, Domegge di Cadore, Falcade, Farra d'Alpago, Feltre, Forno di Zoldo, Gosaldo, La Vale Agordina, Limana, Livinallongo del Col di Lana, Longarone, Lorenzago di Cadore, Lozzo di Cadore, Mel, Ospitale di Cadore, Pederobba, Perarolo di Cadore, Piave d'Alpago, Piave di Cadore, Ponte nelle Alpi, Puos d'Alpago, Rivamonte Agordino, Rocca Pietore, San Nicolò di Comelico, San Pietro di Cadore, San Tomaso Agordino, San Vito di Cadore, Santo Stefano di Cadore, Sappada, Sedico, Segusino, Selva di Cadore, Sospirolo, Soverzene, Taibon Agordino, Tambre, Trichiana, Valdobbiadene, Vallada Agordina, Valle di Cadore, Vigo di Cadore, Vodo Cadore, Voltago Agordino and Zoppè di Cadore.

[41] SIPAO is a section of "Assindustria Belluno", which brings together the manufacturers of items for eyewear industry.

[42] Reported by the website Business of Fashion (https://www.businessoffashion.com/articles/intelligence/a-closer-look-at-the-13-billion-premium-eyewear-market).

Two different and large segments compose the Eyewear Industry: lenses and glasses (optical frames and sunglasses). The undisputed global leader in the industrial sector is the Italian company, Luxottica, which dominates the segment of spectacles and of sunglasses, followed by French company, Essilor, leader in the lenses market (Financial Times, 2016).

Therefore, the 35% of the eyewear value in the world belongs to the glasses with fashion brands, which guarantee a market value of the so-called "the premium fashion segment" of $13 billion (roughly €11.5 billion).[43] In this specific segment are present some large international companies, such as: Luxottica Group, Safilo Group, Marchon Eyewear, Fielmann AG, Charmant Group, Marcolin Eyewear, De Rigo and Silhouette International. Italy has a primary role in the Eyewear industrial sector, by the presence of four Italian companies in the top worldwide ranking. The strong market presence of these companies is given by the ability to trade and distribute its brands in the market and, at the same, in establishing relationships with fashion brands in designing, producing and marketing the products in the world.

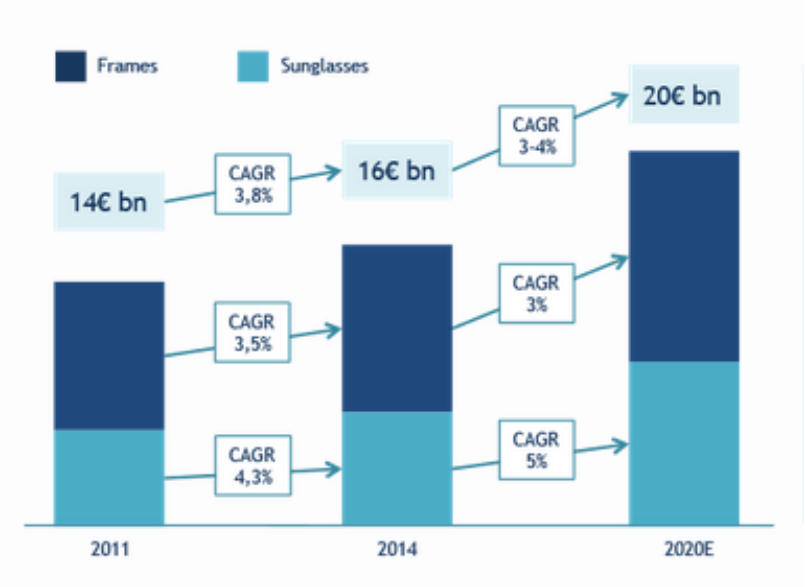
Recently, in 2014, another famous name of fashion, the Kering Group, was emerging in the eyewear market. Roberto Vendotto, chairman of Kering Eyewear[44] defined the company as "*a rare start-up in a mature industry*" (Il Sole 24, 2015). After having anticipated the end of the license with Safilo for the production and distribution of eyeglasses with the Saint Lauren brand (owned by Kering), the multinational group that owns a prestigious portfolio brands, has decided to compete directly in the eyewear market. Especially, Kering Eyewear is becoming active in the luxury market niches with very customized and crafts products, from the innovative use of materials to the choice of selective retailers and in focusing a lot on the digital market. Nowadays, Kering Eyewear is worth about $350 million, based on the value of Kering licensed brands (Il Sole 24, 2015).

Instead, the lenses are a complementary segment in the eyewear market, which is divided into three main categories: corrective lenses, contact lenses and sunglasses lenses. In addition, in this case, the market is characterized by an interactional competition dominated by multinational companies: Johnson & Johnson, CIBA Vision, CooperVision, Bausch & Lomb (the American group that design the aviator lenses for Ray Ban), Essilor, Carl Zeiss, Hoya Corporation, Shamir, Rodenstock and Seiko Corp. Concerning the development and the

[43] Reported by the website Business of Fashion (https://www.businessoffashion.com/articles/intelligence/a-closer-look-at-the-13-billion-premium-eyewear-market).
[44] Kering Eyewear is an Eyewear "start-up" located in Padua, Villa Zaguri, with 200 employees in the 2015 (Il Sole 24, 2015).

growth of the Eyewear market, Safilo Group analyzed, in its reports the trend of the market; highlighting the growth of wholesale distribution (Figure 12).

Figure 12: Global Eyewear Wholesale on prescription frames and sunglasses.



Source: www.Safilo.com

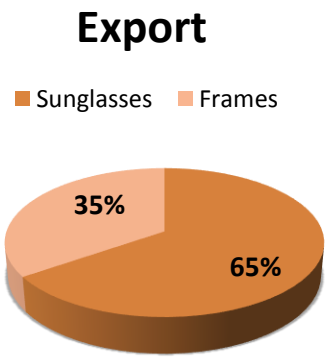
The wholesale value is estimated around €16 billion, in 2014, and it has grown about 3 or 4% in the last three years, with the possibility of continuing to grow for years to come (2020)[45]. Although, the wholesale continues to grow, it is necessary to remark as the possibility to establish a direct presence in the stores (DOS) guarantee, better business performance and, above all, the attention has to be focused on the digital world that has re-defining the market and the way of purchasing, also, for the luxury products. The Global Eyewear Industry is a growing market and the key drivers[46] are defined in:

- Demography and New Markets: the aging in the developed markets and the growth of the middle-class population for the developing markets;
- Medical care and Education: sensibility of the population in the correction and protection of the sight and the possibility to implement new channels and retailers;
- Innovation and Technology: in the category of the products and the higher penetration in the markets, also, in the digital platforms;
- Fashion factor: especially in emerging markets, demand for fashion and luxury products increased over the years.

[45] www.safilo.com
[46] Website: www.safilo.com

The impact of this positive trend is showed in the Italian Eyewear Industry with an increase of the Italian Eyewear production up by 12.5% over the last year, reaching a total of €3,566 million. The number of companies in the sector remained stable at 870 firms with a growth in the number of employees 17.245 (6.5% more than 2014). Lastly, the export increased +4% over 2014 in the quantity (98 million pairs of glasses) and it is composed of sunglasses, 65.3% and frames 34.7%. Therefore, the total export value is €3,455 million (ANFAO, 2015).

Graph 2: Italian Export in sunglasses and in frames



[47]

Source: ANFAO, 2015.

In the following paragraph, it will be described the processing steps and the realization of the finished products.

4.3 Eyewear Global Value Chain Model

The development of the eyewear global value chain model includes the reconstruction of the supply chain activities. Therefore, it is possible to divide the chain in to four main parts: the procurement of raw materials, the processing of components, the realization of the finished product and theirs distribution in the final market. In this section, we will analyze the supply chain globally.

4.3.1 Input

[47] "*64 million were sunglasses (65.3%) and 34 million were frames (34.7%)"* (Anfao, 2015)

First, the study is oriented towards the raw materials that characterize the eyewear market. The types of materials commonly used for the realization of the frames are different kind of metal and plastic:

- Metal frames such as nickel silver, monel[48], stainless steel (much used in recent years) and titanium. The use of certain metals influence the final performance of the products.

  Depending on the needs of the final consumer, it can be obtained very resistant frames and thin by using the nickel silver or lightweight and durable products that are non-allergenic and non-corrosive by using titanium and stainless steel[49];
- Plastic frames and the well-known "cellulose acetate" are the inputs that best conform to the standards of flexibility and strength required by the industry.

  In addition, these raw materials guarantee a better working both in the treatment of the material and in the ideation of new models and colors for eyewear design. Other materials used are propionate, Optyl, nylon etc.[50]

Certainly, the metal and plastic materials are used, commonly, in the business of sub-contractors of components. Sometimes, the innovation of small part of components coming from the material used; hence, in order to improve the performance and guarantee high quality to the products, the suppliers of components introduced in the market new materials such as ceramics, acetate injection, carbon fibers and titanium.

The procurement of the most common raw materials in the eyewear industry is conducted globally in Europe, Asia and America. Multinational companies that manage the raw materials in different industrial sectors enter in supply contracts with the eyewear industry. The eyewear market is considered a great excellence niche of the market, which provides a source of continuous development and innovation.

In addition to, the metal and the plastic materials, the tendency, nowadays, is to differentiate the business with the production of spectacles in wood, leather, rubber or searched and particular materials. The innovations on the material used are introduced by the company in the market for specific segment as the luxury (high-end products) with the result to "dictate" new trend or to appeal to a specific target of customers.

[48] Monel is an alloy of iron copper nickel (http://www.otticasilingardi.it/materiali-per-montature).
[49] http://www.otticasilingardi.it/materiali-per-montature.
[50] http://www.otticasilingardi.it/materiali-per-montature.

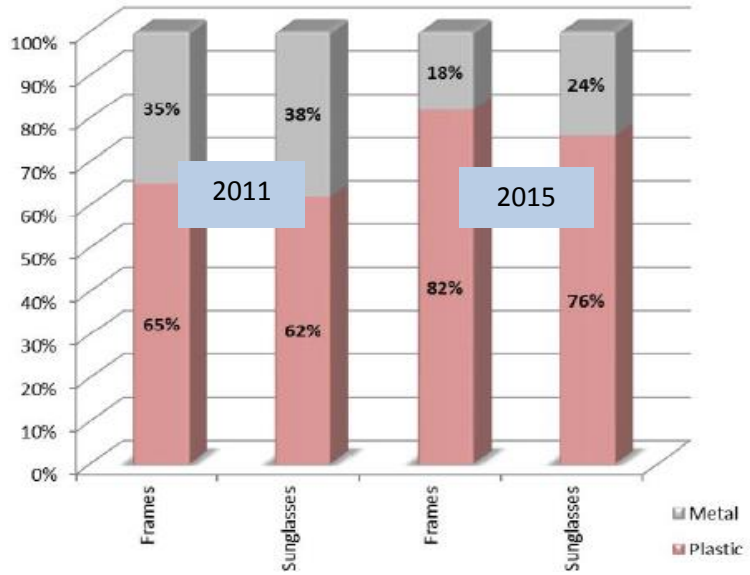
For example, the wood offers new variety of colors and shapes but at the same is a very fragile product. The woods most used are walnut, cherry, maple, pear, rosewood and *bubinga*, an African wood with a slightly purplish hue.[51]

The product cost reflects the precise woodworking and appears as one of the products, together with frames with buffalo horn or tortoiseshell structures, in the high-end market. Another, trendy product is the frame in carbon fibers, very durable product and, at the same time, lighter than steel, but with only drawback to offer a poor choice of colors. [52] In addition, at the global level, the procurement of these innovative materials for eyewear industry is carried out globally.

Moreover, a growing trend is the environmental awareness and responsibility in production cycles, led small-specialized companies in using recyclable materials and resources of the local area, such as wood or textile fiber materials.

In order to have a prospect of change in the strategic decisions of the procurement, in the Graph 3 is showed the variation in % of the sale of frames and sunglasses both in plastic and metal.

Graph 3: Frames and sunglasses sell-in: plasic and metal



Source: Anfao 2015

[51] http://www.ingrosso-ottica-roma.it/materiali-utilizzati-per-le-montature.htm.
[52] http://www.ingrosso-ottica-roma.it/materiali-utilizzati-per-le-montature.htm.

The purchase of metal glasses has radically downsized over the last four years; highlighting a preference by consumers towards the plastic, both for a factor related to the price and for the possibility to differentiate the product in different colors and shapes.

4.3.2 Processing

The operations that determine the choice of the raw materials to be processed are varied; there are more than 60 working phase in order to produce the finished product. The production process can be decomposed in a few elementary activities (Bramanti and Gambarotto, 2009):

1. The designing and prototyping phase.
   It is at this stage that the collaboration and cooperation between designers and product managers meet for the realization of the finished product. In the realization of the prototypes are introduced new technologies and innovations; such as, sophisticated software and 3D printers.
2. The production of components phase.
   The eyewear components are processed with different techniques depending on the material used for the market to which they are addressed. Subcategories of this phase are the MIM and Casting techniques:
   - MIM (Metal Injection Molding) is a unique process that guarantees at lower costs in the realization of standard components. It is commonly used in order to produce standard products and for a considerable amount of batches.
   - Casting is a process used in the customization of the components in order to meet the request of the clients. The production in casting is linked to particular lines of product that is characterized by very particular components with different geometries.

   Moreover, the production of molds is one of the phase, necessary to obtain the desired shape of glasses.
3. The welding phase.
   This phase entails the welding and the finishing of the components and of the frames. The sub-phases of this process are the tumbling, sandblasting and cleaning of the products for a couple of hours, in order to polish the metal and to make the surface of the glasses shining.
4. The galvanic and painting phase.
   The galvanic phase is an industrial process that provide characteristics of resistance to the oxidation and corrosion of the metal. Commonly, third party companies that have

the chemical knowledge to treat the materials manage this process; even if, the leader of the market, Luxottica, has decided to internalize secondary processes, as galvanic, in order to speed up its production time for the products produced.

After the galvanic phase, the decoration and painting phase are introduced. Besides, in this part of the process are realizing the engravings of the logo.

5. The machining, assembly and finishing phase.

   At this stage, the products is finished. The exhibition lenses are added and the products is certified. For each process the product quality is always, verify by the quality team operators. Especially, in this final phase, the presence of the manual work is still relevant.

6. The production of accessories phase.

   The production of accessories for the eyewear market, most of the time is a process that is run by sub-contractors.

Globally, in the production chain it is possible to find very different business models from each other, depending on the specialization in certain production phase.

In fact, the business model is differentiate into four categories, depending on the resources and the expertise owned by the company (Bramanti and Gambarotto, 2009):

a. Eyewear manufacturers that realize that the entire production cycle of eyeglasses. The business model can be vertically integrated or have some activities decentralized abroad. Furthermore, the eyewear manufactures run a product portfolio of owned or licensed brands.
b. Component manufactures specialize in specific production phases and that depend, directly, on the production capacity of the leading manufacturers of spectacles.
c. Suppliers of special processes are the real sub-contractors that have very specific skills in different industries sectors, such as chemistry or mechanics and, therefore, offer specialized production phases.
d. Accessory manufacturers develop a business model parallel and complementary to the eyewear industry.

4.3.3 Components and finished products

In the middle between the procurement of raw materials and the realization of the finished product, there is the market of components and parts, for the eyewear industry. The

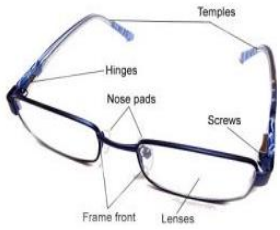
components required to produce a finished product are many, and depending on the material used and on the design of the spectacles.

It is possible to find many variations of the same product distinguishable for material and for the degree of complexity and innovation attributed in the realization phase.

In the Table 5 are listed the basic components of the eyewear industry.

Table 5 Basic components of the eyewear industry:

Washers and Nuts	Turned Precision Parts
Temples	Precision Casting Parts
Rims	Closing Block Joint
Hinges	Pad Arms
Wire cores Components	Nose pads
Milled Sheet Metal Components	Screws
Metal Injection Molding Components	Lenses
Rubber Over Injected Components	Frame front
Photoengraved Logo	



Source: www.optikey.net

Finally, as last step of the production phase, there is the realization of the finished product. The variety of the product, in the market, is linked to its dual nature: a medical product (prescription for the correction of defective eyesight and for protection against UV rays) and a fashion accessory. The latter, the fashion nature, has radically changed the eyewear industry by introducing new market conditions and new factors of competition for companies. The market segments, in which the eyewear market refers, is divided according to the lifestyles and socio-demographic characteristics of the consumers. There is a variety range of models for the same categories of products and according to the brands.

In general, it is possible to differentiate in:

- Optical Frames,
- Sunglasses,
- Sports Glasses,
- Safety Glasses[53].

[53] Criteria defined in www.optikel.net

Others finished product are the Cases and Eyewear Accessories and the Contact lenses and liquid accessories. The latter are used as a substitute product to spectacles and for cosmetic reasons.

The product lines of optical frames and sunglasses represent the most important segment of production, at the global level. Therefore, the weight of world exports of these product categories is estimated at 15,000 million euro in 2015, with an increase of 7.5% over 2014 (ANFAO-MIDO Report, 2016).

In the global market, the share of exports is held by China who won the title of eyewear manufacturer; Italy is behind with a market share around 23%. Anyway, the country of excellence, Italy, is ranked at the first place for the high-end products, with a market share close to 70% (ANFAO-MIDO Report, 2016). In particular, the sunglasses can be considered the first segment in terms of turnover and frequency of purchase as it showed by the Italian export market share in 2015: sunglasses accounted for 30.5% and optical frames for 21% (ANFAO-MIDO Report, 2016).

