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**Industrial district and GVC:
toward an integrated approach
in the analysis of competitive
advantage. Theoretical
perspective and Climaveneta
case study**

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Chapter 1 Introduction

1.1 General aim of the paper

In a period of huge economical turbulence and fierce globalization processes, it is clear that the growth and decline of entire economic systems may affect deeply the geography of richness. Along the past 50 years a huge amount of authors tried to understand the causes that allow a system to prosper and create a virtuous cycle of innovation that generates richness, trying to find a “one best way” to gain success for firms, economic systems and entire nations.

The aim of the paper is to analyze and create an overall framework of scholars and researchers contribution related to firms strategies taking into account the role of regional development as a key factor in the success of a single firm, in order to find a new successful way to compete as a synthesis of past contributions . Debated paradigms of Global Value Chains and Industrial Districts seemed to have found satisfying answers to cope with the challenges that globalization is posing to entrepreneurs but in recent years they started to show significant problems and inconsistencies that are tackling the basis of these strategic philosophies; the analysis will be broad and take into consideration economical, political and social aspects, using firms as the key players but monitoring the impact of them in the system in which they are inserted.

The limits of past paradigms is leaving space to a new generations of firms that are managing to reach significant success worldwide exploiting both the advantages of the global value chains approach and industrial districts’ one. It is clear that nowadays the reduction and control of production costs(considered in a broad sense) it is more than a necessity so processes as the breaking down of the value chain to outsource in foreign countries low added activities or the off-shoring of production must be considered with attention. At the same time the development of competencies and skills within the organization(that is not necessarily only the considered firms but we should talk more properly of “ecosystems”) it is the real engine of growth in many industries that boosts innovation and continuous improvement, leveraging especially intangible assets and human resources.

These two themes are the main pillars of GVCs and ID philosophies but cannot be considered anymore as distinct ways of conducting business in a world that offers competitors both with huge costs advantages or significant investments possibilities. Furthermore, as Porter argued,

the role of nations and more generally economic systems may affect dramatically the success or the death of entire industries through its regulations and support systems.

Through the analysis of a main real case study, I will try to focus the attention on the strategical decisions that are allowing a company as Climaveneta to compete with huge competitors as Daikin in the worldwide arena. How is this company managing to develop internal competencies that permit to create customized and valuable solutions for customers? How is this company exploiting its GVC both in terms of production(upstream analysis) and commercialization/distribution(downstream analysis)? How the company manages to lead the relationship with local suppliers and reap knowledge from them? What is the role of Climaveneta within its economic systems? What are the main opportunities and strengths of the company strategy and more broadly of these new way of doing business worldwide? Trying to answer properly to these question, I will try to draw a new model of success that can both use the possibilities that globalization is giving to firms, keeping key competencies locally in order to create innovation and products that are tailored to customers' needs and apply it on different successful companies.

1.2 Methodology

One good approach to this topic is to build up first a supporting solid theoretical analysis of how it has been treated by scholars and authors in the past in order to obtain a general idea of what is the state of art and to gain some interesting insights from some of the most relevant economists of the last century(and sometimes also of previous centuries). The objective is the creation of a sort of interpretative framework that may be applied to real firms (or territories) to measure how they are competing and if they are brilliantly exploiting the opportunities of globalization or if they are only surviving or worse, they are threatened by foreign competitors that may destroy entire economical systems.

Through the lessons of strategy masters, GVC experts and international IDs and with the support of local systems of innovation papers we will insight on some of the ways that firms had adopted in the past to compete and to understand what can be still useful (almost everything) and what should be refused in the era of globalization. The entire study of papers will be supported by practical examples contextualized in the specific field, with prominence of examples presented by the authors. Furthermore, I would gain more indications about the role played by a specific territory in the success of entire industries, in the purpose of defining

some elements or resources that are necessary to establish a positive cycle of companies' growth, people richness and investments attraction. The role played by some "commons" and the aspect of positive (or negative) externalities in the economy of some industries have to be observed with attention to understand if a new way of competition is possible or even necessary, linked with the necessity of repositioning some parts of the value chain in foreign countries.

After this part, we will try to implement the framework that we will have built to specific actual examples. In particular, the main case will be taken from the air-conditioning industry in Northern Italy, that results particularly interesting for its peculiar characteristics of competing globally, but sourcing and manufacturing in an hybrid way, looking beyond the borders but keeping the bulk locally to protect some specific competitive advantage. We will carry on this analysis from the point of view of a relevant player in the international arena Climaveneta, through a deep analysis of its history and its strategies. With the support of internal data and precious direct interviews to managers we will try to understand how this company manage to compete in an industry populated by huge sharks¹ exploiting properly its own characteristics and its value chain.

We will take into account some of the main suppliers of this company and the entire structure of the industry in Europe to create a significant framework of the competitive scenario in which Climaveneta is inserted. Furthermore we will take into consideration other examples of companies that answer in the right way to the necessity of keeping with decision their focus locally but leveraging the possibilities that actual economy is bringing to them. The idea is to keep an eye on companies that are linked somehow with traditional Italian sectors (4 A of Made in Italy²) but that are taking the lead of new way of competition that are going beyond the traditional way of competition(new districts? We will see).

The other case studies will be some of the best known Italian brands and other players that are significantly affecting their own industry but that are less known to the public opinion. The would be good occasions to test the relevance and importance played by the interpretation scheme that will be inferred from the theoretical analysis

Ducati that manages to compete brilliantly against Japanese and American competitors will offer an insight in the motorcycle sector, whereas Technogym with its worldwide-known

¹ See Samsung and Daikin

² Automation, clothing, Food and Furniture production

“wellness” philosophy and tight relationship with Romagna territories will offer an interesting case study in a young industry as fitness and gym tools production.

