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"MNEs and Italian IDs: the evidence from the case-study of Sassuolo"

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*Alla mia famiglia,
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un grazie A ME STESSA
perché contro tutti e contro tutto posso dire “CE L’HO FATTA”.
Chiara*

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Firma dello studente

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INTRODUCTION

Industrial districts or clusters are increasingly importance both from an economic point of view and from a research topic. First, the main issue is whether to use the term district or cluster, as in many cases they are used interchangeably. Districts (IDs) are a socio territorial entity, which is characterized by the active presence of both a community of people and a population of firms in one naturally, and historically bounded area. (Becattini 1990) while clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. They include, for example, suppliers of specialized inputs such as components, machinery, and services, and providers of specialized infrastructure. Clusters also often extend downstream to channels and customers and laterally to manufacturers of complementary products and to companies in industries related by skills, technologies, or common inputs. Finally, many clusters include governmental and other institutions such as universities, standards-setting agencies, think tanks, vocational training providers, and trade associations that provide specialized training, education, information, research, and technical support (Porter 1998). These two definitions explained the reason why during my thesis I always use the term districts. I should have use the term cluster since the definition include many actors who not necessarily are located in a one bounded area like Becattini said. Cluster really defined the economic tissue nowadays; however, in Italy the term district is preferred and widely used than cluster because of parochialism of the population closely linked to the territory, to the local community where it continues to see economic and other actors, only Italians. In Italy there is no more open vision economically speaking, and those that were once real industrial districts, as defined by Becattini, are now more clusters with the presence of entities external to that specific bounded area, more and more often also foreign. Moreover, most of the public research institutions continue to misuse this terminology, contributing to the misuse of the two terms. According to ISTAT (National Institute of Statistics), in Italy there are 141 districts, among them Sassuolo, in the Emilia-Romagna region, is under the lenses of many scholars and researchers because since 2000's it has started a process of internationalization which is of common interest. Due to increase competition, favored by globalization, many firms inside the district had to close down, while other are tempting to respond facing some important challenges, such as managerial capabilities, infrastructures, distribution channels and financial resources. Among these 13172¹, some are becoming multinationals (homegrown MNEs) and others are merged or acquired by both firms inside the district and outside. MNEs

¹ Total number of firms in the district based on the last ISTAT survey.

are important agents, they argue, for promoting economic growth since they complement domestic savings, transfer technology and management skills, increase competition, and stimulate entrepreneurship (Oetzel, Doh 2009). Based on Eurostat a multinational enterprise, abbreviated as MNE and sometimes also called multinational corporation (MNC), just multinational or international corporation, is an enterprise producing goods or delivering services in more than one country. A multinational enterprise has its management headquarters in one, or rarely more than one country, the home country, while also operating in other countries, the host countries. At the opposite according to EU recommendation,² the category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding €50 million, and/or an annual balance sheet total not exceeding €43 million. Within the SME category, a small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed €10 million. Within the SME category, a microenterprise is defined as an enterprise which employs fewer than 10 persons and whose annual turnover and/or annual balance sheet total does not exceed €2 million. In this work we will see how Italian SMEs are becoming MNEs or why Italian firms are so vital for the ceramic industry; it is interesting to see how the success of MNEs, both Italian and foreign, partially depend from Italian firms located in the district. Especially when referring to R&D and knowledge we will see how the contribution of local firms is extremely important for these giants, which seem to have some difficulties to reach the right knowledge to foster innovations. On the opposite, they are very strong in managing financial resources, which Italian firms do not have. Thus, we will see how combining the two abilities let firms to promote innovation activities, expand their market networks, share knowledge and collaborate to face globalization and competition. Based on information I collect with interviews the role of both MNEs and SMEs is complementary and necessary to push the district into a global dimension without losing its identity.

The aim of this thesis is to help in finding evidence pro or against different theories about MNEs and their effects into IDs.

The paper is structured as follows. In chapter 1 I have made an introduction analyzing literature about IDs and clusters highlighting their main differences and describing the history of Italian IDs from their discovery to nowadays. In chapter 2, I have deepened my analysis focusing the attention on globalization and IDs, especially illustrating the main trends of Italian IDs towards globalization. In chapter 3, I have provided evidence of what discussed in chapter 2 with a real case study of Sassuolo, first developing its history and then analyzing the

² Law of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises

main innovations foster by this district in the ceramic industry as well as its evolutionary path towards globalization. In chapter 4, I have discussed some real cases of firms belonging to both ceramic tile industry and machinery for ceramics, operating inside the district from an economic point of view. I have analyzed what are the implications for these firms of being in a district, their internationalization strategies implemented through mergers and acquisitions allowing them to face competition from large MNEs. In order to compare theories proposed by many authors, and the reality using some papers and companies' interviews, I have provided evidence of what are the effects of MNEs into the district. The main results are examined in the conclusions in the last section.

CHAPTER 1: INDUSTRIAL DISTRICTS AND CLUSTERS

1.1. A brief introduction on industrial districts and clusters: review of the literature

Industrial districts, which I will indicate with IDs for the rest of my work, are still studied by many researchers in the field of economics sciences for their characteristics, configuration along with their economic importance and impact in the world economy. They represent a broad topic to analyze in continuous evolution, as I will illustrate in the next chapters, thus understanding their dynamics is still important to understand the success of a national economy, whatever it is. In particular, I decided to focus my attention to Italian IDs because they represent the structure and the base of the Italian economy. Another important issue concerns the phenomena of clusters, which often are used like a synonymous to IDs, but the literature suggests it is not the same thing. Even clusters are under the investigation of lots of researchers, even if they are a more recent concept, but still relevant as IDs for a national economy; however, the two concepts, often used interchangeably, indicate similar but different aspects of a national economic fabric. I would like to start the review with the pioneer and founder of the concept industrial district: Alfred Marshall, a famous English economist, who first defined the term IDs in his book *Principles of economics* in 1920. His definition was born after a deep observation of specialized firms in the textile sector, all concentrated in Lancashire, Sheffield and Solingen areas in the UK. Particularly he defined the industrial district as “an industry concentrated in certain localities is commonly, though perhaps not quite accurately, described as a localized industry” (Alfred Marshall 1920).

This definition is, in my opinion, not the perfect one, just a broad concept; in fact before arriving at this conclusion, Marshall gradually understood and presented what were the characteristics, which brought him to talk about IDs. Later, during the years, new, more precisely and accurate definitions were provided as I am going to review in few lines. The first basic elements Marshall (1920) looked at in those specific regions, is that “this elementary localization of industry gradually prepared the way for many of the modern developments of division of labor in the mechanical arts and in the task of business management”. From this statement, we can easily understand the concept of specialization as consequence of a determined small geographical location. The second element he identified was that “many causes brought the localization of firms, among them there are physical conditions such as climate and earth, the existence of places with easy access by land or water. Another chief cause has been the patronage of a court. The rich fold there assembled make a demand for goods of especially high quality, and this attracts skilled workmen from a distance, and educates those on the spot” (Alfred Marshall 1920). Allowing us to derive the importance of local labor force generally trained inside firms within the district. This is

strictly connected with specialization, as with training it is possible to become specialized in performing a specific task to produce high quality goods.

Also Marshall (1920) indirectly introduced the concept of localization and community when he spoke about “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 neighborhood to one another”; here we can notice that ID born in an area and then it remains anchor to that area because of specific characteristics which bring ID establishing long-term relationships with the local community. In fact, as Marshall said (1920) “good work is rightly appreciated, inventions and improvements in machinery, in processes and the general organization of the business have their merits promptly discussed: 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. And presently subsidiary trades grow up in the neighborhood, supplying it with implements and materials, organizing its traffic, and in many ways conducing to the economy of its material.” This indicates the importance of relationships as well as collaboration, cooperation, agglomeration; also specialization is not only learned through training but from a generation to another thanks to the know-how of workers. It is important to stress the fact of naissance of new firms in the district to support the activities of the former one. These new firms born and grow thanks to “the continuous reducing of any kind of communication means, facilitate the flow of information and knowledge among distant places; thus modificating the localization of firms. Generally speaking, a reduction in tariffs related to transport of goods allow a specific area to buy a big amount of the resources it needs, inducing a concentration of firms in specific geographical areas” (Alfred Marshall 1920). Basically, there is also an advantage in costs reduction deriving to the approximation of firms, which can transfer goods, knowledge and information. Costs advantages are created with scale economies within the district because of “the concentration of a big number of small firms in the same geographical area; this is transferred in a concentration of all production activities inside a small area enabling firms to produce high amount of goods” (Alfred Marshall 1920). With this observation, Marshall transformed the idea introduced by Ford and Taylor that cost advantages can be obtained only by big firms with mass production. Thanks to collaboration and cooperation, in fact, it is possible to reduce costs producing a high amount of goods. The final aspect is relationships among firms and workers that are given to the fact that “a localized industry gains a great advantage from the fact that it offers a constant market for skill. Employers are apt to resort to any place where they are likely to find a good choice of workers with the special skill which they require; while men seeking employment naturally go to places where there are many employers who need such skill as

theirs and where therefore it is likely to find a good market” (Alfred Marshall 1920). This enables to have a specific labor market enhancing again the concept of specialization. What Marshall first studied, was later on proposed by others authors, who tried to improve his definition of industrial district deepening the features he mentioned to study IDs. For example, another concept is proposed by an Italian author Becattini (2005) who stated, “IDs are a socio-territorial entity which is characterized by the active presence of both a community of people and a population of firms in one naturally and historically bounded area. In the district, unlike in other environments, such as manufacturing towns, community and firms tend to merge”.

We can define them as “a local system characterized by the active co-presence of a human community and a dominant industry constituted by a set of small independent firms specialized in different phases of the same production process” (Belussi, Gottardi, Rullani 2003). According to Enciclopedia Treccani an ID is “a production system consisting of a set of companies, mainly small and medium-sized, characterized by a tendency towards horizontal and vertical integration and production specialization, generally concentrated in a specific territory and linked by a common historical, social, cultural”.

There are many other definitions of IDs which we can find in the literature but these are the most important ones and on which I will concentrate my thesis to analyze the characteristics of IDs in the following chapter.

On the same way, I want to analyze some definitions of clusters, starting from the founder of this term who is Michael Porter, an American economist and professor at Harvard business School, who in 1998 stated, “A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities. Clusters encompass an array of linked industries and other entities important to competition. They are geographic concentration of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions in a particular field that compete but also cooperate. Clusters are a striking feature of virtually every national, regional, state and even metropolitan economy, especially in more advanced nations”. This definition is also stated in Enciclopedia Treccani and on ISTAT institute (the Italian national institute of statistics). Another definition I found in the literature is the one proposed by Bellandi et al. (2009) in which affirm that “clusters are geographic agglomeration of companies, suppliers, service providers, and associated institutions in a particular field, linked by externalities and complementarities of various types. They are a natural manifestation of the role of specialized knowledge, skills, infrastructure, and supporting industries in enhancing productivity. They are thus not defined by a specific

channel that created interdependencies between activities in a given location. A combination of supplier relations, common labor markets, rivalry, knowledge spillovers, and learning effects drive clusters”. As I can notice, reading all these definitions of both IDs and clusters, they include more or less the same aspects that are why I do not want to add other theoretical explanation in order to avoid confusion. All the authors and institutions provide specific elements, which strictly defined the two concepts on which people generally, make confusion and misunderstand the meaning. Thus, I think it is important to underline the differences and similarities before continuing on my work, which is focused on IDs.

1.2. Characteristics of industrial districts and clusters: what’s the main difference

First, I would like to deep illustrate the main characteristics of a cluster according to the definition presented before. Basically, we can highlight three key dimensions:

- **Geographic:** clusters are, in fact, concentrate in a specific area, usually identified in a region of a country or in a single town. This can be easily derived in the first statement of each definition *a cluster is a geographically proximate group* (Porter 1998) and *clusters are geographic agglomeration* (Becattini et al. 2009).
- **Activity:** firms present in the cluster perform different kind of activities thanks to the fact that they are involved in different industries all interconnected and interdependent one another. Even this dimension is indicated in both Porter and Becattini statements, *interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities* and *companies, suppliers, service providers, and associated institutions in a particular field, linked by externalities and complementarities of various types* respectively.
- **Business environment:** a set of specific actions resulting from the different strategies pursued by the firms within the cluster as well as the other associated institutions like those that Porter said in his previous definition. Alternatively, we can say the opposite, that is, “clusters are the result for the general business environment; they are more likely to emerge and develop fully where the general business environment is favorable” (Becattini, Bellandi, De Propris 2009). This dimension is more difficult to catch reading the definitions because it derives from an interpretation of them. The common words I want to write down are *combination, competition and cooperation*. Regarding competition, it means that all firms in the cluster try to achieve high level of productivity and profitability pursuing both cost leadership and differentiation strategies; in the first case we can found firms that compete on having cheaper labor costs or raw

materials for their processes or importing lots of their assets such as machinery, technology, accessories, components, etc. In the second case, instead, firms achieve the market through specific agreements with specialized suppliers that provide determined raw materials, accessories, machinery, and so on, which satisfy predetermined quality standards. Labor is very specialized and associated institutions provide ad hoc training programs for employees as well as educational and technical support. The higher the presence of institutions the higher the position of the firm within the cluster. In this case, costs are not relevant as the focus is on differentiation and so investments are required to be different from the other firms in the same cluster. In both cost leadership and differentiation strategies cooperation is achieved maintaining long stable relationships with institutions and suppliers, which operate, in the same geographic context. Firms can produce substitute products/services, which induce to compete. Finally, combination can be defined as the sum of all the different strategies pursued by the different firms belonging to different industries in the same geographical area, which originate the so-called business environment.

All these three types of dimensions contribute to create positive externalities on the national economy in which clusters are present, as they involve all the economic actors, which pursue different roles at different level, but all linked and interrelated creating value added for the entire economic system.

On the contrary, when we talk about IDs we are referring to:

- Groups of small and medium size firms concentrated in a specific geographical area smaller than clusters. If the last ones can be found at regional or town level, IDs can be found in a more restricted area at province level, a well-defined area.
- Agglomeration: all the firms in the district are specialized in different phases of the same production process, so that we can group them together. They do not belong to different industries as in the case of clusters. They are linked not only at economical level, but also at society and cultural level because firms within districts tend to create strong relationships with the community living in the small geographical area in which they operate.
- Collaboration: if for clusters firms are bigger and compete through the two strategies I mentioned before, in IDs firms collaborate because of their configuration as the sum of the different specialized firms along the process, make up the final product; all the firms pursue complementary activities offering

complementary products. Then collaboration is made with the community hiring workers from the community firms operate, participate as sponsors for local events, public institutions can create infrastructures for them, etc.

- Identity: always IDs identify a specific economic area in a determined country. Moreover, the community and institutions living close to the firms in the district, identify themselves into them. This derives from the higher level of collaboration we can find, and the fact that there is high level of trust between firms and their workers and people living in the community. Some authors refer to the term ID as a community of firms to enhance the high grade of trustfulness, which is present in the area.

These main features can be caught from the definitions before when authors talk about *socio-territorial entity*, *community of people and a population of firms* and *community and firms tend to merge* (Becattini 2009), *local system and human community* (Belussi et al. 2003), *concentrated in a specific territory and linked by a common historical, social, cultural* (Enciclopedia Treccani). For sure, there are many other features that characterized IDs but they are out of the topic of this work. Here I just want to underline the main differences between the two concepts, which are summarized in the table below.

INDUSTRIAL DISTRICTS	CLUSTERS
Small and medium firms	Even big firms
A limited geographical area at province level	Broader geographical area at regional or town level
Firms are specialized in different phases of the same production process	Firms belong to different industries
Firms produce complementary goods/services	Firms produce both complementary and substitute goods/services
Trust and identity foster collaboration within firms and community in that specific area	Firms collaborate with other firms in the industries, not with the community or other firms in that broader area

Table 1 Main differences between IDs and clusters. Source: own elaboration.

After this important distinction, even if not that deep, but with the essential features that allow us to separate the two concepts and use them more appropriately, I will focus my analysis on IDs, in particular Italian ones. Among all the definitions I analyzed before, the one I like the most because it contains all the main elements which identify an industrial district, is the one

suggested by Fiorenza Belussi, Giorgio Gottardi, Enzo Rullani in 2003 in their book “*The technological evolution of industrial districts*”: a local system characterized by the active co-presence of a human community and a dominant industry constituted by a set of small independent firms specialized in different phases of the same production process.

1.3. History of Italian industrial districts

Before analyzing the history of IDs, it is important to answer to the question: why do industrial districts born? The answer is a sum of six fundamental variables, without one of them we cannot talk about industrial districts:

1. Resources and production factors: it is very important the possibility of finding specific production factor in a limited geographical area or at least the possibility to buy them from outside. Then the capacity to combine them in an efficient way characterized what are called factorial endowments of a group of firms located in the same area. These production factors are raw materials, human capital (know-how), financial resources, infrastructures, public institutions that are bale to finance and support firms through initiatives.
2. Technologies: the resources and production factors cited before need to be combined all together with adequate technologies, in order to produce the final good/service. These technologies can be identified in machinery, equipment, production plants along with a stock of knowledge possessed by the local community living in that area, and which are handed down from generation to generation.
3. For the action of one or more driving companies and others that arise as a result: driving companies are fundamental for the naissance of a district because they, usually, are local companies which became a driver thanks to specific investments in the geographical area. These last ones can be done for a cost-saving investment as firms can have minor production costs due to the fact that technologies and resources are easily to find, thus costs are reduced because it is not necessary to import them, or for a resource-seeking investment using local resources and production factors that are not possible to find abroad or in another location. Consequently, other firms born due to the high attractiveness of the district in terms of profitability, and so this kind of second generation firms started to interact with the driving companies to acquire knowledge, experience, tools, materials, etc. The result is collaborations among them, which enhance the naissance of a typical industrial district.

4. The ability to reach and satisfy a specific segment of demand: In this case, firms must be able to segment the demand focusing on the one, which ask for their products/services. Generally, the higher the number of habitants and income per capita together with an equal distribution of this income inside the area, the higher the probability to achieve the demand and satisfy it because the demand is higher; while the lower the number of habitants and income per capita with an unequal distribution of it, the lower the probability to have a demand for specific products/services.
5. Local context: after having analyzed if there is a demand for a determined product, it is important to have a socio-cultural context which support and foster the naissance of firms. In particular, local political institutions, must favor the stability of the geographical area and the cohesion among firms in that area through direct politics and legislations. There must be reciprocal relationships between firms and local institutions, based on trust and cooperation.
6. Competitiveness: this is a consequence of firms' strategies, which can be cost leadership or differentiation. The first one means satisfies the demand with same products/services of the other firms but at lower price, the second one, which is the most used in IDs, means satisfy the demand with even slightly different products/services that are different from the others in terms of innovations which directly impact on functionalities, usability, design, etc.

These variables are common in the Italian economic fabric made of small and medium firms as stated in the table before generally located in a small concentrated geographical area closed to a province and with which trust and collaboration are the two pillars. In Italy IDs were born during the 60's-70's, the so called "miracolo economico italiano" or economic boom. In this period, in fact, researchers and scholars in the economic field, among them Becattini, observed that the elements indicated in the table before and the variables just mentioned, were already present in the Italian economic context or started to take place. This was also confirmed looking at the major characteristics provided by Alfred Marshall in his first definition of ID. In particular, firms located in a district were family-owned companies demonstrating the high importance of the relationships with local communities.

In the same years studies confirm the big crisis of the taylorism and the scientific management concept invented by Ford; markets became saturated, competitiveness increased and workers were no more satisfied about their working conditions as they were considered machines, thus the system required a new production model based on differentiation, quality, flexibility and a deep knowledge of the context in which firms were operating. According to the IV Rapporto

dell'Osservatorio Nazionale Distretti Italiano firms from the 2000's are increasing not only in term of size with more than 50million revenues by increasing the extension and the demographic and economic size of the districts, but they are evolving in more complex juridical forms such as companies (società di capitali) and partnerships (società di persone), where the majority of stakeholders still remains the family, as mentioned before, but other external investors are entering with a small amount of stocks. In fewer words, they are changing governance that is “the system of rules, practices, and processes by which a firm is directed and controlled. Corporate governance essentially involves balancing the interests of a company's many stakeholders, such as shareholders, senior management executives, customers, suppliers, financiers, the government, and the community. Since corporate governance also provides the framework for attaining a company's objectives, it encompasses practically every sphere of management, from action plans and internal controls to performance measurement and corporate disclosure.”(Chen 2020). From a productive point of view, companies in the districts are pursuing more and more differentiation strategies to increase the range of products offered as well as new investments in the green economy, distribution channels to maintain high their competitive position, enhance the “made in Italy” and acquire quality certifications. In each of these three kinds of investment, innovation plays a crucial role; innovation at process, product and distribution levels are fundamental to survive in a globalized world, as I will discuss in chapter 2. Always based on the Report, it seems that driving companies continue to demonstrate their superiority within the districts and all the others, born later, follow them.

At the end we can conclude the history of Italian IDs focalizing on two big steps: in 60's-70's when IDs were born, firms were very small in size just conducted by families living closer to the firms which success was entirely based on the “made in Italy” concept and process innovations; later, in 90's, when globalization took place, firms in IDs started to become bigger in size with new management figures which success is still based on the “made in Italy” but mixed with new different strategies, investments and innovations. I will discuss IDs and globalization in the following chapter.

CHAPTER 2: INDUSTRIAL DISTRICTS AND GLOBALIZATION

2.1. The evolution of industrial districts: from the naissance up to today

IDs represent the typical organizational model for the Italian productive system, based on SMEs (small and medium enterprises) as well as a big strength for the Italian economic system at all. After World War II the European and so Italian economy were completely revolutionized, incurring in a big transformation carried out by Italy, one of the most dynamic countries in the continent. Italy started to pursue a gradually transformation of its economic fabric from a predominantly agricultural country to a large industrial economy thanks to many industrialization policies promoted by the government.

And, as I mentioned in the previous chapter, it was in this context that industrial districts were born; during the economic boom of 60's-70's due to high growth rates of GDP (PIL) thanks to some important factors:

1. The Italian economy together with other industrialized countries in Europe, were facing a great expansion thanks to the creation of the European Common market in later 50's, which started to produce its effects a little bit later allowing the liberalization of international economic exchanges.
2. The financial system was regulated and the national banking system was completely under the control of the State.
3. Areas where IDs were located benefited from the presence of local financial institutions, which help SMEs to get access to the credit they need to operate.
4. Strictly connected with point 3, local public institutions support the development of SMEs favoring a spirit of collaboration and cohesion, and this was possible with ad hoc policies, which enabled firms to develop and grow.
5. The particular configuration of the retailing system, based on non-concentrated retailers, allowed firms in IDs to easily enter in the national market with their products.
6. Last, but not for least, as I state before the taylorism and the scientific management concept invented by Ford entered in a big crisis, thus there was a change in consumption behaviors, since consumers started to abandon the use of standardized products, widely spread with the mass production concept, in favor of new, more customized goods for their specific needs. This last point helped Italian SMEs because their workforce was made of high-skilled workers specialized in determined tasks; particularly hand-made products were mostly appreciated and represented a peculiar aspect for firms in IDs.

It is important to say that these factors helped the naissance (**see Figure1**) of IDs but on the other side initially, IDs were simply natural phenomena of agglomeration of services and competences in specific sector of production. This is demonstrated by the six variables indicated in the previous chapter paragraph 3, which were easily recognizable.