It was mentioned in the paragraph above, the world's top players in the eyewear market come from Veneto region and it is possible to say that the design and the know-how enclosed in the eyewear speaks Italian. While, for what concern, the lenses and the contact lenses the target market is France with Essilor International as global player in this segment (Financial Times, 2016).[54]

Therefore, Europe eyewear market is the first market in terms of global revenues (over 35%, last year), and its primacy is linked to the key players of the market and to the high average selling prices. North America eyewear market is the second region (over 30%) for the volume and revenues. Anyway, the North America represents a growing potential market, because the demand is boosted by the increase in consciousness for the health and medical prevention and by the rise in consumption of sunglasses. In third position there is the Asia Pacific eyewear market (over 20%), in terms of revenue and followed by the others BRICs countries and regions[55].

[54] In order to compare the two large multinational companies of the industry: the Italian Luxottica Group and the French Essilor International, in a market analysis conducted by Euromonitor and published on Financial Times, Luxottica (13.8% market share) owned a market share higher than Essilor (12.5 % market share). Thus highlights its competitive edge in controlling a vast distribution network and in managing brilliantly the house brands (Financial Times, 2016).

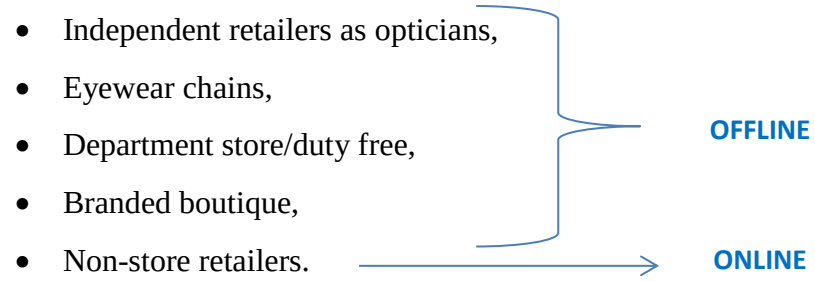
[55] http://www.euromonitor.com/eyewear.

An important aspect to point out is the predominant business model of the leaders to integrate many activities in house, especially in controlling part of the distribution channel in order to avoid intermediaries and obtain a direct communication with the final consumers and theirs specific requests and needs.

4.3.4 Distribution Channel

Nowadays, more than ever, the distribution channel is one of the competitive factors among firms, in the market. The ability to manage a global network led the firm to influence the production and consumption of products sold and to undertake direct relationships with the final consumers.

In the Eyewear industry the distribution channel, commonly, used are five:



At the global level, depending on the target market that the firms is going to cover, it is possible to establish a distinction among the distribution channel. The structural situation of the distribution continues to evolve; however, it is possible to discern four main distribution frameworks, by geographical area and by the predominant business culture (Confindustria Belluno Dolomiti, 2010):

- Anglo-Saxon countries (UK, USA) dominated by large chains of retailers and department stores.
- Northern European countries (France, Germany, Scandinavian countries, the Netherlands etc.) which highlights a dual reality of independent opticians and growing large eyewear chains.
- Mediterranean countries (Italy, Greece, Spain etc.) where the most used distribution channel is the independent opticians. The optical has a rule of influencer in orienting the choice of the clients and guarantees a "full service" in examine the eyes conditions of the patients. The professionalism and the customer service provided by the optician

allow a lasting relation with the final consumer, based on trust, in particular as regards the optical frames and the lenses.

- Southeast Asia countries focusing more on online channels. A practical example is the tactical alliances of the leader in the market, Luxottica Group, which has open online stores for its famous and profitable brands: Ray-Ban and Oakley within the Chinese online platform, *Tmall*, the largest one in the country[56].

Instead, the branded boutiques are transversal distribution channel and are managed by famous fashion brands worldwide. Anyway, geographical boundaries of these distribution channels are poorly defined and are evolving over time.

Moreover, an important aspect to take into account is the capacity of the firms and the resources that have to compete on the commercial side of the market that orient the strategies adopted. Nevertheless, in terms of efficiency, it is required a reorganization of production and distribution activities towards the *lean system* in order to lower the inventory level of independent distributors.

Finally, the Support industries have an important role in support the eyewear industry and contribute to the realization of finished products. The organization model of the eyewear value chain is highly decentralized and heterogeneous. The support industries are very important, especially, for small realities that start to economize their resources in order to compete globally. The most important support industries for eyewear market are:

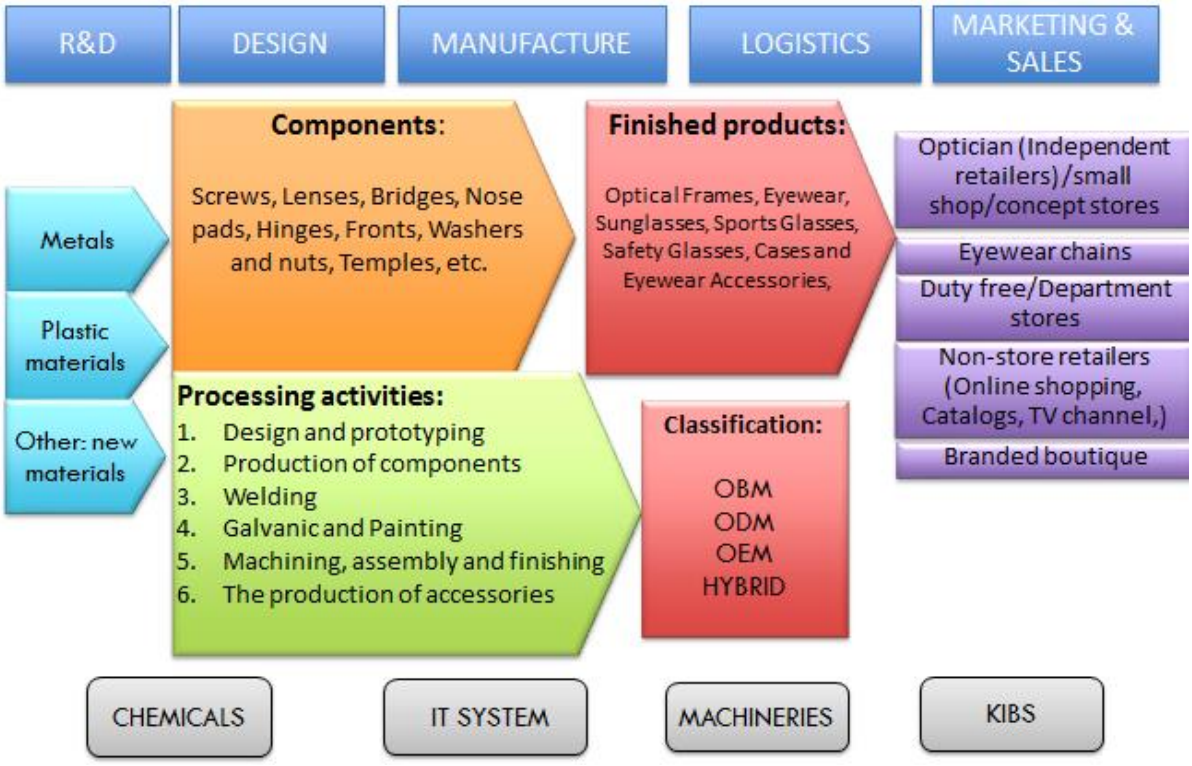
- The chemical industry for particular processing,
- The mechanical industries for the production of machinery,
- The information system industry in order to organize efficiently the production cycle,
- The institutions' ability to increase innovation and internationalization of those companies, known as KIBS (Knowledge Intensive Business Service).

All these areas are used locally close to the facilities of the companies. Finally, it is summarized in the Figure 13, the Eyewear Global Value Chain framework that described the interconnecting of the primary activities in the creation of the value. In the elaboration of the Eyewear GVC are voluntary excluded as final products the *contact lenses* and the *liquid accessories*, even if are accounted as final value of the eyewear market. The production

[56] www.luxottica.com

processes of the contact lenses followed a completely different path in comparison with the segment: optical frames and sunglasses. For this reason, the contact lenses that are substitute products for the glasses are not taken into account in the final analysis. As it will be explained afterwards, the focus will be on the district of Belluno, in which the production of contact lenses is completely absent on the local territory.

Figure 13: Eyewear Global Value Chain framework



Source: Author's elaboration on the analysis of the eyewear market.

4.4 The relationship between Eyewear GVC and Eyewear ID

In previous chapters, it has been repeatedly stressed the interconnection between the global and local economy of the players who compete in the market. In the research, the global eyewear market, described until now, is placed in relation to the local realities of Belluno[57] industrial district; one of the oldest and most important realities in the world of the eyewear industry, due to its high concentration of domestic enterprises, in the local territory, and its long history in the eyewear industry.

According to the report of ICE, the Italian trade agency, in 2016, the Belluno district represents: "*over 70% of national eyewear production with almost 20% of the worldwide turnover*". The tendency of the Italian eyewear production is to be high oriented to the export

[57] The Eyewear Industrial District of Belluno was recognized by the regional law n.13 in 2014 among the 17 industrial districts of the Veneto (www.regioneveneto.it).

that represent roughly 85% of the national production, (where the Belluno's production contributes for the majority, around 80% of the total Italian export) (Confindustria Belluno Dolomiti, 2010).

The principal market for the Italian export of optical frames and sunglasses is Europe, (especially in France, UK, Germany and Spain), followed by the US market (ICE, 2016). Anyway, the US area is still considered the most growth market for the eyewear industry export for both sunglasses products (27.7%) and optical frames (20.9%) (ANFAO, 2015)

As it is shown, in the Table 4 of the chapter: "*Cluster and Industrial Network as local manufacturing system"*, the Eyewear Industrial District of Belluno is the most profitable district in Italy, in 2015. The growth of district is the result of the collaboration between large business leaders in the industry and the local institutions. Therefore, the study of the Eyewear Industrial District of Belluno, represents an opportunity for the analysis of the dynamics growth that have influenced and have re-shaped the industrial model of the district, at an international level.

The presence of few, but, important companies in the global panorama and a myriad of small companies specialized in the sector, generates a perfect combination for the study of the relationship between the global model of the value chain and the industrial characteristics of the local model. By taking into account, the value attributed to the manufacture process and its role in the growth of the district itself.

In fact, the analysis on the Italian Eyewear Industry represents "*a ideal laboratory for studying the evolution and the establishment of diverse organizational structures and production model; facing the same challenges, working in the same industry, manufacturing the same product and being located in the same geographical area*" (Camuffo, 2003).

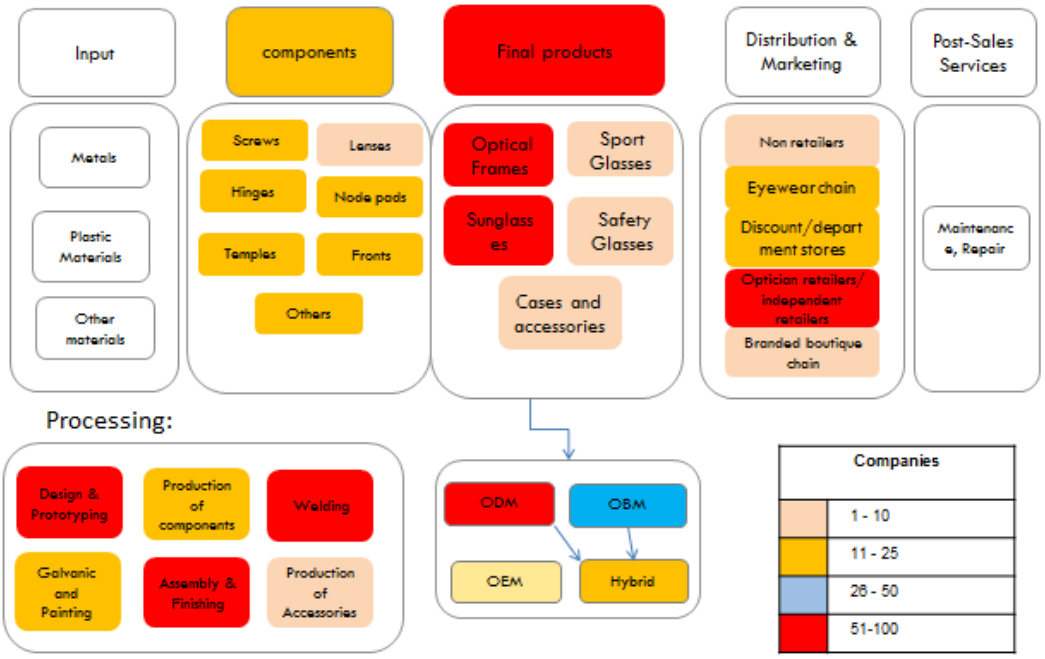
According to the data provided by Confindustria Belluno Dolomiti the total number of firms in the Belluno district is 316 with 11,590 workers, in 2015. The firms, in the district, are two-thirds attributable to small artisans companies, while the remaining are medium small industrial enterprises. In the district, there are five leading companies in the eyewear market.

By analyzing a representative sample of 100 companies[58], which include leading companies and the most relevant small-medium firms, it was possible to represent, graphically, the

[58] The sample of 100 companies is the result of the analysis through the database, AIDA, by using the ATECO codes provides by the *Osservatiorno Nazionale dei Distretti Italiani (website http://www.osservatoriodistretti.org*.) and the boundaries of the district defined by the regional decree n.79 of

presence of Belluno district within the GVC framework, in order to have a clear picture of the activities that are done in the district.

Figure 14: Mapping Belluno Eyewear Industrial District



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Source: Author's elaboration on the companies' analysis and based on interviews with local institutions of Belluno eyewear industrial district.

In the Figure 14, above, is showed that, the majority of the firms in the district are manufacturers of finished products, especially in the segment of optical frames and sunglasses. Instead, just a select set of companies are dealing with the production of components. Large companies and some of the SMEs are dealing with the whole production cycle, from the design of the frames until the realization of the finished products, while, most of the smaller firms of the district are specialized in few processes of the production cycle. Nowadays, especially, the secondary activities, such as galvanic and painting are the activities less performed in the district. In fact, as we are going to analysis in the following paragraphs, the percentage of small firms, focused in secondary activities, in order to support the

22.11.1999 (BUR n.112/1999). Even if in the Belluno district the firms are 316, the database shows only a part of the firms of the district. The threshold for inclusion of the firms in the database is that the total value of production is ≥ 100,000 €.

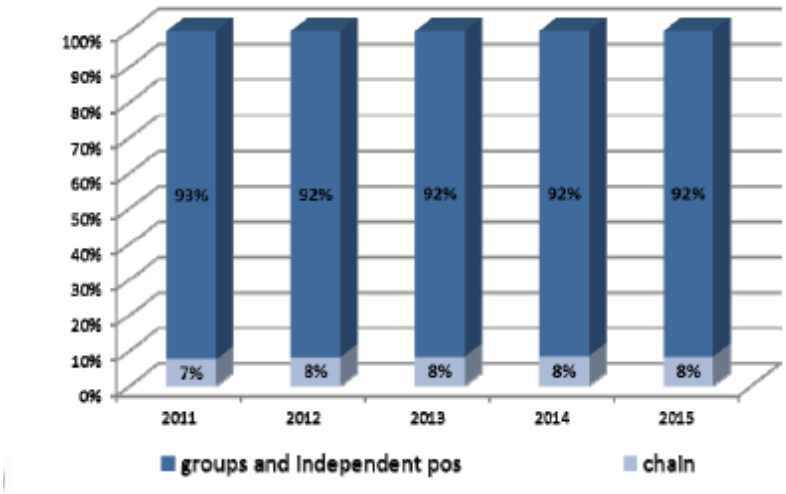
[59] Methodology: Belluno Eyewear Industrial District is represent in the GVC framework, by using a sample of 100 companies operating in eyewear industry. In the legend of the model are highlighted, with colors, the industrial density of the district enterprises in the main of the value chain activities. The red color evidence the high density of firms in the district that are occupied in those activities. The blue ones shows that many firms are dedicated in the realization of that particular activity. In fact, the only blue rectangle is the Hybrid forms between the realization of finished products with a house brand and the realization with a brand in licensing for third parties. The two last categories, the yellow and the lighter pink highlight that very few firms in the district are operating that activities.

realization of the finished product, are decreasing during the years. For what concerns, the realization of accessories products as the cases, in the local territory, the numbers of firms are very limited and most of the time have a diversified business in different industrial sectors.

Furthermore, the distribution channel, commonly, used in the Belluno district are the independent retailers: the opticians, reached using intermediaries, such as agents or wholesalers. The difficulty in establishing a direct channel to the market is one of the major limitations of SMEs in the district, only a few large companies are able to define the market balance and drive consumption.

In this scenario, more and more companies seek differentiation through the development of its own brand. Although, from the analysis of the sample above, the result shows how the distributors' power is higher in orienting the choices of manufacturers in producing eyeglasses for third parties (ODM); both for fashion brand or optical retailers brands. As it is shown by the Graph 4, in the Italian market, the largest distribution channel for almost 92% of the cases are the independent retailers (Anfao, 2015).

Graph 4: Optical trade structure



Source: ANFAO, 2015.

Before, the analysis on the evolution of the district and on the description of the actors operating in the eyewear market, in the next section we will highlight the history and growth of the Belluno Eyewear Industrial District.