The analysis of Brembo, the automotive disc brakes producer located in Lombardy, it's particularly interesting for its specific model of R&D adopted in its headquarter of Kilometro Rosso, a sort of technological hub where Brembo engineers and external companies from different industries, as chemical, biomedical, meccanic and meccatronic industries work together to develop new products through a process of continuous learning and interchange of information. It represents a smart way of keeping the control of product innovation without an excessively heavy investment.

Eataly is one of the most fancy companies in the recent days and represents an example of incredible success of Made in Italy that manages to bring Italian certified products to the world. We will better understand if this case will be suitable for our analysis.

1.3 Globalization: opportunities and challenges

In a context that is continuously reshaping its borders and redesigning its aspects, it is absolutely necessary to spend some time analyzing the main process that affects deeply the entire phenomena and dynamics that we are going to analyze.

We are talking about globalization, a concept that clearly overcomes the simple economic area involving social and political aspects in a broad sense. In fact, speaking in economic terms, we can define globalization as the progressive convergence of people's needs into a common, unique market but this definition it is clearly too narrow to be accepted in this paper.

The entire process of globalization has been analyzed by different authors in the difficult attempt to provide a contribution in terms of analysis of a trend that is clearly underway but it is not clear how much impact it is concretely having in human beings lives and more particularly in the markets' dynamics.³⁴ This highlights the difficulties and obstacles that threatens the work of analysis especially for the vastness of the problem so it is helpful to establish some limits.

For our purposes we will focus our attention especially on the economic aspects of the problems but keeping steadily an eye on the social effects caused by globalization processes,

³ Albrow, Globalization, Knowledge and Society, 1990

⁴ Nederveen Pieterse, Globalization as Hybridization in Global Modernities by Featherstone, Lash,Robertson, 1995

in fact all our researches are embedded in globalization processes that I will discuss in the peculiar moment in which they will appear. The impact of globalization has been disruptive for many clusters and local areas in the sense of rapid growth or decline and the consequences on human beings related to economical phenomenon should not be excluded by the analysis.

Starting to explore the world of globalization from a point of view that can help to contextualize the environment of this paper, I would first of all summarize the debate that is currently involving the real impact of globalization. In fact one of the most disruptive and controversial paper of the last decade “ The World is Flat” by Thomas Friedman⁵ explains in a very enthusiastic and romantic way, the advent of an era of equality, in which everyone has the same possibility to seize an opportunity regardless of the place where he currently is. The book takes its moves from a journey made by the author in Bangalore and describes the advent of new jobs(especially in accounting area) in India through an illuminating conversation with Nishikori, Ceo of Infosys, one of the most powerful telecommunications companies in India. *([...]He said to me, "Tom, the playing field is being leveled." He meant that countries like India are now able to compete for global knowledge work as never before- and that America had better get ready for this. America was going to be challenged, but, he insisted, the challenge would be good for America because we are always at our best when we are being challenged. As I left the Infosys campus that evening and bounced along the road back to Bangalore, I kept chewing on that phrase: "The playing field is being leveled." [...])*

The role played by this book, with its emphasis on the possibility that globalization is bringing to people, underlines also the “commoditization” of competences and innovation as a positive aspect, taking into consideration the social and political issues that are threatening the positive message of markets integration. Indeed the fear of industrialized countries to lose jobs in favor of developing countries in many industries due to lower labor costs (and sometimes of not well-respected labor rights), has burdened and influenced the public opinion, driving an image of poverty and “race to the bottom”.

Vice versa Freedman is pretty sure that globalization is a great opportunity for everyone, both developing countries that have a chance to take a role in race, and also for rich countries that can keep the leadership and have a boost to improve their practices.

⁵ Friedman T., The World is Flat, 2005



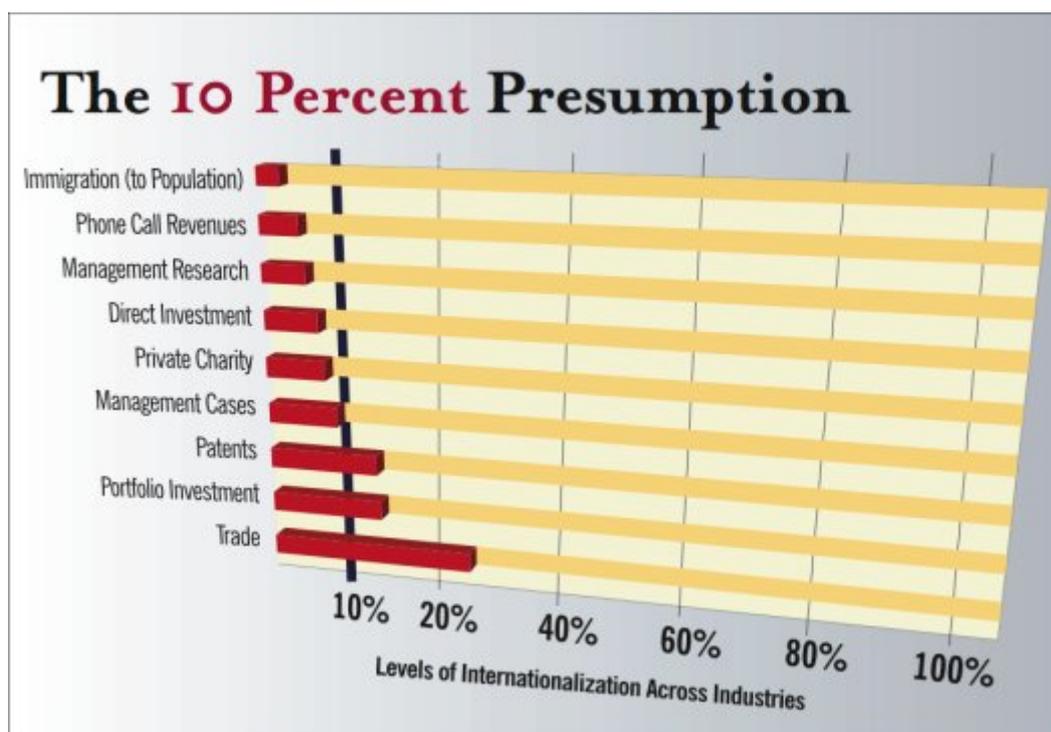
A fundamental aspect is the focus on single people that can use their skills and knowledge to create new businesses exploiting new tools and possibilities. Indeed Friedman underlines the fact that individuals are the real protagonists, driving the flattening of the world through enabling tools as ICT, in contrast with the two previous waves of globalization that were conducted by nations and companies⁶(...).