A part from these factors going back to that period we can observe the existence and the expansion of small and medium firms inside IDs to support the activities of already older firms, what previously I called driving firms. In particular, these SMEs classified in secondary, complementary or auxiliary according to 9° Censimento dell'industria e dei servizi e Censimento delle istituzioni nonprofit written by ISTAT, were important for the ancient firms as they provide them components or particular production stages which, incorporated with the main activities of the driving firms, create the final good. Moreover, these new SMEs brought novelties, which help a lot existing firms to improve their products and achieve customers' needs. This phase is called development phase due to higher profitability inside IDs that attracted new firms and it's based on the multiplication of knowledge which are transferred from firms to firms and from people to people in the local community. Basically, new firms, which enter IDs, follow the knowledge received and bring to them new ideas deriving from their already knowledge and experiences allowing the naissance of a shared knowledge. These new firms use the knowledge and means of driving firms bringing their own suggestions to improve products and create a share workplace. This workplace created the base for the specialization because no one within IDs keep its knowledge for its own work, but improved and enriched it through imitation, copying learning from the others. As Enzo Rullani (2017) stated "in the district, the single bee does not need to be wise in all respects if the knowledge is widespread and multiplies, as a whole, in the hive." Development of IDs is very important because we can recognize the increasing level of employment, production, number of more and more specialized firms creating a more complex district's structure where integration started to become a key concept. This development phase was followed by a maturity phase, as it is for the life cycle of all kinds of firms/products/services and so on; the maturity arrived in the end of 1980's when all firms within IDs saw their revenues and workforce increasing as well as their presence in the economy and local context, in which relationships among firms and community became closer. Thus, trust, collaboration and cooperation became three identity pillars for all IDs. In particular, local institutions, social forces and business enterprises were gradually involved in a process of growing linkage, in order to increase work competences and to share knowledge; a kind of social collaboration between the relevant actors in the local economy and society as born. This closeness allows maintaining a high degree of flexibility, but also to achieve economies of scale typical of

large companies, thus reducing costs as Marshall first illustrated in his book. It is in these years that some driving firms took over starting to sell their goods out of the Italian boundaries indicating their superiority and capacity to go far becoming what now we call multinationals. Examples are Luxottica, Geox, firms operating in the Murano artistic glass district, GD for the packaging, Ferrero, etc. Maturity was enhanced by the fact that firms which follow driving ones, first sell their new inventions or innovation to driving firms, that had the advantage to try and experiment them for the first time.

Therefore, what I can conclude is that the Italian economic fabric made internally had all the elements, which until that period remained obscured and unexplored, for the identification of IDs along all the country. In addition, when institutions and researchers discovered the elements they recognized what centuries earlier, Alfred Marshall introduced for the first time. Italy was and is a concrete example, as well as a case study, of IDs. “Thanks to this model, Italy is one of the countries in which entrepreneurial initiative is more developed, and entrepreneurial autonomy has allowed the development of creativity, the search for beauty and good taste in the finished product that have made it famous all over the world "made in Italy" production”. After the maturity phase, we can encounter two types of opposite direction in the life of IDs: declining or revitalization; and what surprisingly IDs did were to undertake the second direction as I am going to discuss later in the chapter. I used the term surprisingly because no one among the experts thought that IDs had been able to stay competitive in a completely new scenario governed by globalization and multinationals firms. In fact, later in 90’s globalization took place together with the event of information and communication technologies, the so called ICT, and internet, which introduced a period of fundamental changes in all the sectors, but talking about IDs, the context in which firms were operating changed dramatically inducing firms to reinvent themselves to stay alive and keep their position in the market, which was not only at local and national level, but also at international one. I will discuss the impact of globalization on IDs in the following paragraph.

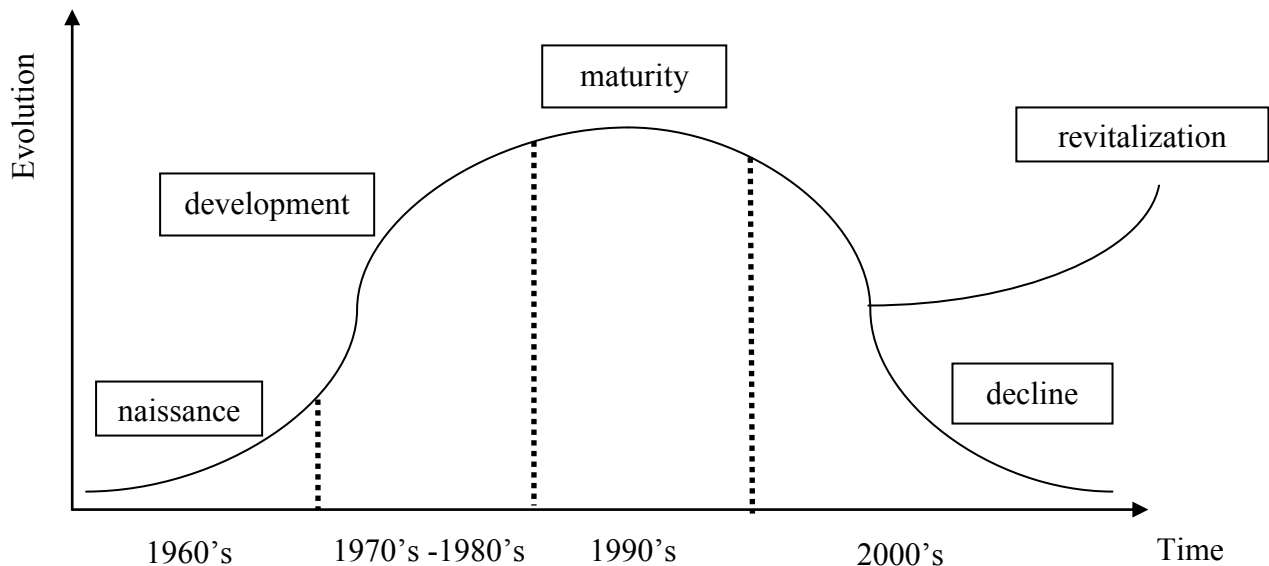


Figure 1 IDs life cycle. Source: own elaboration.

2.2. The effect of globalization into industrial districts

There are countless definitions regarding globalization and its impacts but the analysis of the concept and its characteristics is out of the topic of this work. Therefore, I just want to write down one of the definitions we can find on the web and literature, to have a focus on what I am going to discuss respect IDs illustrating from a critical point of view what literature had shown. For my purposes, it is important to address the basic variables on which IDs worked on to reconfigure their structure in a globalized context. Following the World Health Organization (WHO) “Globalization, or the increased interconnectedness and interdependence of peoples and countries, is generally understood to include two inter-related elements: the opening of international borders to increasingly fast flows of goods, services, finance, people and ideas; and the changes in institutions and policies at national and international levels that facilitate or promote such flows. Globalization has the potential for both positive and negative effects on development and health.” Concerning industrial districts, I think they are included in the development part of the globalization process as cited by WHO. Previously I mentioned the fact that IDs changed their governance and strategies to face globalization together with investments in innovations of products, processes and distribution channels. Now I will discuss this statement in more detail starting for what Enzo Rullani said in his article *I distretti industriali al tempo dell’economia globale* (2017): “it’s necessary that IDs change in two direction transforming their local networks in global networks where they can buy all the resources not only in the area where they are located, but also outside it or even outside the national border; undertake agreements and alliances with foreign multinationals firms with a continuous exchange of knowledge, competences and resources at economic, financial and human level”. The first aspect can be done opening the

mindsets of IDs and, of course, of those who run firms in districts especially starting to understand the concept of flexibility, which requires that the decisional process cannot more undertake at the top level of firms, but must be done in cooperation with the bottom level of firms. In a globalized world, community is not more related to the small closest geographical area where firms were born, but the term refers to a broader community, which includes people, institutions and businesses all over the world, and this is possible with the use of new information and communication technologies. The second aspect, instead, is becoming more and more popular with different lines of thought among scholars, because it is very difficult to understand why foreign firms or multinationals enter into IDs and make agreements with firms inside them or, vice versa, why firms within IDs search for strategic alliances with foreign or multinational firms. This aspect is the focus of my work, so I will discuss it later on the paper.

Another aspect is that driving firms within IDs can play an important role in the evolution of the district if they invest and innovate on the commercial and communication side, making use, upstream, of local manufacturing supplies, for quality things, and external manufacturing supplies for the lower classes range. What I want to stress here is the fact that “made in Italy” is promoted by driving firms, which generally, keep the relevant operations in the district; operations, which require a high degree of specialization as they are based on an intrinsic know-how, difficult to find elsewhere. I am thinking of all products of high craftsmanship such as furniture, shoes, tiles, ceramics, glass, textile, etc. While for other operations which require a low degree of knowledge and expertise, they can be done outside the district. These are administration, packaging and transportation, or simply the production of simple, common parts used for the final product. These kind of splitting activities between driving firms in the IDs and outside firms enlarge the network and create economies of scale for the last type of firms.

I also introduced the fact that the new success of IDs is still based on “made in Italy” but mixed with new different strategies of delocalization and internalization, cost leadership and differentiation. Both delocalization and internalization are better discussed subsequently. Regarding cost leadership, it means the capacity to produce the same goods but at lower costs and so obtaining an advantage respect to competitors; differentiation is the capacity to produce different goods, even with small different features, to penetrate in new markets and achieve a higher customer base. Beside internalization strategies, we can find the repositioning of the range of products towards segments of higher quality or the spread of phenomena of industrial concentration due to the endogenous development of large companies or entry of multinational clients. According to the IV Rapporto dell’Osservatorio

Nazionale Distretti Italiano, this is called triple A model (adattativo, affidabile, alternativo) where we have adaptability, reliability and alternative and thanks to which firms are able to catch the new changes in demand and markets, immediately providing new solutions with innovative products or processes that are the result of a strict collaboration among IDs, communities and new firms. Of course, these new products and/or processes have a high degree of quality because firms start to obtain quality certifications together with:

- The choice of increasingly qualified suppliers of semi-finished products and raw materials. As I mentioned before community is a broader concept and so not only local firms provide driving firms with the necessary elements to produce the final good, but also foreign firms which tend to operate in low specialized operations but with high quality standard as required by IDs' firms. For sure, the most important raw materials of a certain prestige are still buying at local level to not lose their uniqueness and beauty.
- The expansion of the range of products, through differentiation processes that start from inputs from the market. This is a strategy which firms within IDs starting to pursue to stay competitive in a globalized world; especially they started to produce slightly different products to penetrate in niche markets where "made in Italy" is appreciated.
- Direct control of distribution channels. New investments in distribution channels are constantly made by firms in order to sell their products at international level increasing their competitive position.
- New investments in machinery for process improvement. This other type of investments is crucial for continuously innovate processes through which products are made; even small improvements can bring high difference. Here we can find process certifications that allow firms to differentiate themselves from competitors outside the IDs. If initially innovations came up from small firms within IDs to driving firms, now innovations are carrying on by driving firms.
- The acquisition of ICT systems for the efficiency and modernization of management systems. Information and communication technologies are fundamental to interact and maintain relationships with the community, which changes its configuration, as I explained before. These also enable firms to be more accurate and precise in details for their products, more efficient reducing costs, faster in taking decisions and run the business. Moreover, modernization allowed workers to become more flexible in their tasks with the use of technological machinery and equipment that help them, without losing the

craftsmanship. Simply they can do their tasks quickly, satisfying a bigger demand respect previous years producing a higher amount of products.

- The strengthening of commercial strategies abroad, through the opening of new commercial offices or the creation of customer service networks. These strategies can be done with the help of foreign or multinationals firms as well as alone. They are important to penetrate in new markets and strength relationship with the global community.
- The attempt to open up to other productive areas of the country. This to reinforce the national competitive position finds new potential partners and suppliers.
- The attempt to reaffirm the level of collaboration between district companies. Relationships are very important as they are made of collaboration, cooperation and trust. In particular, cooperation reduces the risks associated with the beginning of a new activity or new investments because firms help each other to achieve the desire results.
- Strengthening the role of leading companies. So far called driving firms, they remain the core of the district for all the other firms and for the new ones, which wants to undertake alliances with them. Driving firms keep their headquarters inside IDs.
- The search for high quality suppliers in order to raise the competitive level of district productions. Product innovation and quality upgrading in order to avoid price competition. Product innovation and quality can derive for precise investments, so called resource seeking, to continue to use local resources because of their peculiar characteristics, as written in the first point. This is another part of the differentiation strategy and investments made by firms; due to changes in consumption behavior quality is becoming a fundamental characteristic of products and innovations are required by customers to better serve and satisfy their needs in an easy, affordable and accessible way.

All of these transformations enable firms to enter in different markets and attract clients keeping long stable relationships with them; as I told in the previous paragraph customers started to change their consumption behaviors requiring more customized products with high degree of quality. Market is not more a unique standardized one, as in the era of industrial revolutions, but many small niche markets that promote specialization of firms and their investments to be able to achieve them and stay competitive.

Even the composition of the workforce is changing because if it was completely composed of local skilled workers, now workers arrive from outside the boundaries of the geographical

area, also from foreign countries due to the presence of multinationals. Also in this case new relationships take place and competencies and expertise are diffused and transmitted to all workers with an imitative process or through the word of mouth.

Finally, governance changed passing from entirely family-owned firms that lived closed to the firm, to the possibility for external shareholders to enter in these firms, even if family context still prevails, but the openness to external parties is strictly connected with the necessity of open mindsets of those who run firms. Having new people means having new, different ideas, improve knowledge, learn new way of managing a company and share different opinions to understand where mistakes are made or where new opportunities are present. Changing governance requires also reviewing professional competences of managers in order to renew them with a process of learning by doing next to external people, usually, coming from foreign or multinationals firms and reinforcing the culture among people in the firms and in the IDs. There is a changing in the juridical forms in which firms are becoming companies or partnerships increasing their size, as well as revenues.

Of course all these changes cannot be done alone by single firms or in single IDs, but public local institutions have to support and encourage them giving priority to competitive advantages of IDs in the globalized economy. If IDs are trying every possible improvement to survive, it is also true that collaboration and cooperation remains the ring that holds the chain connected. Without one of the two, the chain breaks and all the efforts will be useless. In the end globalization really modified and is modifying the structure and way in which firms belonging to IDs operate, creating a big place where IDs can show their abilities of producing unique goods, and in the same time enrich their knowledge, expertise, know-how and relationships thanks to the entrance of new foreign firms, together with a continuous flow of information made possible by ICT and word of mouth. The importance of IDs still remains strategically in Italy for the survival of its economy; so it's impossible to imagine a drastic change in which a local area become a cluster or an industrial center made of big, local and international firms. IDs are maintaining their roots with some adjustments that allow them to stay competitive and promote made in Italy in a broader context, no more at local one. Authors argued that IDs are a kind of economic, social and cognitive infrastructure, which promote the integration among businesses, people, and institutions. That is why public institutions have to support and encourage them, because the made in Italy is famous all over the world thanks to the daily work these firms are doing; stop helping them will cause the disappearance of Italian culture, history and art as well as a big economic crisis. Concluding globalization is affecting all the dimensions of IDs and we cannot predict how it will be in the future and if IDs will come back to their historical configuration of 60's-70's. What we

exactly know is that all the parties involved must to interact each other in a shared spirit where ideas, novelties and all the information go from one part to the other, from a global community perspective. A single piece is part of a community and community is part of a single piece, like in a puzzle where each part must balance in the perfect way to stay in equilibrium. For IDs, being part of a broader community is essential for their equilibrium in the national economy; a fragile equilibrium in which continuous changes happen without the possibility to predict them. This is the consequence of an unstable environment where ICT are evolving daily, customers constantly change their habits and uncertainty is the dominant word. Clearly, there are districts, which adapt, which survive, districts, which change their model of organization, and districts that fall into decline, even in the same sector and the same country. The evolution of a district depends to some extent on its past and therefore it is both path dependent and place specific. However, path dependence influences agents' choices, whether they are individual or public and private collective. This is also due to the fact that district's enterprises and institutions do not engage in relations exclusively on the local level: they also interact with many external subjects, and these relations can lead not only to continuous change, but also to variations in their evolutionary path.

2.3. Multinationals firms towards industrial districts

Previously I discussed the transformation that is occurring into IDs while now I want to analyze behaviors of multinationals with firms within IDs, understanding why it is important to make agreements and/or alliances with them, through a critical review of the literature. In the next chapters, I will demonstrate if the literature is describing in a correct way what is happening or not, because I will interview some firms located in a particular Italian district, which has established relationships with foreign firms. First, it is important to provide a definition of multinationals firms as affirmed by Giorgio Barba Navaretti (2004), also called multinationals enterprises (MNEs) or multinationals corporations (MNCs): "MNEs are firms that own a significant equity share, typically 50% or more, of another company henceforth subsidiary or affiliate, operating in a foreign country. A foreign firm can be defined as a subsidiary if the foreign investor controls more than 50% of the shareholder's voting power or has the right to appoint or remove a majority of the members of this enterprise's administrative, management or supervisory board. Otherwise, it can be defined as an associate enterprise if the foreign investors own between 10% and 50% of the voting shares." MNEs are growing importance in the world economy and looking at IDs they play an ambiguous role because in some cases evidence shows that thanks to them IDs survive while in other cases the presence of multinationals is contradictory causing many negative effects. However,

my interest is to understand if IDs really need them not only from a financial and economical point of views, but also from human resources, expertise and competences aspects.

It seems that MNEs are interesting in IDs because they give a high importance to the local context, especially the local know-how and that's why they invest more and more in training and learning methods in these small contexts. Each ID is peculiar for its characteristics and traditions and for multinationals, it is important to extend their knowledge base tapping into SMEs within IDs. In this way, they enrich their competences with more specific ones, learning something new, which can contribute to their entrance and success in new markets. MNEs are trying to transfer their knowledge to the districts and receive just as much to become more flexible and efficient, but mainly to exactly understand customers 'needs and solve them, also with a transformation of their strategies. Being closed to customers means a reduction in trade costs. Then, with an internal flow of knowledge, multinationals can review the strategies adopted by their business units, to better position themselves in the market. Knowledge transfers contribute to the local labor market upgrading, the evolution of international markets, bring innovative managerial models and management techniques. This is true also for firms in IDs independently if they are driving firms or not.

Most of the times local policies enhance the entrance of multinationals through specific incentives in order to help IDs to face globalization, thus all the benefits relating to knowledge are a consequence of local policies. In some cases, we can have competition among IDs to attract foreign firms, but since IDs are very different and peculiar, MNEs can really decide whether to position based on their sector and freely decide with which firms collaborate or make acquisitions, even if MNEs tend to collocate similar activities in a unique area reinforcing the district. This enables MNCs to obtain scale economies in addition to the expansion of the network for all of the firms. It is important the fact that in any case each operation and business unit remains anchor to its own firm, meaning that there is no overlapping among MNEs' activities and IDs' activities. When an acquisition happens the firm which is bought keep its own activities because it's expert on doing that and have a deep experience on that, thus it doesn't make sense for MNEs to incorporate these activities into their business units neither to cancel them for reducing costs, because there is a strong and profound art related to them. It is important to keep their operative autonomy, management and culture. Moreover, eliminating these activities could damage districts in term of image and workforce. Local small and medium firms produce not only for the domestic market but also supply inputs to MNEs in the country; this is another important aspect to consider because multinationals rely heavily on these SMEs because of the quality of their inputs. So the possibility to become larger and expand internationally will increase for SMEs which can

count on their higher value added of their goods, competences, expertise and know-how and on the other side they can benefit from the help of MNEs to enter new foreign markets, becoming know and sell their goods as well. As we can notice collaboration is important also for economic and strategic reasons; it is a win-win strategy, which up to now is functioning well. I cannot discuss the future because no one knows what is going to happen and how IDs and multinationals will react, so the present is what counts now.

In other cases, MNEs simply want to increase their product/business portfolio and so they acquire firms within IDs for their high level of specialization and differentiation of products rather than the consequence of having made in Italy goods, which reinforce the power and credibility of multinationals. As consequence of acquisition, competition in the sector in which MNEs operate, will decrease and the size of local firms will increase.

The presence of MNCs can foster public investments to improve the local infrastructure making new facilities in order to facilitate transports, communication, innovation, digitalization, education, business opportunities and new job demand. These investments are made by local public institutions together with foreign firms or with ad hoc policies in a way of modernization of IDs, without considering all the benefits that multinationals have from fiscal, taxation and legal point of views. This creates positive effects for the local context increasing labor force and giving a new image of the district in the world, maybe attracting new entrants. We all know that having an important image bring awareness and attraction and these are fundamental for the Italian economy to stay competitive.

Finally, what I have discussed for foreign firms can happen for Italian ones which are located inside IDs and are multinationals, such as Luxottica, Geox, Modenese Gastone, Marazzi, Ferrero, etc. it deals with analyzing the other side of the medals where Italian firms are multinationals firms. All the factors described above are true also for Italian firms within IDs and it happens that these firms acquire SMEs of the same district for the same reasons explained before, or that they want to undertake alliances with foreign firms which are not present in the district but located in other countries; this will lead to a more consolidated presence of made in Italy in the world in addition to the fact that in this way it's easier to enter in new markets, because Italian firms are facilitated by local foreign firms which already know the local market, so they simply act as an intermediary between Italy and the new market. For Italian firms investments are lower because they do not necessitate to build new infrastructures, facilities, subsidiaries, just marketing investments focalized on penetrating into distribution channels to sell their goods. This because, usually, where foreign firms are located the economic fabric is more developed as well as the network and

infrastructures. It is an important variable, which grant saving costs and the possibility to use them in a more focalized way through ad hoc investments in distribution channels.

In the end I can highlight the fact that the presence of MNEs create a dynamic environment inside IDs, promoting a continuous search for innovation, flexibility, adaptability, which allow IDs to evolve in different aspects, from the governance of their firms to the relationships between them and firms inside and outside them. Dynamism is also faced by foreign firms that want to enter into districts; there is a continuous movement, sometimes not easily recognizable, which gradually transforms the Italian economic fabric pushing made in Italy all over the world. Interactions and relationships reinforce each other creating value-added that is appreciated by customers but also by firms both Italian and foreign ones, because as I mentioned in the previous paragraph it's a chain/puzzle in which everything is connected and strictly related.

CHAPTER 3: CASE-STUDY OF SASSUOLO

3.1. Introduction

According to the last survey made by ISTAT in 2011, in Italy there are 141 industrial districts mainly located in the North-East of the peninsula with a number of 45 IDs, followed by the North-West with 37 IDs, the Centre with 38 and the South with 17 IDs respectively and 4 in the Sardegna island. Inside these districts, lives more than 22% of the total Italian population and they are divided into four main industrial sectors: mechanics, textile-clothing, household goods and hides, leather and footwear. The figure below shows the heterogeneous presence of IDs in Italy and this is due to historic reasons explained in the chapters before, where there were areas more attractive than others in which IDs were born and are still present, thanks to the existence of the variables illustrated by Marshall et al. in their studies. In particular we can easily recognize the presence of resources and production factors, technologies, the naissance of one or more driving companies and others that arose later as a result, the ability to reach and satisfy a specific segment of demand, a peculiar local context, competitiveness that attracted a higher number of small and medium size firms concentrated in a specific geographical area smaller than clusters, agglomeration indicated by the presence of these groups of firms positioned in different area in the North of Italy, collaboration between driving firms and the others but also between the local community and all the firms, a spirit of identity which enhanced the Made in Italy and it's fundamental for the continuity of the district whatever it is. Maybe these elements were and are more embedded in the North rather than in other parts of Italy, allowing the naissance of a higher number of IDs, each specialized in different sectors. There are other sectors in addition to the four indicated before, in which Italian IDs are specialized but of less relevance in economic terms, number of firms, presence of workforce and infrastructures or simply because these districts have their big markets outside the boundaries of the country, which represents a small fraction for selling their products. An example is given by the ceramic district located in the Emilia-Romagna region in the Centre of Italy.