4.4.1 The genesis of Belluno Eyewear Industrial District

The history of the district began in the late 19th century[60] in the mountain landscape at the foot of the Dolomites, in North-East Italy. The evolution of the Belluno Industrial District is organized in two diverse clusters; with different production model and different path of evolution (Camuffo, 2003).

The first laboratories of eyewear were settled in the Cadore, "*where parts of glasses from the closer Germany were assembled and a highly professional technicians were formed in the production of frames, lenses and cases*" (Osservatorio Nazionale dei Distretti Italiani, 2012); by creating an environment suitable for the development of a network of small businesses and craftsmen (Osservatorio Nazionale dei Distretti Italiani, 2012). The second cluster, instead, was settled in Agordino valley around "*a single vertical integrated company, Luxottica*" (Camuffo, 2003).

After the Second World War, the district of Belluno started to differentiate its flexible and high specialized model, from the "forced industrialization" firms owned by the state, and began to attract more and more investments into this "new industrial periphery" (Camuffo, 2003).

The relationship between the small firms in the district were focused on the division of the labor and in the specialization per phases of the production, ensuring the saturation of the resources; while the relations with the key players in the district were based on the "*trust and reciprocal cooperation*" (Camuffo, 2003).

In the 1970s, the district developed into a new organizational model, born by the meeting of two industries: the fashion and prestigious luxury brands and the eyewear industry itself. The growth of the market, according to the trends of the fashion world, boosted the demand and the number of local units increased:" *from the 137 local units in 1971 to 745 in 1991*" (Osservatorio Nazionale dei Distretti Industriali, 2012).

Moreover, the district boundaries expand into other areas of the Veneto region and in cities adjacent to the Friuli-Venezia Giulia region[61].

During these years, the district evidenced is duality nature in the organizational model. One part, it is composed by few and international companies, leaders in the industry that have a

[60] Precisely in 1878 when Angelo Frescura, founded the first factory of glasses in Calalzo in the Cadore area (Confindustria Belluno Dolomiti, 2010).
[61] A significant presence of eyewear companies is located in the provinces of Treviso, Padua and Venice (Osservatorio Nazionale dei Distretti Italiani, 2012).

direct control in most of the value chain activities, from the designing and production to the distribution and marketing of the products, on the international channels through wholesales or retailers. On the other side, the network of small and medium firms specialized in particular phase of the production of components or in special processing techniques that are influenced by the strategic decision of the leaders in the district and by the international competition in the cost of production (Osservatorio Nazionale dei Distretti Italiani, 2012).

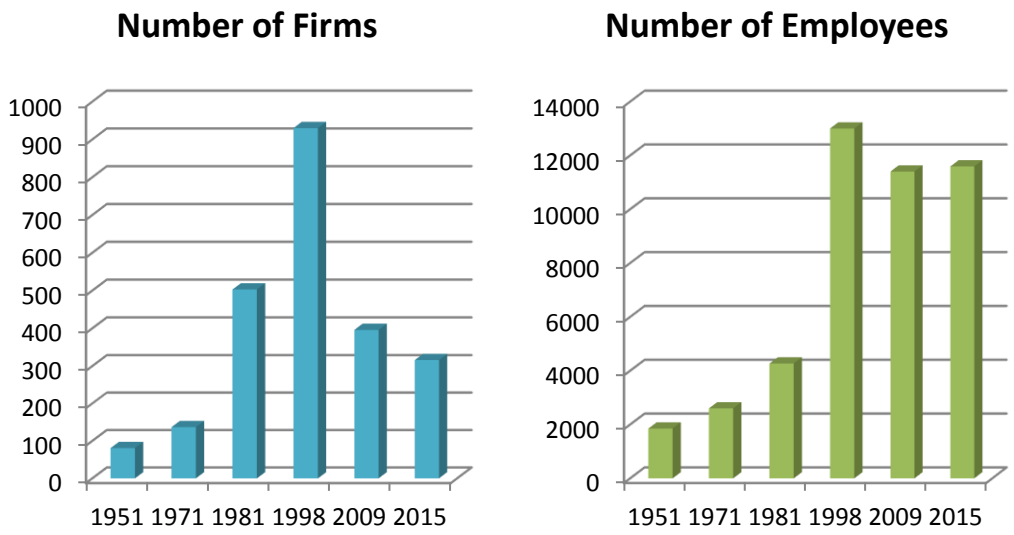
In fact, the dichotomy in the model of the district has been emphasized by the global competition in the internationalization strategies of the leader firms towards the emerging markets.

In the 1990s, the performance of the district in Cadore decreased and a relevant amount of firms failed, against the international competitors, especially the Chinese one (Camuffo, 2003). The Chinese producers represented and still are a threat for the Italian districts, in particular for: "*the rapidity with which the Chinese, using German, Japanese and Italian know-how, are moving upscale, learning to produce medium-high level glasses*" (Camuffo, 2003). Therefore, the Chinese production network represents six times the Italian one.

Nowadays, the organizational structure of the industrial district has radically changed in order to face the global economy. The leading companies made a selection of their suppliers (captive governance) and started to implement new forms of cooperation with the small selected network, in order to obtain a genuine partnership in "*providing collaboration during the design phases as well as the eyewear production*" (Camuffo, 2003).

The Graph 5, below, shows the quantitative changes in the Belluno district from its formation until now. In particular, in the left chart, is shown the trend in the number of firms, highlighted the change from the first internationalization, in the early 2000s, that has "dried up" the district of Belluno. While, in the second chart, to the right, is highlighted the reabsorption of most of the workers of the small firms towards consolidated industrial companies; highlighting a very positive result for the labor market, especially in 2015.

Graph 5: The trend in the number of firms and the number of employees in Belluno Eyewear Industrial District.



Source: Elaboration on Confindustria Belluno Dolomiti data.

4.4.2 Evolution of Belluno Eyewear Industrial District

In this section, it will be analysis the evolution of Belluno district in the past 15 years, after the first delocalization of the production abroad by some leaders of the district (at the end of the 1990s and early years of the 2000s) until the effect of re-shoring of our days. The research is supported by quantitative data provided by Confindustria Belluno Dolomiti and qualitative data provided by the interviews with the actors of the Belluno eyewear market, mentioned in the paragraph *Methodology*.

The focus is to analysis the radical change of the organizational structure of the district that during the first delocalization of the production in Asia has downsized the Belluno eyewear industrial district, both, in terms, of growth of the production levels and in the number of companies. In this selection process, many SMEs, operating in the production of eyewear as subcontractors, disappeared from the district; although, as regards the labor force, there has been an occupational reabsorption towards the larger firms.

Due to the change in the international scenario, the leaders of the market, located in the district, started to integrate several stages of the production process, before outsourced to subcontractors of the local territory, with the ability to maintain a certain margin of internal flexibility. At this point, the relationship between the leaders of the market and the local district became more and more independent. In this way, the growth of the district ceased to be directly connected to the growth of the market leaders.

This is the period where, many small and medium-sized companies operating in the secondary industries such as galvanic, painting, accessories and components tend to disappear because of less competition, in term of price, in the global scenario. Thus explains, the mapping that today the Belluno District occupies in the global value chain and as this change has marked the organizational structure of the production chain.

In an increasingly concentrated and selected context, it started to increase the share of imports of inputs, components, semi-finished products and finished products that reach the district to be finished with the packaging and the certification needed and, finally, in order to gain the brand *Made in Italy* (Confindustria Belluno Dolomiti, 2010).

At that time, the reliability of the *Made in Italy* started to enter "in crisis" and the eyewear production became more and more standardized. The internationalization led to the trivialization of some processes and prevented the development of the specialists of phase (Confindustria Belluno Dolomiti, 2010).

In the meanwhile, new strategic dynamics that belong to the fashion world started to be part of the eyewear industry, by introducing new changes in the production and commercial sides. With the proactive role of well-known brands of fashion, the mature eyewear market it has been boosted in demand, supported by the new logic in the marketing and in the distribution of the finished products.

Although, the eyewear market is a low-tech industry and allows thanks to specialization in different production phases permits an easy access to the market, with the new intersection of fashion, the business model was radically changed, increasingly the integration downstream and, sometimes also, upstream. The result was an increase of the entry barriers and the necessity for the firms to re-organize their organizational structure with new investments and resources allocated in the commercial side.

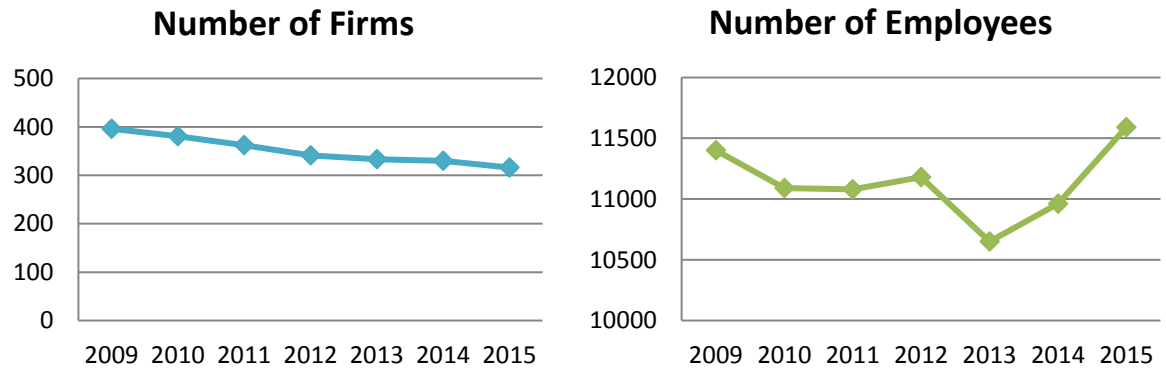
Moreover, during the economic and financial crisis of 2008, which affected all the industrial sectors of our territory, the value of exports was dramatically reduced (-15% over 2007) (Confindustria Belluno Dolomiti, 2010).

However, the logic of production relocation did not follow a linear path, and in recent years has established a new phenomenon of return of the production facilities in the district: the re-shoring effect.

In the Graph 6, below, it is highlighted the continuing decline in the number of enterprises and the number of employees, after the economic and financial crisis. Although, in the 2014 is started the recovery; a strong rebound from the side of the workers with a reabsorption in large companies and the proactive trend of large enterprises in re-investing in the local area (more information are available on Appendix II).

In fact, in recent years, there has been a recovery of Belluno district with the growth of many start-ups oriented in the differentiation of the product by using different processes and by introducing new technologies. In fact, the start-ups have invested, in order to get closer to the final consumer, in communication and online sales through socials networks and with the development of techniques for the customization of the finished product.

Graph 6: The trend in the number of firms and in the number of employees after the economic and financial crisis of 2008.



Source: Elaboration onConfindustria Belluno Dolomiti dara

As it has emerged from the interviews, the re-shoring process is attributable to many variable, in particular to the evolution of the market in recent years and to the growth of China, in terms of labor costs, but, also, in business diversification towards other activities of the value chain.

For the market evolution, we are considering the development of competitive factors such as "*technology, quality, the professionalism in service and time*" (Confindustria Belluno Dolomiti, 2010). These key factors are necessary to compete and lead to the redefinition of the production structure of the company in the global competition. The complexity of the modeling and the fragmentation of the batches required by the market in satisfy the need of the final consumers. The concept to "personalize his/her products" is linked together at the delivery time of the finished products in the market, on the schedule settled by the fashion

business. Under this condition, the production facilities in China, used to produce in certain standards of batches and volumes, did not match the market demands.

Hence, the firms focused, only, on the delocalization of the production to pursue cost advantage were forced to come back home; because their strategic outsourcing decisions have not taken into account the change of the market and industry.

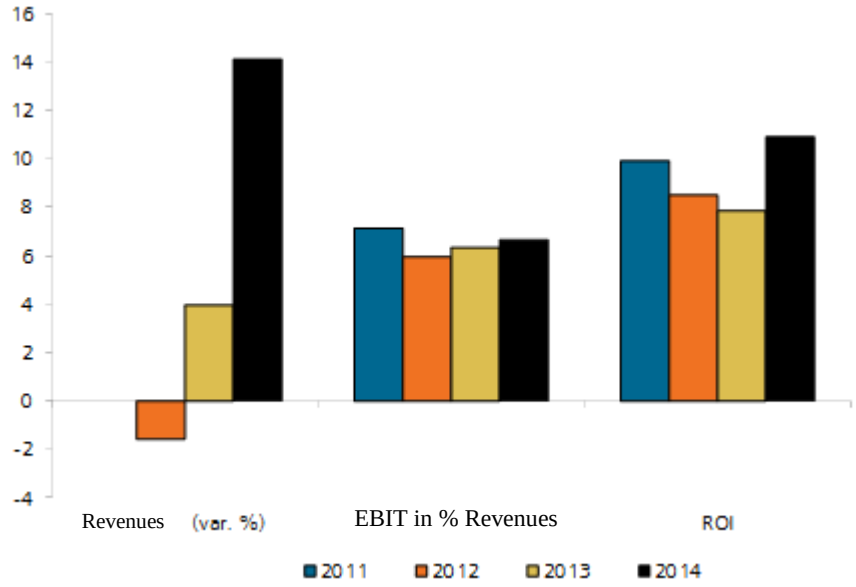
While, others returns of delocalized production, although partial, are attributable to the need to compete on the critical stages of the eyewear production as the quality control and the reliability of the supporting companies that allow a remarkable reduction of delivery time to market. In these production steps, the geographical proximity between the value chain activities and the *tacit knowledge* of the Belluno district are key factors for the global competition. Moreover, in recent years the institutions are investing in the training of technical skills the younger generation and support SMEs with incentives for the relocation of production in the district. In the section on the role of institutions, we will analyze in detail the new initiates promoted.

Therefore, in order to put in evidence the relevance of Belluno Eyewear Industrial District, in terms of revenues in the report[62] of Intesa San Paolo (December 2015), it is showed the total annual revenues of €1,305.9 million for the 2014. As, we mentioned above, the 2014 represents a great year for the district (as it is highlighted in Graph 7), in which that the economic performance have returned to the positive levels of the beginning 2008, before the financial and economic crisis.
The positive trend is the result of a proactive boost towards the internationalization of the district and, at the same time, by re-shoring policies aimed at preserving and implementing the potential of the district.

Anyway, the five manufacturers leaders of the market located in the district are account for almost 85% of the total income. The quantitative data regarding the performance of the district are summarized in these two graphs below.

[62] The report considered a sample of 75 firms (Intesa San Paolo, report 2015).

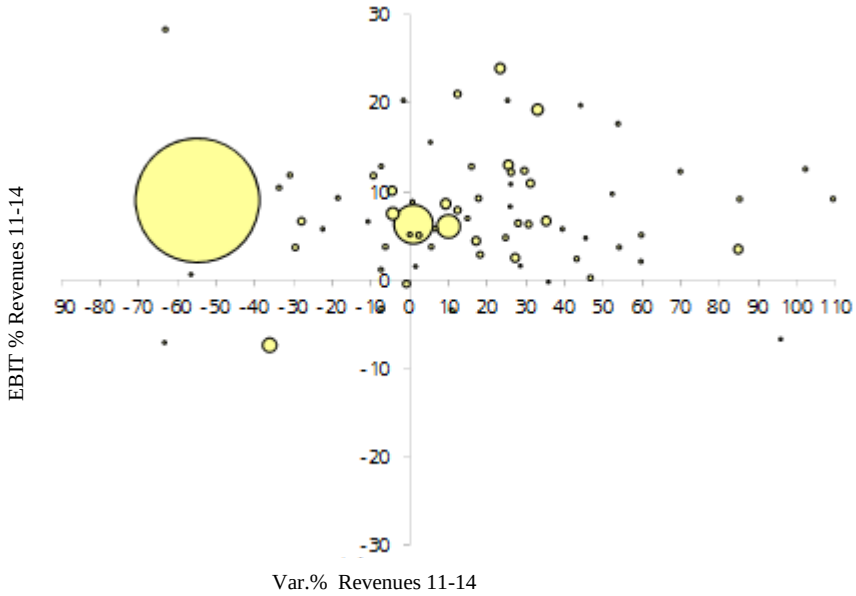
Graph 7: Performance (var. Revenues 2011- 2014: 17.1%)



Source: Intesa San Paolo elaboration on corporate balance sheets and median values.

The size of the circles indicates the dimension in revenues of the firms in the district (turnover in 2011). In the Graph 8, it is showed the demographics of companies in the district, which as mentioned above, consists in a duality of few but large international companies (the largest circle is the international company, leader in the industrial sector, Luxottica) and many small artisan firms.

Graph 8: The dispersion of the performance.



Source: Intesa San Paolo elaboration data on corporate balance sheets.

4.4.3 The Players in the Belluno Eyewear Industrial District

As it has been highlighted during the interviews with the participants of the eyewear market, a major role in driving the market is definitely attributed to the eyewear leaders. In fact, the most influential global eyewear manufactures are in the Belluno district and deal with the production of spectacles and of sunglasses, which represent the "premium segment" of the market.

First of all, the undisputed market leader, the first one, is Luxottica Group, founded in the 1961 by Leonardo Del Vecchio and famous worldwide for its vertical integrated model, has a prestigious portfolio of eyewear brands both owns brands and many licensed brands. Moreover, the vast network in the distribution system has allowed the company to ensure a presence in the market through 200.000 wholesale doors and owned retailer brands worldwide[63].