From the other point of view, there is a wide range of people that are expressing loudly their skepticism towards the real impact and power that globalization is actually having on our human beings. The leader of this “movement” can be easily identified in Pankaj Ghemawat, an Indian Harvard former Professor that published a famous article explaining properly how he perceives the entire process of globalization and underlines some weaknesses in Friedman’s book. Ghemawat presented some data, known as “The 10 percent presumptions”, to tackle the idea that the world is becoming a unique market, uniforming needs and habits around the world and transforming the way people interact. Taking into account relevant indicators of people’s and countries interactions as FDI, trade levels in percentage, cross border migrations and even telephone calls, the professor demonstrated that till 2005 the data showed clearly that all these indicators are represented by international relationships only for figures below 10%.

⁶ First globalization wave: 1400-1500 with European countries that managed to discover new territories through their navigators as Colombo

Second globalization wave: 1850-1900 through the impact of the second industrial revolution big companies managed to reach sharply bigger markets than any other company in the past

(..when you examine the numbers, the picture is one of extreme connectivity at the local level, not a flat world. What do such statistics reveal? Most types of economic activity that could be conducted either within or across borders turn out to still be quite domestically concentrated. One favorite mantra from globalization champions is how "investment knows no boundaries." But how much of all the capital being invested around the world is conducted by companies outside of their home countries? The fact is, the total amount of the world's capital formation that is generated from foreign direct investment (FDI) has been less than 10 percent for the last three years for which data are available (2003–05). In other words, more than 90 percent of the fixed investment around the world is still domestic...)⁷



The reality probably lies in the middle of these positions, in fact the same Ghemawat recognized the growing role of globalization as one of the biggest trend that is affecting world's political and economical balances, as Friedman is aware of exaggerate to obtain high sales of his book as a journalist (even though he has reinforced in 2012 the idea that globalization may not leave anything as before, bringing with it huge opportunities but also frightening challenge to people without particular skills in developed countries, that has benefited till now of being part of a protective system⁸). By the way, globalization is a

⁷ Ghemawat, P. (2007). Why the World isn't flat. Foreign Policy, March 1, 2007.

⁸ Friedman. T. (2012). Average Is Over. The New York Times, January 24, 2012.

phenomenon that is changing deeply how companies deploy their distribution strategies and even more, it is affecting the geography of production, boosting complex processes as off-shoring, outsourcing, value chain disaggregation and recently, re-shoring. We will later illustrate what is the state of art for all these trends and focus our attention on the role that nations is playing, and more in detail how specific local economic areas can properly compete in the global arena, attracting investments and resources and producing richness for local inhabitants(and foreign people). What is clear is that the interaction between the development of economic areas and the growing impact that globalization is having on firms and people cannot be ignored anymore and this is one of the main reasons that motivated me to choose the topic of this paper: to try of better understanding how companies and in particular Italian firms that has been and actually are part of Industrial Districts⁹(or of a new wave of Industrial Districts that are sharply different from those devised by Marshall¹⁰) can not only survive but take the lead of entire industries, exploiting some specific characteristics that are embedded in a territory. I will also mention international examples and case studies to link my analysis with the latest studies on global value chains, local systems of innovation and industrial districts.