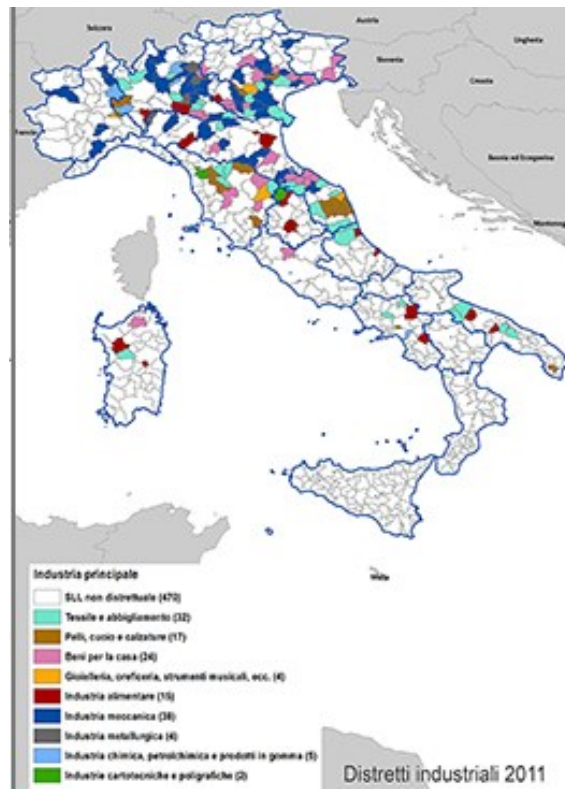


Figure 2 Italian IDs in 2011. Source: ISTAT.



Figure 3 Ceramic district in Emilia-Romagna region in Italy. Source: Confindustria Ceramica.

The ceramic district is composed of eight municipalities in the province of Modena and Reggio-Emilia: Fiorano Modenese, Formigine, Frassinoro, Sassuolo, Maranello, Prignano, Palagano and Montefiorino. Despite the presence of eight municipalities, the district is still

recognized in Italy and all over the world as the district of Sassuolo, which is the biggest municipality and where everything started.

3.2. The history of ceramics industrial districts of Sassuolo

In order to write down the history of the district I used data from Confindustria Ceramica, ACIMAC (Associazione Costruttori italiani Macchine Attrezzature per Ceramica), ISTAT, the book written in 1989 by Michael E. Porter titled “The competitive advantage of nations”, the paper written in 2016 by Francesc Xavier Molina Morales titled “the industrial district of Castellón de la Plana and Sassuolo, a historical and economic comparison” and “L’industria delle piastrelle di ceramica: dalla rapida crescita alla maturità settoriale” written by Tiziano Bursi in 1988. Another important aspect I want to stress concerns the industry of equipment and machines for ceramic, whose data are more precise and accurate from 1990, year of the first survey by the official association ACIMAC. While for the other periods, investigated data are found in different sources mentioned before.

3.2.1. The beginning

Italian ceramic is famous all around the world for its superior mechanical and aesthetic qualities. Ceramic tiles in Sassuolo born from two related industrial sectors, that of terracotta pottery and earthenware which was born in the XIII century a period in which they began to open the first shops, all family-run, and to produce terracotta objects even if, however, for the first real production of ceramic tiles we must wait until the beginning of the twentieth century. Later, in the XVI century, we can see the naissance of lathe that made clay modeling more fluid, enameling and majolica. These three innovation processes were fundamental for the creation of what will be one of the biggest ceramic districts in the world. First furnace was born in XVII century producing only bricks with local labor force while first ceramic tiles were used in the XIX century as plaques with street names, for house numbers and to decorate graves in cemeteries; this is also made possible thanks to the first furnace which started to produce ceramics. Later we can assist to a rapid growth, especially in the post-war period, when companies operating in the sector increased dramatically passing from only five firms before II World War employing 140 employees to 13 during 1940s. One of these firms was Marazzi, which will become the leader of the district in the following years. This is valid also for mechanical ceramic, the second related sector always born in Sassuolo and closest municipalities; to be more precise is this industry, which gave the basic to ceramic one to born and develops, together with the conditions I am going to explain. This industry had and has a strategic role for the evolution of the district. Continuous interrelationships between firms belonging to mechanical ceramic and ceramic tiles brought a huge number of advantages and

synergies: minor transport costs and selling costs, readiness and fastness in repairing and maintenance activities, high-skilled workforce in both industries, speediness of diffusion of innovations and information. Thanks to the abundant availability of red clay and the possibility of finding expert labor force from the areas surrounding farms, wealthy farmers and well-paid workers from the mechanical industries of the time, made it easy to accumulate money to open family businesses dedicated to the production of ceramics. There was a flow of knowledge from mechanical industries to ceramic ones, which is strictly connected for the use of machinery and equipment, this allow workers to improve their skills adding new inventions to create ad hoc equipment for ceramic industries. A peculiar reason for the flourish ceramic sector in Italy is the climate because ceramic products stay fresh when it is hot.

The presence of a big quantity of raw materials (plenty of red clay deposits and water with the two most important rivers in Italy called Secchia and Panaro along with many other small rivers situated in the region) and local labor force, which migrated from rural area to urban ones, foster the naissance of the district. Local labor force created a shared craft culture, which was transmitted through generations of high-skilled workers who gave the possibility to open more and more shops, which over the years became firms. This together with the development of transport infrastructures: railways, navigable canals, roads and later the discovery of methane gas, which is the most suitable energy source for ovens, used to cook clay, gave to Sassuolo and closer municipalities a solid base to build the most important ceramic tile district in the world. During the years technologies improved with lots of innovations and new firms were born until nowadays (in this way new external economies were born as mentioned by Alfred Marshall to highlight once again the fact that his studies are still visible into IDs) where globalization is changing the dynamics and the configuration of this district as well.

3.2.2. 1950-1960

The development of the district happened during '50s - '60s with the economic boom and the reconstruction of the Italian territory, which was destroyed after II World War. At the end of '50s when most population were moving from rural area to urbanized area, in search of new job opportunities, Sassuolo started to become an attractive city. In the small geographical space around the city, red clay and water were abundant fostering the naissance of first firms operating with ceramic. While other two types of raw materials were kaolin and white clay that were imported from Great Britain because in Sassuolo only red clay was available; white clay was more expensive but even more required from the market at that time. This brought to the raise of the related building materials industry and all other secondary industries,

important for the functioning of the primary ceramic industry. Firms producing machinery, equipment, molds, etc. started to be born next to driving firms that modeled raw materials highly present in the area to produce ceramic for different uses. High abundance of red clay and water, local labor force at lower costs, financial and economic incentives promoted by the government for the reconstruction of Italy and the already presence of five ceramic firms born before the II World War, induced a high number of firms to enter in the sector and become specialized in some parts of the production process or in some components/semi-finished products for the final products. Firms could make higher profits due to the continuous increase in demand and so the possibility to keep high prices and the fact of having lower production costs; no transport costs, no transaction costs; no communication costs as everything were made in Sassuolo and closest areas. In the district, we can find firms, which produce ceramic tiles, sanitary ceramics, refractory materials, bricks, porcelain and crockery for ornamental use and everything you need in ceramic. Each firm was specialized in producing one type of ceramic good, and this increase a lot specialization of workers inside the district. The entire district had a high level of specialization, which brings firms to be vertically integrated. Main business areas were color factories, commercial activities, consultancy services, packaging, excavation, clay processing, transport, mechanical ceramic. Closeness help a lot generations of workers to improve their skills and becoming high-skilled workers in the ceramic sector, processes and know-how were transferred through word of mouth. Ceramic is adapted for different uses thanks to its hygienic properties which are out the analysis of this work, just to say that this was another element which induced the naissance of Sassuolo district. Economic boom of those years was parallel with boom in population growth, thus new, more efficient buildings and houses were built improving life conditions and increasing the demand for ceramic. That is why ceramic tiles for floors and walls were demanded, moreover there were no entry barriers in this sector, the production process was very easy to implement and replicate and demand was so high that for satisfying it more and more firms were born. Then buildings were made of concrete, which facilitated the laying of the tiles. Initially the district was characterized for having a specific focus on the ceramic sector that is ceramic tiles for flooring and cladding. This soon became one of the first Italian markets for sales, but it was followed by foreign markets, which attracted our firms to sell their products even outside the boundaries of the country. In 1960, there were 55 firms. Foreign European markets asked for Italian ceramic because of their quality, precision, elegance and beauty, for the typical design able to adapt to different contexts for different buildings around Europe and later, with globalization, all over the world. In order to answer foreign markets' requests lots of local retail with showrooms in host countries were

born to sell the goods. From 1958 to 1961, firms doubled their sales in the internal market as well in the external one. This period was very important for the district because it was plenty of innovations, which improved over the years to better meet customers' needs and keep competitiveness of Italian firms in a globalized economy. Important innovations after II World War were mono-cottura with tunnel furnaces and first continuous production process. The first one reduced time to market of ceramic products and increased productivity of the factors while the second one allowed firms to produce in continuity without breaks, increasing total output. In these years, also the main equipment and machines for ceramics were imported from Germany, France and USA such as furnaces and presses. This import phase was important for us to produce our ceramic goods as internally there were nothing; in Sassuolo only some equipment and machines were initially born for the food industry and were readapted to use them in the ceramic industry. But these were not perfectly adapted for ceramic uses and so Sassuolo needed to import. However, thanks to high abilities, competences, flexibility, adaptability and know-how of Italian workers, in the middle of 1960 Italian firms were no more dependent from foreign markets to use equipment and machines thanks to technicians who left firms producing ceramic tiles to install their own companies of equipment and machines for ceramics. This was possible thanks to the continuous flow of knowledge among firms in the district but also learning and the imitation process which enable workers to easily copy foreign countries, increasing experience that we called cumulative knowledge.

3.2.3. 1970s

In 1970, Italian firms became leader in the world for equipment and machines for ceramics especially in furnaces and presses and a contrary trend happened: Italian firms started to export 55% of the total production into Europe and 40% worldwide. This was possible thanks to restructuration processes and modernization of firms and their processes. In fact, mechanical ceramic focused its attention on the development of primary plants such as grinding, pressing, cooking, glazing systems, selection, handling, packaging which presented high technological, financial and organizational barriers for those, which wanted to enter in the district. Next to modernization and restructuration, the rate of employment increases exponentially. In the same time, Italian market represented 23% of the world consumption followed by Germany, France and Spain. Together with equipment and machines for ceramics Italy imported also methane gas due to a shortage in the Italian territory, from Algeria and Soviet Union giving a high dependence from these two countries which had high contractual power respect of Italy, which in fact had the higher costs related to the use of methane gas: more or less 15% of the total costs incurred by firms. To face this big problem firms started to

implement new techniques such as *mono-cottura rapida*: in 1969, five firms used this method, which was still to improve. In 1972-1973 Marazzi introduced *mono-cottura rapida* with a new kind of furnace: roller furnaces. These soon started to be exported due to their smallness and lightness respects the first tunnel furnaces and *bi-cottura*. In 1973 there was a big energetic and oil crisis which hit Italy and especially the district in a dramatic way but it immediately reacted investing in innovations, in particular from the middle to the end of 1970s Italian firms started to implement systems for material handling transforming the production process of tiles from batch processing to continuous process. In this prosperous period, demand saturated creating overcapacity or excess of supply so that export increased dramatically passing from 21.7% in 1971 to 55% in 1979.

3.2.4. 1980s

The maturity phase arrived in '80s when demand started to become saturated due to the reduction of the rate of urbanization, decrease in the construction of new buildings or renovation of existing ones and the pressure for emerging markets became rigid, especially from Asia which were able to produce the same products at still lower costs. Same products for the functionalities but not for all the other aspect, as *Made in Italy* remains peculiar and of extreme importance for Sassuolo and its ceramic. In the middle of 1980, there were 200 equipment and machines firms. Only in the late 1980s firms started to open their organizational boundaries increasing investments in new processes producing other kinds of ceramic products and implement rigid internationalization strategies (up to now firms simply exported their products) through the opening of affiliates/subsidiaries. They were, in a certain sense, obliged to do that to face globalization, which hit also this industry. But the core business remains the production and selling of ceramic tiles for flooring and cladding. Besides driving firms, a high number of other small firms produce glazes, colors, paints, plants and machinery for the preparation of the mixtures, pressing, drying, firing, purification, and all the activities/instruments strictly related to the final product. So all firms are well integrated and their success all over the world is based on collaboration, flow of knowledge, trust and team spirit. Main innovation were process innovations: there were more or less 60 firms using *tripla cottura* (an artisan technique used to apply enamels, paints and metal foils on tiles creating a niche luxury final product) alongside with more automatic processes, while for the final product innovations derived from the design part: design concerning the shape, the aesthetic, the style, the colors and the capacity to adapt to different uses for indoors and outdoors. It's in this case that firms started to make collaborations with famous fashion designers and stylists due to the introduction of signed tiles by Piemme such as Valentino, Enrico Coveri, Trussardi, Versace, Biagiotti, Scott and Krizia because these last ones seen in

ceramic an expression of art and lifestyle; thus they use ceramic products to exhibit their styles, expressions, feelings and so on and consumers who follow them remained fascinated increasing the demand for ceramic products. Innovations allowed firms to reach economies of scale reducing costs and being faster in answering customers' needs. During the maturity phase, the district provided a number of elements to take into consideration for the evolution of itself in the future especially for actively acting in order to reduce possible dramatic effects of globalization and competition from other countries. Basically, it was a turbulent period in which less efficient competitors exit from the market and the strengthened ones remained. In particular, we can notice that from 1976-1985 a dramatic fall in number of firms happened due to demand saturation (from 509 to 374 firms), and parallel a reduction in employment happened in both industries inside the district (from 48,115 to 31,500 workers); but on the opposite direction production increased (255.6 to 311 million squares meters) due to high export in new markets, more business productivity thanks to innovations and automation. This downfall will reflect into a firm crisis because they initially were slow in answering market changes; firms were obliged to reconstruct their organizations but without the expected results because most of them failed and the other were not able to accept or deal with these changes. This internal reconstruction brought to a division of labor favoring relocation to foreign markets. In this case, by division of labor it is intended the fact that specialization was no more possible as we will see later because firms started to diversify their portfolios, including the opening of their organizational boundaries to foreign new markets. Then environmental issues emerge related to the production processes of firms inside the district which damage their image and push them to immediately react to not be overcome by other foreign firms as well as keeping their position in the market, thus avoiding that clients will switch in favor of other firms. In fact, most firms, if not all, invested and are still investing a lot of money to obtain quality and environmental certifications, which demonstrate their active approach in front of the environment. To surpass all these problems firms inside the district needed to implement some concrete actions based on rigid internationalization strategies. First the search for new markets was necessary to compete with new emerging markets of India and China around '80s, especially because lots of firms in the district started to close down declaring bankruptcy, but the ones which were able to enter into other markets are still alive and maintain high the competitiveness in this dynamic sector. It is in the middle of 1980s that most firms started to look new far markets in the vast American country, which up to that period was not conquered by Italian firms; in this period Marazzi found Marazzi USA, a local subsidiary that soon became the fourth American producer of ceramic tiles. Companies that became international changed their strategies producing all

types of ceramic products, thus eliminating the specialization in one particular good, which characterized firms up to the globalization. Firms increased their product portfolio, started to make acquisition of local firms and made agreements with foreign firms as well as fostering many innovations for the ceramic industry, which let them to maintain their superiority and spread Made in Italy all over the world. For defending themselves from the competition, local producers of machinery and equipment first sell their goods to ceramic firms in the district, which had the possibility to try to experiment them before using them. In addition, on the same time, ceramic firms gave their opinions to these ones to improve products to better meet the exigencies of Italian firms; this profound collaboration is vital for the entire district. In 1987, there were 355 Italian firms with four major groups: Marazzi, IRIS, Cisa-Cerdisa and Floor Gres. These four groups made some important acquisitions of other firms located in the district to strength their presence. Moreover, they were the biggest firms in the district and the ones, which invested a lot of money in R&D together with long stable relationships with equipment and machines for ceramics industry. In the end of the period Italian firms were world leader in the production and export of ceramic tiles, in particular 30% of their revenues derived from the internal market while 70% from export. The value added created was 10 billion of dollars. Concerning showrooms, there were 7600 showrooms all along Italy representing about 80% of the total sales of firms and in 1987 signed tiles represented 10% of sales. Looking at mechanical ceramic export pass from 21% in 1981 to 37% in 1985 where sources state that major export countries are located in Asia and Latin America. In 1988, the number of workers was 20,330.

It is during the maturity phase that we can really observe the definitive characteristics of an ID with driving firms and all the other SMEs both from ceramic, equipment, and machines for ceramics industries as well as from all the related minority sectors. All of these companies belonging to different industries enhanced and reinforced their relationships creating a compact network, community that it is still visible nowadays and which represents the strength of the district analyzed.

Years	Number of firms	Number of workers	Production (square meters)
1960	55	8.906	37,80
1962	115	14.000	51,50
1964	111	14.669	34,60
1966	115	15.450	78,90
1968	179	20.950	107,70
1970	316	30.550	150,00
1972	413	36.500	181,00
1973	432	40.867	214,70
1974	465	44.823	230,10
1975	485	N/A	191,60
1976	509	48.115	255,60
1977	500	N/A	263,90
1978	470	43.650	273,70
1979	470	44.650	291,00
1980	470	45.880	335,60
1981	468	43.642	339,00
1982	433	40.708	323,30
1983	413	38.000	310,00
1984	382	34.469	334,90
1985	362	31.500	311,00
1986	360	29.303	329,00
1987	355	29.500	350,00
1988	352	20.330	385,80
1989	355	30.274	434,00

Table 2 Number of firms, workers, sales revenue for the ceramic tile industry from 1960 to 1989. Source: own elaboration on data provided by Confindustria Ceramica.

3.2.5. 1990-2000

During '90s- '00s globalization brought firms to enter in two different phases: some declined while other were able to revitalize their businesses, so the dimension of the district reduced itself in term of number of firms and workers, but not in term of product produced and sold. As I will discuss later, firms which were able to face globalization adjusting their activities are still important not only at national level, where the market is not more the most important one, but also at global level where markets give more possibilities for the survival of Italian firms. National market, in fact, represents a very small fraction of the total sales of all the firms in the district. A contrary trend compared to once when it all began. Firms that declined were not able to face even the internal competition inside the district based on lower prices and costs, in which only big established firms were able to survive. Analyzing equipment and machines for ceramics in 1997, there were 182 firms, which employed 7,729 workers with

sales figures of 2.673 billion mainly derived from export in Asia, Europe (Spain among all countries) and America. For the same year, data provides 297 firms operating in the ceramic tiles with 31,487 workers employed and a total production of 572.2 million square meters, which is primary, directed to Germany, France, USA and Asia.

The district changed its configuration passing from productive decentralization to a more centralized one where vertical integration is the main strategy adopted by firms. Firms tend to build groups among them or with the presence of foreign and multinationals firms; examples are given by the Chinese company Keda that acquired the majority stock of Icf-Welko and the Spanish Kerajet, which opened the first foreign subsidiary inside the district. Basically, driving firms acquired or merged small firms. It is also true that innovations pushed firms to not hire more workers, so the number of workers reduced because what they did is now perform by machines. The district changed from an economic point of view passing from an excess of demand to an excess of supply inducing firms to change their strategies in order to face globalization and changes in consumption behaviors, where people ask for special shapes, personalized design or dedicated production processes. Main innovations in this period are: porcelain gres that is more flexible, resistant and adapted to different uses, easy to colored and porcelain gres smoothed (levigato) which is the traditional porcelain gres smoothed giving to it shine and gloss. During '90s, porcelain gres increased its volume passing from 42 million square meters in 1990 to 218 million square meters in 1999. At the beginning of 2000's digital printing on porcelain, gres was born which makes it possible to customized tiles giving a shiny effect. In the middle, we can find a printing system with silicone rollers for the automatic decoration of ceramic tiles called Rotocolor.

3.2.6. Nowadays

In the last ten years firms are concentrating their efforts on sustainability investments; they are investing a lot of money to obtain furnaces of high energetic efficiency in order to reduce smokes in the air and recover dissipated thermal energy; then firms use special machines to recover and purify waste water coming from production processes as well as to recycle waste materials.

Looking at present, we have some data provided by Confindustria Ceramica, affirming that there are 135 ceramic tile manufacturers operating in Italy in 2019 with a workforce of 19,318 employees. In 2019, there are 16 Italian-controlled companies operating outside Italy³. Owned by 9 Italian ceramic groups, these companies employed 3,133 people and produced 82 million square meters of tiles. Most of sales derive from Europe and North America. Concerning

³ Data consider only Italian-controlled companies that control the entirety of the share package or participation, provided that it exceeds 51% of the share capital.

sanitary ware there are 30 manufacturers operating in Italy in 2019 with a workforce of 2,672 people. Regarding ceramic for ornamental use, the 10 industrial-level Italian companies operating in the sector employed 655 people. Then there are 32 refractory materials producers that employed 1,734 people and finally the Italian brick and tile industry consists of 72 companies with a workforce of 3,200 employees, which mainly market, is the Italian one.

If we look deep in details to ceramic district in Emilia-Romagna region and always based on data provided by Confindustria Ceramica for 2019, among the total firms in the country, 87 of them produce ceramic tiles for flooring and cladding and are mainly situated in the province of Modena, they employed more or less 15,253 workers and are responsible for 81.35% of the total Italian ceramic tiles production. Concerning sanitary ware in Emilia-Romagna region there are 27 firms, while for the other segments nothing is stated at local level.

Some companies in the district are classified as big firms, some quoted on the exchange, with a high number of workers. Next to them there are many small firms, in most case family-owned, which provide accessory ceramic processing by hand for the big firms. These last one can be Italian or partially acquired by foreign multinationals in the next future.

Now I would like to move on the mechanical ceramic industry on which there are data provided by ACIMAC only at national level. In 2019 sales revenue is 1,730 million of euro with a reduction on both the internal and external markets which are represented by the European union with 28.8% followed by, India, Indonesia, Vietnam, Bangladesh with 14.8% all together (what they called “Altri Asia” in the survey), Africa with 12.5%, South America 10.7%, Middle East 9.7%, North America 7% and East Asia 5%. There are 141 firms testifying the continuous agglomeration process of the industry, which started in the second half of the previous decade, which employed 6,971 workers (there were 190 at the beginning of the millennium). As I said before mechanical ceramic is related with ceramic especially ceramic tile industry that represents 85% of the total revenues. For sure, this number will change due to the fact that also, this industry is unpredictable, unstable and under a continuous evolution process; this industry is directly related to the ceramic one and vice versa, so changes, which affect on sector will have impacts on the other. Following the internationalization trends there are 87 foreign firms controlled by Italian ones compare to 53 in 2011. These firms produce 362.4 million of euro of sales revenue.

TABELLA 1.1 Andamento delle principali variabili del settore dal 1990 al 2019

Anno	Numero aziende	Occupati	Var. % occupati	Fatturato totale (milioni di euro)	Var. % fatturato
1990	223	7.894	5,1	1.081	9,7
1991	227	7.706	-2,4	899	-16,8
1992	227	7.718	0,2	1.069	18,9
1993	200	7.658	-0,7	1.359	27,2
1994	225	7.953	3,8	1.547	13,8
1995	210	8.446	6,2	1.672	8,1
1996	179	8.000	-5,2	1.607	-3,9
1997	182	7.729	-3,4	1.381	-14,1
1998	178	7.160	-7,4	1.287	-6,8
1999	181	6.615	-7,6	1.292	0,4
2000	190	7.177	8,5	1.574	21,8
2001	179	6.476	-9,8	1.523	-3,2
2002	173	6.561	1,3	1.452	-4,6
2003	173	6.404	-2,4	1.402	-3,4
2004	175	6.894	7,6	1.593	13,6
2005	156	6.495	-5,8	1.777	11,5
2006	166	6.939	6,8	1.702	-4,2
2007	167	7.560	8,9	1.937	13,8
2008	167	6.849	-9,0	1.853	-4,4
2009	161	6.215	-9,3	1.283	-30,7
2010	157	6.228	0,2	1.378	7,3
2011	150	6.343	1,8	1.745	26,2
2012	151	5.973	-5,8	1.673	-4,1
2013	146	6.091	2,0	1.716	2,6
2014	152	6.203	1,8	1.836	7,0
2015	148	6.229	0,4	1.983	8,0
2016	147	6.614	6,2	2.028	2,3
2017	148	7.277	10,0	2.237	10,3
2018	143	6.905	-5,1	2.158	-3,5
2019	141	6.971	1,0	1.730	-19,8

Table 3 Number of firms, workers, sales revenue for the equipment and machines for ceramic industry in the last 30 years. Source: ACIMAC.**TABELLA 1.3 Società controllate all'estero (per una quota minima del 51%) e valore del fatturato realizzato nel settore ceramico dal 2011 al 2019**

Anno	Numero società controllate	Fatturato realizzato (milioni di euro)
2011	53	550,0
2012	50	396,2
2013	54	463,4
2014	53	500,5
2015	67	492,5
2016	67	467,2
2017	76	484,7
2018	78	475,4
2019	87	362,4

Table 4 Number of firms controlled by Italian ones with their sales revenue for the equipment and machines for ceramic industry in the last 8 years. Source: ACIMAC.