The second one, Safilo Group, founded in 1934 by Guglielmo Tabacchi, managed a varied portfolio brands. As Luxottica, the Safilo Group has owned brands and licensed brands. The company is deeply focused on the designing process with more than 150 designers and with thousands of new models each year. The distribution network covers more than 90.000 wholesale doors.[64]

Furthermore, in the Belluno district there are: the American company, Marchon Eyewear, founded in 1983 that manages licensed brands, followed by De Rigo Group, founded by the brothers De Rigo in 1978, that has business relations with international brands, through licensing and housed brands and, lastly, Marcolin Eyewear, founded by Giovanni Marcolin Coffen in 1961, that holds prestigious licensed brands.

The Table 6 shows the leaders companies in the Belluno District, empathizing their Country of origin and the total revenues in 2015.

[63] Company web site www.Luxottica.com.
[64] www.safilo.com.

Table 6: The five World's Largest Eyewear Manufacturers in Belluno district

Company	Home Country	Turnover year 2015 (million €)
Luxottica Group	Italy	8.837
Sàfilo Group	Italy	1.279
Marchon	USA	892 (1)
Marcolin Eyewear	Italy	434
De Rigo Group	Italy	403

Source: Companies website and annual reports.
Note (1) the turnover of Marchon is of 2014. The data on 2015 are not available.

The business model of the leaders in the market is characterized by the integration of most activities in the organizational structure of the firms. The predominance is to integrate the activities at the downstream, in order to exercise control in managing the sale of the brands and in order to be closer to customer needs, in terms of service and innovation.

In fact, as emphasized above, the power of the market in consumer decision-making is heavily exercised by buyers. As highlighted in Gereffi's studies, the buyer-driver is a pull market factor and affects the production of firms in the sector.

Therefore, very often, in the company's business model is added the upstream integration too. The need to control, directly, production and the innovations on process and on products, ensure that the company can exercise a competitive advantage in meeting the *time to market* dictated by fashion.

Fashion is a major driving factor in the market; in fact, the collaboration and the cooperation between the eyewear's manufacturers and the big names of the fashion world have become key factors of the global competition.

Therefore, in Italy are located half of the major licensing manufacturers of the world (ICE, 2016). As it is shown in the Table 7, the market leaders compete for the most popular brands in the market.

Table7: The brands portfolio of the leading companies

Company	N. of L.B.	Licensed brands	N. of P.B.	Proprietary brands
Luxottica	20	Armani Exchange, Brooks Brothers, Burberry, Bvlgari, Chanel, Coach, DKNY, Dolce & Gabbana, Emporio Armani, Giorgio Armani, Michael Kors, Miu Miu, Paul Smith Spectacles, Polo Ralph Lauren, Prada, Ralph Lauren, Starck Eyes, Tiffany & Co., Tory Burch, Versace.	7	Persol, Ray-Ban, Oakley, Arnette, Vogue Eyewear, Oliver peoples, Alain Mikli.
Safilo	20	Banana Republic, Bobbi Brown, BOSS, BOSS Orange, Céline, Dior, Dior Homme, Fendi, Fossil, Givenchy, Gucci, Jimmy Choo, Kate Spade, Liz Claiborne, Marc Jacobs, Max Mara, Max&Co, Pierre Cardin, Saks Fifth Avenue, Tommy Hilfiger.	5	Carrera, Polaroid, Safilo, Oxydo, Smith Optics
Marchon	21	Columbia, G-Star Raw, Karl Lagerfeld, Nautica, Sean John, Valentino, X Games, Calvin Klein Collection, Calvin Klein Platinum, Calvin Klein Jeans, Chloé, Dragon, Etro, G-Star Raw, Lacoste, Liu Jo, Marni, MCM, Nike, Salvatore Ferragamo.	6	Airlock, MarchoNYC, Flexon, Kiss&Kill(1)[65], Scandinavian Eyewear(2), Trés Jolie
Marcolin	29	Agnona, Balenciaga, Catherine Deneuve, Diesel, Dsquared2, Emilio Pucci, Ermenegildo Zegna, GANT, Guess, Harley-Davidson®, Just Cavalli, Marciano, Montblanc, Roberto Cavalli, Skechers, Swarovski, Timberland, Tod's, Tom Ford, Web Eyewear, Bongo®, Candie's®, COVERGIRL, Kenneth Cole New York, Kenneth Cole Reaction, National, Rampage®, Savvy, Viva.	2	Marcolin, Web
De Rigo	18	Blumarine, Carolina Herrera, Carolina Herrera New York, Chopard, Escada, Fila, Furla, Lanvin, Loewe, Tous, Zadig&Voltaire, Mille Miglia, Trussardi, Nina Ricci, Dunhill.	4	Police, Sting, Lozza and Lozza Sartoriale.

Source: Author's elaboration on Companies profiles data and on studies of Campagnolo and Camuffo (2011).

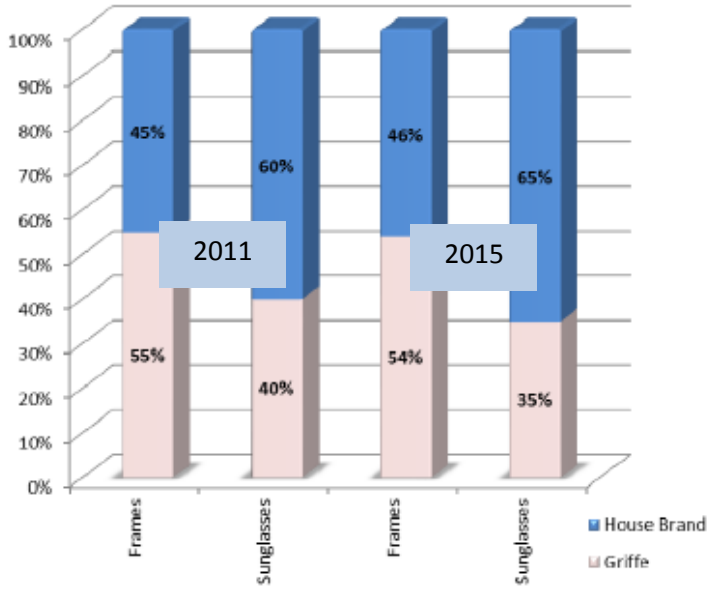
The Table is divided in the two categories: the licensed brands and the proprietary brands. Although trade with the best-known brands of fashion ensures great visibility to the public, at the same time, the management of licensed brands is conditioned to a great financial capacity in marketing investments and the royalties derived by the license agreement is a burden on most of the revenues of the company. Therefore, in order to gain more on the value chain, companies try to diversify the financial risk and to increase the degree of control in the market by investing in the house brands through marketing and communication. As it is shown in the Graph 9, the trend in sales of frames and sunglasses are oriented towards the company's

[65] (1) Specific market: Europe (2) Scandinavian eyewear is an acquisition of Marchon for the Scandinavians.

house brands both, in terms of final price (the house brands generally are targeted for medium-high segment of the market) and in the reliability recognized by the final consumers on the house brands.

Another important aspect to take into account is the short product life cycle of in the eyewear industry. In order to be innovative the firms has to introduce in the market new models and this aspect influence the design capacity and the resources of the companies. In fact, on average, the percentage of renewal of the product is affected by: "*frames, 40% of the product line is renewed within a year, while sunglasses renewal of the product line is approximately 70% every year*" (Campagnolo and Camuffo, 2011).

Graph 9: Frames and Sunglasses sell in brands



Source: ANFAO, 2015

Next to the leaders in the Belluno Eyewear Industrial District, there are the medium-small enterprises that operate in the realization of the finished products as subcontractors. The competitiveness of these dimensional level companies lies in diversifying their business models. Through two dimensions (Campagnolo and Camuffo, 2011):

- Production size: SMEs has to produce finished product as subcontractor but in small batches, that the large companies do not produce for economies of scale product and in using the technologies and the capabilities to the large clients in order to enrich the competences of the firm;

- Customer size: SMEs has to specialize the production for specific niches and innovate for that category. They offer specific line of products through the use innovative materials or with the development of new technologies.

As we have mention before, the competitor factors in order to succeed in the Eyewear market are related to the "*technology, quality, the professionalism in service and time*" (Confindustria Belluno Dolomiti, 2010). In fact, for all the SMEs that operate in the supply of components, it is fundamental to guarantee reliability for the clients. Through the development of technological and technical expertise (engineering the processes) and the implementation of a production system "in line", that follow the *lean management approach* in order to reduce inventory costs of components and obtain a production line more flexible (Campagnolo and Camuffo, 2011). Last, but not least, fundamental is maintain high quality standards for all the products offered.

Lastly, in the Belluno district are present a myriad of very small enterprisers focus on specific activities of the value chain that nowadays suffer heavily the global competition. The change in their business model towards specific innovation activities and the collaboration together with larger companies can ensure the development and preservation of this type of artisan enterprises.

4.4.4 The local institutions' role

Over the years, the presence of the institutions has gone to strengthen, with the establishment of new realities. In the 1992, was born the first Initiative Committee for the Development Eyewear Belluno, with the role to supervise the activities in the district, to coordinate the different projects and sustain the district in the internationalization phase of the craft enterprises. The *Eyewear city* is a robust network that comprehends: Eyewear Museum, Eyewear School[66], Certottica (Italian Institute for the Certification of Optical Products) and the Eyewear Center Services, in order to implement the interconnection and the exchange of information among the district, the research and the universities (Osservatorio Nazionale dei Distretti Italiani, 2012).

All these organizations work as a KIBS, Knowledge-Intensive Business Services. A KIBS could be defined "*as a cognitive interfaces between the local context and the global*

[66] The Eyewear School is composed of two level of education: the first one is a degree course in Eyewear technologies, mechanical engineering at the University of Padua and the second one is a technical training (Osservatorio Nazionale dei Distretti Italiani, 2012).

competitive environment" (Campagnolo and Camuffo, 2011). Through the network, it is possible to figure out the district's weaknesses and implement growth opportunities for the global competition.

Certottica is one of the KIBS that is in charge of the certification of the Italian eyewear accordance with the European and International standards and support the industry in the development of new solutions and technologies in order to satisfy the final market (Campagnolo and Camuffo, 2011). As we have mentioned before, one of the main weaknesses of the district is the capacity to establish a direct distribution channel towards the final market. Hence, at the begging of the 2000s, some initiatives have been developed by the local institutions, aimed at the consolidation of a network of small-medium enterprises in the Belluno district in order to create a shared and innovative environment towards the final market.

For example, *Cadore Moda*, *in Fabbrica*, *Integra* or *GLAD* are consortium projects among companies in order to sustain and support a direct channel in the eyewear market with the development of a common brand that identifies the local territory of Belluno. Despite, a promising campaign and encouraging results in the early years, the proposals had effects only in the short term. The failure of these initiatives was related to the poor competences in the commercial-marketing side with the cooperation between local firms and in the difficulty of access to credit to realize additional investments (Confindustria Belluno Dolomiti, 2010).

Another interesting initiative was the creation of an online platform to improve and speed up the relationship between the customer and the supplier in the B2B market, *OptoIDX* (Opto Internet Data Exchange). Unfortunately, even this project did not go well for a poor integration of systems informed (Confindustria Belluno Dolomiti, 2010).

Recently a new digital portal dedicated to B2B market, *Optikel* of Edison Communications, focuses in connecting the best global customers and suppliers with an eye towards the territory of Belluno and the neighboring cities that share the same knowledge and technical skills required by today's market (Confindustria Belluno Dolomiti, 2010).

Although, it is not simple to establish an aggregation of the district's firms in an innovative and modern network, the role of local institutions is fundamental in investing and in transferring the knowledge and capacity of the territory to the new generations. Therefore, there are many integration initiatives between universities and industry. In particular, the

University of Padua in collaboration with Confindustria Belluno Dolomiti -Sipao[67] are engaged in youth training for the eyewear market, particularly in the most sensitive areas of production, such as design and R&D for the eyewear industry.

Finally, relevant is the role of local institutions in involving the SMEs of Belluno district in international exhibits, with the aim to create links between the small business and the distributors. Among the most important exhibits in the international scenario, there is the MIDO, International exhibition of optics, optometry and ophthalmology, established in the 1970. Other important international exhibitions are: SILMO in Paris, Optifear in the US, Optica in Cologne and HKOptical in Hong Kong (ICE, 2016).

4.5 The role of manufacturing between GVC and ID

In the second chapter of the research: *Manufacturing in the Global Value Chain model*, was described the role of manufacturing in the global system of value chain. The upgrading processes and evolution of manufacturing described by Gereffi (2011), from the primary process of Original Equipment Manufacturer to Original Design Manufacturer, and finally, the upgrading to Original Brand Manufacturer, suggest (in order to gain more value) an orientation towards the "intangible assets" of the value chain.

The role of manufacturing seems to be increasingly marginal, especially in the developing countries, where the Wester-firms delocalized their production facilities in order to obtain economies of costs and implement the standardization of the products. At these conditions the GVC model followed the path of the *Smiling curve* approach described by Mudambi (2008).

While, in the local industrial districts, the focus is oriented towards the manufacturing as local system, where the development and the improvement of the industry are the result of the collaboration and cooperation of the firms in preserving the "*hereditary skills*" (Belussi and Caldari, 2009). Moreover, the local firms rely on the development of new technical knowledge related to the external economies of the local territory, as an atmosphere of knowledge and innovation floating "*in the air*" (Marshall, 1890).

Nevertheless, due to the international competition and others variables mentioned in the third Chapter that have change the local system of the district. The district had re-defined the inter-

[67] Sipao is a segment of the Confidustria Belluno Dolomiti focus on the eyewear industry.

firms relationships and the share of knowledge was completely rationalized. In the Table 8, are summarized the steps of the evolutions of the district in the manufacturing choice.

Table 8: Evolutionary steps of the Belluno district and the manufacturing choice

Early development →	Hierarchization of the district →	Internalization / Selective out-sourcing
Rapid proliferation of enterprises	Emergence of leading firms as a way to face international competition	Market requires differentiation: leading enterprises must be able to guarantee high quality and technical capabilities
Institutional initiatives for local industrial development	Design, sales promotion, distribution capabilities required of leading firms	Supplier base rationalization: transition from "capacity" to "specialty" sub-contracting
Enterprises usually govern all the phases of the process	Local sub-contractors for flexible and efficient manufacturing	Internalization in order to better coordinate the flow
Development of external economies	District as a closed system	Sourcing extends beyond district borders

Source: Nassimbeni, 2003.

Anyway, the manufacture activity still represents the base of the innovation for the local realities in the district, based on the process of the *learning by doing.* In particular, the radical specialization of the small and medium firms of the district in activities, with high value added competences originated by the manufacturing techniques in special raw materials and in innovative processes, ensure an influenced role in the competitive international scenario.

The local resources and the *tacit knowledge* that identify the district cannot be transferred to other places. Moreover, the synergies between the manufacture activity and the upstream or downstream activities of the value chain generate an innovative development of the entire industrial system in order to improve reliability and flexibility in the market. Therefore, even today, the district is a flexible business model that can meet the demands of the market on time and as planned. Thanks to this organizational model can be realized more and more customized and original products, keeping up with fashion trends. Hence, "*the district remains a rich entity with small business and larger companies playing different and, at the same time, complementary roles*" (Camuffo, 2010).

In fact, the global dimension of the value chain is increasingly interconnected to the local district system, in which the company's manufacturing operations are located. Local suppliers with particular knowledge can take the solution of global leaders to upgrade their local conditions, by improving continuously innovation in manufacturing or upgrading in their functional areas and the global suppliers or platforms leaders exercise the control over the development of the industry innovations (Sturgeon and Kawakami, 2011).

Through the active communication and exchange of information among the big players in the market and local realities in a dynamic network, it is possible to trigger processes of growth and enrichment for all market actors. In fact, "*the concept of network is a third entities in filling the gap between the global and local dimensions*" (Stopper and Harrison, 1991).

Among the most important industrial districts in Italy, the Belluno Eyewear Industrial District combines the global and the local dimension of the manufacture activity. The Belluno district is recognized around the world as the territory of the large and most important manufacturers of eyewear.

As it was highlighted during the interviews with the players of the eyewear industry, the reliability of the *made in Italy* rely on the competences and the technical skill located in the Belluno district. From the unique style and advance design to the particular processing of innovative materials, the Belluno Eyewear Industrial District symbolize the productive chain of the most prestigious eyewear market. Although it has some weaknesses and difficulties to face the international competition (SWOT Analysis – Table 9), "*the district opens to a value chain model, where the territoriality is a particular economic and institutional context, can still play an important role if it is configured as a network within global competition*" (Confindustria Belluno Dolomiti, 2010).

Table 9: SWOT Analysis of Belluno Eyewear Industrial District

Strengths	**Weaknesses**
• Hereditary skills, • Positioning in the high end market (luxury products and high price products), • High concentration of manufactures eyewear - 1° district in Italy in the eyewear industry as concentration and diffusion of expertise, • All the phases of the value chain are present locally, • *Made in Italy*, • Innovation of the products by the manufacturing techniques of the phase specialists, • High concentration in the local territory of licensing manufacturers, • Global leaders.	• Low level of commercial and marketing skills, • Polarization between the large international leaders of the industry and the small-medium companies of the local territory, • Limited resources of the small enterprises in order to sustain investments in the commercial sides, R&D and in new technologies, • Competition on price rather than other variables, • Fragmentation of the supply chain and loss of knowledge in the secondary processing phases (galvanic, painting, components production, accessories).
Opportunities	**Threats**
• District as a network between the	• Competition on price, China is in the

global and local dimension of the competition, • Implementation of the KIBS actors in the district, • Training in the lack of competences and expertise for the commercial and marketing side, • Innovation of the value chain towards the online channels, • Sustain to the small enterprises as innovative players of the eyewear industry.	medium-low price segment and it is the first producers in the world in the eyewear industry, • Competition on brands and on distribution channel, France is the second country for number of licenses held, • Competition on innovation, Germany, introduce in the market high technology product, • Complementary industry as the production of contact lenses.