9 Since now indicated with IDs

¹⁰ Alfred Marshall, Principles of economics, 1890

Chapter 2 Porter and IDs

2.1 Porter's lesson: "from the one best way" to "Competitive advantage of Nations"

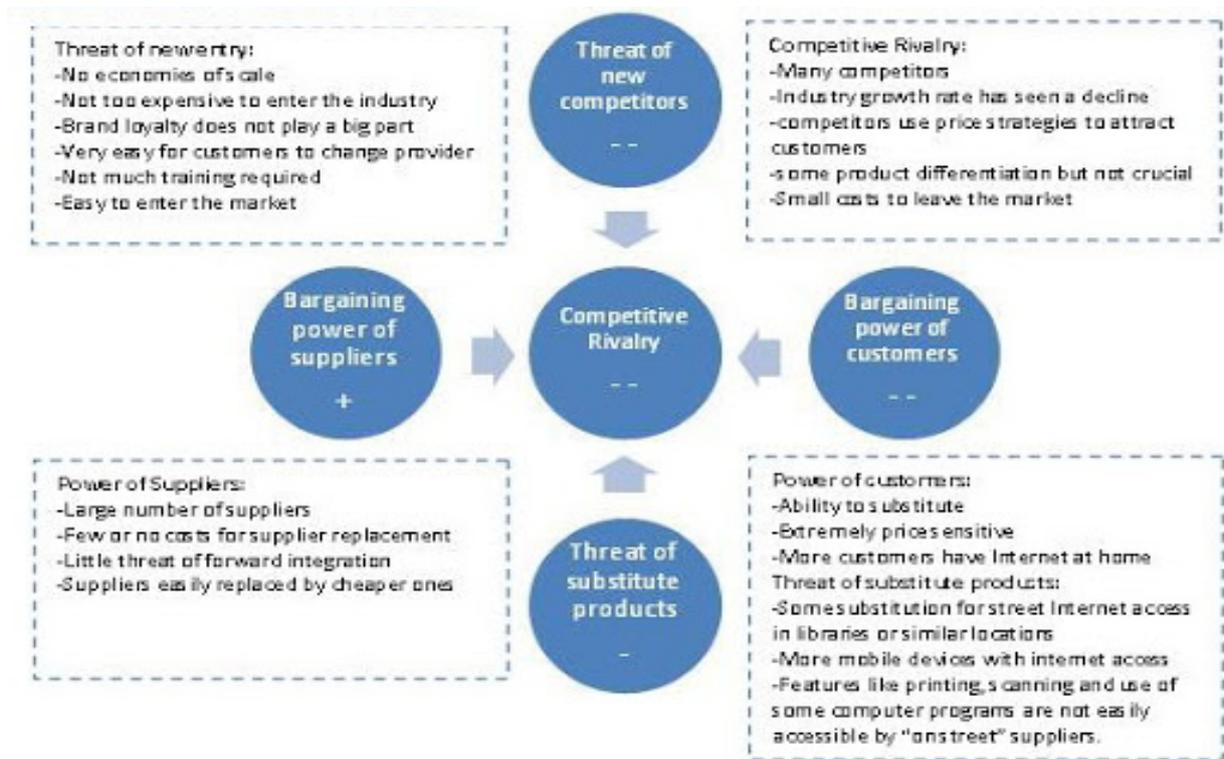
Michael Porter has been definitely the father of firms' strategy and its books has enabled the proliferation of many academic articles inspired by its works. His ability to catch specific trends and its desire to find paths of success for companies in different industries has enabled him to be kind of a pioneer introducing concepts as Value Chains that has become the main debate object in the following years and still nowadays.

It is particularly interesting the process of research followed by this author that in 1979 published one of its masterpiece "How competitive forces shape strategy" in the attempt of creating a sort of bible for companies that enabled them to understand the characteristics of their industries and take the right countermoves to take the lead and compete in the best way. In the earliest part of its career, the American Professor focus its attention on the role played by external actors in the overall performance of a company involved in the competition in a certain industry, recognizing 5 main group of players that affect indirectly the growth of a company:

- Direct competitors
- Suppliers
- Customers
- New entrants
- Substitutes producers

These groups, due to some determinants that are specific for each group may be monitored and controlled in terms of impact in the relative performance of a company, highlighting significant threats or opportunities. For example, talking about the direct competitors, variables like the high concentration inside the industry or a low differentiation of products from each player can create a situation of mature industry that may put high pressure on prices and that may undermine the overall attractiveness of the sector.

We have to keep in mind the main purpose that Porter was following: the attempt to understand through a universal framework the internal and external structure of industries in order to evaluate the general attractiveness and potential profitability of the sector. (...)



11

Another relevant innovation brought by Porter is the deep insight inside the value chain of companies. The starting point is the definition given by the author of this concept in his *Competitive Advantage: creating and sustaining performance* of 1985 “ [...] *a value chain is the whole series of activities that create and build value at every step. The total value delivered by the company is the sum total of the value built up throughout the company. [...]*”¹². The fundamental idea is the disaggregation of companies’ activities in the production process (considered in the broader sense, since the first concept of the product till the delivery to customers) in small parts to analyze how much they contribute to the creation of value to end consumers. The final objective of the entire value chain is to create value so a margin and thus a margin between costs incurred by the company and the related revenues; the disaggregation of it in smaller parts may highlight some opportunities of improvement or some problems that must be tackle to enhance the entire performance. The creation of a sustainable competitive advantage, in Porter’s intentions may blossom from the reconfiguration of the value chain after a careful analysis of its weaknesses in some parts.

¹¹ Porter, M.E. How Competitive Forces Shape Strategy, Harvard Business Review, March/April 1979.

¹² Porter, *Competitive advantage: creating and sustaining superior performance* 1985

Furthermore, through the value chain analysis it is possible to find out which are the core competencies¹³ and which strategy is more suitable for the company's characteristics, trying to pursue a cost advantage strategy or differentiation one from competitors' offer.

Porter identified 9 types of activities in which the general value chain can be divided in the original conception.