Years	Number of firms	Number of workers	Production (square meters)	Total sales revenues in euro
1990	347	31.488	446,60	2.795,58
1991	351	30.848	432,40	2.782,67
1992	N/A	N/A	434,60	2.991,32
1993	N/A	29.774	458,60	3.284,66
1994	N/A	30.778	510,20	3.766,52
1995	340	32.386	562,20	4.374,90
1996	N/A	31.507	554,40	4.200,34
1997	297	31.487	572,20	4.391,95
1998	280	31.146	588,90	4.550,51
1999	N/A	31.287	606,20	4.866,57
2000	N/A	31.368	631,80	5.227,58
2001	248	31.348	638,40	5.282,84
2002	241	30.799	605,40	5.318,62
2003	239	30.264	603,40	5.189,62
2004	228	29.817	589,20	5.344,05
2005	225	29.084	570,00	5.372,49
2006	207	28.093	568,50	5.741,57
2007	226	27.210	559,10	5.784,70
2008	195	26.364	512,50	5.516,66
2009	181	24.595	367,90	4.507,88
2010	172	23.352	387,40	4.629,40
2011	163	22.189	399,70	4.715,68
2012	159	21.355	367,20	4.581,30
2013	156	20.537	363,30	4.725,94
2014	150	19.430	381,60	4.913,54
2015	150	19.143	394,80	5.117,11
2016	147	18.956	415,90	5.417,13
2017	145	19.515	422,40	5.546,49
2018	137	19.692	415,50	5.380,86
2019	135	19.318	400,70	5.341,31

Table 5 Number of firms, workers, sales revenue for the ceramic tile industry in the last 30 years.
Source: own elaboration on data provided by Confindustria Ceramica.

Years	Number of controlled foreign firms	Total sales revenues in euro
2005	18	698,60
2006	18	875,90
2007	20	916,70
2008	20	1.005,50
2009	19	875,80
2010	20	989,70
2011	20	1.045,10
2012	20	1.195,00
2013	16	766,23
2014	16	721,50
2015	16	792,20
2016	15	862,11
2017	16	858,93
2018	16	843,09
2019	16	843,00

Table 6 Italian-controlled companies operating outside Italy with their total sales revenue.
Source: own elaboration on data provided by Confindustria Ceramica.

3.2.7. Conclusions

What studies suggest is that new big groups will appear in the following years, in which firms have high market share in the world and small firms dedicated to satisfy the needs of specific niche markets, such as luxury. In the middle, there are many firms, which represent a potential opportunity for foreign multinationals or Italian firms to be bought. The district is highly dynamic with continuous changes and evolution, the environment is very unstable and we cannot predict the trend for all the firms inside the district; what we can affirm is that the district has a huge potential to compete in the globalized world and even if firms are going to lower their presence or exit from the district, the ones that remain continue to leverage on the Made in Italy and flexibility concepts as they did up to now.

To remember is the fact that internationalization is for distribution and commercial reasons, because the entire production process remains located in Italy, in Sassuolo and closer municipalities. Concerning entry, strategies into foreign markets there are two strategies: indirect and direct export. The first one means keeping all the production process in Italy using agents or intermediaries located in foreign markets to sell goods. While the second one is made through the realization of subsidiaries in the host countries or starting new long-term relationships with local organizations present in the host country to sell the goods, so also the production process or part of it could be relocate. Indirect export is what prevailed but the opening of new subsidiaries is increasing and can be a solution for the future. The

unpredictability and instability of the market is driven also by the preference of consumers, which are dictated by fashion, which as we know is fleeting. Consumers require particular tastes and highly differentiated products. This induces to lower the product life cycle pushing firms to reinvent them more often. So what firms are promoting are the activities related to customer care and assistance to better match clients' needs with the products firms are able to offer. Particularly firms are trying to solve specific technical problems, grant fast and correct deliveries, and select precise packaging in order to protect final products from any damages, help customers to select the best ceramic products for their needs giving all the necessary details taking care of the design of the final product alongside the customer for a perfect experience.

Investments into new marketing strategies are fundamental to enter into new markets or to consolidate the presence; that's why national and international fairs and exhibitions are important for this sector as well as art exhibitions because ceramic is an ancient art. Of high relevance are seminars, conference, meetings in which architects, designers, planners, engineers and all the experts of the sector introduce new ideas and give important information about the evolution of the demand. Being always there is a big opportunity for firms to continue to operate. Moreover, new poles of research and personal training are emerging that are able to cope with the technological sophistication encountered in the sector, new collaborations with local public and private institutions are becoming more and more important, in order to keep your guard up. For the specific case of Sassuolo, universities, laboratories and local training centers collaborate with firms to enhance R&D, which is very important in this sector. According to ORTI Emilia-Romagna is the second Italian region for investments in R&D, which represent 2% of its GDP after Piedmont. Then all the eight municipalities which composed the district have joined together to form the union of common ceramics (Unione Comuni distretto ceramico) and all the firms are protected by two big Italian association: Confindustria Ceramica and Assopiastrelle with the trademark Ceramics of Italy which identify the origin of products highlighting the aesthetic value, the environmental profile of raw materials and production processes together with the rigorous control of the respect of the rights of workers. Ceramics of Italy brand represents the institutional image of the Italian ceramic industry and is a symbol of the quality and avant-garde of the made in Italy ceramic product. The brand now is used by more than 60 firms operating inside and outside the district in analysis and in particular the use of the trademark protects and disseminates the knowledge of the companies belonging to Confindustria Ceramica and the use of their products at various times, such as the presence at trade fairs, promotional and advertising campaigns, institutional participation in commercial, cultural and

image initiatives that tend to strengthen the action of individual companies on international markets. Confindustria Ceramica was born during '90s and is the association that represents, connects, informs and assists Italian companies producing ceramic tiles, refractory materials, sanitary ware, tableware and ceramics for industrial uses. The organization also includes, as aggregate partners, the Italian companies that carry out industrial activities similar or auxiliary to those mentioned above, as well as commercial companies. While Assopiastrelle is a trade association directly emanating from Confindustria Ceramica. The name stands for the national association of ceramic and refractory materials producers (Associazione Nazionale dei Produttori di Ceramica e di Materiali Refrattari) founded in 1964. The aim of Assopiastrelle is to protect the interests of the industry in the sector, offering numerous investigation, promotional, commercial, consultancy services, etc. It also deals with customs and currency legislation, international trade agreements, insurance and financing for member companies, which are more than 60 inside and outside the district in analysis. Of particular importance is the trade union activity that this implements for companies in order to protect workers and made in Italy.

Firms are opening showrooms, big places inside their headquarters to host local events, conferences, seminars, interviews, congresses, to set up exhibitions. The spirit of identity is demonstrated by the fact that initially all firms were family-owned and owners felt committed to the community and their businesses. Therefore, respect and trust are very recognizable in this district. The key force of the entire district is represented by these continuous interactions and relationships among all firms, workers, people belonging to the communities, public institutions, etc. which is very difficult, if not impossible, to imitate outside, thus permitting a huge competitive advantage of Italian firms respect to other international competitors. That is why Sassuolo remains alive and prosperous, but mainly it represents the importance of maintaining the local network in a globalized economy.

Based on that, relationships are more powerful than before to testify what I will discuss in the previous chapters that are unity is strength and in this global community, interactions and exchanges of any kind are fundamental for having success. Even the smallest discovery and the slightest change must be shared inside the district so that all firms are aware of the situation and all start from the same base to invest in R&D to find new innovative way to raise competitiveness with foreign firms.

3.3. Main innovations inside the district

Before moving to the next paragraph about the evolution of the district towards globalization, I'd like to discuss a little bit the main innovations happened during the years, analyzing how they worked and the advantages they brought to the entire district, not only for ceramic tiles' firms. According to Melissa A. Schilling in her book *Strategic Management of Technological Innovation* written in 2017, an innovation is "the practical implementation of an idea into a new device or process, which can originate from many different sources such as firms, individuals, universities, private nonprofit organizations or government-funded research". In the case of Sassuolo, initially innovations derived primarily from firms and individuals while in more recent years the others actors are engaged in this process. The author refers to the term technology clusters indicating, "regional clusters of firms that have a connection to a common technology, and may engage in buyer, supplier and complementor relationships, as well as research collaboration" (Melissa A. Schilling 2017). However, being more precise and following my work, since I am analyzing a district I cannot refer to the term technology clusters because of the differences illustrated in the first chapter between districts and clusters even if the definition can be used interchangeably. This term is strictly related to another one: technological innovation that is "the act of introducing as new device, method, or material for application to commercial or practical objectives" (Melissa A. Schilling 2017). In this case main innovations concern methods/processes innovations because they changed the way firms in the district conducts their businesses, introducing new techniques for producing ceramic goods and to allow them to stay competitive. These innovations allow firms to be more efficient and effective reducing costs, creating economies of scale and increasing the number of output produced in a superior quality, as well as being faster and closer to the market. Here the list of innovations in a chronological order. In order to describe them I used different sources of which the list is written in the references part. I am not interest in analyzing exactly technical and engineering details but what they brought from an economic and innovative point of views.

- Bi-cottura: it was the first process method implemented to produce the first ceramic tiles in the district. The name double-fired or bi-cottura derives from the production methods of this tile, which involves two distinct cooking phases. In the first phase, the support is realized. The latter is made with pressed and baked clay and takes the name of "biscuit". The biscuit can then be decorated with colored glazes and screen printing applications on the surface and then baked for the second time. Most important advantages of this technique are given by the possibility to obtain brighter, glossier tiles, with perfect definition of glazes and colors, lightness,

aesthetics, lower technical resistance, easy workability by installers and affordable costs. While the main defects are a lower resistance to wear, scratching and impact.

- Mono-cottura: it was born after the II World War and it represents the most important innovation for the industry together with roller furnaces. This new revolutionary technology was born from the attempt to cook support and glaze at the same time and obtain a tile in a single step. The idea is to be able to glaze the raw clay support and then cook this glazed raw clay support. It consists in firing the support and glaze in a single pass in special ovens at temperatures ranging between 1170 and 1200 ° C; a single firing which simultaneously produces the physical-chemical transformation of the support and the fusion and fixing of the glaze or the display case. There are numerous advantages related with this innovation:
 - cost reduction thanks to the elimination of numerous downstream and upstream phases; in particular, the stocks of biscuits being cooled are avoided and the spaces previously necessary for their storage are freed up;
 - the abbreviation of the process times;
 - greater productivity (less use of labor force);
 - greater automatic quality control;
 - A better technical quality of the products, in terms of anti-freeze, mechanical strength, wears resistance, thinness and lightness.
- Tunnel furnaces: they were the first type of furnaces implemented in the production process. They are a continuous moving ware kiln in which the clay products to be fired are passed on cars through a long horizontal tunnel. The firing of products occurs at the central part of the tunnel. The main advantages of tunnel kiln technology lay its ability to fire a wide variety of clay products, better control over the firing process and high quality of the products.
- First continuous production process: continuous production was born together with mono-cottura and tunnel furnaces and consists of a flow production method used to manufacture, produce, or process materials without interruption. Continuous production is called a continuous process or a continuous flow process because the materials, either dries bulk or fluids that are being processed is continuously in motion. Continuous processing is contrasted with batch production a method of manufacturing where the products are made as specified groups or amounts, within a time frame in which standard products are manufactured, which have large demand throughout the year. Most important advantages of this kind of production process are:

- standardized inputs and standardized sequence of operations, machine tools and equipment are used;
- division of labor is made more efficient;
- minimum and constant material handling;
- minimum cost of production per unit is possible;
- Rigid quality control is exercised together with better materials and inventory control; while in the manufacturing batch production process, the machines are in chronological order directly related to the manufacturing process. Because batch production involves small batches, it is good for quality control.
- reduced labor cost;
- high accuracy;
- Minimum wastage; on the contrary in the batch production there can be downtime between individual batches. Alternatively, if the product is constantly changing or being modified throughout the process, this also can cost downtime. These are translated into major costs and waste of time.
- Higher return on investments.

While concerning disadvantages we can find heavy loss during slack demand period, rigid maintenance and upkeep of machines, customers' tastes cannot be met as only one standard product is manufactured, difficult to adjust to new situations and specifications, special purpose machine tools are required.

- Roller furnaces: roller furnaces were introduced in 1970s by Marazzi and they provide increased high-temperature, creep, and thermal-shock and corrosion resistance. Originally, firing ceramic tiles in a chamber kiln took as long as 38 hours. This firing time was reduced to approximately 22 hours in a tunnel kiln, and then the trend of using longer rollers with increasingly smaller diameters to obtain higher thermo mechanical load capacity led to the introduction of the roller furnaces. In this type of kiln, firing times were dramatically decreased to less than one hour. There are many advantages including energy efficiency and high flexibility due to short firing cycles, dimensional accuracy, and shock resistance. All support rollers must have excellent thermal-shock resistance. Most roller kilns are operated continuously, and rollers need to be replaced for cleaning or due to failure without interrupting production. The rollers must, therefore, be able to withstand a hot change, allowing the kiln to remain at its production temperature.
- Porcelain gres: it was born in 1990s and it is inside the Sassuolo district that first experiments with new technologies and innovations which foster the naissance if

porcelain gres, which will be famous all over the world in the future. The naissance of porcelain gres was strictly connected with other innovations: wet grinding with continuous mills is established, pressing takes place with the new high tonnage machines and in firing, the new roller tunnel furnaces spread. The differences in the production of porcelain gres compared to the production of a single-fired or monocottura tile are these:

- grinding allows to obtain powders with very small particle sizes;
- the pressing of these powders is much more homogeneous and allows to obtain a constant density throughout the thickness and throughout the mold;
- cooking is controlled automatically and meticulously

These main differences allow firms to produce ceramic tiles with high level of compactness, surface hardness, resistance to mechanical stress, resistance to freeze and thaw cycles and chemical resistance. In fact, new formats and new thicknesses continue to increase the possibilities of application in new areas, to the detriment of other materials, such as especially marble and granite.

- Rotocolor: it was born in 1994 from one of the firm I am going to interview: System Ceramics. It is a printing system with silicone rollers for the automatic decoration of ceramic tiles. Rotocolor guarantees very high precision of graphic and photographic motifs, combines different decoration methods and adapts to any surface, combining it with cylinders in the various models. It is used for the deposition of a liquid phase, which can be a solution or ink, or a suspension of particles, on a flat solid surface sliding on the conveyor belt. A blade, called racla in Italian, allows the formation of a homogeneous liquid film on the surface of the roller, avoiding accumulations. The roller that transfers the liquid to the surface has a precise geometry that modulates the release of the liquid phase, allowing precise control over the surface coverage. Main advantages related to this innovation are:
 - the presence of a recovery and recirculation system for the excess liquid phase, allowing to reduce material waste;
 - it is possible to adjust all the measurement-related parameters of the tile as well as the cylinder, doctor blade (racla), and matrix settings;
 - improved printing definition;
 - complete product repeatability;
 - product recipe memorization;
 - it allows to obtain very fine decorations and shades for every type and size of ceramic;

- Rollers do not require assistance from the staff due to automation and maintain absolute precision even during long production cycles.

This innovation brought a huge advantage for the entire industry because, before it, the decoration process was based on screen printing technology using flat or cylinders screens. This method was burdensome for firms as it required the production of a set of screens for each design and replacing them when the wear was excessive; it required large batch series, which produced large material stocks. Basically, Rotocolor replaced screens with laser engraved polyethylene rollers, which transferred the design color patterns to the tiles.

- Digital printing: this innovation, born in recent years, allows firms to be able to print different sizes of tiles, selecting the width of the same. The print heads, which last much longer than a normal printer, will also be configured according to the surface effect that the tile must have: glossy, luster, matt, metallized. These devices are equipped with a conveyor belt that makes the tile slide under the inking heads, while a photocell continuously detects the thickness of the tile so that the heads always work at the right height and distance from the tile. The inks used are special glazes for high-density porcelain gres, which guarantee total stability in the different stages of production and which can be used to reproduce shades, shadows or particular colors. The introduction of the digital printer on porcelain stoneware allows a better definition of the decoration. The digital technology applied to the tile has numerous advantages, including the extreme ease of switching from one decoration (or one color) to another in an immediate and fast way, without blocking the production line. For modern ceramic companies it means ease and speed of adaptation to requests and the possibility of reducing the size of production lots. If in the past, it was necessary to produce a large quantity of product just to amortize these retooling times and costs, today companies can decorate even batches of a few meters without problems.
- Press without mold for the production of large ceramic slabs of variable thickness: It was born in 2000's and works with the classic standard atomized products, from stoneware to red, monoporous and dry ground paste and others, with a consequent reduction in industrial costs. The first moldless ceramic pressing technology for the production of large format ceramic slabs up to 1800 x 4800 mm with thicknesses ranging from 3 to 30 mm. It guarantees:
 - an increase in productivity while maintaining high quality standards,
 - maximum flexibility in format change and thickness variations without changing the belt,

- thanks to the homogeneous spreading and a progressive pressing, with atomized stop, it allows greater uniformity over the entire surface,
- better geometry of the finished product with a gauge per side,
- lower consumption of raw materials and energy,
- lower consumption of tools for grinding and lapping,
- Less waste during the grinding phase.

With this automation, industries can produce ceramic surfaces of varying thickness and in large or small batches according to the demands imposed by the market simply by adjusting the pressing module, which allows for real-time switching between sizes.

This enormously increases the number of individual items that can be obtained from each format. This approach naturally optimizes all steps in the process, from production to the end-of-line stage (sorting, packaging, storage and warehouse logistics), and makes for faster order processing and shipment.

- Large slabs: the new trend in the ceramic sector that was presented for the first time in 2015 and today is spreading more and more are the large slabs. Despite a very low thickness (6 mm) they have dimensions never seen before: the short side exceeds one meter, the long side even reaches over 3 meters. But there are many characteristics of these slabs that differ from traditional ceramic tiles: for example, their lightness and flexibility that allows them to be used in areas previously excluded from ceramics. The possibility to keep in stock only the large slabs and obtaining "just in time" all the other formats, cutting them at the time of ordering. Finally, the colors of the decoration do not change over time.
- Flat screen printing machine: screen printing as an artisanal and industrial technique has been adopted in both artistic and commercial fields since the early twentieth century. Screen printing is a technique of printing on any substrate or surface using a fabric (printing fabric), by depositing ink on a substrate through the free areas of the fabric. There are different types of machines, which adopt different solutions to carry out the various movements. Its main advantages are:
 - screen printing is particularly economical for short runs because fixed costs are extremely low,
 - in screen printing occurs not from the print form but through it,
 - the only pressure required is that required to ensure that the ink passes through the meshes of the fabric, so it is possible to print even on fragile or easily deformable materials; the print form, i.e. the frame, also acts as an inkwell, because inking does not precede printing, but is contemporary with printing,

- versatility, as it lends itself to both very short runs and very large formats and high runs, with highly automated systems,
- the ability to print on any type of support, even on fragile and absolutely non-absorbent ones, such as glass,
- The possibility of transferring very high thicknesses of ink onto the substrate, obtaining very opaque films, resistant to abrasion and light.

Subsequently major improvements were brought to this machine among them the rotary screen printing machine in 1970 where both the object to be printed and the frame are cylindrical in shape; the fabric is seamless. The ink is pumped into the frame from one end of the cylinder and kept at a constant level and viscosity. The most important feature of rotary machines, apart from the printing speed, is the possibility of giving continuous, seamless prints, particularly suitable for printing fabrics, wallpapers and the like.

- Drum grinding mill with feeding keep it going: it was born in 1984 for wet grinding of ceramic clays and glaze frits. In particular, these mills are nowadays used in the ceramics industry for preparing concentrated glazes for the production of porcelain stoneware. The productivity of the mill depends on the type and particle size distribution of the materials to be treated and, above all, on the grinding degree you wish to active. The spontaneous segregation of the milling bodies involves the following additional benefits:
 - increase of the internal milling volume of the mill,
 - reduction of the dissipated energy due to the collision of the milling bodies against the intermediary diaphragms,
 - possibility to supply the milling bodies together with the material without stopping the mill to fill-up with pebbles,
 - Thanks to the particular shape, the milling bodies are spontaneously segregated according to their size. the actual continuity of the milling process is thus ensured, guaranteeing the absolute immutability of the process parameters,
 - 15-20% increase in production,
 - 10% consumption reduction,
 - Reduction in personnel compared to previous mills.

This technology was improved in 2005 with the introduction of the continuous modular mill. In this way in a continuous modular mill, while maintaining a single point loading and unloading as in a traditional continuous mill, it is possible to have, in each module different speeds, types of grinding charge, types of internal coating. All of them are characteristics that allow optimizing the efficiency of the grinding in each single module. The last advantage is

production optimization since the production capacity is 15% higher than a traditional continuous mill of the same volume and installed power.

These innovations are all considered radical innovations because they were very different from prior existing processes/solutions used to produce ceramic goods. In particular, these radical innovations were initially new to the firms located in the district and then to the entire industry both in Italy and abroad. Alongside with them, the evolution of the district is described which is known all over the world to be one of the most innovative district in Italy and wherever the economic fabric is made of IDs. Recent data indicate that in 2018, 515 million euros have been invested in new technologies and that the average daily production per plant reaches 5 thousand square meters (ACIMAC, 2018). In order to support such production rates, the plants have reached considerable dimensions and a technological complexity that automates every stage of production. Finally, it is important to recognize that these are some of the many innovations discovered in Sassuolo, but the relevant topic is that all of them were originated by local firms. This issue, which is further developed in the following chapters, could mean that SMEs are precious for the district and the entire sector, since they invest a huge part of their amount of revenues in R&D activities which at the end forge many innovations which are not immediately neither easily copied by foreign competitors. All the innovations, in fact, are patented and competitors can only produce something similar but never equal; this contributes to increase innovativeness, competitiveness and credibility of Italian small firms located in the district that can count on a strong ceramic tile equipment manufacturing sector. These machine manufacturing firms lead the ceramic tile equipment world and are present all over the world with their innovations. (Hervas, Garrigos, Miguel, Moll 2017).

3.4. Its evolution towards the globalization

As I said before globalization hit the ceramic district as well with drastic changes inside it and inside all firms, which operate there. In particular, in this district changes are faster and more relevant and perceptible than the others. Faster because the sector analyzed is highly unstable and unpredictable while more relevant and perceptible because all changes hit all firms that adapt to them into different ways, which we can easily discover and analyze; some of them failed while others changed their structure and strategies. I will provide some real cases in the next chapters to verify how they react to globalization with a special focus on the necessity to make agreements with multinational firms or not. Firms I am going to analyze are Mohawk, Breton, Tecnema, Keda, Icf-Welko, Marazzi, Coesia and System Ceramics all born in 1900s except for Mohawk and Marazzi.