Source: elaboration on interviews qualitative data and Confindustria Belluno Dolomiti, 2010.

After describing, in this chapter, the evolution and the role played by Belluno Eyewear Industrial District in the global competition, in the fifth chapter we will be treated three case studies. From the interviews conducted with some of the Italian players in the eyewear industry, mentioned in the paragraph "methodology", it have been elaborated interesting analysis on the relationship among the companies and the industrial district itself. In this way, it was possible to have a more subjective view of the role of manufacturing in the global competition and to understand how these companies have been able to adapt to the changes in global market and in the local district.

The three companies are:

- Luxottica, global leader in the eyewear market, which will make an important contribution in defined the local and global aspects that influence the competitive strategies;
- Visottica-Comotec, global leader in the components for the eyewear industry, which will describe the role of manufacturing in a B2B segment;
- Dolpi a small start-up with great potential that will show the challenges of a small Italian company, with a strong artisanship, in the production of spectacles and sunglasses for a segment niche.

Cap 5: Case studies

5.1 Luxottica Group Company Profile [68]

[69]

By describing the reality of the Eyewear Belluno Industrial District, it is impossible, not to mention Luxottica, the worldwide leader company in the eyewear industry. The company that has influenced the dynamics of the past of the district and still influence its evolution in the future. Luxottica is the company that has been able to redefine itself over the years and to adapt to the market changes, even if, very often it was and still is the driving force of the eyewear industry innovation.

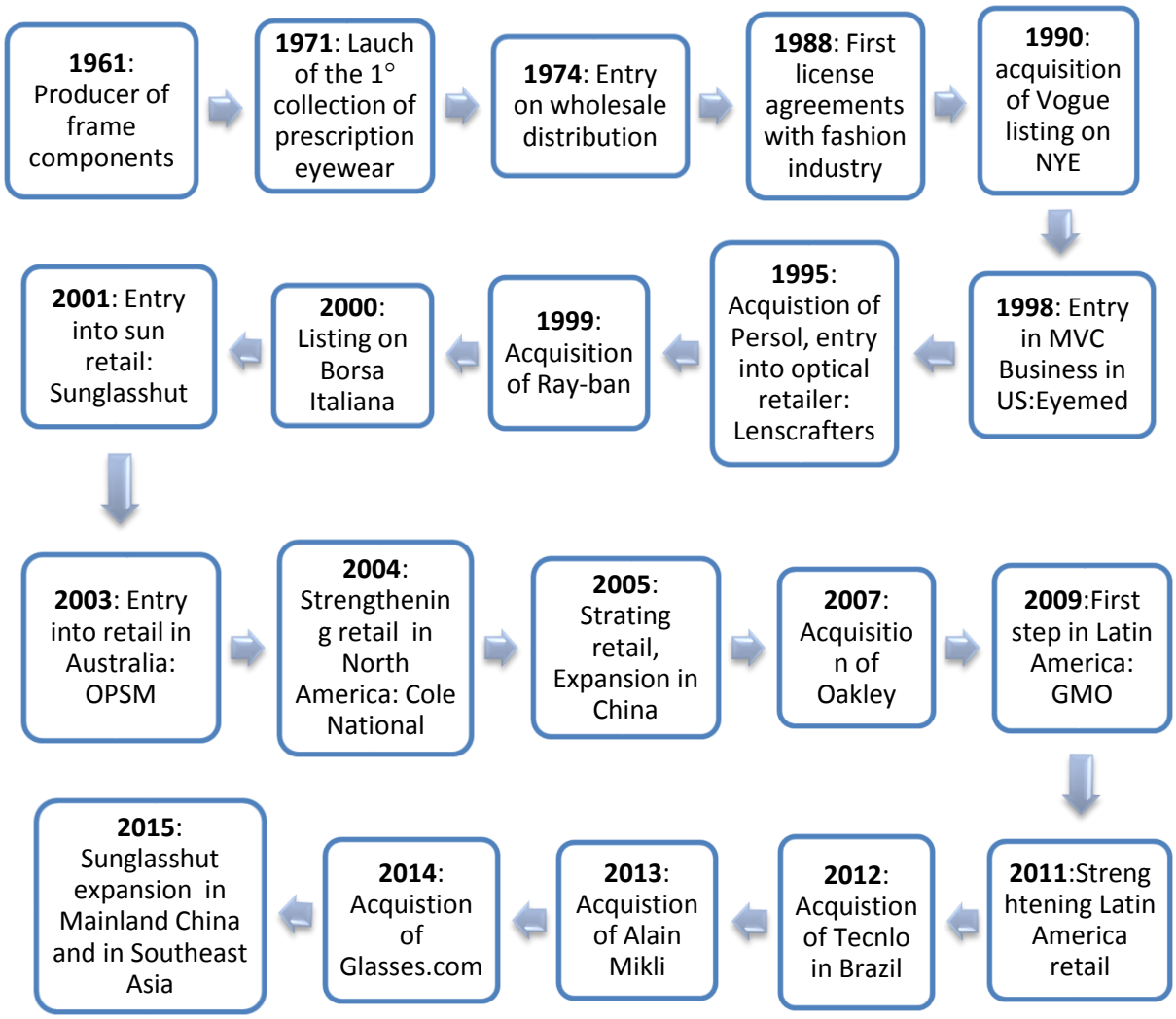
As it is described in the website of the company: "*Luxottica is a global leader in the design, manufacture and distribution of fashion, luxury and sports eyewear with high technical and stylistic quality*".[70]

Among the most important characteristics that qualify the business model of Luxottica and its global reputation, there are: the relevant brands portfolio, Luxottica was the first to talk and work with the world of fashion and boosted the eyewear industry beyond the limits; the impressive global market coverage, that is the result of the growth company, through the development of a vertical integrated organization, and finally, among the personality that have built the reputation of the company during the years, Leonardo Del Vecchio, is a visionary entrepreneur in the eyewear industry. Luxottica has a long history, more than over 50 years of excellence.

Leonardo Del Vecchio founded Luxottica, in 1961, and it was located close to a small mountain village in Agordo (BL), in the eyewear industrial district area. In the Figure 15 are underlined the most important events for the growth and the development of the company from the "birth" until the 2015.

[68] All the information mentioned in the paragraph and subparagraphs of "*Luxottica Company profile*" derived from: the website www.luxottica.com, the Luxottica Annual Review 2015, the Luxottica Financial Statement and on the elaboration of the data obtained during the company visit of the subsidiary, Luxottica Tristar, in the Guangdong region (China) in the IPSM CHINA 2016 project.
[69] Logo Luxottica source: www.luxottica,com.
[70] In the website: www.luxottica.com.

Figure 15: Luxottica timeline, "Over 50 years of excellence".



Source: www.luxottica.com

Today, Luxottica Group has a consolidate turnover of 8,837 million € in 2015, an increase of 15.5% over 2014 and with roughly 79,000 employees in the world[71]. In the Table 10 are highlighted the Key Figures in 2015.

Table 10: Key figures 2015

	2015	Δ 2015-2014	% of sales
Net Sales	8,837	+ 15.5%	100%
Wholesale	*3,593*	*+12.5%*	*40.7%*
Retail	*5,244*	*+17.6%*	*59.3%*
Operative Income	1,376	+18.82%	15.5%
Net income	804	+24.9%	9.1%

Source: elaboration on Annual Review 2015, Luxottica.

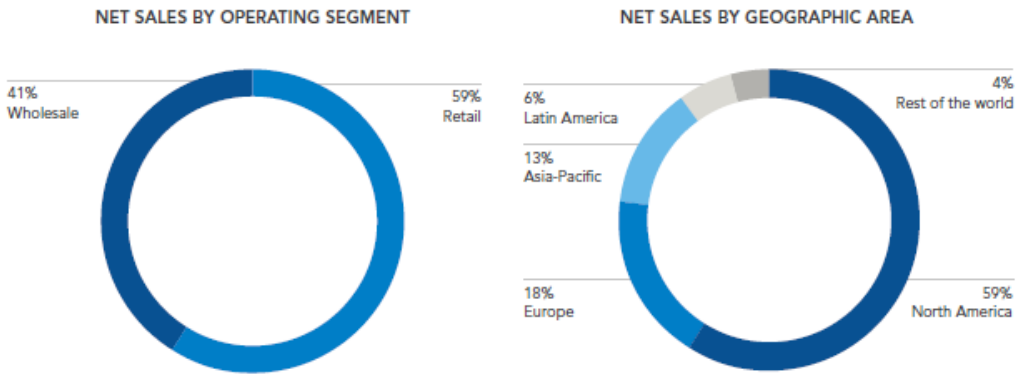
[71] www.luxottica.com

The growth of Luxottica is determined by a continuous expansion in the world of eyewear through both an internal organic growth (development of talents and on the synergies among the primary activities of the value chain) and through many acquisitions.

In the Figure 16, is underlined the distribution of the Net Sales of the company for the year 2015. The Net Sales are allocated according to the main distribution channel of the company, the wholesale and the retail. The company's wholesale distribution is present in more than 150 countries across five continents and is well connected through 50 commercial subsidiaries. Anyway, over 7,200 stores worldwide guarantee the profitable distribution of the retails channel. "*The extensive network retail includes even retail chains owned directly*"[72].

The Net Sales by the company's geographic coverage shows a remarkable concentration in the North American market, thanks to the extensive distribution network. At the second place, there is the European market, which is a stable and mature market, but with potential growth related to the management of best-known fashion brands and, finally, Luxottica is expanding more and more in emerging markets.

Figure 16: Net Sales Distribution



Source: Annual Review 2015, Luxottica

The products offered by the Luxottica satisfy the customers' needs with "*leading brands at a regional level, in particular segments, and niche markets*"[73]. The portfolio brands (Figure 17) of the company is well balanced between proprietary brands and licensed brands.

In the proprietary brands, there is the world's best-selling eyewear brands, Ray-Ban, followed by the Oakley in the sport segment. The proprietary brands are accounted for 68% of the total

[72] Luxottica web site www.luxottica.com
[73] Luxottica Annual Review 2015.

income, in 2015; in particular, Ray-Ban and Oakley are accounted respectively 27% and 11% of the consolidated turnover[74].

While, in the licensed brands the most profitable brand is Prada. Through the brand Prada, Prada Linea Rossa and Miu Miu, the company has realized 4% of the Net Sales in 2015. The licensed agreement are contracts with a duration of 4-8 years, with possibility of renewal. Under these conditions, Luxottica is required to pay royalties 6-14% of the total sales and a mandatory marketing contribution of around 5-10% of total sales[75]. It is an important aspect to take into account in the strategic planning of the portfolio brands, that highlight the importance of balanced between proprietary and licensed brands.

Figure 17: Luxottica Portfolio Brands

Source: www.Luxottica.com

5.1.1 Luxottica into the Eyewear Global Value Chain Model

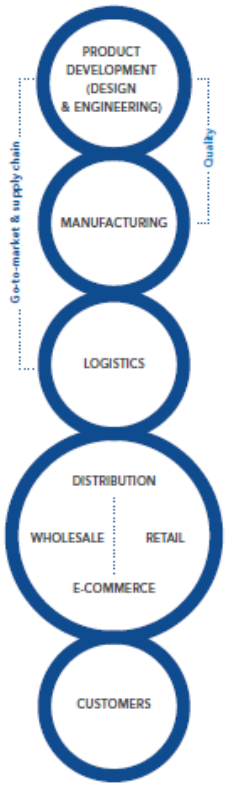
Luxottica Group covers 150 countries and it is present in five continents. In 2015, 18 distributions plants, four of which are the most relevant ones and are considered the hubs of the company: Sedico (Italy), Atlanta (US), Jundiai (Brazil) and Dongguan (China)[76]. The manufacturing facilities increased up to reach the number of 12 plants: 6 plants in Europe, 4

[74] Luxottica Annual Review 2015.
[75] Luxottica Annual Review 2015.
[76] Unites managed per day: Sedico 235,000; Dongguan 190,000 and Atlanta 150,000 (www.luxottica.com).

plants in Asia and 2 last plants in the America continent. The Group headquarter is located in Milan.

Figure18: Mapping Luxottica's Operations in the world

Source: Author's elaboration on Luxottica Annual Review 2015.



77

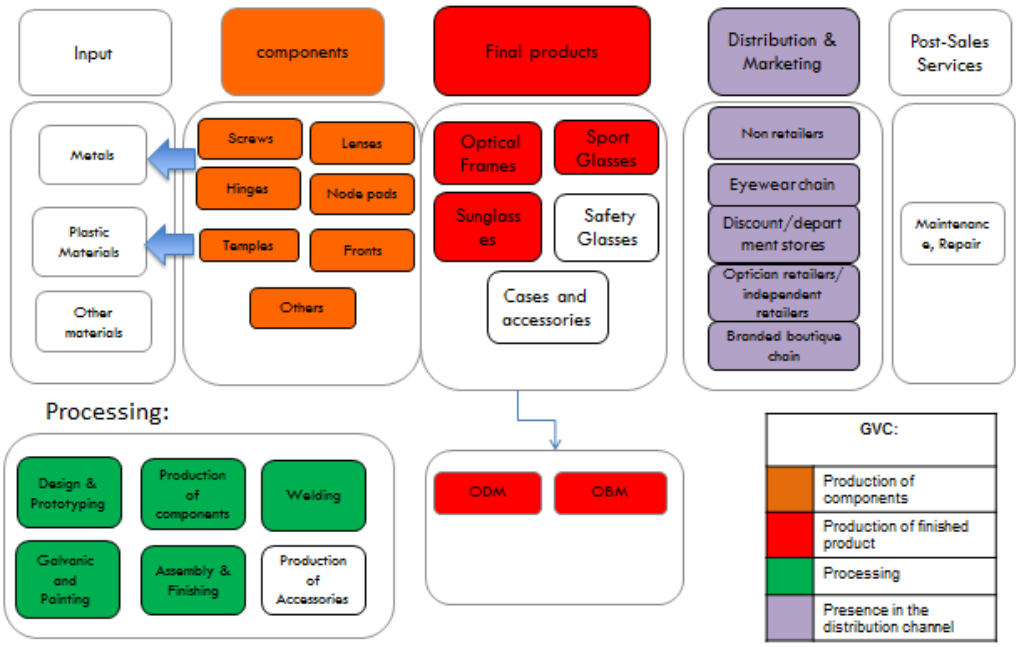
The famous vertical integrated business model of Luxottica has led the company to control directly the entire eyewear value chain. In the global scenario, the firm include all the primary activities of the value chain, from the design to the logistics. The capacity of the company to integrate all the activities in house without lose the flexibility necessary to adapt to the changes in the market is a fundamental competitive factor for Luxottica. From the design of the products with the collaboration of the most important designers of the fashion world to the research in new materials and technologies, Luxottica is able to anticipate and interpret the needs of the final consumers all over the world.

In fact, recently, in January 2016, it was launched a new smart glass "Radar Pace", branded Oakley, which is born through the collaboration of Luxottica with Google and Intel, in order to improve the work-out experience of the sport clients.

[77] Source: Luxottica Annual Review 2015

Moreover, through the vertical integrated business model, Luxottica can verify the quality of their products and processes worldwide and can guarantee efficiency in line with optimization in the time and costs of the production process. As it is evidence in the Figure 19, below, Luxottica is well organized in the Global Value Chain and about 90% of the production process is manufactured internally.

Figure 19: Luxottica in the Global Value Chain[78]



Source: Author's elaboration.

Furthermore, an important aspect is the exploitation, during the years, of the company at the downstream level, in the control of the distribution channel. Luxottica has a direct connection with the final consumers and it is able to understand the needs and the tastes at the global and local level. The distribution channel, as mentioned before, it is organized in a network of wholesalers and retailers.

The retail business of Luxottica includes 6,589 stores and 676 franchised locations[79]. The retail brands of Luxottica are: Sunglass Hut, Alain Mikli, Oliver Peoples, Oakley, David CLU

[78] Methodology: Methodology: in the Figure 19, the Luxottica Group is represented within the GVC model updated and re-defined by Gereffi. The colored areas represent the parts in which the company operates. The coloration recalls Eyewear GVC model, described in chapter 4. The procurement of Luxottica is managed globally with the collaboration of multinational firms that operate in that field. The principal raw materials used are metal and plastic materials. For specific elaboration in others materials, Luxottica collaborates with subcontractors that are experts in the realization of eyewear with special materials. Most of the components are realized in house, in fact Luxottica produce the 90 % of production process internally. For the remaining 10% collaborates with subcontractors. Moreover, Luxottica produce glasses with its brands (OBM) and for the most famous house brands of the fashion world (ODM). Finally, in the distribution channel Luxottica is organized with an integrated network around the world.

low, Optical shop of Aspen, Ilori, Eyemed vision care, LensCrafters, GMO, Laubamn & Pank, OPSM, Sears Optical and target optical, Pearle vision[80].

Anyway, the company is investing in others distribution channel, such as department stores, e-commerce platforms and travel retail, in order to expand its presents more radically around the world. In the e-commerce channel, Luxottica can guarantee a better service consumer solution and implement the innovation on the digital areas. The e-commerce platforms are: Oakley, Ray-Ban, Sunglass Hut, Glasses.com and the collaboration in order to penetrate the Chinese market with Tmall.