Firstly, he identified 5 primary activities:

- Inbound logistics, that are represented by the receiving of materials from suppliers, its warehousing and the delivery to manufacturing internal units
- Operations, the concrete process of transforming inputs to final products
- Outbound logistics, the distribution of products to final customers
- Marketing & Sales, it represents the analysis of customers' actual and potential needs and the entire process of selling
- Service, the services delivered to customers related to the selling of products(i.e. After sales services)

Beside these activities the author analyzed another group of 4 activities that facilitate the elaboration and implementation of the 5 main activities. They are called support activities:

- Firm infrastructure that represents the internal company culture and the organizational structures
- Human resource Management it includes all the policies undertaken by the company in terms from selection to employees development and compensation
- Technology development it involves the choices taken by the company in terms of technologies to support all the other activities
- Procurement all the choices related to quality and characteristics of inputs purchased from the external market

¹³ Core competence is "*a harmonized combination of multiple resources and skills that distinguish a firm in the marketplace*". This definition is provided by Schilling in Strategic management of technological innovation, 2013. The issue has been already observed in "The core competence of the corporation" written by Prahalad and Hamel in Harvard Business Review 1990

Figure 1: Porter's Generic Value Chain



Through the years Porter managed to recognize that an analysis of companies' value chain and an overall evaluation of the attractiveness of its industry may be too narrow and incomplete for being declined on different contexts.

One of the main merits that can be credited to Michael Porter has been the ability of understanding the role played by a territory in the development of some industries, speculating a direct relationship between the abundance of some resources or characteristics of local workers and the richness of that community.

The peculiarities of some economic local systems that were flourishing in 1970-1980 around the world and the necessity of analyzing how a territory may represent a meaningful determinants in a company profitability and performance brought Porter to write in 1991 "Competitive Advantage of Nations". The author recognized the existence of clusters¹⁴ as dynamic entities with a growing role in the world development that have the ability to keep an high level of interdependence within them even if all their members are formally independent.

The author analyzed clusters in 10 different countries and focused on the particular characteristics of the industry related to the cluster examined in order to gain information on how the competitive advantage can be built in that specific sector.

To analyze the competitiveness of every single cluster, Porter identified 4 main factors and two ancillary:

¹⁴ "Clusters are geographic concentrations of interconnected companies and institutions in a particular field" from Michael Porter's essay "Clusters and the new economics of competition" 1998

1. Factor conditions are referred to the availability of inputs, resources (also in terms of human resources), infrastructures. He underlines the importance of “specialized resources” that are specific for a single industry and so more precious and difficult to build (or to imitate) by foreign competitors).
2. Demand condition is the ability of home customers to evaluate the quality and characteristics of products. This capacity can foster the innovation within the cluster because the request for sophistication and attributes improvement are more tough. This is particularly important for clusters that are inserted in countries with an home market of significant dimensions (allowing customers to exert meaningful pressure on companies), enabling the cluster to spread the innovation also in foreign markets, taking or keeping the lead in industry’s competition.
3. Related and supporting industries is represented by the existence of industries within a country that produce services or other goods that are deeply related to the sector under analysis. In fact customers perceive the attractiveness of a product in its own overall value proposition¹⁵, being influenced also by supporting and enabling technologies. These complementors may promote or discourage the innovation, taking a relevant part also in upgrading processes (we will deepen this concept in the following parts of the thesis), and so boost the internationalization of the industry or burden it.
4. Firm strategy, structure and rivalry involves how companies within a certain cluster compete and set their strategies, how the entire structure of the cluster actually is, how much internal competition is present (a high level of internal competition is not necessarily harmful, it can represent an incentive for innovation and can push the technological and organizational innovation). It regards also how companies in a certain country are managed.

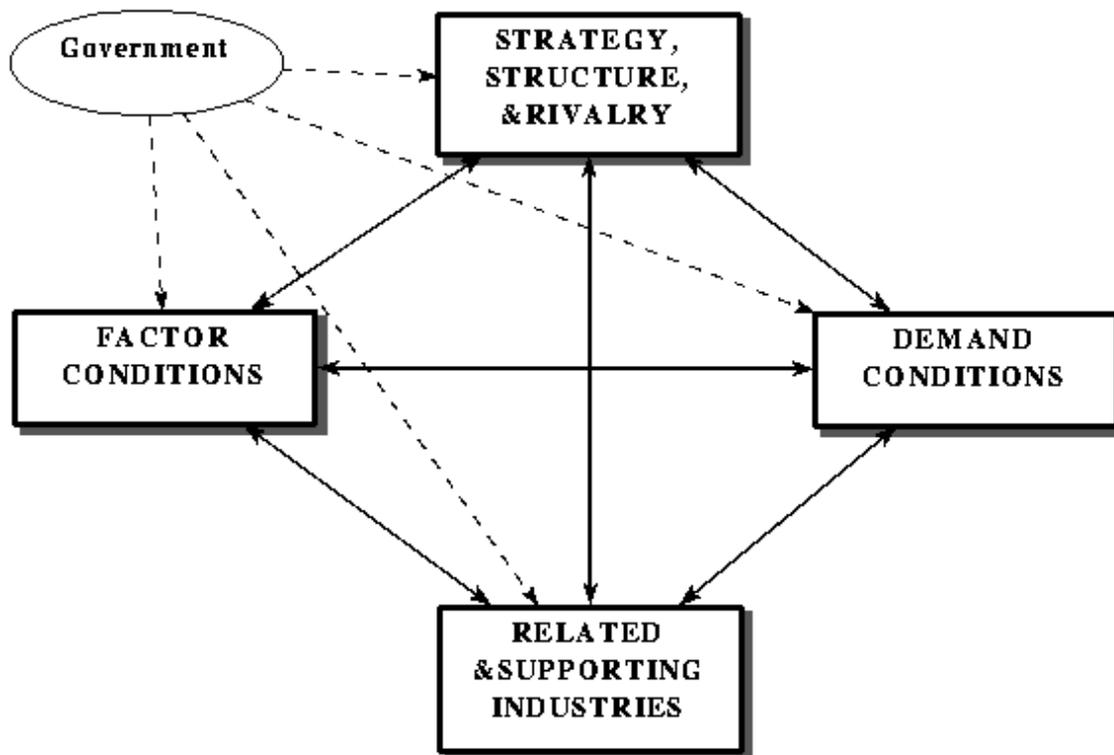
The other 2 factors that are deeply related to the previous 4 are:

1. Government clearly plays a role that cannot be underestimated, affecting demand and supply conditions through regulation policies. Furthermore the role of government is becoming more and more pervasive because of the proliferation of regulatory bodies, that are overcoming the traditional national governments (think about E.U or regional government or the role played by FTA¹⁶)

¹⁵ See for value proposition Kaplan, Norton Strategy Maps, Hbs Press, 2004)

¹⁶ Free trade area as Mercosur, Nafta or Comesa

2. Chance: the role of unexpected and not predicted events may create disruptions inside an entire industry and deeply modify the market conditions. An example is the rise of many industries like chemicals after the explosion of the Second World War especially in Germany.



In time the works of Michael Porter became more and more precise in order to gain information on companies competitiveness and how to conduct a business in specific industries located in certain nations. These works represent the ideal starting point for our analysis because they have been used as a milestone by all the authors that came after, someone recognizing the importance of his studies and someone criticizing it.

His interests for linkages between companies performance, industry structure and countries characteristics, due also to his professional work,¹⁷ influenced the evolution of strategy studies and established the study of value chains inserted in global networks that we will see in the following sections.

¹⁷ Porter cofounded in 1983 a management consulting firm named Monitor Group. It has been acquired in Jan 2013 by Deloitte

2.2 Industrial districts

The notion of IDs is not a recent invention. Thanks to the work of Alfred Marshall since the end of XIX century a first insight on the problem has been delivered and its thought has deeply influenced all the sequent researches. This author, known for its precious contribution on macroeconomic issues like marginal utility or supply and demand curve, started to observe a peculiar structure of organization that were diffused in Great Britain after the Second Industrial Revolution.

He observed a tendency of companies involved in the same industry, to establish their production site and their headquarters in specific areas where other firms of the industry were already operating, thus originating highly concentrated sites of productions, that the author called ” *localized industry*”¹⁸

The choice of the specific location was subjected to different causes:

- **Physical conditions:** availability of important natural resources or great abundance of inputs that are technically necessary for the industry¹⁹ (or the presence of water that at the time played a role even more important for business than it does presently)
- **Presence of a court:** the presence of some customers with an high availability-to-pay, that request products with high quality attributes and characteristics is clearly a boost for local craftsman to enhance their skills and it is also an incentive for foreign talented people to come locally and sell their goods. This phenomenon brings people skilled on a certain art to cluster together and compete each other enhancing their respective abilities (we have already mentioned the importance of local competition to boost innovation in the previous paragraphs)
- **Role of local culture and desire to enterprise:** this is the more difficult reason to explain because it is related to specific attitudes and culture of people living in a geographically concentrated area. People with their way of living tend more easily to become expert in some fields or businesses and their desire to innovate may deeply influence the born and prosperity of companies.
- **Political and religious reasons:** we have to keep in mind that political structure or religious thoughts may work also as an obstacle to the growth of cluster and must be

¹⁸ Alfred Marshall, Principles of Economics, Chapter X, 1890

¹⁹ The author explained in detail the reasons of metallic industries locations in England with 2 main determinants: the presence of mines and places where fuel was cheap .

monitored continuously because they have a deep impact on the way companies organize themselves.

All these reasons were clearly suited to the specific state of markets and of economy that we can encounter at the end of 1800 but they can provide important cues for thought that we will recall in the next chapter in detail.

Talking about how is configured internally a localized industry and how knowledge is distributed nothing can express better the concept than the famous words of Marshall:

“When an industry has thus chosen a locality of itself, it is likely to stay there long: so great are the advantages which people following the same skilled trade get from near neighbourhood to one another. The mysteries of the trade become no mysteries: but are as it were in the air, and children learn many of them unconsciously. 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 neighbourhood, supplying it with implements and materials, organizing its traffic, and in many ways conducing to the economy of its material.”²⁰

The importance of human resources were central in Marshall’s work. His findings suit appropriately also the present situation in many clusters around the world. The establishment of a positive cycle started from innovation of a single person(or company) and boosted by the improvements prepared by other people in the same location is encouraged by the proximity itself, because people have frequent interactions and personal relationships that enrich the competences of everybody. Furthermore the creation of innovative processes and goods are significant incentives for supporting or related industries to enhance also their level of competences to follow the new paths of value creation and take a role in the race of the cluster growth.

Marshall faced also the problem of low economies of scale for companies involved in a cluster. In fact, it is reasonable to think that the average small structure of a single player in the district may prevent from making big investments and acquire more technologically

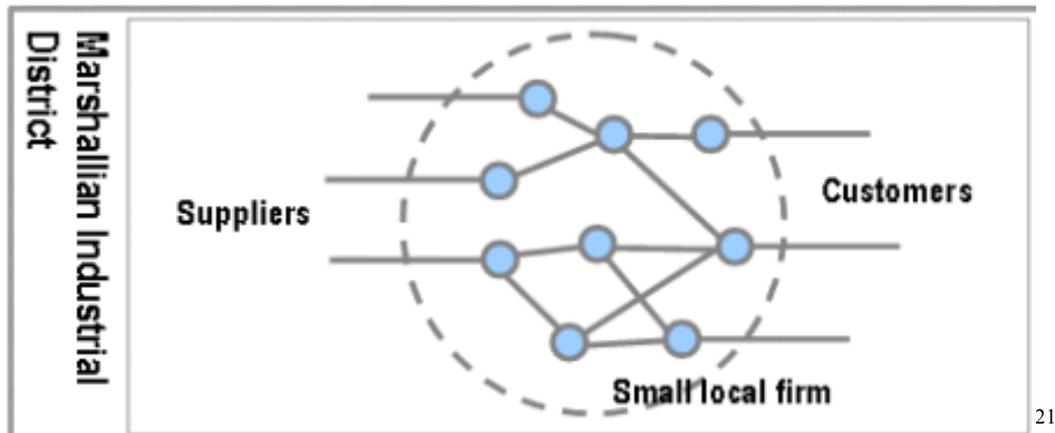
²⁰ Alfred Marshall, Principles of Economics, Chapter X, page 156, 1890