According to last data provided by ISTAT the presence of multinationals firms into Italian districts created, in 2017, 37.7% of the value added in the North-West and 25.4% in the North-East; followed by the Center with 20.5% and the South with 16.4%. On the same year, based on data provided by Rapporto ORTI (Osservatorio Relazioni Territori-Imprese) 2018, there are 13,052 companies with foreign participation in Italy; 7,337 of these are located in the North West, 2,979 in the North East, 1,958 in the Center and 778 in the South and Islands. Moreover, multinationals employed 1, 28 million of workers with an average of 98 workers per firm while turnover amounts to € 568 billion, on average € 49 million per multinational. The trend in the number of multinationals active in Italy, and in the number of employees employed and their turnover is gradually growing, if we look at the last few years. There were 11,430 companies with foreign participation active in Italy in 2009, 12,430 in 2013 and 13,052 in 2017, with a growth of 14.2% over the entire period. The number of employees, on the other hand, increased by 10.1% (from 1.16 million to 1.28 million) and the volume of turnover by 12.3% (from 506 billion to 568). Emilia-Romagna region is at fourth place for internationalization index according to the variables used by Rapporto ORTI in 2018: number of firms with foreign participation, turnover of firms with foreign participation, the volume of exports, tourists' arrivals and the tourist presences. For what concern my work I consider only the first three variables to analyze the dynamics of the district. The evolution of the district of Sassuolo described an increase presence of multinationals firms and export is the main strategy to sell ceramic products all over the world. As foreign markets are more profitable in term of sales and search for made in Italy goods, turnover is high compare to firms whose market is only at national level. The fact that the region is among the first Italian region to be internationalized means that it is perfectly aware of the potentiality of the Italian economic context, especially for IDs. The index clearly indicates that IDs and in this case the ceramic one, can compete in the globalized economy reinforcing their presence both internally and externally the boundaries of the country. Finally, as the North-East is second for IDs presence, this result in a more attractive place to invest for foreign firms, especially if the sector present higher possibilities to make profits as in the case of Sassuolo. The attractiveness is not related to the present, but has its roots in the past when ceramic district started to flourish for a high number of reasons I will discuss in few lines. These reasons give the idea of how competitive is the district and why multinationals or foreign firms continue to enter into it. Sassuolo reached its maturity phase in 1980's when the district began its revitalization path with the entrance of MNEs, primarily to face globalization. In this period, we can assist also to the emergence of some local firms as leading organizations, which the literature called homegrown MNEs. In the maturity phase MNEs benefit from the local pool of accumulated

knowledge without affording all costs of absorbing tacit knowledge about the cluster specific productive technology. MNEs may establish new relationships between their HQ and their subsidiaries where the flow of knowledge is absorbed and then insert into the MNEs' network to activate multiple knowledge flows. Alternatively, it could happen the contrary, where MNEs feed the cluster with the knowledge filtered from outside. Basically the entrance of foreign firms or the emergence of leading companies inside the district represent a positive push because MNEs influence SMEs intensifying the co-evolution in knowledge exploration and diffusion as well as a repositioning in the global market. (Belussi 2018).

In the previous paragraph, I discussed the history of Sassuolo district and I said that globalization started to produce its effects during 1980s when the district reached its maturity level and competition became rigid. In this period the district had to face rigid globalization pursuing revitalization strategy, instead of decline, even if the district innovates since the beginning and firms started to implement internationalization strategies years before. It was one of the first Italian districts, if not the first, to change its configuration to survive in the global world; its transformations happened before the others ones due to the uncertainty of the two particular industries in which firms operate. More precisely the competitive advantage of the district is given by human capital composed of entrepreneurs, workers, public institutions and local communities, which all together created strong synergies able to make the difference; this is, as I explained before, difficult if not impossible to imitate or reproduce elsewhere. Among relationships, to not forget the ones between the producers of machines for ceramic tile making and the users of those machines. Then the vast presence of artisan firms specialized in components, accessories, semi-finished products, molds, colors and everything is compulsory for making ceramic goods. To remember the existence of many small suppliers directly involved in the ceramic production process as they provide small dedicated parts, which are essential to driving firms to produce final goods. These small suppliers, mainly artisans, are high specialized with a completely internalized production process from the idea to the production passing from the development and assembly, and their survival depends on the performances of the district. It is a virtuous cycle of collaborative relations very important also for the innovation, because each time one firms found a problem of any kind, it and all the others start to work to find a solution. Only a one small stop creates a break in the entire district; so cooperation, trust and collaboration are fundamental especially in this district, highly unpredictable. This is true also for multinationals, which actively participate, to the innovation and solving problems processes. Maybe they do it for their image or economic reasons since if one part does not work all the others failed; we do not know the reasons behind the active approach of multinationals, but in any case, their approaches sometimes

represent a valid solution to problems. That is why the ceramic district is very competitive in a globalized world. Looking at financial resources, initially there were long-stable relationships between firms and Italian banks, still very strong, but now with the entrance of new foreign firms it seems that these resources are brought by multinationals because of their huge amount of investments. On the same time, there are firms, which are quoted on the stock exchange, which give them the possibility to find the resources they need. So a more open environment where new actors act differently but all aligned for the same objectives: to win the competition of emerging markets of Middle East, Asia and Latin America. Firms invest 5% of their revenues in R&D to foster and promote innovations both at process and product levels. It could seem a small amount of money, but it is not like this for these firms, which are making big efforts to survive. For sure these investments in R&D are made by all firms based on their economic possibilities; there are driving firms which invest higher amount than the smaller ones and then multinationals that are located inside the district because of its high dynamicity and the capacity to push out many innovations, some of them radical and others incremental. Most part of innovations is at process levels as stated before, so product innovations are a consequence. Innovations that derived from shared knowledge of local and new foreign firms; these last one help a lot Italian firms in the district to position themselves into foreign markets because multinationals have an established position with lots of resources to invest also in distribution channels, marketing campaigns and so on. Moreover, multinationals firms can help Italian ones to implement innovations and raise new products to position in new markets. In addition, this is fundamental for Italian firms to bring made in Italy outside the boundaries of the country. Then multinationals can help in opening labs for training people with the required skills and making collaborations with local universities / research laboratories with the ones located in the home country of multinationals. It is another way to stronger collaboration and cooperation. As I introduced before the district is entirely based on export to sell its products all over the world, in particular the 16 Italian-controlled companies owned by 9 Italian ceramic groups and 87 foreign firms in the mechanical ceramic controlled by Italian ones operate outside having as their primary markets and established relations with USA, Portugal, Spain, France, Germany, Poland, Russia and countries belonging to Altri Asia. Then there are other Italian firms, which have a minority stock participation into foreign firms, but this is important to indicate that productive internationalization within the district is continuous and will increase over the next years. Together with production, distribution and services are the other two important aspects of internationalization and this is in line with the high investments made by Italian firms to stay competitive. Precisely firms can create joint-venture in the initial part of the value chain that

is extraction of raw materials, create local warehouses to increase the service to local distribution, open new subsidiaries or showrooms to directly sell the products and establish many partnerships with local companies experienced in sales consultancy services to increase the number of sales. Another advantage is that Italian ceramic and mechanical ceramic is not only for upper scale markets such as luxury but also even for lower scale, with many products for different uses and willingness to pay. That is differentiation of their product portfolio together with market one. In this specific case, the strategy pursued is differentiation, not cost leadership because Italian products can count on precision, accuracy and refinement. Therefore, the price is high. Differentiation, as we know, brings high value added for customers. To face competition from emerging market, European Union imposed tariffs on the import of their products and this helps a lot Italian firms. The presence of multinationals lower transportation costs of our products because they can open showroom in host countries or even subsidiaries to replicate the production process for producing ceramic goods. Alternatively, multinationals, with their facilitations, transport Italian products at lower costs all over the world.

For Sassuolo district, internationalization means the ability to understand and assimilate the strategies of competitors, increasingly oversee distant markets with direct investments, increase the size of the company and continue to feed the virtuous process that binds ceramic tile manufacturers and production line builders. In this way, the district is not more a production site but a research and distribution site as well.

What is holding back the further revitalization of the district is the high cost of energy, one of the first raw materials used in the production processes for ceramic in high quantity, the lower dimension of the Italian market in which possibilities of expansions are closed to zero and generational changes inside firms which are a critical topic for all firms, not only the ones located in the district analyzed. As I mentioned in the second chapter, globalization requires opening mindset of people who run companies, thus the fact of having primarily family-owned firms represents a limit, a weakness that must be passed accepting new external investors. Path dependence is unfortunately a radical phenomenon for all companies along with lack of management knowledge that is why firms have difficulties in changing their organizational models nowadays or are unable to bring innovative changes to caught environmental changes and accept the entrance of external investors with more competences. In the Sassuolo district, unfortunately, this phenomenon is more present than in others ones because of the history and the relationships between communities and business men, I cited previously. As consequence firms are reluctant to change their juridical forms into partnerships or companies (*società di persone o di capitali*), only big ones do that. This also

means that most firms do not increase in size, and they adapt their production capacity helping each other. If a sudden increase in demand will happen, they all agree to produce at their maximum capacity, while if a sudden decrease in demand will happen they divide the total amount of demand for each, avoiding that some firms will have to fail. This is collaboration vital for the entire district. A part from these important weaknesses, basically, what I listed in the second chapter as main elements to introduce to face globalization, they are visible also inside the district of Sassuolo. Firms still continue to operate with local high specialized small suppliers, are expanding their product and market portfolios thanks to many investments in innovative business models with the use of ICT systems, they are strengthening the importance of the community and network concepts and finally in this district, more than in other, the leading role played by driving firms. Globally the ceramic district seems to have an internal self-adjusting mechanism through the changes in relationships within firms and local community; this is important to tempt the entrance of foreign firms to make collaborations of any kind and reduce weaknesses of Italian firms.

Analyzing this district what generally it is stated respect IDs and globalization, can be easily applied and recognized at micro level focusing the attention to one district. Here the effects of globalization are not only real and concrete, but also profound; firms had to change rapidly their strategies to stay alive and compete, faster than others, because of the characteristics of the ceramic district. Of course, changes are still in place and researchers and scholars are studying the phenomenon, so in the future there will be other transformations; but one true thing is that firms were able to adapt rapidly to answer market needs indicating that if you want you can do it. If really firms want to survive, they must be flexible and stay united, especially in the Italian economic context made of IDs. Sassuolo like no other before showed how relations, collaborations, cooperation, trust and reliability are key forces for a district; so we cannot exclude that this could be implemented by other IDs in the Italian economy to face globalization.

CHAPTER 4: MNEs AND SMEs OPERATING IN SASSUOLO

4.1. Introduction

In this chapter, I am going to provide evidence of what analyzed before, introducing and discussing some real case studies of firms operating in Sassuolo. In particular, I decided to focus my attention on some of the most important M&A (mergers and acquisitions) which are occurring inside the district between foreign MNEs and local firms or between Italian firms operating both inside and outside the district. M&A⁴ is a way to implement an external growth strategy by firms, and it is used to describe the consolidation of companies or assets through various types of financial transaction, including mergers, acquisitions, consolidations, tender offers, purchase of assets, and management acquisition (Hayes 2020). A merger is a combination of two or more companies in which the assets and liabilities of the selling firm are absorbed by the buying firm. Although the buying firm may be considerably different organization after the merger, it retains its original identity (Sherman 2018). An acquisition is the purchase of an asset such as plant, a division, or even an entire company (Sherman 2018). Generally, the purpose of acquisition's is acquiring another business to fulfill several of a company's needs, such as expanding its product line, gaining access to distribution channels and achieving competitive economies of scale. (Barringer, Ireland 2019)

The cases I will provide you are examples of acquisitions.

In each case, the discussion will focus on ceramic tile producers, equipment, and machine for ceramic producers in order to compare the two industries, which are strictly connected. On the same time, the analysis wants to stress the major issues related to globalization and its effects inside the district as well as showing evidence of what scholars, researchers, authors and experts said, until now, about the evolution of IDs towards globalization and the presence of MNEs and their effects, discussed in chapters 2 and 3. Regarding this last point, the discussion will try to provide some important aspects to take into consideration in answering to two crucial questions: Do Italian industrial districts really need the presence of MNEs to face globalization? How are seen MNEs from an economic point of view and which are their real effects into the Italian economy?

4.2. Methodology

In order to deepen my knowledge of the relationships between MNEs and IDs and to provide the necessary elements to try to answer to the questions mentioned before, I used a classical methodology followed by most of researchers in this field. Looking at present data and

⁴ There are four types of external growth strategies: M&A, licensing, strategic alliances and joint venture, franchising.

reading the literature about this topic, it is easy to note the evidence of still numerous misunderstanding among experts, with different opinions and results, which do not show a unique and precise answer. So first I listed the firms under investigation searching for the ones which are reacting to globalization through M&A, allowing for the revitalization of the district, that are KEDA, ICF-WELKO, MOHAWK, MARAZZI, BRETON-TECNEMA GROUP, SYSTEM CERAMICS and COESIA GROUP. For each of them I provided a company overview with a particular focus on the ceramic business unit in the case of different market segments served. I interviewed the firms under analysis following a guideline (see **Appendix A**) and then I made an assertive discussion comparing the theory with the facts provided by each case. The interviews were made at the turn of the two years in the months of December and January. Finally, I made a comparative analysis among all the firms discussed, to arrive a conclusion and so try to help in answering to this big topic. In order to develop this task, I used data and information provided from companies' websites, interviews and some papers of which the list is written in the references part.

4.3. KEDA and ICF-WELKO

4.3.1. Companies overview

About KEDA industrial group co., ltd.: It is private MNEs, which were established in 1992, and since 2002, it is quoted on Shanghai Exchange. Its vision is composed of two statements: "Green solution, greener life" with the logo "Innovate infinitely". The company adheres to the core business concept that "innovation never ends", adheres to the innovative development path of "promoting enterprise prosperity with scientific and technological progress" and "reaching" from "science and technology", and attaches great importance to the forward-looking and sustainable technology and product research and development. As the industry leader, the Company has multi-level R&D and cooperation platforms such as "National Certified Enterprise Technology Center", "National Engineering Technology Center", "Postdoctoral Research Station" and "Academician Studio", which have accumulated significant technical reserves for the company's product R&D. At the same time, the company attaches great importance to the protection of technology and patents, actively participating in the formulation of national and industry standards.

The company mainly covers the production and sales of building materials machinery and overseas construction ceramics, along with clean energy & environmental protection, lithium battery materials, hydraulic pumps, fluid machinery and other seed business. The business includes building ceramic machinery, wall machinery, stone machinery, etc., of which building ceramic machinery is the main part, and the core products include press machines,

kilns, grinding equipment, etc. Concerning ceramic sector, after 27 years of innovative development, KEDA had realized the localization of ceramics machinery, and successfully completed its transformation from single equipment supplier to ceramic complete plant engineering supplier. The main market for its core businesses is China, which represents 70% of the company sales. In fact, since the 1980s, China's ceramic machinery and equipment industry has gradually expanded its market share from completely relying on imports, to simply imitating production, to independent R&D and innovation in the late 1990s.

Later on, since 2016, the company has further expanded overseas to the downstream construction ceramic industry, and laid out the ceramic tile market in developing countries such as India and Africa. India is the second market for the company in term of sales; there, since 2015, Keda has started to build local subsidiaries in India to improve a series of supporting businesses in the local market, such as the whole line scheme, accessories and consumables sales, equipment maintenance and renovation, production raw material supply and after-sales service, bringing more timely, professional and comprehensive high-quality services. While concerning Africa, because of the capacity of domestic building ceramics is difficult to meet the local demand, African ceramic tile imports account for 11% of the world's total imports, becoming the third largest import area of ceramic tiles in the world. That is why Keda invested money in Africa as well, but the investments there were primarily to train people and then to open new subsidiaries which up to now are four: Ghana, Kenya, Tanzania and Senegal. In recent years, the rapid urbanization process and the growing population of African countries have become increasingly contradictory to their lack of infrastructure. By the way, Keda will continue to invest in Africa and for the future, the plans are rich of other collaborations in Asia, especially in China since it is the most attractive market for its business, together with a growing market; Chinese are becoming richer and demand of ceramic tiles is increasing. As consequence, the need for machinery and equipment is increasing.

Finally, in 2018 Keda decided to expand its markets portfolio adding Europe, with the acquisition of 60% of the Italian firm Icf-Welko, for a value of 16.8 million of euro; this is a small firm with a large market abroad, mainly in Europe (about 85% of sales revenue come from export). Thus with this acquisition Keda put its roots and starts a consolidation position into the European market. In addition, before coming to Italy it was strong in Turkey.

After the acquisition, Keda not only bring important financial resource to Icf-Welko but it acquired its clients, know-how and mainly the most important thing that is the expertise of technicians. The acquisition wanted to mix the Italian and Chinese know how which is different for different machines. Even in this case there is a crucial difference among Italian

and Chinese markets: the first one is mainly concentrated on high quality, technology and flexibility while the second one on quantity. In fact, ceramic tile in China and Asia are of lower market scale even if trends show that customers' needs are changing through more sophisticated products.

Nowadays: The HQ is located in the East of China. KEDA owned more than 50 subsidiaries all over the world and its products had been sold to more than 50 countries and regions.

It is the only enterprise in China that can provide the whole factory and whole line equipment of building ceramics. Then Chinese are investing a lot on circular economy and in particular, from the reuse of ceramic waste to produce cobblestones (sanpietrini) made with broken tiles for the pavement of streets. This could be a future market for Chinese.



Figure 4 KEDA Worldwide. Source: company website.

Financial and economic data: The company realized CNY 7,232.670 million yuan in sales revenue (900 million of euro) and an operating income of CNY 6,422.4233 million yuan (about 800 million of euro), in particular the building ceramics business achieved an operating income of CNY 1,061 million yuan (about 130 million of euro), a year-on-year increase of 31.27%, mainly due to the full release of the second-phase capacity of the subsidiary Keda Kenya and the launch of the subsidiary Twyford Senegal. The 2019 annual export volume of China's ceramic tiles reached 770 million square meters, down 8.45% year-on-years. It realized a net profit of CNY 229.3966 million yuan (about 28 million of euro). Current employees in the parent company are 2,047 while current employees in the main subsidiaries are 2,875 for a total number of current employees 4,922.

KEDA realized a total R&D investment 27,488.43 (about 3 million of euro) which represents 4.28% of the total R&D investment to operating income with 648 employees involved in R&D activities. In 2019, the company's group had applied for 2,696 patents.

Awards: In 2019 by virtue of its strong innovation and R&D capabilities, the Company won the honors such as the “Top 500 Chinese Enterprises in Patent”, “China Ceramic Technology Innovation Award”, and the “tribute and innovation enterprise” for 40 years of reform and opening up, demonstrating its professional strength.

About Icf-Welko S.p.a.: It was established in 2007, backed by the long experience of two historical Italian industrial automation companies, united in a single business project: ICF Industrie Cibec born in 1973, leading manufacturer of plants for the preparation of ceramic bodies and machinery for the food and chemical-pharmaceutical industries, and Welko born in 1959, a manufacturer of presses and kilns for the ceramic industry. Its vision is based on four cornerstones: listening to the customer, coming up with reliable solutions, building production plants adapted and adaptable to any context, obtaining performance and results. A young brand comes from afar. With a long history in the industry and experience acquired on world markets, Icf-Welko has always been tied to the ceramic industry, for which it makes plants tailored to all specific needs. The company supplies complete production lines for the ceramic industry. Icf-Welko is one of the main national players in the design, production and installation of machinery for the ceramic, food and cookware sectors. Icf-Welko, in fact, can count on an enormous expertise and solid knowledge developed over the years in the field of machinery. In 2018, the company was sold to Keda because of generational change, which is affecting most Italian firms in IDs, and because it was incurring in a crisis because other bigger Italian players (Sacmi and System Ceramics) are eating all market.

Nowadays: The HQ is located in Maranello, in the center of Italy. Icf-Welko is all over the world with its installations: Europe, Africa, Middle East, Russia and Asia; it offers complete industrial plants, single modules to extend already existing plants and specialized and customized consultancy.

Financial and economic data: The company is a SME with 59 employees and 30,910 million of euro of sales revenue with more than 80% of export.

4.4. MOHAWK and MARAZZI

4.4.1. Companies overview

About MOHAWK Industries Inc.: Mohawk Industries is the world's largest flooring company. It is a market leader in all flooring categories, including both hard and soft surfaces and

residential and commercial applications. Its operations are vertically integrated from design through manufacturing and distribution, benefiting both its customers and its business through operational efficiencies, product innovation and industry-leading service. The company vision is “it’s essential”. It was born in 1920 with two main businesses in moquette and laminate, went public in 1992 on the New York Stock Exchange, and completed twelve soft surface acquisitions by 2000, with sales growing tenfold during that time. Among all the acquisitions, in 2013, Mohawk acquired the Italian Marazzi adding new operations in Italy, Spain, Russia and the U.S.

Mohawk bought Marazzi for approximately \$1.5 billion with a combination of cash and equity, giving Mohawk the leading position in worldwide ceramic tile. At that time, the Italian company had about sales revenues for 858 million of euro. The purpose of the operation was the desire to strengthen the presence of the American group in the United States, Russia and Europe. The union with Mohawk was a great development opportunity for Marazzi. This acquisition was a further step in the global expansion of Mohawk's business and will make Mohawk a stronger company. It has many opportunities to improve results by leveraging best practices, operational expertise, and product innovation and production assets. Mohawk brought financial resources and manufacturing expertise. Mohawk found Marazzi attractive because of its solid management team and leadership positions in the U.S., Russia and Europe; the management team has deep bench strength and shared values and, once integrated, looks to enhance businesses by exchanging best practices. In fact, Marazzi has the number one position in the Russian ceramic market, which is similar in size to the United States and is very profitable. About 50% of the Marazzi Russian business is sold directly to end users, and the retail advertising done by the stores has created a strong consumer brand. The Italian brand name is very important and this was enriched thanks to the fact that indirectly Mohawk bought Ragno Ceramics which was part of Marazzi and Emilgroup in 2017, was completely acquired by Mohawk itself. Particularly on April 2017, the Company completed its purchase of Emilceramica S.r.l (“Emilgroup”), a ceramic company in Italy to extend its leadership in the European ceramic market; at that moment, the company has 150 million of euro of sales revenues, 90% of which is realized abroad, with about 500 workers. The total value of the acquisition was \$186,099. The Emilgroup acquisition will enhance the company’s cost position and strengthen its combined brand and distribution in Europe. Emilgroup is present in more than 70 countries with 5,500 points of sale. In some strategic areas, its international vocation is reaffirmed and strengthened with the work of specifically dedicated divisions. To promptly satisfy requests from four continents, Emilgroup is present with five branches that operate in full synergy with the Italian headquarters:

Emil Germany, covering the German market; Emil America, serving the North American market with four distribution hubs located throughout the country and a dedicated sales team; Emil Asia, based in Hong Kong to serve the Asian market; Emil Russia and Emil India complete the international presence of Emilgroup. (Emilgroup website)

Mohawk has three business segments:

- global ceramic where it is the largest manufacturer, distributor and marketer of ceramic tile and natural stone in the world;
- flooring North America where it is one of the largest suppliers of premium carpet, rugs, laminate, sheet vinyl, luxury vinyl tile and wood flooring in North America;
- Flooring Rest of World where it is one of the largest suppliers outside of North America of premium laminate, sheet vinyl, carpet, wood and luxury vinyl tile flooring. European product line also includes roofing systems, insulation panels and other wood boards for the construction, cabinet and furniture markets.