5.1.2 The role of the manufacture in Luxottica

Luxottica, as it was mentioned before, has 12 manufacturing plants that combined produce roughly 93 million units of prescription frames and sunglasses per year. The role of manufacture activity in synergy with the others value chains activities, such as design and R&D improves the performance of the company and guarantees a boost in the innovation of the products offered. Moreover, in order to reduce the time to market and exploit the full capacity of production, Luxottica has strategically allocated the production plants close to the most relevant distribution hubs. In fact, the manufacturing plants are located[81]:

- In Italy, there are six production plants focused on the realization of glasses for the luxury segment. Five plants are set up in the surrounding area of the Belluno industrial district and one plants is located in Turin.
- In Asia, there are four production plants, in particular, three are in China and one is in India. The first delocalization of the production in China occurred in 1997 through the establishment of a partnership with Japanese companies, which lasted until 2001. The production plants located in Dongguan, in the Guangdong region of the Southeast China, ensure to the company to exploit its full capacity production and to satisfy the market demand. In 2010 the facilities in China has been increased with the addition of a plant for the production of lenses and for working on the eyeglasses decorations. Nowadays, the facilities in China are producing more and more to meet the Chinese market and in adapting the product to their needs "*Asian fit*".
- In Brazil, the production plants satisfy the demand of the local market and realize the frames in plastic and in metal. The facility *Campinas* was acquired by Luxottica in

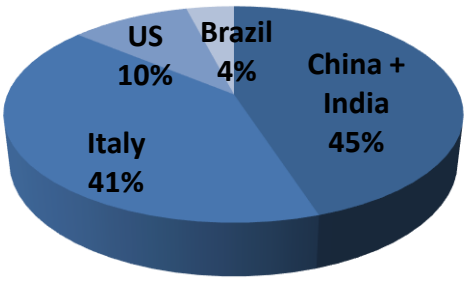
[79] Luxottica Annual Review 2015.
[80] Luxottica website www.luxottica.com
[81] Luxottica Annual Review 2015.

2012 and it is oriented in the production of the realization and the adaption of eyewear brands for the local market.

- In US, the production plant is focus on the realization of the Oakley glasses. The *Foothill Ranch* in California is a production plant that realizes particular lenses and high-performance frames for the sport segment.

In the Figure 20, are represent the production output in the different geographic areas.

Figure 20: Production by geographic area



Source: Elaboration on Luxottica Annual Review 2015

The production plants are oriented in the realization of the components and finished products for the local market. In this way, the company can control the flow of the production and satisfy the final consumer's needs by improving the efficiency and the time to market.

Anyway, the global production, it is still a fundamental aspect of the production capacity of Luxottica that has decided to exploit with the localization of part of the production in China. In fact, in order to pursue economies of scale for the realization of specific and famous models, such as the Aviator model of Ray-Ban, the production is located both in China and in Italy. While, as we have mentioned before, the production of Oakley for the sport segment is totally concentrate in US, where the possibility to use the technologies competence of the local territory improve the performance of the spectacles.

By following this logic the production facilities in Italy emphasizes the realization of glasses for the luxury segment, because the technical skills and knowledge of the local area allow the design and development of glasses for specific market niches. The network of subcontractors that operate in the realization of specific actives for the eyewear industry is a fundamental resource for the leader, Luxottica, who collaborates and cooperates with these small realities. In the relations with the local supplier, the company, establish main interesting links for the exchange of knowledge and innovation, such as the case of Visottica-Comotec, where the

engagement with the firm of components takes place in order to introduce new technologies and to respond with quickly solutions to the final consumer.

Moreover, the *made in Italy* is an important aspect for specific brands partners of Luxottica, that what to differentiate their products in the global competition with the total production of the spectacles in Italy.

Therefore, the role of the Belluno industrial district for Luxottica is still relevant, albeit the company produces globally. The *heredity skills*, that connected the industries with the the "place of birth" (Belussi and Caldari, 2009), determine a competitive factors for the company. Besides, all the most important decisions in term of manufacturing solutions are discussed at the operations headquarters located in Agordo (BL).

5.2 Visottica-Comotec Group Company Profile [82]

[83]

Visottica-Comotec, based in Susegana (TV), is a perfect example of a medium-sized company that competes in the global eyewear market and occupies a primary role in the eyewear global value chain. Albeit, it is not located in the province of Belluno, this company is part of the neighboring territories to the district that preserve the know-how and the competences, of the eyewear's artisans. The provincial boundaries defined by the laws, risk to neglect common widespread knowledge that are present in neighboring areas and, as defined above, in the subparagraph "the genesis of the Belluno eyewear industrial district". A significant presence of companies are located in the neighboring territories of Treviso, Padua, Venice and some cities adjacent to the Friuli-Venezia Giulia region (Osservatorio Nazionale Distretti Italiani, 2008).

[82] All the information mentioned in the paragraph and subparagraphs of "*Visottica-Comotec Group Company profile*" derived from the consultation of the website www.visottica.com and the elaboration of the data obtained during the interview to the Operations Manager Dr. D. Angeli and the General Manager Dr. P. Praloan.
[83] Logo Visottica-Comotec (www.visottica.com).

The worldwide leader in metal components, Visottica-Comotec, was founded in 1947 by Osalco Montalban and "*offers a high quality range of products for the eyewear market*"[84], with a production of billion components covering 15 thousand product categories. The extensive production of components in different kind of metals and materials (metal, acetate and injection, wood, etc.) meets the requirements of the final consumer and provides new solutions for the customization of the products.

All it started, at the beginning of the 1950s, when Visottica was a small workshop located in Conegliano and its business was centered on the production of components for the eyewear industry[85]. Over the years, the company has moved the plant in Susegana (TV) and has invested in the development of new solutions and technologies for the eyewear industry. The first patent of the firm was "Flex" (flexible hinges) that oriented the production of the components towards the market of elastic mechanisms and hinges.

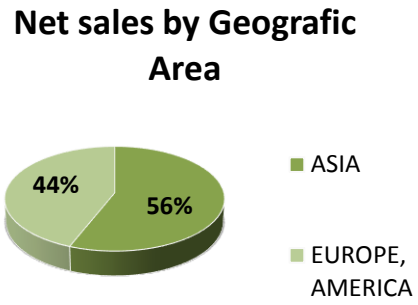
In the 1988, the product range has been enriched and expanded with the acquisition of the company, Friulottica. Nevertheless, the radical change in the production and in the business model of the company is carried out with the first internationalization in the East Asia, precisely in Hong Kong with the establishment of a logistic facility founded by the founder's son, Rinaldo Moltanban, in 1993[86]. Besides, the company consolidates its position in international markets as a global supplier of components for the eyewear industry.

Furthermore, in 2003, Visottica set up a production plant, *Optical Technology Manufactory*, in the Guangdong region (China), in order to meet the request of the local eyewear producers in China and to reduce the time to market in the supply of components. Few years later, it acquired the majority share of Ottica Far East; strengthening its presence in Asian markets. Finally, in 2010, Visottica has signed a strategic agreement as joint venture with Mazzucchelli 1849 Group[87]; gaining the control of Comotec and its Chinese production facilities[88]. The acquisition of the Italian-French company had impact on the organizational structure of the firm and on the production activities performed as the introduction of innovative materials and the addition of more articulated production processes. Today, the Group presents a consolidated turnover of almost 55 million € and evidences an increase of 10% more over

[84] Website www.visottica.com
[85] www.visottica.com
[86] www.visottica.com
[87] Mazucchelli 1849: is a world leader company in the production and distribution of plastic material in different businesses including the production of optical frames and sunglasses, cellulose acetate (www.mazzucchelli1849.it).
[88] www.visottica.com

2013 annual report (La Tribuna di Treviso, 2015). It is possible to subdivide the Net Sales of Visottica-Comotec in two different dimension:

- The geographic area or the continents, in which the company competes and operates. Most of the revenues come from Asia and the remainder is divided between Europe and America.
- The portfolio clients of the firm that are composed by the leaders of the eyewear market and by others small firms (almost 900) that are accounted for the 20% of the Net Sales.



[89]

An important aspect to take into account is the relationship of Visottica-Comotec with the leaders of the market, such as Luxottica, Safilo, Marchon, Marcoli and De Rigo, which determines of majority of the company's revenues. Moreover, the amount of revenues coming from Asia can be attributed to the subsidiary Luxottica, Luxottica Tristar, and to the production plants of Safilo and other market leaders. The need to supply efficiently and with flexibility these important clients led the company to internationalize towards the East market. The products offered by the company answer to the customers' requests with both standard products and custom products. The custom products, on the left of the Figure 21, represent the dynamic and innovative spirit of the company that seeks new solutions to meet its customers and collaborate with them for a better-finished product.

Therefore, the numerous patents manifest the company's technological innovation, more than 40, held by Visottica-Comotec, for some product categories. While, the standard products, on the right of the Figure 21, meet the technical requirements and customers aesthetic. In the production of standardized products, the company can improve its efficiency in terms of economies of scale and flexibility.

[89] Data provided by the General Manager in China Dr. P. Praloan during the company visit.

Figure 21: Custom products and standard products

Source: website www.visottica.com

5.2.1 Visottica-Comotec into the Eyewear Global Value Chain Model

The international dimension of the company is shown in the Figure 22, where it is showed the countries covered by Visottica-Comotec, almost 50 countries worldwide. In order to improve the time to market and the flexibility of the production, the company has set four production plants: two in Italy and two in China. The R&D department is located in Italy where the projects are developed and discussed with the company's headquarter, as well, located in Susegana. The total number of employees are 1340 subdivided between China and Italy. The production centers in China and Italy follow the same quality standards and use the same technology and production processes. The factories in China, that employs almost 1200 workers, allow the achievement of the production capacity needed to generate economies of scale and to meet local customers.

Figure 22: Visottica-Comotec in the world

Source: website www.visottica.com

As we have mentioned before, Visottica-Comotec is leader in the production and distribution of components for the eyewear industry. Hence, in the Eyewear Global Value Chain framework, the company is focus on the supply of components for the eyewear manufacturers.

The predominant raw materials used by the company for the production of the components are different metal alloys. The supply of metals is managed globally and is derived from the collaboration with international corporations that deal with the processing of metals for different businesses. The main provision is made of "metal section" and wires, necessary for the realization of components for eyewear industry. In Europe, mainly they are used more "metal section" than wires (60%, 40%), while in Asia the situation is re-balancing.

In the upstream of the production process, the cooperation among Visottica-Comotec and the suppliers is a key factor in the strategic choice of the company, which decides to operate with quality raw materials and requires a flexible and efficient delivery.

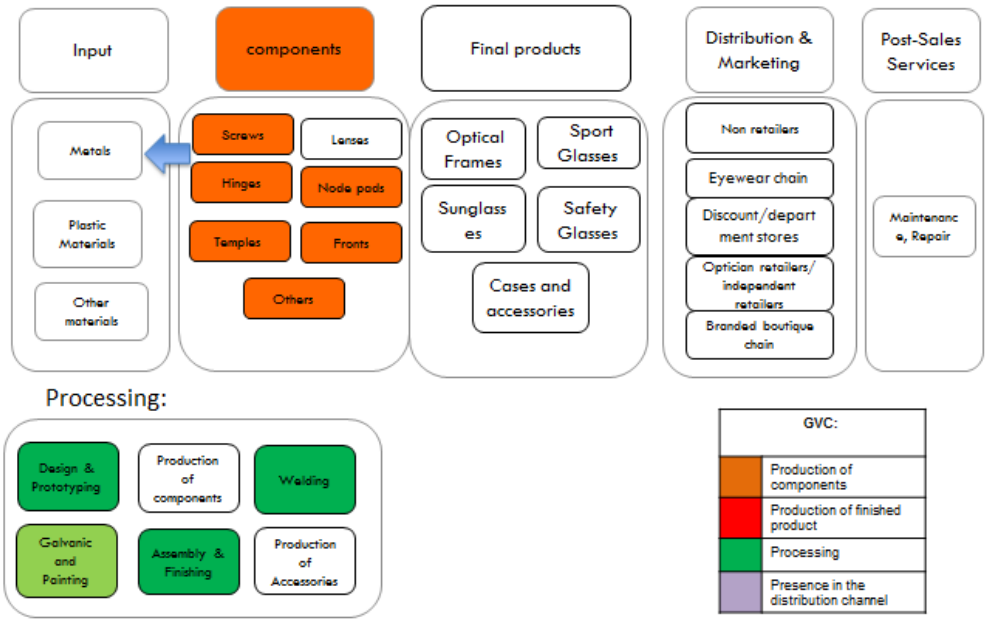
The relationship that is established between the company and the few-selected supplier is based, therefore, on trust and collaboration among companies to discuss and improve processes, although, at the base of the trade there are, of course, the pricing policies.

As well, in the downstream of the production process, the cooperation with the clients is a competitive factor, in order to understand the needs and the expectations required. Visottica-Comotec is able to supply the large international eyewear manufacturers, thanks to its production capacity.

The daily collaboration among the major players and Visottica-Comotec occurs especially for the development of new products and for new technologies implementation, in which transparency and direct communication among engineers become fundamental.

Therefore, the distribution channel used by the company is direct or, sometimes, includes few selected agents. Certainly, for what concerns the mass production, focused on volumes, pricing policies often determine the relationships among companies.

Figure 23: Visottica-Comote in the GVC framework[90]



Source: Author's elaboration

5.2.2 The role of the manufacture in Visottica-Comotec

According to the vision of Visottica-Comotec: "*From the idea to the project, from the project to the prototype. We engineer innovative solutions*,"[91] the company's strength lies in providing quick and reliability solutions for the products offered. The adoption of a business model focused in "*engineering service provider*" (Campagnolo and Camuffo, 2010) is the best strategic choice for a company that operates in the components, and provides the global leaders of the market. Therefore, the production process is very short (mono-phase) for a component of the eyewear industry.

Thus, the manufacture activity plays an important role in synergy with the development and design of the components. Keys factor for competition are speed to the market and proximity to the customers. Besides, as stated by the Operations Manager of Visottica-Comotec, Dr. D. Angeli "*To think, in Italy, the realization of a product for the eyewear manufacturer client, in*

[90] Methodology: in the Figure 23, the Visottica-Comotec Group is represented within the GVC model updated and re-defined by Gereffi. The colored areas represent the parts in which the company operates and monitors directly. The coloration recalls Eyewear GVC model, described in chapter 4. The company controls the boxes that have a shade lighter in color both directly and indirectly with the use of third parties, in order to realize the products. In the case of Visottica-Comotec, the galvanic process in the Chinese manufacturing plants are done inside the business model of the firm, while, in Italy, it is outsourced to sub-contractors of the industry. The arrow should indicate the predominant material used by the firm.

[91] Website www.visottica.com

Asia, it is impossible". The strategic choices of the company are oriented towards the localization of the production site close to the clients, in order to simplify the relations and to satisfy the needs of the customers.

The differences between the two production countries have to be taken into account in order to be more efficiently in the market. From the cultural aspect of the organization, to the communication and the language, up to the difference in working time between the two countries are key factors that influence the localization choices of the company. In a global competitive environment where speed is a key factor, the communication must keep the pace.

The competition in China in the B2B segment of the components for the eyewear industry is very fragmented. Very few companies with significant size and turnovers operate exclusively on the Chinese market with strictly standardized products. Commonly, in Asia industrialization has already virtually zero because all processes has been industrialized and thus, in order to compete, it is necessary to improve on production efficiency.

Instead, in the European area, the competitors are: a German manufacturer of components, *Obe*, half in terms of size and revenues than Visottica-Cometec, few Italians companies of small size. In the district, only few and well-organized companies, as Visottica-Comotec, can supply the leaders of the market. While the small companies of the district focus on the realization of spectacles are provided by a vast network of small companies that operate in the production of components. In the Italian market focus on segment niche and high range products, the production is organized in smaller batches and modeling with a short life cycle. The value is in engineering and it is necessary to compete on product innovation and time to market.

Moreover, the Belluno Eyewear Industrial District represents an important network for the company. The technical skills and the knowledge in the eyewear industry are still relevant and difficult to transfer abroad from the local context. The flexibility of the district's production represents a KSF[92] of the eyewear industry. The *made in Italy* includes the technical skills and craft knowledge of the past, but at the same time, it is enriched by the Italian creativity and originality in the design of the product.

[92] KSF stands for Key Success Factor.

5.3 Dolpi Ltd. Company profile [93]

[94]

Dolpi Ltd. is a small Italian company operating in the production of wooden eyewear for the international market. The brand name is an acronym of two Italian words: *DOLomiti* and *alPI* and embodies the values and the origin of the company[95]. The entire production of the firm is based in Italy and, in particular, in the heart of the eyewear industry, in the industrial district of Belluno. Moreover, the firm exploit the natural resources of the local territory by offering to the market a high quality product realized with the certified wood of the Dolomites area.

In fact, the Dolpi's glasses are certified with the PEFC (Program for the Endorsement of Forest Certification schemes) and are considered the unique example of the wooden eyewear "*Made in Dolomiti*".

This small Italian company is newly formed, just in 2013, it obtained the legal recognition. Under the brand, Dolpi, are included few selected subcontractors eyewear companies of Belluno.

All it started in 2012, when the idea of a wooden eyewear had fascinated the founders of Dolpi, Virgilio Dal Pan, Luca Dal Pan and Luca Ferrari, which decided to start a new business path. At the time, the main industry was the joinery, Mavima Bautec Ltd, which was set up in 2007 and located in Fonzasco (BL)[96]. The companies deals in the construction industry with sustainable certified wood products in the international market. Although the construction industry had no connection with the eyewear industry, unless for the material used, in 2012, the company embarks on a new business path in the production and sale of wooden eyewear in the international market.