advanced solution of machineries. The author answered to this issue in this way, that is pretty clear and exhaustive:

“The economic use of expensive machinery can sometimes be attained in a very high degree in a district in which there is a large aggregate production of the same kind, even though no individual capital employed in the trade be very large”

Marshall analyzed also the importance of political support by the territory to the cluster in order to prosper and continue its growth: the role of infrastructure and way of communication is crucial (remember that we are talking about a book written in 1890 when for the first time a part of the world was facing a huge enlargement of market and contemporarily great amount of people were moving from countryside to cities. It seems that the wave of globalization seen by the author more than 120 years ago presented some of the problems that are crucial in the actual economic development debate and also the attempt of establishing different clusters in the same territory.

This is really important to avoid that people are all involved in the same industry and that may suffer in case of recession periods that involve the industry



The continuous engagement with high level of expertise expressed by competitors and suppliers, the necessity of satisfying more and more competent customers locally (think that if “the mysteries of the trade become no mysteries and children learn many of them unconsciously”, it means that people inside the cluster require products of high quality with the most up-to-date technologies, having them all the necessary information to express their opinion on a product), and the flux of skilled people, particularly important from outside

²¹ Markusen, A. Sticky Places in Slippery Space: A Typology of Industrial Districts, *Economic Geography*, Vol. 72, No. 3, pp. 293-313, 1996

because it can bring new way of thinking, different perspectives of the problem and ideas that may not arise from the cluster because people have a similar mindset, create an incredibly fertile soil for innovation and value creation.

All the forces stimulate an increase in people competences and are fundamental to feed the positive cycle of value creation. It is clear that this structure seems particularly fragile and every actor has to work actively and be part of the process of innovation. The price for any interruption is the slowdown in the flow of new products and technology creation that can affect deeply the state of health of the entire district.

A certain number of entrance of new players in the district is fundamental for the import of new ideas and to enhance the level of competition (and to offer possibilities of social enhancement for skilled artisans in the territory) and at the same time it is physiological that some companies go out from the cluster but, as Marshall pointed out, the balance must be protected carefully because clusters are more subjected to economic recessions than huge vertical companies. This is clear because of the small average structure of members that cannot bear big losses continuing at the same time to invest heavily.

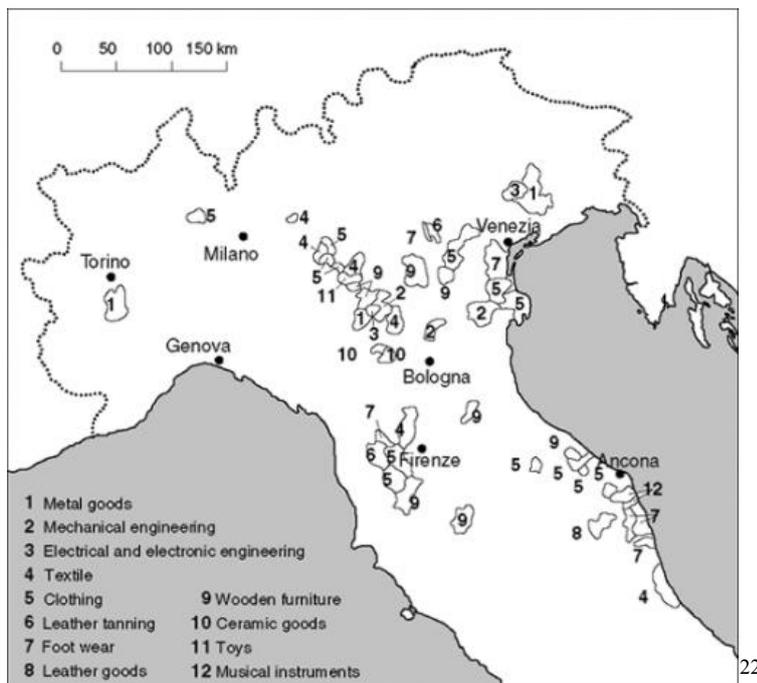
A point particularly stressed by the author that enables a district to flourish is the limited possibility of scale economies exploitation in the industry, allowing the co-existence of many different players that can create together a meaningful business through negotiations in the supply-chain development that last very long across the years, driven by proximity and common culture. The main linkage is reciprocal faith and this allows to concentrate all the commitments on the research of innovation and on the business development, reducing transaction costs and speeding up dramatically lead time of firms that are at the end of the value chain, that are so able to provide rapidly products at the external that are the result of many different tiny value-adding activities within the cluster.

The crucial actor in Marshall district is the particular ability and skill diffuse in the local labour market, within the borders of a specific geographical area; he described workers as the real engine of the district because of their peculiar capacity in the activities related to the industry and because of their attitude to transfer competences from one firm to another within the district, spreading knowledge in all the units and speeding up the process of competences' sharing. In Marshall works, workers don't appear particularly loyal to a single firm but rather they tend to appreciate the district as a single entity and don't bother to change their employee

among the firms of the industrial district, renouncing on the other hand to search work in other geographical areas that are not embedded in the district.