Nowadays: The HQ is located in Calhoun, Georgia (USA). It sells its products in more than 170 countries all over the world and it has manufacturing operations in 19 countries all over the world thanks to 45 acquisitions made since its foundation. Its leading market position is divided as this:

- United States – Ceramic Tile, Carpet, Laminate, Luxury Vinyl Tile, Stone, Rugs, Sheet Vinyl, Wood, Countertops
- Europe – Ceramic Tile, Laminate, Luxury Vinyl Tile, Sheet Vinyl
- Russia – Ceramic Tile, Laminate, Sheet Vinyl
- Australia/New Zealand – Carpet, Laminate, Luxury Vinyl Tile
- Brazil – Ceramic

Mohawk will expect to continue the growth in Russia by expanding company owned and franchised stores, other distribution channels and increasing our geographic reach. This is demonstrating by the fact that the company, in order to better serve the Russian market, has opened a domestic sheet vinyl plant using its industry-leading technology and European design to create products with superior visuals and durability. The plant is performing well, and Mohawk will continue to improve its processes and cost position as its volume increases.

The firm is now actively expanding its customer base to support higher production levels, and it has built an experienced sales team that is driving growth by leveraging the relationships nurtured by its other Russian businesses. Apart from Russia, the company is leading the premium markets in laminate in Europe and the U.S. To support its increasing carpet tile production, Mohawk is developing a commercial sales force that provides the European architect and design. Mohawk is the biggest producer in the USA and in the world. However,

even if it is the biggest producer in the world it has only 2% of the whole world market because of Chinese producers. That is why Mohawk is looking for other opportunities through acquisitions all over the world in particular India, Asia, Africa and Brazil.



Figure 5 MOHAWK Worldwide. Source: company website.

Financial and economic data: The company had annual net sales in 2019 of \$10.0 billion. Approximately 60% of this amount was generated by sales in the United States and approximately 40% was generated by sales outside the United States. The company relies on a combination of patent, copyright, trademark and trade secret laws to protect its interests. As of the end of 2019, the company employed approximately 41,800 persons all over the world. Net earnings attributable to the company were \$744.2 million, for 2019. For the same year, concerning the global ceramic segment net sales were \$ 3,631 million. It has patents for a value of 254,483 thousand dollars.

Awards: Thanks to its engagement in sustainability, Mohawk was awarded in 2018 with “Leadership award George bandy JR.”, “Green step practice/ process award recover program” and in 2017, it received the “Top Green Companies Mohawk Industries”.

About Marazzi Group S.r.l: Marazzi is a global leader in ceramic tile with worldwide brand recognition, which was founded in 1935 at Sassuolo and managed by Filippo Marazzi, Sr. and his family. It is present in more than 140 countries, universally recognized as synonymous

with quality ceramic tiles, and symbolizes the best of Italian style and manufacturing in the interior decoration and design sector. Marazzi has been responsible for the main technological, process and design innovations in the ceramic tile industry. Marazzi was among the first fifth Italian companies to be born in Sassuolo, before the I World War, which experienced a huge growth until the first years of the last decade. This growth was possible thanks to the many innovations cited previously, in the company overview, which rendered it pioneer in the district as well as in the ceramic tile sector all over the world. Being the leader gave it the potential to implement an aggressive development strategy through many acquisitions inside the district, among them Ragno Ceramics in 1989, which is now a brand of the company, and the opening of subsidiaries in strategic markets such as USA, Spain, China, Japan and Russia. In 1989, it acquired Ragno Ceramics for a commercial strategy to penetrate in the German market. They were direct competitors and Ragno Ceramics main revenues came from Germany where Marazzi was weak. Therefore, with the acquisition Marazzi increased its market share in Europe. Marazzi was able to become one of the few Italian MNEs in the world.

In 2006 Marazzi was initially acquired by a UK private equity fund from the family; Marazzi' equity portfolio was held by the Marazzi family and two private equity funds, Permira and Private Equity Partners. Later in 2013, it was completely acquired by the American Mohawk Industries Inc. because among its five subsidiaries (see figure 6), the Italian one was losing money due to much costs in term of buildings, equipment not more efficient. Thus for surviving the only chance was to find money, capital resources.

In the last five years, after the acquisition, Marazzi has doubled production capacity in its Italian plants, reconstructed the historic Sassuolo factories and research laboratories, and renovated its headquarters with new offices and the new showroom.

Marazzi's differentiated products; leading-edge design, efficient manufacturing and exemplary service have created one of the most valued brands in the industry. Marazzi operates a unique model that optimizes its total supply chain from manufacturing to distribution to retail. Marazzi operates two manufacturing sites and 21 regional distribution centers. Marazzi owns and franchises more than 300 retail stores that carry only Marazzi products. Marazzi has rationalized its capacity to align with the market and is implementing new strategies to enhance its sales in the region and adjacent countries. Improvements have been made that enhanced the manufacturing efficiency, quality and sales effectiveness. Additional investments are planned to further reduce manufacturing cost, increase sales and expand the design capabilities. All these positive effects because now, after the acquisition, it is making money. The combination of Mohawk and Marazzi creates opportunities to expand

U.S. distribution through service centers and other channels, source ceramic from our worldwide assets, utilize Mohawk relationships to expand all product categories and deploy leading innovation and design trends to all of the ceramic businesses around the globe.

Nowadays: Marazzi Group is part of Mohawk Industries, Inc., the world's largest flooring manufacturer, a multinational company listed on the New York Stock Exchange. The company has five HQ all over the world: Italy, Spain, USA, China and Japan.



Figure 6 MARAZZI GROUP Worldwide. Source: company website.

Financial and economic data: Today Marazzi can count, in addition to dozens of technological patents, on highly sophisticated systems, capable of guaranteeing, in addition to high levels of productivity and quality, considerable production flexibility, which allows production to be varied quickly according to the trends of the various markets. The Group has an internal research and development team, comprised of approximately 60 employees in the aggregate, divided into separate teams for each business unit. The Group's research and development team works alongside universities and institutes, and participates in projects. Globally it employs around 6,300 people with sales revenue of about 1 billion of euro of which 80% comes from export. Among its innovations in 1950 it invented tunnel kilns, in 1974 it patented the revolutionary rapid single-firing process, in 1975 it introduced the first example of large-sized tile (60*60cm), in 1985 it introduced the ENDURO technology where tiles are glazed halfway along the kiln, in 2007 it invested Casiglie an innovative production

cycle with continuous, highly flexible process to improve ceramic slabs' geometrical precision, in 2010 it patented SistemA crystalized stoneware together with the creation of the first lightweight wall.

Awards: In 2005 won the prestigious “ceramic tiles of Italy design competition for the commercial architecture category”, in 2011 it received “honorable mention by the Italian design association Compasso d’Oro awards”, in 2015 it won “the second ceramic design award by the Italian design association”, in 2016 the company won “the best category by archiproducts design award” followed by the second award in the same category the year ahead. In 2019, the company won “Crogiolo Lume awards by the archiproducts design award”.

4.5. BRETON-TECNEMA GROUP

4.5.1. Companies overview

About Breton S.p.a.: It was founded in 1963 by Marcello Toncelli. Breton Spa is a world leader in the production of machines for working natural stone, metals and systems for composite stone. Breton also produces the famous Bretonstone®, Bretonterastone® and Bretonstone Cement® plants for the manufacture of “Natural stone surface by Breton Technology” composite stones and lines for polishing porcelain stoneware. In the 1990s, Breton entered the sector of high-speed numerical control machining centers, becoming one of the important world players in a few years. Some machines were patented and this permit to the company to become the market leader in the stone industry but today competition is increasing. Its vision is based on research and development, ongoing improvement, innovation and high-quality products and services. After the founder's death in 2003, control of the company passed to his sons, Luca and Dario Toncelli.

Over the years, the company has grown and established itself on the market thanks to its philosophy of research, continuous improvement, innovation and the quality of its products / services. Breton machining centers are recognized for their high technological level, superior production performance, innovative solutions and the undisputed quality of the product / service system offered to customers. Breton has developed a complete range of machining centers capable of satisfying all requests in the following industrial sectors: aerospace, defense, aeronautics, automotive, naval, racing, gears, energy, molds, modeling and prototyping automotive and naval, manufacturing industry in kind. Breton machining centers are designed to work the following materials: aluminum, steel, titanium, special alloys, composites. After the first business unit of natural stone & ceramics in 1963, in 1975 Breton added the engineered stone plants, in 1994 the third business unit of machine tools and in

2012 Lapitec. Breton has set up a company that produces in the Vedelago area in the province of Treviso (Veneto, Italy), which produces large slabs of synthetic stone. The production process is similar to ceramic but reproduces a natural product in a ceramic version, that is, the veins of the slab cross the entire mass, not only on the surface. This is produced in large sheets of 5 square meters using a 180 meter long kiln. For Breton it is an avant-garde product because there is no one in the world who can mass-produce synthetic stone slabs of such dimensions. They sell it all over the world; it has its competitors imitating it with similar processes. Recently, in 2000's a series of acquisitions took place.

First, to enter the field of processing machines for natural stone wire cutting machine (macchina da taglio a filo), historically made by Breton with blade, but then diamond wire cutting machines came out (macchina da taglio a filo diamantato) and Breton never developed this technology. Therefore, Breton Spa has acquired Bidese Impianti in 2011, a leading company in the production of diamond wire machines for sawing blocks of granite and marble. Bidese was a small company from Veneto that was producing machines for cutting granite with diamond wire. Breton did not own this machining technology. The acquisition has allowed Breton to further develop much more modern machines. Multi wire machine for cutting slabs from blocks. The most complex, numerically controlled, single-wire machine for the cutting of architectural elements. The synergy between the successful projects and the unrivaled know-how of Bidese Impianti with the high technical and design capacity of Breton and the excellence of its after-sales service make Breton diamond wire machines the best machines available on the market today. Thanks to Bidese Impianti, Breton holds by far the record for the number of multi wire machines installed in the world.

Following the internationalization process in the ceramic sector, Breton acquired Tecnema in 2019, a small company located in Emilia Romagna region that is producing machines and plants for processing ceramics and bricks based on dry machine technology. Breton did not own this types machining technology: until 2019, it produced only wet machines. The acquisition has allowed Breton to further develop much more modern machines and just released new dry squaring machine for ceramic tiles and slabs. Under development a new generation of dry cutting, incision and crushing machine.

Nowadays: The HQ is located in Castello di Godego, in the North-East of Italy. It has 7 foreign branches and 21 authorized workshop all over the world. It focuses on four business units:

- machines and plants for processing natural stone, marble, granite and quartz
- machines and plants for processing ceramics
- machines and plants for engineered stone manufacturing

- machine tools division.

Breton offers the most complete range of machines and systems to carry out all industrial processing of marble, granite and natural stone: from the sawing of blocks to the finishing and packaging of products. Today Breton is the only manufacturer producing the four-machine line to process the stone from cutting the blocks to the end. Overall, they are the biggest player but in many machines, competition is stronger. Quartz in the engineering stone plant gives to the company an oligopolistic, monopolistic position because 90% of quartz surface kitchen are made with Breton plants (more than 100 machines a year).



Figure 7 BRETON Worldwide. Source: company website.

Financial and economic data: The company has an annual turnover of 200 million euros of which 85% derived from export. It employed more than 900 workers of which 160 are employed in R&D activities. The company has 350 registered patents. It invests 5% of its annual revenues in R&D. The company invents the way of polish slabs of marble, granite, and kitchens with quartz tops. Last R&D project is on numerical control machine of single wired machine for architectural complex elements. In fact in most building any blocks has a different geometry where architects design everything and clients need special machines to cut the slabs, which are in 3D shape, not flat.

Awards: It won the “Annual awards for the most innovative project” in 2019 and in 2012 the “Windows Embedded Partner Excellence Award”.

About Tecnema S.r.l.: It was founded in 1989 on the ceramic tiles cutting machines business. The company designs, produces and tests machineries and complete lines for the manufacturing of ceramic tiles, natural stones and bricks industry, its vision is “provide

innovation to the industry by designing advancing technologies for our clients". It produces single machines and /or complex plants for satisfying market needs in the ceramic sector. The company serves three markets segments: ceramics, which are the main clients, ceramic laboratories that are subcontractors who work for ceramics and small resellers/ distributors of tiles. When it was born its main market was Italian (70% of sales came from Italy and 30% from export), but nowadays the trend is the opposite. Tecnema was born as innovative firm as it provided machines for cutting special pieces (pezzi speciali) which represent the core business of the firm. Pezzi speciali are pieces that are cut or derived from ceramics. In the decoration, there are not only the finished tiles but also small pieces that derive from ceramic and Tecnema was the first to invent these machines to reduce the tiles into sub-formats, creating a sort of new market. Tecnema's limit was the least developed commercial network, which over time could have put the company into a crisis; so it was acquired in 2019 by the Italian MNE Breton, of which it became a brand. Tecnema had sales revenues of 5.5 million euros at the time of incorporation. With the acquisition, it expands its market share by exploiting the more capillary Breton network. Moreover, Breton was supplying some machines called wet machines for ceramic, and in last twenty years the ceramic moves a lot to dry machines (so no water) and Tecnema was a small company producing machines for that type of industry and Breton decide to participate. As consequence competitiveness and innovation have increased, there is a know-how that was not there before with more skills, new markets, and internal cost synergies, strength on the market, different products, and commercial synergies with the existing sales network. The Tecnema brand remains because it has value thanks to its experience and has potential for Breton.

Nowadays: The HQ is located in Maranello, in the center of Italy. Now it is a Breton trademark, after its incorporation in 2019, with more than 1.000 different clients all around the world.

Financial and economic data: The company is a SME with 25 employees and about 8 million of euro of sales revenues.

4.6. SYSTEM CERAMICS and COESIA GROUP

4.6.1. Companies overview

About System Ceramics S.p.a.: It was founded in 1969 by Mr. Franco Stefani, has marked deep changes in the history of ceramic production, thus revolutionizing the entire production sector, introducing new industrial standards. Its vision is based on respect, ethics, interdependence, the pursuit of excellence, customer satisfaction, orientation towards results and change, innovation. The core business is the design of automations for the ceramic

industry, of which, several times, it has revolutionized the production processes with a multidisciplinary approach that embraces precision mechanics, electronics, information technology, physics, and chemistry. System is a world leader in process innovation. It has created new and revolutionary technologies for ceramics, electronics, logistics and packaging. It changed world standards and showed new possible horizons. The most relevant innovations are:

- the flat screen printing machine with pneumatic activation
- the first rotatory screen printing machine
- the first electronic equipment to control flatness
- the equipment to control sizes with photodiode arrays
- the first sorting line with temporary accumulators
- the first automatic packaging of boxes of finished products, flat die-cuts
- the storage system for mobile tray and carriage tiles
- the first tile sorting machine for tiles, equipped with rotating stackers
- the dynamic palletizing robot with a controlled grip
- the suction cup storage with automatic exclusion of valves for incomplete levels
- the silicone roller printing system for the automatic decoration of ceramic tiles
- plants for the production of ceramic slabs up to 1600*4800cm and thickness from 3 to 30mm
- the automatic system for quality control
- the sorting line with real-time packaging
- the digital printer for ceramic
- the mold less press for the production of ceramic slabs in great sizes: up to 1800*4800 and thickness from 3 to 30 mm.

In 2019, the company was partially sold to Coesia Group for 60%. Coesia is a Group of innovation-based industrial and packaging solutions companies operating globally. Coesia companies are leaders in the sectors of advanced automated machinery and packaging materials, industrial process solutions and precision gears. Coesia customers are leading players in a broad range of industries, including Aerospace, Ceramics, Consumer Goods, Electronics, Healthcare, Luxury Goods, Pharmaceutical, Racing & Automotive and Tobacco.

Nowadays: The HQ is located at Fiorano Modenese, a municipality of Emilia-Romagna region, in the center of Italy, closed to Sassuolo. System Ceramics, a company of Coesia Group, is an international leader in the development of process systems for the ceramics industry. The company has rejuvenated ceramic production, revolutionizing the entire

production sector by introducing new industrial standards concerning pressing, decoration, sorting and quality control, enhancing the line also with solutions for storage, palletization and handling inside a ceramic plant. System Ceramics designs and produces process systems for the ceramic tile industry worldwide. It has reached and maintains a position of leadership in the market through constant investments in research and development, in the various departments of the company that develop innovative and avant-garde technological solutions. Strategic business units have been set up in System Ceramics to optimize synergies and different market interests:

- System Electronics, technology center for the design and production of electronic products.
- System Digital, is the business unit dedicated to digital printing applications on glass and other non-ceramic materials.
- Tosilab studies trends to design projects bringing out the best of surfaces in ceramics, marble, stone, wood, leather, fabrics and more.
- Studio 1 designs and develops complete automatic machines and systems for various industrial sectors.
- Nuova Era designs and manufactures ceramic technologies dedicated to the handling and storage of raw or cooked tiles, oven entry and exit lines, dryers.

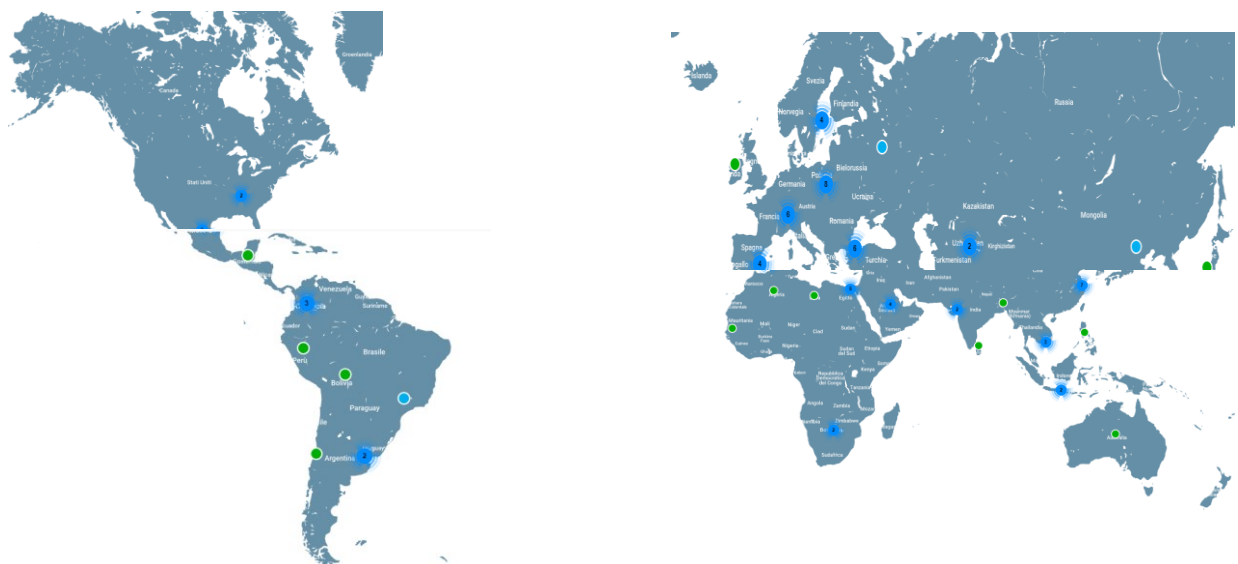


Figure 8 SYSTEM CERAMICS Worldwide. Source: company website.

Financial and economic data: System ceramics, at date 2019, is present in 25 countries with 36 subsidiaries, has sales revenues of 228,758 million euros, an export share of 85% and about 1,200 employees worldwide. 5% of total sales revenue are invested

each year in R&D (10-15 million of euro) testify to a strong drive for perfection and excellence. It has more than 200 registered patents.

Awards: It won the “M&A Award” in 2019, in 2018 “Science and Technology Innovation” and the “Tecnargilla Design Award”, in 2014 the “Mundo Cerâmico Award”.

About Coesia Group S.p.a.: Coesia Group was created around G.D, a motorcycle production company founded in 1923 and taken over by Enzo Seragnoli at the end of the 1930s. Its vision is based on four values: respect, responsibility, knowledge and passion. Later the company shifted its focus to packaging, mainly for the confectionery and soap sectors. During 1960's The G.D. brand achieved global success and the company became a world leader in the highly automated industrial machinery sector. It entered the tobacco sector becoming the outright leader in the sector. From the early 1980s, the holding has diversified production by acquisition of CIMA, ACMA, GDM and VOLPAK. Since 2002, the group has been fully owned by Isabella Seragnoli. In 2005, the holding was renamed Coesia. Subsequent acquisitions added even more strength to the group: HAPA, LAETUS, ADMV, CITUS, KALIX, NORDEN and SACMO.

In 2011, Coesia began to accelerate its diversification by acquiring FLEXLINK, a leader in factory automation, and strengthened its own position in the tobacco sector by taking over SASIB; in 2012 was Oystar North America, the packaging machines for food and consumer goods leader in North America; in 2013, Coesia acquired IPI, a company specialized in the aseptic packaging of liquid products in multilayer structure. In 2016, the acquisition of EMMECI, global leader in automatic machinery for premium and luxury goods packaging, was concluded. In the same year, Coesia acquired GF, a provider of sterilization equipment, filling solution & inspection technology for the pharmaceutical industry. In 2017, Coesia successfully completed the acquisition of MOLINS and CERULEAN, two worldwide leaders in the Tobacco industry to enhance the product portfolio in the packaging and instrumentation markets. In September MGS became part of the Group as leading provider of packaging automated machinery and equipment for the life science-pharma, food, personal care and cosmetics markets. In 2018 Coesia has consolidated its presence in digital printing solutions with the acquisitions of ATLANTIC ZEISER and TRITRON. In October Coesia has completed the acquisition of COMAS, leading provider of primary equipment and processing lines for the Tobacco industry. In January 2019, Coesia has completed the acquisition of SYSTEM CERAMICS entering into the technologically advanced and dynamic market of tile manufacturing machinery, where SYSTEM is a leader.

In between of this huge number of acquisitions, in 2012 the company founded the Coesia Engineering center (CEC), with the important purpose to assist the Group Companies in strategical projects with high innovation content. The Coesia commitment to R&D is evident from its history. Today, it is continuing to make significant investments in the future, through the Coesia Engineering Center, cooperating with customers and leading technology institutes.

Nowadays: The HQ is located in Bologna. Coesia is a private Group and a worldwide leader in innovation-based industrial and packaging solutions, fully owned by Isabella Seragnoli. Coesia companies are leaders in the sectors of:

- Advanced automated machinery and packaging materials
- Industrial process solutions
- Precision gears

Coesia customers are leading players in a broad range of industries, including Aerospace, Ceramics, Consumer Goods, Electronics, Healthcare, Luxury Goods, Pharmaceutical, Racing & Automotive and Tobacco. It is present in 35 countries all over the world with 21 companies in the group and 83 production plants and 135 operating units.



Figure 9 COESIA GROUP Worldwide. Source: company website.

Financial and economic data: In 2019, the company has sales revenues of 1,958 million of euro with 8519 employees worldwide. It invests about 9% of its sales revenues into R&D employing 1,690 people in Engineering and R&D. It has 1.190 patents.

4.7. MNEs and the consequences of their presence: the evidence from the interviews

To introduce this last part, I need to focus on the key point regarding multinationals firms towards industrial districts presented in chapter 2 and discuss theory with the evidence

provided by interviews I made to confirm or reject what the literature on this field suggests. It is important to notice that my work wants to contribute in answering to this big topic, but I cannot provide a unique relevant theory since a more precise and accurate vision must be developed with many other interviews and statistical frameworks. In order to develop this paragraph, I used the term MNEs to refer to foreign multinationals or firms with HQ outside the district.

When referring to the entrance of MNEs into districts, there is a predominant view in the literature, in line with what was initially proposed by Marshall: MNEs are often attracted to clusters in order to gain access to their external economies, in particular is not just a simple way to reach economies of scale or to cut internal costs but it is a way to participate to a process of local learning (Belussi, Cháfer, Morales, Bordanova 2019). However, the impact on districts as a whole has not been broadly analyzed (Holm, Malmberg, & Sölvell, 2003).