In order to give substance to the idea of the Dolpi's founders, it have used the knowledge and technical skills of the Belluno district. Among the prominent figures who have entrusted the

[93] All the information mentioned in the paragraph and subparagraphs of "*Dolpi Ltd. Company Profile*" derived from the consultation of the website www.dolpi.it and the elaboration of the data obtained during the interview to the co-founder and manager of the company, Dr. Luca Ferrari.
[94] Company Logo, www.dolpi.it
[95] www.dolpi.it
[96] www.dolpi.it

founders, there is the designer, Lucio Stramare, who defined the aesthetic and technical standards for Dolpi eyewear brand.

Then, a year later, in 2013, Dolpi is recorded as Ltd. company and the brand becomes known thanks to the participation in the most important eyewear international fairs such as MIDO and SILMO[97].

Today, the turnover of the company is below the 200.000 € for the year 2015 and the employees occupies are very few, almost 6 taking into account the collaborators of the productions firms of Dolpi; highlighting the small size of the company and a peculiar characteristics of the Italian territory.

The wooden eyewear are a "green" and trendy product for the high-end consumers of the market. The Dolpi's collection proposes high quality spectacles and sunglasses with refined design. The final product, that has a weight of only 24 grams, is the result of technical craft and innovation on materials. The company is focused on the sustainability of materials and on the preservation of the aesthetic characteristics of the wood, which is not subject to artificial coating treatments. In the figure 24, are represented examples of the collection with the cases of Dolpi in wood or in leather.

Figure24: Examples of Dolpi's collection

Source: www.dolpi.it

5.3.1 Dolpi into the Eyewear Global Value Chain Model

The international dimension of Dolpi began in 2014 and continues today. The company is present in Italy, Finland, Greece, Holland, Belgium, Luxemburg, France, Austria, Slovenia, Saudi Arabia, Hong Kong, USA and Canada.

[97] www.dolpi.it

The production plant, as well as, the procurement site are located in the Belluno districts very close to one another. Because the company is a start-up operating in a market segment with a high level of artisanship, the production capacity is organized in small batches and it is strongly related to market demand levels.

An important aspect to highlight is that, in order to pursue cost savings and efficiency in the process, the entire production chain has been fragmented into specific activities. Thus, a single production site does not exist, but there are different production sites managed by members-collaborators of the company, who dedicate a part of their business to the realization of wooden eyewear for the brand Dolpi.

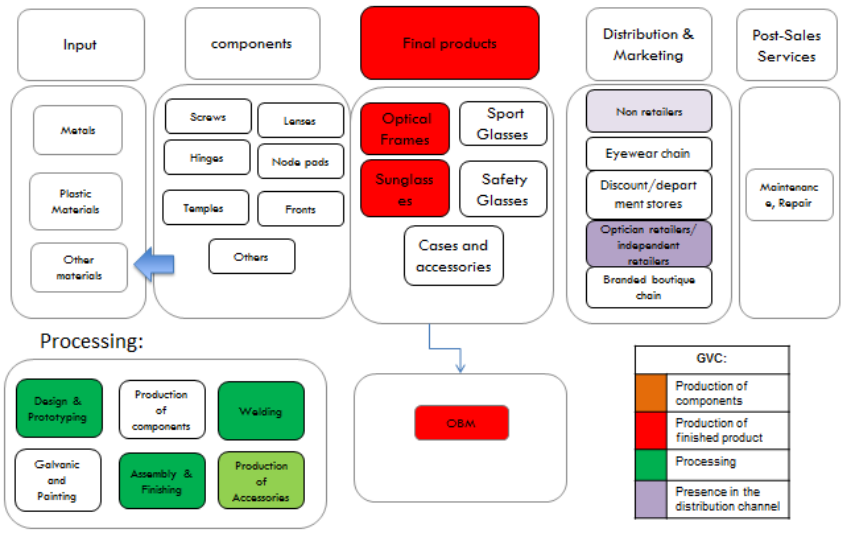
Depending on the processes, Dolpi has special sites for the cutting of the wood, for the assembly of components, for the realization of the finish products and for the cases.

The logistics is organized in a maximum distance of 15 kilometers from each production sites, pointing out that the production chain is close, although it is located in various small companies. The prototyping and design center, as mentioned above, is managed by the designer Lucio Stramare in Belluno. The distribution channel of the company is subject to the presence of intermediaries, in particular to optical retailers.

Among the most profitable international markets for the Italian Dolpi, there is American market; the best country in terms of revenues, followed by the Scandinavian countries. In Italy Dolpi, faces difficulties related to the delay in payment about the supply of the optical retailers and as it will be shown in the next subparagraph, the strong competition with the Chinese competitors has an effect on the sale of wooden eyewear. The internationalization towards Asia is still difficult to settle and, especially, for a small company with small financial resources as Dolpi.

The relationship at the upstream level of the organization is completely direct and well established with the joinery company, Mavima Bautec Ltd, while at downstream level of the organization are present intermediaries. The relationship at the downstream level is most of the time organized with the leverage of the price.

Figure 25: Dolpi in the Global Value Chain framework[98]



Source: Author's elaboration

Recently, the company is trying to define a collection of wooden eyewear for online channels, in order to establish a more direct contact with the final market and increase the awareness of the brands.

5.3.2 The role of the manufacture in Dolpi

In a small firm, the role of manufacturing is more than ever a key feature for the competition of the company. The craftsmanship of the wooden eyewear is deeply tied to the solution in the field of innovation that are introduced in order to improve the finished product. As the wood material is a very rigid product and difficult to process, the technology and the collaboration with the component suppliers guarantees fashionable spectacles with high quality. Again, even in this case, the synergy with the different activities of the value chain and the manufacturing one is a KSF for the global competition.

The company values can be summarized by the quote "*This tree will never die*" that is found, at the beginning of the video presentation of the company. With these words, the founders want to express the value of the nature and the commitment of the company's business model towards the local sustainability of the environment.

[98] Methodology: in the Figure 25, Dolpi is represented within the GVC model updated and re-defined by Gereffi. The colored areas represent the parts in which the company operates. The coloration recalls Eyewear GVC model, described in chapter 4. The company with the use of third parties controls the boxes that have a lighter color both directly and indirectly, in order to realize the products. In the case of Dolpi, the accessories production some of the cases in wood are done internally by the company, while the cases in leather are done in Vicenza by a subcontractor. The arrow should indicate the predominant material used by the firm that is of course made of wood. Moreover, are shown the main distribution channels that are used in the optical and implementation soon will be using the online channel of e-commerce. Dolpi is a manufacturer in the production of eyewear with its brand (OBM).

Figure 26: Dolpi's Vision

Source: www.dolpi.it

Therefore, the traceability of raw materials is an important issue arising from the increasingly fragmentation of the value chain in the global scenario. Dolpi's values include the total production *made in Italy*, the craftsmanship of the processes and the quality of raw materials.

Moreover, on the global scenario, the competition is oriented, in:

- In the European area the competition is characterized by the presence of a few and small competitors, located in the North Italy. The competitors are five Italian companies and two more firms in Germany and Austria. The European competitions is set about firms of the same size and with the same final segment niche. The brand differentiation strategy and the particular design of the glasses is the common business model undertaken by the firms.
- In the Asia region. The Chinese competitors focus on the cost strategy. The low-cost Chinese products are the major threat for the small Italian company's growth. The Chinese competition, based on cost, is able to influence the market.

Chinese competition influences the profitability of European companies and, in particular, Italian ones, which, although small in size they manifest a radical reduction of their production capacity and, mostly, the Chinese products condition the purchase strategy of optical retailers. Very often, as Luca Ferrari emphasized, the wooden eyewear coming from China at very low prices and quality had caused reputational damage for the category of wood products. The wooden eyewear is perceived as an optical issue inherent to the raw material used: the wood. Instead, of considering, the issue related to the country of production of the glasses. In fact, the wooden eyewear is a new trend, as well as, the technical specifications of the product, that are not so known to the public.

The capability to penetrate the commercial channel and to use the communication in order to inform the consumers can greatly help the evolutionary dynamics of the firms, as Dolpi, closely linked to the place of origin and to the eyewear manufacturing culture.

According to Dolpi, the role of the district was and is still fundamental in set up the company. Albeit, during the years, the dimension of the District has been downsized, the technical skills of the place and the company's ability in being able to innovate influence the strategic decision of the firms.

Dolpi represents one of the many small Italian companies, which are focused on the craftsmanship and compete in the international market. In recent years, thanks to the policies of incentives and funding the Belluno Eyewear Industrial District, albeit downsized, the local district counts many innovative companies and start-ups as Dolpi, which are increasing in units. Therefore, the relationship between universities and local institutions led to the formation of new generations in both craft skills and to the introduction to innovative knowledge on the design and prototyping side.

Finally, Dolpi emphasizes the need for a direct communication with local institutions in order to have an immediate support on the commercial and legal issues. As mentioned in the fourth chapter, the industrial district as a network between the global and the local market allows the growth and the positive development of the relations and exchange of knowledge among companies and local actors.

5.4 Discussion

As has been highlighted by the case studies presented, the manufacture activity has an important role in synergy with the other activities of the value chain and the strategic choice in the location of manufacturing is strongly influenced by the proximity to the Belluno district; rich in technical knowledge and in hereditary skills. Although the companies have different sizes and international extensions, the time to market implies knowing how to manage both local and global aspect of the competition. In fact, by investing in the district, the company increase its flexibility in the global competition and enrich the surrounding areas of local realities.

The phenomenon of re-shoring has not directly affected in the delocalization choices of firms analyzed, but, certainly, has highlighted the role of manufacturing and its relevance in establishing a direct communication between the activities of the value chain.

Luxottica is a leader of the market and drives the development and the innovation of the eyewear industry. During the years, the company has been able to leverage these synergies among the activities for a better competition. In the main production locations, Luxottica involves product development centers in order to fit the glasses for the demand of the end markets (ex. Brazil, China).

For a medium firm, as Viottica-Comotec operating in a B2B segment, the proximity to the client is fundamental, as well as, to be close to an innovative network like the Belluno district. In a market where the temporal dimension matters and it is linked with the flexibility, a firm has to keep the pace and offered to the market quality and quick solutions. Visottica-Comotec relies on the know-how of the district and trough the collaborations with the main actors of the eyewear industry.

Obviously, for the small size firm, as Dolpi, the manufacturing and the district represent the very essence of the company. Dolpi is the symbol of the evolution of the district that focuses on niche segment with innovative products and high quality. The company is the symbol of the training of new generations, which have a result in the start-up formations in the district. The effect of re-shoring has increased productivity in the district and has driven the innovation and the technology of the industrial sector, supported by local institutions (KIBS).

The Table 11 summarized the main aspects of the three companies described, by underlining the three different consideration about the role of manufacturing and the Belluno eyewear industrial district evolution. Anyway, the results show that the capacity to manage at the global and at the local level the production is fundamental for the competiveness and, that, the Belluno district is a critical factor for the competition, as a network between these two dimensions.

Table 11: Main aspects of the case studies analysed

	Luxottica	Visottica-Comotec	Dolpi
Income (2015)	Italy: 827 million € (Δ+9.4%) Total: 8,8 billion €	Italy: 27 million € (Δ+1.8%) Total: 55 million €	Total: 188,000 €
Employees (2015)	Italy: 6,621 (Δ+5.7%) Total: 78,933	Italy: 159 (Δ+8.9%) China: 1,181 Total: 1340	Total: 1[99]
Size	Leader in the market	Large/Medium	Small /start-up
Production category	*"Fashion, luxury and sports eyewear"* (www.luxottica.com)	Components for the eyewear industry	Wooden eyewear
Procurement	Global sourcing	Global sourcing	Italy: Dolomites area, close to Belluno district
Raw Materials (prevalent)	Metal and Plastic materials	Metal	Dolomites' wood
Design/Product development	Italy, US, Brazil and China (1)[100]	Italy: Susegana (TV)	Italy: Belluno district
Production locations	Italy (6)[101], US (1), Brazil (1), China(3), India (1)	Italy, China	Italy
Distribution Channel Presence	All	B2B segment – direct channel with the clients	Independent retailers/opticians, Online (w.i.p.)
Belluno Industrial District's main role	Hereditary skills, Luxury segment, Flexibility	Network of innovations, Expertise, Flexibility	Technical skills, Know-how, Craftsmanship, Production traceability (100% *made in Italy*)

Source: Author's elaboration on Aida data in 2015 and on the information gathered through the interviews.

[99] Even if, the employees of the member-collaborations firms are almost six workers.

[100] (1) the Design and Product Development are defined by the headquarter in Italy, but the study on the development of new materials are conducted mostly in Italy and US, while in Brazil and in China the research is finalized to adapt the product on the local market.

[101] Three are the Italian plants are located in the Belluno district.

Conclusion

The elaboration highlights the role of manufacturing in the dynamics of growth and development of the industrial district, through a theoretical and analytical study. Within the analysis of the Global Value Chain framework applied to the eyewear industry, it is possible to emphasize the relevance of manufacturing in the global and local scenario.

Moreover, it has been analyzed the evolution of Belluno Eyewear Industrial District as "modern" local manufacturing system (Nassimbeni, 2003; De Marchi and Gradinetti, 2014).

Although, the globalization has radically changed the balance and the dynamics of the district, the Belluno Eyewear Industrial District has positioned itself in the first places, in terms of profitability and innovativeness, among the others Italian district (Intesa San Paolo, 2015). Certainly, the new phenomenon of the re-shoring and the constant presence of the global leaders with captive governance's structure, in the local territory, have driven the development of the district.

Nevertheless, a fundamental role was played by the firms specialized in particular phases or segment niches, that have ensured the technical competences, the quality and the flexibility to the business model of the district. In this perspective, the final considerations on the concept of "Smiling curve" (Mudambi, 2008) framework seem to describe another evolutionary path, while, instead, the strategic choice on the location of the manufacture activity, in the district, represents a growth factor for the competitiveness of the district firms.

As it is emerged from the interviews conducted with the companies and the local institutions, the manufacturing has a unique role in the development of the district. In particular, the knowledge and craftsmanship of the district's technical expertise is declined in synergies with the other primary activities of the value chain, such as (Bailey and De Propris, 2014; Bettiol and Micelli, 2014; Frattocchi et al., 2014):

- The collaboration between manufacturing and design has enabled a more and more customization of the final product, in order to satisfy the demands of the modern market. One of the most important competitive factors in the global scenario is to reach the final consumer with a unique and personalized product, on time. Furthermore, the fashion house rely on the *made in Italy* production due to the high

reliability and service provided by the firms in the district. In fact, Belluno district has a leading role in the manufacture of spectacles targeted for the luxury market segment.

- The collaboration between manufacturing and distribution channel has implemented the quality of customer service. The flexibility of the district's production model allows serving different distribution channels. In particular, these synergies has given the possibility to implement the online platform; a direct channel that interface with the final customer in order to enrich the purchase experience.
- The collaboration between manufacturing and R&D is useful in order to improve the performance of the final product and introduce innovation in the market. As Certottica emphasized, during the interview, the link between the manufacturing and the R&D leads to the diffusion of innovation, in the local system. For this reason, the drastically delocalization of part of the production to the emerging economies, during the end of the 90s, has influenced the evolution of the district and, in a certain extent, has reduced the level of technologies in the local territories.

  Therefore, in order to be able to restore and renew the Belluno district system, local institutions, played an important role by providing support in terms of KIBS, which led and are leading to the growth of the district, through the training of new generations in order to continue and carry forward the tradition of the district. In fact, very positive factor, in recent years, it is the growth of start-ups of young entrepreneurs (under 40), that produce optical frames and sunglasses for specific market niches with new technologies and ideas. This is the case, for example of Dolpi Ltd.

Moreover, another phenomenon that has influenced the strategic choices of companies in the localization of production is the re-shoring. In fact, the district's ability to preserve and maintain the *tacit knowledge* has influenced the strategic choices of companies, which, although partially, have reported the production in proximity to the place of origin. In the production of models that cannot be forecasted with many months in advance, the "flexibility" of the district becomes an extremely important factor for global competition.

However, "*the local aspect is complementary to the global one*" (Gradinetti, 1996).

In fact, in order to be competitive the firms cannot deny the relevance of standardization processes for the mass market. The standardization of the processes and of the products are fundamental, in order to have an optimization of the resources and a minimization of the

costs. Moreover, the engineering of part of the value chain processes permit to the firms to exploit theirs full capacity and implement, as well, innovation in the system.

Hence, the district is a bridge between these two dimensions of the competition. In particular, the Belluno Eyewear Industrial District in order to continue to succeed, in the global scenario, has to become a network for the firms that operates both at the local and global level (Confindustria Belluno Dolomiti, 2010).

Limitations of the research are related to the analysis on a specific industry and on a specific district. Further analysis on different district, in other countries or in new industrial sectors, could enrich the elaboration, with new considerations on the evolution and growth of the concept of districts and of manufacturing.

Appendix I

Questionnaire for the Local Institutions

Institution

Interviewed:

•Name

•Role

General aspects:

Number of enterprises in the eyewear of Belluno

Change over the past 10 years

Number of employees in the district

Change over the past 10 years.

Export 2015:

Change in exports from 2014 to 2015 (%)

Activities:

• What activities are specialized companies in the sector? What activities are preformed directly in the district? What is the organization of activities within companies (level of vertical interaction)? Over the years, they have changed the activities.