When referring to the life cycle of districts and the entrance of MNEs authors identified that all along the entire cycle MNEs can enter and in each of the stage (naissance, development, maturity, revitalization/decline) the purposes for the entrance are different and what I am interested here is to analyze when and why MNEs enter in the maturity phase of districts. In some cases, MNEs enter or emerge in the local cluster in one of the subsequent phases of its life cycle (Belussi, Caloffi, Sedita 2013). Based on the history, in fact, most of MNEs companies starting to enter or born in Sassuolo during its maturity phase, which happened during 1990's. With the term "born in Sassuolo", I refer to homegrown MNEs in districts that are formed when small firms invest strategic resources in innovation and expansion and progressively transform themselves into MNEs (Belussi, Caloffi, Sedita 2013). At this stage, literature identified several reasons/explanations of entrance of MNEs.

4.7.1. External growth strategy: M&A

In order to extend their market portfolio, MNEs can develop a flow of M&A (Belussi, Cháfer, Morales, Bordanova 2019) and this is what it seems to happen in Sassuolo thanks to both foreign and local companies which merge or made important acquisitions with the intent to pass from a partially acquired company to a total acquisition in all cases analyzed. Keda declared

"Keda acquired 20 firms in China and it is going to acquire many other alliances in China in the equipment and machinery for ceramic, because in Europe the market is smaller than Asia. The company has time until the end of the year to discuss about the total acquisition of Icf-Welko, but we hope in a positive reply for both parties involved, because Icf-Welko represents an

important strategic decision for Keda, which can open us to the European market through its commercial activities all around Europe. Thus, it can allow Keda to increase its business portfolio. The investment is a step to enter in Europe and sell to Europeans even if it remains a secondary market, not the main one. Since 2018, the company has gradually set foot in the European high-end construction machinery market by setting up subsidiaries in Luxembourg and acquiring 60% equity of Italian ceramic machinery enterprise Welko, so as to combine China's cost advantage with European technology, and establish European design, and meanwhile, has set up a design center in Europe to realize European design and European manufacturing, bring the Company's core products to the high-end market through the channels of high-end brands, and promote the upgrading of the overall technology and brand image".

"In 1989 it acquired Ragno Ceramics for a commercial strategy to penetrate in the market. They were direct competitors and ragno main revenues came from Germany where Marazzi was weak. So, Marazzi increase its market share in Europe". (Mohawk interview)

On the same way, Breton acquired immediately 100% of Tecnema in 2019

"Since the beginning of 2020 Tecnema is 100% Breton becoming a division of Breton ...So we realized that acquiring the technology would take years of R&D and Bidese came forward and because they were in trouble and so they acquired it. Always to acquire knowledge that we did not have.

Breton has always been there, except that unlike the stone, the plants that produce ceramics are more particular, so we realized over time that our knowledge was not enough and therefore we had to enter the district with that type of products and technology but with someone who had already had experience in the sector and therefore acquired Tecnema.

Breton was interested in the ceramic sector and they acquired Tecnema instead of investing years to enter the sector". (Breton interview)

"A few months after selling 60% of System's ceramic business to Coesia through the new company System Ceramics, Franco Stefani has now sold Laminam, the company set up in 2001 and a global market leader in the field of large ceramic surfaces. The purchaser is Alpha Private Equity Fund 7, which has acquired control of Laminam Spa (and its subsidiaries Laminam Russia, Laminam USA Inc., Laminam China and Laminam Service) from the

Stefani family and Alberto Selmi. And before, in 2016, 60% of System Logistics had been sold to the German multinational Kronos based in Neutraubling in Bavaria, which specializes in packaging and bottling systems. The value of the transaction was around 250 million euros.” (System Ceramics interview)

Among interviews, Coesia Group is the best example of M&A as external growth strategy. The company, in fact, is composed of more than 20 companies completely or partially owned as stated in the overview part.

“As part of the agreement, the senior management of Coesia and System have agreed mutual purchase and sale options for the remaining 40% of the capital, to be exercised in future years according to set terms.” (Coesia interview)

In the last 10 years, there have been more than 30 transactions of M&A inside the district (Belussi, Cháfer, Morales, Bordanova 2019).

Sassuolo is reacting to globalization through M&A mainly with foreign companies coming from other countries where the ceramic industry is growing. The number of transactions in the last ten years clearly indicates that the district need to implement this kind of strategy to grow in term of market share, as well as the importance it had and continue to have for the entire global ceramic industry. If most innovations were born in Sassuolo, from the equipment and machines for ceramic companies, means that this district is crucial in determining the evolution of the sector. Therefore, in my opinion, more and more foreign firms are going to establish strategic alliances with Italian firms. The evidence suggests that they prefer to incur into M&A and not in any other type of alliances. Implementing M&A provide the possibility to combine in a single transaction different kind of resources directly pushing firms in a more global context, and so to give them the ability to survive and exploit their strengths.

On the opposite homegrown MNEs invest in foreign FDI or/and are investing in global supply chains (Belussi, Cháfer, Morales, Bordanova 2019) and in this case it is too early to made conclusions, since firms located in Sassuolo are expanding abroad their activities through outward FDI or through an increase export. In the first case, there are Marazzi, Breton and System Ceramics, which have opened foreign subsidiaries all over the world, while most companies still use indirect export and maybe these are the ones, which can implement an internationalization process in the following years. Concerning equipment and machinery for ceramic, data provided by ACIMAC indicate that in 2019 72.9% of total revenues are exported abroad of which 85% is realized from the selling to ceramic tiles producers.

“Synergies outside the district because Breton is Venetian, Sassuolo is the district of the world”. (Tecnema interview)

“Yes, we have three branches in China for example, one is manufacturing and two distributives; they are located in Zibo where there is a ceramic district, Foshan where there is the largest ceramic district in China, Suzhou; the choice isn't influenced by the closeness of Keda, but they are centered on our clients. In the US, we are in Nashville (Tennessee), Atlanta and Dallas, nothing to do with Mohawk. US market will grow in the next 20 years. We have a unit also a San Paolo in Brazil and one in the second ceramic district of the world that is Castellón; it is our first branch.” (System Ceramics interview)

Since the district has started to internationalize in recent years, firms still prefer to use indirect export to sell their products, but in the long term, we cannot exclude the opening of new subsidiaries through outward FDI, especially among bigger firms. If a flow of outward FDI will occur this can give to Sassuolo a relevant position in the global market, showing that Italian companies have the potentialities to become large firms in term of size, sales revenues and market share. Implementing FDI can also attract foreign firms inside the district, enhancing the capabilities of Italian SMEs and we cannot exclude that this flow can be implemented into other geographical areas of the country.

The investments in M&A make market more competitive, eroding monopoly power of local firms. As technological knowledge is geographically concentrated, MNEs could locate their plants in knowledge-intensive areas to acquire new technologies and skills (Navaretti, Venables 2004).

“A critical way that we are capturing market opportunity is through acquisitions. Since 2013, Mohawk has invested \$4.4 billion in 20 acquisitions, and in this time, we have developed a core competency in acquiring and successfully integrating premier flooring companies around the world. By the way, we can think that after this big acquisition, Mohawk creates a kind of monopoly power in the sector, but it is not like this. The market will not be more concentrated; it is a very fragmented market in which the producers' leaders are Chinese by far. Mohawk is the biggest producer in the USA and in the world. However, even if it is the biggest producer in the world it has only 2% of the whole world market because of Chinese producers. That's why Mohawk is looking for other opportunities through acquisitions all over the world in particular India, Asia, Africa and Brazil.” (Mohawk interview)

“This technology is new for us, we work with them and we are developing a mixing of our capacity of engineering with their knowledge and we are developing a new family of machines. We think that by the end of next year to have a new generation of lines to produce slabs, squared, finished slabs to industry making floors. How to make this ceramic squared? (squadatrice). After cutting, we need slabs with proper geometry and it is necessary to finish with squaring machine. Perfect size is needed. Prepare the company of a transition between stone and to ceramic to compete in new challenging technology that is why we acquired Technema.” (Breton interview)

“System's trend of opening branches does not stop. Where there will be a ceramic pole there will be system. My primary commitment is to guarantee the continuity of local manufacturing excellence in order to strengthen our leadership in the world market and create jobs. As ever, our goal is to be the global brand leader in the production of large ceramic surfaces and to exploit all the opportunities offered by this new market.” (System Ceramics interview)

Ceramic industry is very fragmented, especially with the entrance of emerging countries. I think this is good to keep high competition and push firms to invest more and more in new technologies. Therefore, the industry remains competitive without the presence of monopolistic companies, and this is important for keeping firms alive, not closed on their boundaries. It is important to always look for new opportunities. Sassuolo in the last years saw the dominance of three firms: Sacmi, System Ceramics and Marazzi but the entrance of MNEs could move firms to think to implement other M&A; moreover, the presence of foreign companies brought the district to open its boundaries and these MNEs can directly compete with the three Italian leaders in the district. In my personal view, this is positive for both since having a monopoly or oligopolistic power don't promote innovative activities which over time can stuck companies pushing them to fail.

MNEs are exerting in managing M&A searching for the right partner all over the world. For what concern ceramic sector Sassuolo is the best partner to make alliances. The district is pioneer in innovations for the sector, is a reservoir of knowledge, synonymous of high quality and is looking for strategies to become of global relevance. All these elements induce the district to be under the lenses of many foreign companies in the ceramic industry.

At the opposite small and medium-sized, enterprises have no financial resources to manage alliances, but they prefer to invest money into innovative activities. SMEs in

Sassuolo were and are pioneer in fostering innovations for the entire sector investing 5% of their revenues in R&D (Rapporto ORTI 2018) which is then turn into innovations thanks to the experience and know-how of Italian workers. All of them, along their history, did not manage alliances, but are directly involved into acquisition processes, which allow the renaissance and reposition of local firms in the global market. In all the case analyzed, in fact, acquisitions made possible the entrance of Italian firms in the global context. We cannot say anything about the future but the cases suggest that the trend is going to continue where local Italian firms must undertake M&A with MNEs to survive and especially foster their innovative activities. Due to financial constraints and closed mindsets, local Italian firms are not interesting in making alliances but preferred to invest in R&D activities. All the innovations born in the district and listed in chapter 3 were promoted by local firms with their own resources. Looking at financial statements of the firms interviewed they all invest 5% of their sales revenues in R&D and this let the district to continue to be the leader in innovation activities, thus attracting foreign MNEs which, instead, invest their money in strategies to growth.

4.7.2. The presence of a collaboration network

The entry of a MNE will not produce significant alterations, but only a positive push (Belussi, Cháfer, Morales, Bordanova 2019) because MNEs will probably influence the local SMEs through the co-evolution in knowledge exploration and diffusion (Belussi, Cháfer, Morales, Bordanova 2019) and this is demonstrated by continuous interrelations and interactions between companies (both MNEs and SMEs) and local communities; in particular we will see how this knowledge primarily derived from SMEs which are acquired by MNEs that can help them to exploit and implement the knowledge into concrete innovations. Sassuolo is one of the most innovative Italian districts and this is possible thanks to financial resources brought by multinationals to local firms which use them to apply their knowledge and capabilities, in order to stay competitive and have success in the globalized world. Interactions between the strategies of multinationals enterprises, particularly in the areas of knowledge generation and absorption, and the functioning of districts (Rugman, Verbeke 2003) are fundamental for the district. On the other side, MNEs transfer their main knowledge: how to implement a well-structured distribution channel to sell the products. This aspect is fundamental for Italian firms to build or reinforce their distribution channels all over the world in order to sell their products, thus increasing their presence abroad. This is supported by what Keda said about

“We need to put plant where there is market to win. The presence of MNEs in the district is helpful to internationalize. Keda will produce only in Sassuolo, where the best of technicians are”.

According to Marazzi *“The imitation is not more sufficient to compete, firms need technological products and mainly after sales services.”*

“Now we feel part of the district, we make highly appreciated quality systems and machines. To be members of the district, the acquisition of Tecnema was enough for us. You have to be in Sassuolo to be able to operate in the sector, nothing is done from outside. Therefore, with the acquisition, more competitiveness and a business sector have entered, which has developed a sector in which we did not exist. Either you are a large company with millions of square meters of tiles or you make niche products like us, and customized products, special machines with different processes than others”. (Breton interview)

MNEs invest lot of money in making M&A transactions, providing financial resources, which Italian firms do not have, but on exchange, they want to acquire and absorb the knowledge. Multinationals investments in the district have a unique primary role: looking for and acquire knowledge. In order to do that they engage SMEs to share and transfer information, knowledge outside their organizational boundaries fostering the naissance of new crucial relationships, which are vital to innovate.

Some authors have identified that the dominance of external MNEs may lead to a path of dependency on the local subsidiaries and decisions that are no longer attached to the territory (Belussi, Cháfer, Morales, Bordanova 2019) and this theory seemed not to be confirmed by the interviews I made because despite acquisitions companies continue to keep their organizational autonomy because the acquisition is made to absorb local knowledge and not to change, modify the structure of the district.

Mohawk declared

“We are perfectly aware of what does it mean to be part of a district, and that is why the company doesn’t want to destroy it because it is vital for the entire ceramic industry, for its innovations, knowledge, expertise and we think it still has a lot to give for the industry. When we buy something, we try to let it as it is. Mohawk has to learn from the district. We continue to run businesses in a decentralized fashion, encouraging entrepreneurial, hands-on leadership by the management teams closest to each market.”

“To date, the Maranello office is active The Tecnema brand remains because it has value thanks to its experience and has potential for Breton.”
(Tecnema interview)

“Acquisition of synergies, know-how and no movement of products because we have kept the production structure in Sassuolo. Leaving the skills there where they are, it is useless to take, buy and move the area, because then the skills leave you, they do not follow you. We preferred to leave the design and everything there.” (Breton interview)

“I am very pleased that Coesia can partner with System, certain that both groups can further develop together the industrial policy and entrepreneurial culture which will enhance industrial excellence in our territory and region both with continued investment in competences, technologies and supplier network and with the objective of a common growth to make Bologna and Fiorano, already centers of outstanding quality, an example of fine mechanics and tile manufacturing machinery, recognized as unique at worldwide level.....The synergy between business and territory has grown because of a distinctive sense of responsibility, a cultural inheritance from the Seragnoli family.”(Coesia interview)

Therefore, I have found no evidence of decisions implemented by MNEs that are no longer attached to the territory, but on the country, the intent is to maintain the district as it is an important source of knowledge and innovations. MNEs declared they want to invest in Sassuolo to easily enter in the European market and absorb local knowledge.

“Keda was interested in acquiring a firm from the districts, because the most intelligent strategy to enter a territory is to acquire a firm, its clients, its logistic nets, its post selling services”. (Keda interview)

“For sure there are synergies for Mohawk and local firms between producer of technology and tiles. Mohawk’s businesses share best practices across the globe, importing and exporting ideas between regions to explore new ways to drive top-line sales and profitable growth.” (Mohawk interview)

This issue is arguably discussed because of not clear evidence. In my opinion, it is not convenient for multinationals to change the configuration of the district implementing decisions not more attached to the territory. If, for example, they decide to close down firms inside the district to delocalized, they cannot benefit anymore from knowledge, which is available only in Sassuolo. In addition, we saw that acquire and absorb this knowledge is the

main goal of MNEs. It is a kind of contradiction. Then if MNEs decided to invest in Sassuolo it means that this can grant high profitability if cooperation and relationships tighten among firms. Moreover, reputation is also crucial, because being in the district allow MNEs to increase their reputation in the ceramic industry, which is translated in more revenues. Having a good brand name nowadays is one of the marketing strategies to increase engagement and then sell products.

4.7.3. A concrete example of upgrading of SMEs

MNEs entry has contributed to foster local development and upgrading, helping district firms to overcome the constraints of their local dimension. Multinationals' entry benefited the district with financial resources and with direct access to the world market demands. MNEs investments into the districts have produced positive externalities in term of higher reputation and visibility that the local system has acquired worldwide (Belussi, Sammarra 2005). In fact, Tecnema upgrade its position becoming a trademark of Breton entering in new markets while Breton, since it is a company established outside the district, has acquired Tecnema to increase its reputation and thus visibility in their field.

“Competitiveness and innovation have increased; there is a know-how that was not there before with more skills, new markets, and internal cost synergies, strength on the market, different products, and commercial synergies with the existing sales network. The Tecnema brand remains because it has value thanks to its experience and has potential for Breton.” (Tecnema interview)

“The strength of system is the quality of the machine; the service we are able to give to customers. 26 branches around the world means that at any time of day you can guarantee a technical intervention almost just in time, and this can only be done if you are structured” (System Ceramics interview)

This upgrading activity is also possible through both collaborations that can enable a firm to obtain necessary skills or resources more quickly than developing them in-house and cooperation focused on R&D projects (Morales, Estevan, Lucio 2008). Collaboration and cooperation happened among companies without engaging external actors such as laboratories or universities. Companies favor their internal R&D departments with a continuous comparison between different business units. Obtaining some of the necessary resources or capabilities from a partner rather than building them in-house can help a firm reduce its asset commitment and enhance flexibility. Collaboration with partners can be an important source of learning for the firm. Close contact with other firms can facilitate both the transfer of knowledge between firms and the creation of new knowledge that individual firms could not

have created alone. Large firms might form alliances with small firms in order to take a limited stake in the smaller firm's development efforts, while small firms might form alliances with large firms to tap the larger firm's greater capital resources, distribution and marketing capabilities, or credibility (Schilling 2017).

“Breton with machines that derive from the stone sector, they were already used to working slabs with stone and hence the strategic acquisition of Tecnema to try and enter the ceramic sector, beyond stone. Breton has the technologies for stone, but not for ceramics....Combining financial resources and Tecnema know-how with the aim of entering the ceramic sector and competing with Sacmi and System Ceramics. Tecnema was not in a crisis of any kind. Synergies outside the district because Breton is Venetian, it is the district of the world... Movement of workers between the two companies.”(Tecnema interview)

“The type, the quality, the service we give is fundamental. We are the ones who give more security, respect the regulations, give spare parts, give technical assistance we are always on the hunt for other technologies, perhaps also used in other sectors to be used in ceramics. System hunts for existing technologies because it is simpler and then adapts them and brings them into our world. Model based on the innovative company. We do the research, we work with universities, we have European and Italian funded projects. Today when we talk about systems, we think of technology, innovation, solutions. We have an internal research and development center where about 30 people work. Building entirely dedicated to research and development with cutting-edge tools. We are precursors. One of the few sectors in which Italians are leaders.”
(System Ceramics interview)

“At Coesia, each company has its own R&D center with industry-specific competencies. Each R&D center customizes its machines and processes, thus encouraging personal development and employees' commitment. Projects are reviewed by the central staff to reinforce synergies and optimize costs. In this way, all companies interact and cooperate constantly, enabling development of common approaches and sharing of specific technological know-how... Many of our companies support public health and medical science institutions, as well as non-profit organizations specializing in social integration, scientific research, education and human sciences.”(Coesia interview)

Another goal of M&A is to directly acquire technologies, which required years of R&D to be developed internally, spending lot of money, which, instead, can be spent to implement other strategic decisions. As I said before Italian SMEs are pioneer in innovations and it does not make sense for multinationals try to imitate them, with the risk of failure. They prefer to acquire something that already exist and which is made by firms with high knowledge on the field. In fact, generally there is low intervention in business processes and innovative activities by MNEs (Belussi, Cháfer, Morales, Bordanova 2019). This aspect is completely true as foreign MNEs let local firms their autonomy without modifying their processes neither participating in the innovative activities which most of times derive from SMEs, not from MNEs. More than 20 innovations have been successfully implemented in the last 50 years in Sassuolo (Belussi, Chafer, Morales, Bordanova 2019). System Ceramics, Sacmi and Marazzi are pioneer, which made some of the most important innovations, listed in the third chapter not only inside the district but also for the entire ceramic sector. These innovations were made before the acquisitions and this maybe identify the fact that Italian companies are able to innovate and stay alive, but when globalization hit Italian economic fabric, SMEs need a boost to ensure their positions and competitiveness level.

“Competitiveness and innovation have increased”. (Tecnema interview)

“The investments made by multinationals have brought a wave of innovation into the district because if they make a product as beautiful as ours, but cheaper, you have to try to understand where they are more efficient than you.”
(Keda interview)

“Stefani was exploring new technologies in other sectors. He was hunting around. Innovation is not cooperative. It is developed in our firm. We have links with universities. Italians are leaders China will not contribute to the global innovation in the future. We do not acquire the know-how from abroad. We export our know-how in the various branches, working also with local staff.” (System Ceramics interview)

As I said before R&D activities characterize Italian SMEs in the district and even after the acquisitions, processes these innovations remained patented by Italian firms. Therefore, the knowledge, the creativity to innovate is purely Italian. We can think that when a firm is acquired by a foreign one, it is not more Italian. This is not true, since the foreign firms always keep the Italian brand name and innovations cannot change inventor/owner. Only financial resources come from foreign firms but all the rest remain as it is. An exception is

made of System-Coesia, which are two homegrown MNEs both focused on innovations on their respective fields of business.

4.7.4. The importance of asset sourcing

MNEs entry can be more tactical: knowledge is first absorbed and then inserted in the MNE network (Belussi, Cháfer, Morales, Bordanova 2019). Often foreign direct investment by MNEs increasingly takes the form of knowledge seeking or strategic asset seeking investment, whereby the MNE attempts to augment its knowledge base through obtaining access to foreign pools of knowledge (Rugman, Verbeke 2003). The concept of absorptive capacity has been defined as a firm's ability to identify, assimilate and exploit knowledge from the environment. Identification of external knowledge refers to the capacity of a company to locate and acquire external knowledge that is critical for its activity (Langa, Morales, Miquel 2015). The MNE is now simultaneously a knowledge generator and a knowledge seeker, and it is necessary to carefully identify the organizational characteristics of its involvement in localized or trans-border districts (Rugman, Verbeke 2003).

Foreign firms are able to absorb the knowledge from the district and then use it into their networks. Keda provides an example, which wants to mix the made in China with the made in Italy acquiring the Italian know-how and export them outside the district, because Italian technicians are high-skilled workers in the customer care field.

“We do not have much production abroad, everything is in Fiorano, our branches are assembling and building the machinery imported from Italy in the plants of our clients”. (System Ceramics interview)

“This acquisition represents an important strategic step for Coesia. System Ceramics provides an opportunity for Coesia to enter into the technologically advanced and dynamic market of tile manufacturing machinery, where System is a leader with unparalleled record for innovation. Coesia, through its worldwide infrastructure and portfolio of technologies, is fully committed to supporting System Ceramics' growth and technology leadership. The ceramic business of System Ceramics S.p.a., on the other hand, has solid competences in electronics, software and digital which are of great value to the business of Coesia.”(Coesia interview)

“Sassuolo has more competencies at machinery level, experiences, availability of technicians, know-how, facilities present here. Plant engineering of high quality is born in Sassuolo and this attracted Keda, while in Spain, at Castellón de la Plana, firms only produce ceramic tiles. Who buy machinery

arrive in Italy. With the acquisition, Keda can make synergies and produce for the local market in China. Keda invested in Sassuolo to absorb knowledge. High quality plant engineering is purchased in Italy, while simple components are produced directly in China. The acquisition will allow us to produce machinery for the Italian and European markets in the future with its plant engineering. We made this investment for absorbing the knowledge in the district, thus creating synergies between Italian and Chinese know-how. If the Chinese want to sell to European markets, they have to improve the quality and for this reason, they have entered our district.

For example, in the last years Keda has absorbed the new technologies of Sassuolo (large size tiles), and has initiated to produce 1, 8-meter x 3 meters' size, coping the machinery of Sacmi and System Ceramics". (Keda interview)

On the other side, Breton acquired the knowledge of Tecnema in order to increase its reputation and consequently its competitiveness in the sector; the deep knowledge of Tecnema's workers is fundamental for Breton to face globalization and develop new highly innovative machinery.

"...such as dry processing without the need for liquid waste. Tecnema did it, with a patent that made us agree to the Tecnema acquisition. Tecnema has invented dry cutting with great savings because there are no costs for the disposal of the processing mud. For us it was a success because we acquired a technology that we would have had to wait years of study to develop it. In the district for its reputation with increased market and interesting technology to acquire. Breton did not know that technology, we acquired Bidese, a small Venetian company, and with this technology we can 10 years of knowledge and we developed new machines adding our capacity of engineering". (Breton interview)

"Very good our potters who have made marketing an exceptional weapon: today a tile just because behind the box it says Made in Italy is positioned in a market segment that goes beyond €10 per square meter, the Spanish product is of €5/6 per square meter just because it is Spanish." (System Ceramics interview)

There is an association between the degree of involvement of the firms and the possession and control of shared resource, and that these shared resources are associated to net value creation for the firms, among them common reputation. Reputation is a signal of quality. Within the

industrial district, there is an image of the industrial district that is independent of the individual firms. The identification of firms is not present in the same way it is produced in areas where a large firm dominates. (Morales, Fernandez 2003)

Marazzi and Mohawk first implemented the process of asset sourcing in the district.

“Mohawk had the knowledge in ceramic before the acquisition of Marazzi. This company had purchased the Italian technologies but still has the support of Marazzi technicians for the know-how and for putting the new machines into operation. The investment was made because of the East Europe presence of Marazzi since the company gave ceramic to Europe and Russia. We bought the good brand name and design. Mohawk brought manufacturing expertise and additional markets. Marazzi, in fact, delivers its products to two main markets: the first one is composed of distributors of ceramic materials and building materials, the second one is composed of building construction firms”.

(Mohawk interview)

“Many technicians and engineers from Marazzi Italia have to go to the American headquarters to check the processes. They are involved in training the American employees.” (Marazzi interview)

The high rate of mobility of technicians and executives is a mechanism for fostering exchanges of information and knowledge. It must be mentioned that the area around the Italian district enjoyed a brilliant mechanical tradition, adequate to foster production in this particular industry (Morales, Estevan, Lucio 2008)

The evidence of the reciprocal relationships emerged from the interviews.

“The know-how is exported from Italy to foreign branches, and then the boys put into practice the know-how that we pass from the parent company; the fact of being a synergy with the Italian staff and present on site. We will bring our know-how to these people. The strength of System is to have local staff close to our customers.” (System Ceramics interview)

“Mohawk acquired Marazzi and Emilceramica for increasing and reinforce the presence of the company in Europe. Marazzi is important for us because it has most operations in Europe, especially in Russia, which is a big market with high potential for growing. Russia and Europe represent major initiatives for our business; we also continue to invest strategically to improve recent acquisitions, enhance our legacy business and reduce our costs. In Russia, we are increasing the number of our owned and franchised stores that sell directly to consumers. We anticipate having more than 400 stores operating by the end

of 2020. Mohawk acquired Emilceramica because of its deep and consolidate presence in Europe. Both firms are important for the company to compete with Chinese and probably made other acquisitions in the European country”.
(Mohawk interview)

Asset sourcing is also possible thanks to the high level of territorial integration and networking activity as already discussed previously; MNEs help local firms to enlarge their small networks and enter in global market to sell their products but also to interact with other entities, located outside the districts. Different opinions, ideas and feedback must be collected to improve themselves from a distribution point of view.

Finally, the district channel information back and forth through its multinational companies and make the best world-leader for ceramic tile innovation (Hervas, Garrigos, Miguel, Moll 2017).

“By acquiring Tecnema it maximizes synergies and enters Breton's foreign markets, Tecnema's limit was the least developed commercial network, so with Breton it expands by exploiting the more capillary Breton network. Tecnema was not in a crisis of any kind. Synergies outside the district because Breton is Venetian, it is the district of the world.” (Tecnema interview)

Increasing relationships among firms help Italian to expand their market network, it only to share information and knowledge. The effect of having stable and long-term relationships has two positive effects: increase the source of knowledge and introduce new market networks. Italian firms can benefit from the huge distribution network of MNEs to sell their products. Some authors stated that districts are not simply recipients of MNEs, but they can play an active role in the creation of global networks (Belussi, Caloffi, Sedita 2013).

At the end, the main goal of foreign MNEs, which entered the district, is to acquire and absorb local knowledge, which is one of the most sought characteristics. Sassuolo is a recipient of knowledge transfer from generation to generation of family-owned companies that has allowed the district to become famous all over the world. Having the knowledge means high visibility and reputation for all firms, which enter the district, and this is then a consequence of their success. Foreign multinationals lack this specific and rare knowledge and this is why many firms need to move their workers abroad allowing a flow of information which can be the base of new relationships, high skilled workers will never leave Sassuolo, but they continue to control machines from Italy using artificial intelligence or they move abroad. Subsidiaries have as they primary goal, the assistance of local firms in foreign

countries and/or commercial activities. So being in Sassuolo where the accumulation of knowledge was developed year by year is peculiar and this knowledge cannot be found elsewhere, but it is transferred thanks to MNEs.

4.7.5. The importance of emerging countries in fostering the growth of companies

Most alliances occur within North America, within the EU, or East Asia, or among blocks i.e. China-EU, or China North America (Kang, Sakai 2000) and this is clearly demonstrated by the cases investigated since there are Keda which entered into Europe thanks to Icf-Welko (China-EU), Marazzi which first opened subsidiaries in USA and then it was acquired by Mohawk (North America), Breton-Tecnema which has some controlled companies into Europe and System Ceramics which want to continue to increase its leadership opening new subsidiaries wherever there will be a ceramic district. Of course, this trend is going to continue but other markets are becoming important in implementing alliances or more precisely acquisitions, such as Africa and India as all the firms interviewed declared. MNEs will try to replicate the characteristics of the districts in other locations, including foreign ones (Rugman, Verbeke 2003).

“There are no expansion plans at the moment with other acquisitions, perhaps later on”. (Tecnema interview)

“Next to Asia (70% of sales) the other big market for Keda is India. India is an increasing market for both local demand and export. Keda made 95% of its revenues in machinery and the rest is made on ceramic tile in Africa to support local entrepreneurs. In Africa, we have up to now four subsidiaries: Ghana, Kenya, Tanzania and Senegal. The main difference from Italian market is that in Africa people must be trained while in Italy more money can be spent to make M&A and consequently enter in Europe. The investments in Africa increased occupational level, but there you need to invest in training and support. The company has more than 3,500 sales outlets in many African countries”. (Keda interview)

“Mohawk will pursue acquisitions in Asia, Africa, Brazil and India. In Africa there is a lot of people and it seemed to be a good market, with high profitability”. (Mohawk interview)

“Branches of Breton are outposts that provide assistance and spare parts for the plants we sell around the world; we are born as producers and sellers of plants and lines for working natural stone, agglomerated stone and ceramics. Outposts in China, Australia, USA, India, Brazil, UK, etc. They were created to guarantee local customers assistance on systems and spare parts. Lately in the

UK, Australia and the USA they have associated the marketing and sales of ceramic slabs produced by Lapitec.....The majority of the machine are located in Brazil and India which are there are the most important producer of granite in the world". (Breton interview)

"A growing trend above all in emerging countries. We will open other branches into all emerging countries have or will need to produce tiles and this is why system's expansion activity will continue in the ceramic world. In Africa where there are areas that will need to consume and produce tiles. Africa three zones: north of the Mediterranean basin such as Morocco, Tunisia, Algeria, Egypt with consolidated tile production. We have a branch in South Africa and then the central zone where there are realities that are developing due to the growing population and the improving conditions. System will certainly be present once the country gives positive signals and industrial districts develop such that the choice to invest could be justified. The Brazilian market is dominated by us; Brazil consolidated and matures market." (System Ceramics interview)

Emerging countries are experiencing profitable growth attracting firms to invest into them opening new subsidiaries. The problems are that people living in these countries are low skilled workers and must be trained adequately and in most cases, the political and economic situations are not stable with many conflicts in progress. This last problem can limit possible entrance of multinationals with consequences for the countries such as miss work opportunities for local population with all the negative effects on its welfare, miss opportunity to enter in the global network, which can help them to manage the growth process and miss opportunity for multinationals to expand their markets portfolio.

4.7.6. The presence of MNEs allow to reduce the weaknesses of the district

According to chapter 3 there are three main determinant factors which enhance the weakness of the districts: lack of young managerial people and expertise, lack of knowledge in distribution channels of local firms, finally the strong individualism of local firms which caused the implementation of different single and autonomous strategies instead of a common one to stay align and compete all together, thus favoring the reconstruction of the district with new infrastructures, facilities and so on (Onida, Viesti, Falzoni 1992).

"By acquiring Tecnema it maximizes synergies and enters Breton's foreign markets Tecnema limit was the least developed commercial network, so with Breton it expands by exploiting the more capillary Breton network". (Tecnema interview)

“Icf-Welko was sold for generational change and it was incurring in a crisis due to the fact that other bigger Italian players (Sacmi and System Ceramics) are eating all market”. (Keda interview)

“Now 60% of capital is in the hands of Coesia. The vision and the policy of Coesia Group fit perfectly with the System policy. We can only have benefits, to make the most of the various R&D units and the internal know-how of the companies. In addition, for us it will be only a positive thing to be participated by Coesia... The main reason is to be found in industrial continuity. The goal was to give continuity to the companies Stefani, our founder, founded because he has no active heirs in the company and to survive over time and is an act of great responsibility towards the people who work within these companies... The two firms are from an organizational point of view separated. They did not merge, but they enjoy of many synergies. We are both precursors in innovative activities. This operation carried out through an acquisition represented an important strategic step, offering Coesia the opportunity to enter the sector of machinery for ceramics, a particularly dynamic and technologically advanced sector in which System Ceramics is a leader with an undisputed primacy in innovation. With the acquisition we saw the birth of a large giant in the field of industrial automation for the ceramic sector.” (System Ceramics interview)

“We are very much looking forward to working together with Franco Stefani, a unique entrepreneur and innovator, to ensure together a successful future for System Ceramics.”(Coesia interview)

“We bought Marazzi from a private equity firm from the family. Mohawk brought financial resources, capital that private equity could not supply. Thanks to this, Marazzi double the sales revenue after the acquisition. In Italy in a few years, it has invested more than 100 million. The investments do not derive from Italian bank loans but were made by Mohawk.” (Mohawk interview)

The interviews show how local firms analyzed used revitalization to survive, thus increase their competitiveness and change their organizational model where family companies became international companies, thus the board of companies is not more composed of local entrepreneurs but also of foreign stakeholders who open the mindset of local entrepreneurs as well as all the communities involved. We can see the transformation from family-owned firms to partnerships or companies. Because of M&A, the inclusion in MNEs allowed firms to

receive resources and financial capitals they need to implement their knowledge into concrete goods.

Nevertheless, I have collected conflicting opinions.

“This acquisition was absolutely positive for the district, because it has allowed a passage from family business firm to a firm with a global dimension”. (Marazzi interview)

“Sassuolo, beyond those who buy, does not change the industrial fabric.

In my opinion, the nature of the district remains with the mentality and structure it had otherwise it will be destined to decline. The district's limit is that it is in the hands of system and Sacmi from a technological point of view.

Now with Breton the competition widens a bit”. (Breton interview)

“At the beginning, we were pessimistic, but Americans invested in new technologies in the district. The Italian unit did not suffer and reduce the production. The MNE made the district stronger and everyone had advantages, everyone has been stimulated in investing in new machinery. Americans have perfectly understood that tile is a product that cannot be produced in one country and then sold on the other side of the world; the tile is a product that must be made on site. The product must be manufactured and sold within a few hundred kilometers to avoid large transport costs. In fact, Mohawk wants to preside over the markets without having a single production center, but many small production centers and being able to serve the markets but with very limited transport. The Americans have invested large amounts of money, built new systems with new cutting-edge technologies and strengthened Marazzi in Italy. Therefore, in the end we all took advantage of the Mohawk's entry. What was an initial fear has turned into a great stimulus; here everyone is encouraged to invest, to move forward with the developments and technologies of the lines. In my opinion, it was lucky. Nevertheless, in the case of Keda there is a different trend, we see them being very slow. We do not perceive that Chines entered the district making great changes. From here, they can bring a lot of know-how and information to china, their reaction on the market is not yet known. In the short term, no innovations will arrive from China, for another 10 years they will continue to chase and copy what Italians are doing. There are currently no technology leaders in China. We are prepared to go to export the machines and make them work at the home of customers all over the

world; the Chinese make the machines for use and consumption and for the national market.” (System Ceramics interview)

“According to Tecnema, foreign acquisitions impoverish the Italian economy and its development, due to the inability to be competitive in the global market. The economic crises have created favorable scenarios for the entry of foreign companies, reducing the possibility of Italian control of their companies and have been forced to sell. Foreigners are better than closing, but they show an inability to compete globally. If the control is no longer Italian, you cannot know what will happen to the Italian company, because foreign companies have more power and can decide to relocate. Italians do not work for the common good; selfishness and personalism prevail, leading companies not to compete, to be closed. The ability to group together to go to the foreign market is lacking.” (Tecnema interview)

The ability to attract FDI in an emerging district, especially by large MNEs with high visibility, may signal at the international level that the cluster is credible; this may result in a foreign investment snowball effect benefiting the district (Rugman, Verbeke 2003).

“Icf-Welko has to face with small Italian market because Sacmi and System Ceramics are eating all market pushing small firms to fail or be acquired. It is necessary to be big to survive. Moreover, local banks favor homegrown MNEs, bigger they are more power they have to obtain financial resource from banks. But Sassuolo need capital from outside, also with foreign firms which want to enter “. (Keda interview)

Marazzi had the courage go over local banks requiring money from outside, before with the private equity and after, with the acquisition from Mohawk.

“Marazzi now has a global dimension which allows it to exit from the oligopoly of the district. With the acquisition, Marazzi invest 50 million of euro in machinery. Marazzi has three main operations in Europe: Italy, Russia and USA. Italian was the only one to losing money, it lacks of capital with too much costs in term of big buildings and not more efficient equipment. Marazzi now is making money. The acquisition of the MNE has allowed Marazzi to have greater liquidity, strengthening itself in the area of communication and investments”. (Marazzi interview)

Together with these limits the interview I made with Breton and Tecnema, refers another crucial point, never mentioned up to now: some firms lack of innovative knowledge management allowing competitors to easily imitate SMEs 'innovations.

“Pezzi speciali was soon widespread all over the world because the innovation was easy to imitate all over the world, increasing competition. Not patents that have protected the company 100% on these machines. Unfortunately, technologies that are not too technologically advanced and a lack of tools to protect inventions. Breton too, apart from stone, for agglomeration production, has machines that other competitors produce. Patents cover only specific parts of machines.” (Tecnema interview)

Regarding patenting activities as an innovation protection mechanism, they were not used by companies in the ceramic tile industry. The reason can be found in the difficulties to avoid copiers or to be emulated for neighbor. Patents in the district are used to protect suppliers from competitors; but they are internal market mechanism, which disseminates innovation among district customers. In consequence, innovations in districts are not exclusively exploited by a single firm but they are available for a number of them (Morales, Estevan, Lucio 2008).

In Italy, the competence in design, commerce, marketing, and client service are superior to that of Spain, the second ceramic district. The collective identity of the Italian industrial district enjoys a strong country brand. The first consideration one should take is the high concentration of ceramic industry production in both countries, in the districts analyzed. This fact shows how the territorial effect is especially relevant in this industry (Morales, Bellmunt, Marzal 2008). IDs receive global activities from outside (localization of MNCs, acquisition of local firms from foreign firms, or agreements for subcontracting for external firms). The outward processes of internationalization are governed by the strategic actors of the district (leader firms and medium size final firms, and some high tech suppliers, specialized in services or intermediate phases). MNCs increasingly internationalize their knowledge development activities by plugging into existing pools of knowledge, setting up new plants or facilities, in particular locations. The internationalization process thus appears to be supported, not just by the intention of using the in-house existing knowledge, but also by the desire to acquire and absorb external strategic knowledge, setting up explorative R&D in foreign countries. The multinationals attribute some shortcomings to the district: the absence of managerial capability by local firms (they are still very traditionally organized by a type of family-business), the weakness of logistic infrastructures, the lack of some professional figures, the inefficiency of the local road conditions, etc. Global MNCs enter the Italian

district exactly because they were not at all able to govern alone the process of knowledge creation and they needed access to historically localized competences and to new models of knowledge improvements and learning forms, which occur today under the form of localized nets of competences (Belussi 2003). Within the industrial district model there is a decentralized model of absorption of new knowledge (market and technical knowledge). Inter-firm linkages with the suppliers of machinery localized in the district intensify proximity-dependent interacting learning, and the generation of novel machinery or new technological products (Belussi 2009).

Unfortunately, these weaknesses still prevail in the Italian economy but looking at the district it seemed that something is changing. I cannot confirm but there are phenomena, confirmed by interviews that make me lean to this conclusion: firms are changing their status from family-owned company to a global dimension; new shareholders are entering in the boards that belong to completely different families and have different ideas, opinions to share together with a more open view. Finally, firms are trying to invest in expanding their distribution network, which is still very weak. This would be an important step for Italian firms to face challenges and show their potentialities.

CONCLUSIONS

This thesis has analyzed the case of internationalization process inside the first ceramic tile district in the world: Sassuolo. In particular, I have reviewed the literature on industrial districts, multinationals and globalization. I have used for the work the papers, articles; books founded on the web published by recognize economic institutions and authors all over the world as listed in the references section at the end of this thesis. Then I have provided evidence in favor or against the globalization of industrial districts, using a set of interviews made to the company's managers. Based on this evidence, an attempt has been made to understand the internationalization process of the district with a focus on the effects and the mains motivations for the presence MNEs through M&A. Interesting; we did not found cases of Greenfield investment from abroad. Even though the internationalization process is recent, some general trends emerged.

As the interviews showed, multinationals used M&A as strategy to penetrate the district. Sassuolo, in fact, is the leader district of ceramic tile and machinery for ceramic in the world. Being in Sassuolo increases reputation and allow firms to absorb the local knowledge, specific expertise and know how, which are not available anywhere. The district is leader in the world for its innovation capabilities being possible thanks to a concentration of innovative firms and innovative producers of machinery. R&D activities support the creation of new knowledge. Multinationals can access to a flow of information derived from the existence and movement of high skilled workers from Sassuolo to the MNEs subsidiaries.

Thus, the primary goal of recent flows of external to the district M&A is absorbing local knowledge and acquiring reputation. However, we recognized that investments' decisions abroad pushed homegrown MNEs, such as Coesia-System Ceramics and Breton-Tecnema, to be more conscious of their strengths, thus they opened subsidiaries all over the world, to be close to their clients.

If multinationals arrive in Italy for acquiring know-how, Italian firms can benefit of the consolidate distribution networks of multinationals to sell their products all over the world, strengthening their presence abroad. Subsidiaries are located closed to clients who operate in the ceramic industry, both in developed countries and in emerging countries with a positive trend.

Acquired Italian companies could benefit of new financial resources that helped them to increase their performance, from an economic and managerial position. New external capitals allow external shareholders and/or managers to enter in the board of companies, which are renewing themselves with new plants, and new investment in machinery that used new advanced technologies. Local companies are trying to change their status passing from family-owned companies to global firms, entering in new global networks possessed by multinationals. New provision of capitals allowed SMEs to survive, implementing market expansion strategies. Financial resources represent one of the major constraints of Italian firms, so the fact of having multinationals, which bring new capitals, is a positive aspect that gives to SMEs and even to the leader firm of the district, the Marazzi, the possibility to renew their plants. Technical know-how, however, is still Italian, since ceramic tiles and machinery for ceramic tiles, is one of the few industries on which Italians are world leaders together with Spanish firms. This leadership in the world, according to interviews, will attract in future new firms in the district, which will expand its size.

On the other side, I have perceived that the rapid growth of emerging countries (China, Africa, Brazil, and India), will be a push for local firms to increase their productive capacity and expand their markets with new subsidiaries abroad. These two trends of growth in size are important for companies located in Sassuolo in order to gain market share and be more competitive. I have highlighted that there is not, now, a possible negative effect as some experts have indicated about the entrance of MNEs in a district. Local firms are not delocalizing their production, firing workers, and reducing plants 'sizes.

Another aspect is the presence of homegrown MNEs like System Ceramics, Coesia Group and Breton-Tecnema Group that are both Italians and that have made M&A with other Italian firms outside the district. Interviews clearly indicate the importance of collaboration. Even if a multinational leader entered the district, the technology is still being developed by Italian machinery manufacturers. Homegrown MNEs favor the flow of information among different business units and tend to absorb knowledge coming from different R&D departments to better satisfy market demand, fostering innovations.

This continuous flow of M&A did not reduce the spatial concentration of the industry, favoring the naissance of a monopolistic or oligopolistic sector. MNEs made M&A to strength their position becoming leader in their respective countries, but globally the ceramic industry is very fragmented. We assist to a rapid growth of Chinese companies in recent

years, which are leaders in total volume of ceramic tiles produced, while Italian firms remain leader in the machinery for ceramic industry. This leadership is represented by high market share, but there are numerous players all over the world in the industry of both ceramic tiles and equipment and machinery for ceramic.

The flow of M&A have reduced the number of SMEs located in the district allowing the naissance of groups of firms, with an increase of their sizes, productive capacity, volume of sales and employment level. These groups share the same strategies based on innovations, reputation, asset sourcing, and market expansion and product diversification.

Despite the fragmentation of the industry, the high rate of export of italian MNEs (more than 80%) leads me to affirm that, not only this is due to the small dimension of the domestic market, but also nowadays, the growing ceramic technological penetration on foreign markets is largely dominated by italian manufacturers. This is related with the quality of italian tiles and machinery providing high-tech solutions that meet a vast range of customer needs, the increasing availability of post-sale services as well as the experience of italian technicians.

Interviews gave an idea of the importance of Sassuolo whose entrepreneurs are recognized all over the world for their discoveries. All companies received many awards, to testify their entrepreneurial projects and the strategic roles for the entire ceramic industry.

R&D plays a crucial role. Process, technological and aesthetic innovation of the product is the main competitive factors, which allow firms to meet customers' needs offering a broad product portfolio based on customization. Collaboration among companies and the creation of groups of firms allow creating economies of scale and scope in R&D with a consequent acceleration in the innovation activities and the reduction of duplication R&D efforts.

In my opinion, the district is becoming a cluster of Italian suppliers of specialized inputs such as components, machinery, and services post-sale like assistance and maintenance. The presence of ceramic tile producers is sustained by the innovations push in the market by machinery manufacturers. These can be identified as manufacturers of complementary products.

Although companies have their own R&D business units, Sassuolo has many links with local universities, laboratories and trade associations such as ACIMAC and Confindustria Ceramica, that provide specialized training, education, information, research and technical support. Firms declared they are engaged in many projects both at Italian and European level increasing the visibility of the district.

Sassuolo is an incubator of specialized knowledge, skills, learning effects and relations between MNEs and SMEs. New networks are being born embracing the local economic tissue and foreign countries through the presence of flow of information. The concept of local seems to be gradually substitute by the one of global.

APPENDIX A: GUIDELINES FOR THE INTERVIEW

1. The main question is what was the effect of the purchase of [name of the firm] by [name of the firm] on the companies in the district?
2. Do you think that the district will change its configuration?
3. What resources did the multinational bring to the district?
4. In addition, what was the effect on small and medium-sized enterprises in the district?
5. Has the corporate competitiveness of [name of the firm] improved following the acquisition?
6. Which are your main competitors?
7. Do you think it was possible to remain competitive without the presence of the multinational?
8. And as for innovations: do you think companies have now continued to invest in technology? And in which areas?
9. What other foreign companies have entered the district?
10. Have the companies in the district opened branches abroad in recent years?
11. Did the creation of other strategic alliances within and outside the district occur?
12. Regarding internationalization, what are your future expansion plans, if any, in this regard?
13. In which countries did you open your subsidiaries and why? Did you open them into other ceramic tile districts? Why?
14. Are subsidiaries productive or commercial ones or both?
15. Can we say that through all of these M&A there was a movement of workers both from inside and from outside the district?
16. And after these M&A were there a creation of synergies both inside and outside the district which push innovation?

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