• What are the most radical transformations in the district that have transformed the structure and dynamics of the district?

• How is the district of the distribution chain? (Agents, wholesalers, large retailers, small boutiques)

• Why is still profitable for companies to remain in the district? What activities are most profitable in the district?

• Is the production of the Belluno district differ from the productive activities located in other markets? (Effect of re-shoring)

• The factory has relevance for the district as a single activity or synergy with the other activities of the supply chain.

Market players:

• Who directs the eyewear industry in consumer choices and the organization of production? (Brands, stores, manufacturers, institutions)

• Who are the most important businesses in the district?

• What are the outside suppliers to the eyewear market? (German Machinery, etc.)

Relations:

• How they have organized the relations between the companies in the district? (Hierarchical, trust, free trade)

• The information? Are they codify? Easy or difficult to interpret?

• What is the incidence of the following categories of enterprises in the district?

1. Companies that manufacture (finished product) under its own brand
2. Companies that produce (FP) for famous brands
3. Companies that produce (FP) for local companies
4. Specialized Suppliers (products or services)
5. Subcontractors

• What was the incidence of these categories over the last 15 years?

• Which businesses have suffered the most in the last 15 years?

Questionnaire for the Companies

Company

Interviewed:

•Name

•Role

General aspects:

Industrial Sector

Main products

Turnover in 2015.

Number of employees

Export turnover / total turnover (%)

Activities:

• What is your business model? What are the activities that are made directly by the company and are which ones localized? What are the activities that generate greater value for the company?

• Who / where are your main competitors?

Governance (supplier relations):

• Who are the key vendors? (What do they do? Where are they located? What is their "greatness" of the market and compared to your industry?)

• How would you describe your relationship with them? (Trust, hierarchical power, etc.)

There is collaboration? Exchange of knowledge? Interactions are formal or informal, codified or interpersonal. How many times you interact and how?

Governance (customer relationships):

• Who are the main customers? (What do they do? Where are they located? What is their "greatness" of the market and compared to your industry?)

• What percentage of sales do they represent?

• How would you describe your relationship with them? (Trust, hierarchical power, etc.)

There is collaboration? Exchange of knowledge? Interactions are formal or informal, codified or interpersonal. How many times you interact and how?

• What are the key distribution channels used? Are they differ in the market?

District:

• What are the relationships with the Belluno district ?

• What are the main advantages of being located in the district? In particular activities that have greater importance in the district?

• have the district institutions a proactive role in the development of knowledge and innovations in the district?

• What were the most significant changes in the last 10 years?

• It is still competitive devote himself to 'manufacturing activities in the district? If yes, for what reasons?

• Is the production of the Belluno district differ from the productive activities located in other markets?

• Considerations on the phenomenon of re-shoring, has a positive impact for companies? Or is it wrong management decisions?

• How is the district of the distribution chain? (Agents, wholesalers, large retailers, small boutiques)

Market players:

• Who directs the eyewear industry in consumer choices and the organization of production? (Brands, stores, manufacturers, institutions)

• Who are the most important businesses in the district?

• What are the outside suppliers to the eyewear market? (German Machinery, etc.)

Appendix II

Data provided by Confindustria Belluno Dolomiti-Sipao and granted exclusive for use in the development of master's thesis "*The role of manufacturing in the Industrial District through the analysis of the Global Value Chain framework: the case study of Belluno Eyewear Industrial District*"

Table 12: Number of firms and number of employees subdivide in the three main typology of firms in the Belluno District (from 2010 to 2015).

	NUMERO AZIENDE				NUMERO OCCUPATI				
		2010	**2011**			**2010**	**2011**		
Aziende Industriali Leader		5	5			8.190	8.300		
Aziende ind.li medio/piccole		93	91			2.400	2.360		
Aziende Artigiane		283	266			500	420		
TOTALE		**381**	**362**			**11.090**	**11.080**		

	NUMERO AZIENDE				NUMERO OCCUPATI				
	2012	**2013**	**2014**	**2015**	**2012**	**2013**	**2014**	**2015 (31.12)**	
Aziende Industriali Leader	5	5	5	5	8.480	8.130	8.441	8.965	+6,21%
Aziende ind.li medio/piccole	88	86	85	79	2.320	2.160	2.150	2.240	+4,19%
Aziende Artigiane	248	242	240	232	380	360	370	385	+4,00%
TOTALE	**341**	**333**	**330**	**316**	**11.180**	**10.650**	**10.961**	**11.590**	**+5,74%**

Source: Confindustria Belluno Dolomiti-Sipao provides data from 2010 to 2015.

References

Anfao (National Association of Factories of Optical Articles) (2015), "Italy, Eyewear Key Figures 2015", obtainable from www.anfao.it.

Anfao (National Association of Factories of Optical Articles) (2016) "Per l'occhialeria Italiana un 2015 da ricordare" dati Anfao_MIDO 2016.

Alon I., Jaffe E., (2012). *Global Marketing*. London, McGraw-Hill.

Alberti F., (2001). *The governance of industrial districts: a theoretical footing proposal*. Liuc Papers n. 82, Serie Piccola e Media Impresa.

Bailey, D., & De Propris, L. (2014). Manufacturing reshoring and its limit: the UK automotive case. *Cambridge Journal of Regions, Economy and Society*, 7(3), 379-395.

Bagnasco, A. (1977), *Tre Italie. La problematica territoriale dello sviluppo italiano*, Il Mulino, Bologna.

Becattini, G. (1989). Riflessioni sul distretto industriale marshalliano come concetto socio-economico. *Stato e Mercato*, 25: 111-128.

Becattini G. (1990). The Marshallian industrial district as a socioeconomic notion. In Pyke F., Becattini G. and Sengerberger W (edited by), *Industrial Districts and Inter-firm Cooperation* in Italy, Genova, International Institute of Labour Studies, 37-51.

Becattini G., Bellandi M., De Propis L. (2009) (Edited by), *A Handbook of Industrial Districts*, Edward Elgar, Cheltenham UK.

Belussi F., Pilotti L., (2002). Knowledge creation, learning and innovation in Italian industrial district. *Geografiska Annaler* 84B (2): 125-139.

Bellusi F., Caldari K., (2009). At the origin of the industrial district: Alfred Marshall and the Cambridge school. *Cambridge Journal of Economics* 33(2): 335-355.

Bettiol, M. and Micelli, S. (2014) The Hidden Side of Design: The Relevance of the Artisanship. *Design Issues* 30(1): 7-18.

Bramanti A., Gambarotto F., (2009). *Il distretto bellunese dell'occhiale. Leadership mondiale e fine del distretto?* Milano, Fondazione Fiera Milano.

Campagnolo D., Camuffo A., (2011). Globalization and low-technology industries: The case of Italian eyewear. In Paul L. Robertson, David Jacobson (edited by) *Knowledge transfer and technology diffusion*, Cheltenham (UK) and Northampton (USA), Edward Elgard, 138-161.

Camuffo, A. (2003) "Transforming industrial district: large firms and small business networks in the Italian eyewear industry", *Industry and Innovation*, 10(4), 377-401.

Coe N. M., Dicken P., Hess M., (2008). Global production networks: realizing the potential. *Journal Economic of Geography*. 8(3): 271-295.

Coase R. H., (1937). The Nature of the Firm. *Economica*, New Series, 4 (16): 386-405.

Confindustria Belluno Dolomiti (2010), *Rapporto filiera dell'occhiale 2010*, Reviviscar.

De Backer K., Miroudot S., (2013). *Mapping Global Value Chains*. OECD Trade Policy Papers 159, OECD Publishing.

De Marchi,V., & Gradinetti, R. (2014), Industrial District and the Collapse of the Marshallian Model: Looking at the Italian Experience. *Competition & Change*, 18(1), 70-87.

Dororthy Leonard-Barton, (1992). Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development. Strategic Management Journal, Vol. 13, Special Issue: Strategy Process: Managing Corporate Self-Renewal. 111-125.

Dunning J.H. (1977). Trade, Location of Economic Activity and the Nine: A Search for an Eclectic Approach. In Ohlin, B., Hesselborn, P.O., Wijkman, P.M. (edited by), *The International Allocation of Economic Activity*, McMillan, London, 395-431.

Ellram Lisa M., Tate Wendy L., Petersen Kenneth J., (2013). Offshoring and Reshoring: An Update on the Manufacturing Location Decision. *Journal of Supply Chain Management* 49(3): 14-22.

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

Fernandez-Stark K., S. Frederick and G. Gereffi (2011). *The Apparel Global Value Chain: Economic Upgrading and Workforce Development*, Duke University Center on Globalization, Governance and Competitiveness.

Fetscherin M., Toncar M., (2010). The effects of the country of brand and the country of manufacturing of automobiles: An experimental study of consumers' brand personality perceptions. *International Marketing Review* 27(2): 164-178.

Gereffi G., (2001), Shifting Governance Structure in Global Commodity Chain, With Special Referenced to Internet. *American Behaviour Scientist*, 44 (10) 1616-1637.

Gereffi, G., J. Humphrey and T. Sturgeon (2005), "The governance of global value chains", *Review of International Political Economy*, 12(1), 78-104.

Gereffi G., (2011). Global Value Chain and International Competition. *Antitrust Bulletin* 56(1): 37-64.

Gereffi, G., & Lee, J. (2012). Why the World Suddenly Cares About Global Value Chains. *Journal of Supply Chain Management*, 48(3), 24-32.

Gereffi, G., & Lee, J. (2014). Economics and Social Upgrading in Global Value Chains and Industrial Clusters: Why Governance Matters. *Journal of Business Ethics*, 133(1), 25-38.

Gradinetti R., Rullani E. (1996). *Impresa transnazionale ed economia globale*, Roma: NIS, La Nuova Italia Scientifica.

Hertz, Susanne and Mattsson Lars-Gunnar (1998) *Internationalisation of small and medium sized firms-network processes and network strategies*, Work-in-progress paper presented at the 14th Annual IMP conference, Turku 3-5.9.1998.

Hopkins, Terrence K. and Immanuel Wallerstein. 1977. "Patterns of Development of the Modern World-System." Review 1(2): 111-145.

Hymer S.H. (1970). The efficiency (contradictions) of multinational corporations. *American Economic Review*, 60(2): 441-448.

Humphrey, J., & Schmitz, H. (2001). Governance in Global Value Chains. Brighton: *IDS Bulletin* 32(3):19-29. First publication (edited by) Gary Gereffi and Raphael Kaplinsky 'the Value of Value Chains: Spreading the Gains from Globalization'. Brighton: *IDS Bulletin* 32(3).

Intesa San Paolo (2015), *Monitor dei distretti*. Dicembre.

Johanson J., Wiedersheim-Paul F. (1975). The internationalization of the firm: Four Swedish case. Journal of Management Studies, 12(3): 305-323.

Johanson J., Wiedersheim-Paul F. (1975). Learning in the Internationalisation Process of Firms. *Journal of Management Studies*, 12(3): 261.

Ketels C.H.M., Memedovic O., (2008). From clusters to cluster-based economic development. *Int. J. Technological Learning, Innovation and Development*, 1(3): 375-392.

Kinkel, S. (2014). Future and impact of backshoring – Some conclusions from 15 years of research on German practices. *Journal of Purchasing and Supply Management*, 20(1), 63-65.

Luxottica, (2015). Annual Review 2015.

Marshall A., (1890). *Principles of Economics*. London: Macmillan and Co. 8th ed. 1920.

McLuhan M., (1964) *Understanding Media*. Gingko Press.

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

Nassimbeni, G. (2003) "Local manufacturing systems and global economy: are they compatible? The case of the Italian eyewear district", *Journal of Operations Management*, 21(2), 151-171.

Osservatorio Nazionale dei Distretti italiani, (2012). *Terzo rapporto*.

Osservatorio Nazionale dei Distretti Italiani Report, (2014). Available at *http://www.osservatoriodistretti.org*.

Peretti F., (2013). L'internazionalizzazione delle imprese: prospettive teoriche. In Dematté C., Peretti F., Marafioti E., (edited by) *Strategie di internazionalizzazione*, Milano, III edizione Egea editore, 1-27.

Peretti F., (2013). L'internazionalizzazione della produzione. In Dematté C., Peretti F., Marafioti E., (edited by) *Strategie di internazionalizzazione*, Milano, III edizione Egea editore, 143-153.

Perroux F., (1964). *L'Economie du xx siècle : ouvrage et articles*. Presses universitaires de Grenoble, Paris.

Porter, Michael E. (1990), *the Competitive Advantage of Nations*, New York, NY, USA: Free Press.

Porter, Michael E. (1985). *The Competitive Advantage: Creating and Sustaining Superior Performance*. NY: Free Press.

Porter, M. E., (1998). Clusters and the New Economics of Competition. *Harvard Business Review*. Nov/Dec98, 76(6): 77-90.

Riccardi A., (2013). I distretti industriali italiani: recenti tendenze evolutive. *Sinergie Journal* 91: 21-58.

Saviolo S., (2013). Avvio e sviluppo del processo di internalizzazione. In Dematté C., Peretti F., Marafioti E., (edited by) *Strategie di internazionalizzazione*, Milano, III edizione Egea editore, 53-68.

Sforzi F., Lorenzini F., (2002) I distretti industriali. In *L'esperienza italiana dei distretti industriali*, IPI-Ministero delle Attività Produttive (2002), *IPI, Roma*; 20-33.

Sforzi F., (2008) Il distretto industriale: da Marshall a Becattini. In *Il pensiero economico italiano.* 16(2): 71-80.

Stopper, M. and B. Harrison (1991). "Flexibility, Hierarchy and Regional Development: The Changing Structure of Industrial Production Systems and Their Forms of Governance in the 1990s." *Research Policy* 20, 407-422.

Sturgeon T., Van Biesebroeck J., Gereffi G., (2008). Value Chain, networks and clusters: reframing the global automotive industry. *Journal of Economic Geography*, 8(3): 297-321.

Sturgeon, T., & Kawakami, M., (2011). Global value chains in the electronics industry: characteristics, crisis and upgrading opportunities for firms from developing countries. *International Journal of Technological Learning, Innovations and Development*, 4, 120.

UNICTAD (2010). Integrating Developing Countries' SMEs into Global Value Chains. United Nations New York and Geneva.

Vernon R. (1996). International investment and international trade in the product cycle, *Quarterly Journal of Economics*, 80(2): 190-207.

Williamson O. E., (1981). The Economics of Organization: The Transaction Cost Approach. *American Journal of Sociology*, 87 (3): 548-577.

Yu X., & Si S., (2012). Innovation, internationalization and entrepreneurship: A new venture research perspective. *Innovation: Management, Policy & Practice* 14(4): 524-539.

Sitography

Barbieri E., (2012), *Export Oriented Industrialization (EOI).* (http://www.treccani.it/enciclopedia/export-oriented-industrialization_%28Dizionario-di-Economia-e-Finanza%29/) (29.07.2016)

Ganz B., (2015) *Nel laboratorio di Kering Eyewear a Padova si punta su ricerca e flessibilità* 22.12.2015 (http://www.ilsole24.com/art/moda) (30.08.2016)

Mellery-Pratt R. , *A closer at the $13 Billion Premium Eyewear Market*. May 15, 2015 17:27 (https://www.businessoffashion.com/articles/intelligence/a-closer-look-at-the-13-billion-premium-eyewear-market) (20.08.2016)

Sanderson R., *Luxury eyewear in the spotlight as brands focus in on sector*. Milan, April 8, 2016 (https://www.ft.com/content/6245b900-fbde-11e5-8f41-df5bda8beb40) (20.08.2016)

Company profile www.luxottica.com (5.09.2016)

Company profile www.safilo.com (5.09.2016)

Company profile www.marchon.com (5.09.2016)

Company profile www.derigo.it (5.09.2016)

Company profile www.marcolin.it (5.09.2016)

Company profile www.dolpi.it (5.09.2016)

Company profile www.visottica.com (5.09.2016)

Company profile www.Mazuchelli1849.it (5.09.2016)

KPMG Advisory (2011) *Il valore del brand "Made in Italy"* (http://www.mglobale.it/Temi/Dogana/Contraffazione/Il_Valore_Del_Brand_Made_In_Italy.kl) (3.06.2016)

La Tribuna Treviso 26.2.2015: tribunatreviso.gelocal.it (http://tribunatreviso.gelocal.it/treviso/cronaca/2015/02/26/news/visottica-ok-a-premi-e-a-nuovi-investimenti-1.10943692) (26.06.2016)

Occhialeria: www.ice.gov.it (http://mefite.ice.it/settori/Occhialeria.aspx?idSettore=03050000) (23.07.2016)

The Economist, *Competitive advantage*. Aug 4th 2008 (http://www.economist.com/node/11869910) (19.06.2016)

http://www.euromonitor.com/eyewear (18.08.2016)

http://www.optikel.net (15.06.2016)

http://www.ingrosso-ottica-roma.it/materiali-utilizzati-per-le-montature.htm. (15.06.2016)

http://www.otticasilingardi.it/materiali-per-montature. (15.06.2016)

http://www.businessdictionary.com/definition/import-substitution-industrialization-ISI.html (15.06.2016)

http://www.investopedia.com/terms/i/importsubstitutionindustrialization.asp (15.06.2016)

https://www.regione.veneto.it/web/attivita-produttive/distretti-reti-e-aggregazioni-lr132014 (11.09.2016)

http://www.cggc.duke.edu/whoweare/cggcteam.php (25.08.2016)

http://www.treccani.it/enciclopedia/giacomo-becattini/ (25.08.2016)