In this way the author considered the workers of the district as a community extremely linked with the territory and completely anchored with the local culture and habits, giving a proper soil to establish mutual faith and collaboration among the different players. In a similar context the diffusion of ideas and sharing of collective expertise is largely faster than in any other organization and avoids the burden of huge structure that allows a rapid exchange of information as huge vertically integrated firms that face difficult to adapt themselves in front of market evolutions and habits change.

Marshall anticipated of a century many of the themes that several scholars studied since the 1970 all around the world, when in many countries industrial districts became the real boost of entire national economies and established a new way of doing business against huge manufacturing players. Italian industrial districts particularly deserves a special mention and has been deeply analyzed by many eminent authors in the attempt of understanding the success of such particular economic structures, particularly aggressive and successful in traditional labor-intensive and design-led industries but competitive too in sectors characterized by high rates of innovation and technology.

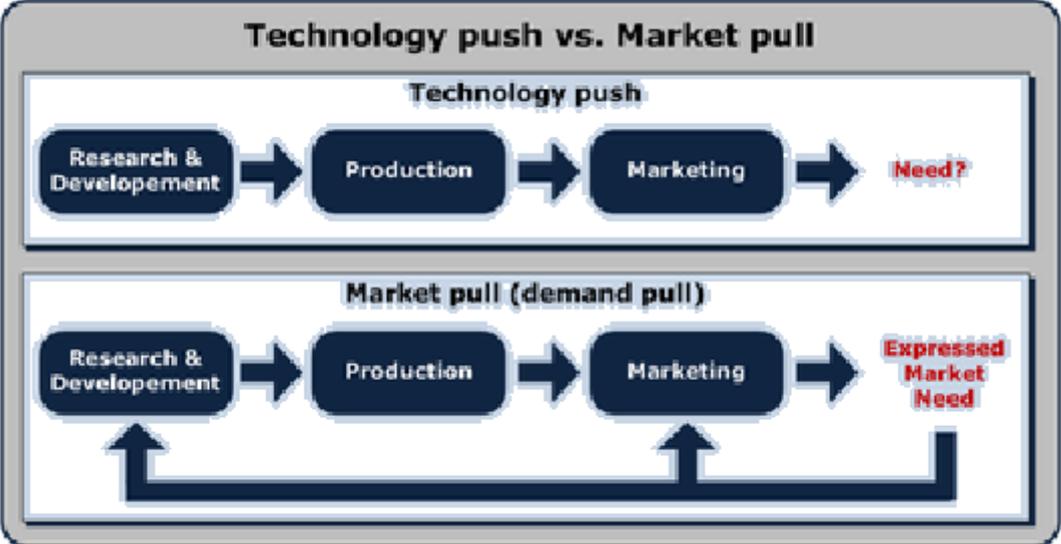


²² Sforzi, The quantitative importance of Marshallian industrial districts in the Italian economy . In F. Pyke, G. Becattini, and W. Sengenberger, (eds) op. cit., 75 106. 1990

In those years the entire industrialized world were coping with the disruptive effects of a wave of oil crisis that undermine deeply the trend of solid growth and damaged the sense of confidence in economic capacity of producing common well-being.

At the same time, customers were becoming more conscious of products attributes and were starting to comprehend more properly their own desires and what they would expect from a product, starting to pull companies to develop new products relentlessly, requiring a reduction of time to market and particularly, more innovative and complex products.

It became clear that the technology push era driven by science discoveries and R&D internal departments were no more the only key to rally the competition and that the market were starting to exert high pressure on highly integrated firms to become more flexible and able to satisfy new needs and growing awareness of quality.²³



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²³ See also Schumpeter "The theory of economic development: An inquiry into profits, capital, credit, interest and the business cycle", Transaction Publishers, 1912-1934 for the first conceptualization of technology push

²⁴ Martin, Michael J.C. . Managing Innovation and Entrepreneurship in Technology-based Firms, 1994

Chapter 3 The advent of the GVC concept

3.1 The evolution since Porter's value chain and the introduction of buyer driven value chain and consumer driven value chain

After having analyzed briefly what has been the development of Value chains in Porter's works and the evolution of Industrial Districts, we have to gain more information about an issue that has brought meaningful contribution to actual debate on globalization.

Starting from the late years of 1980's and particularly at the beginning of 1990's a group of scholars began to observe some phenomena that were involving value chains involved in many industries around the world. The growing levels of globalization around the world and extensive processes of outsourcing and off-shoring put in place by MNC's located in developed countries obliged to rethink the Porter's Value Chains, evolving it to Global Value Chains.

These are an evolution of a complex series of researches on Global Commodity Chains that has been developed during 1980's.²⁵

Even though a concrete definition is not available we can infer it from Gary Gereffi's papers, the main author that started to analyze GVCs and still today continues to monitor this issue from different points of view. He adopted²⁶ as meaningful this definition for value added chains " *the process by which technology is combined with material and labour inputs and then processed inputs are assembled, marketed and distributed. A single firm may consist of only one link in this process, or it may be extensively vertically integrated*"²⁷.

Clearly the main authors of GVCs (Gereffi, Humphrey, Bair, Sturgeon) used the concept of value-added chains as the first brick of their researches taking into account the progressive disaggregation of value chains in a myriad of tiny set of activities that can be divided and outsourced to the different companies. The attribute "global" is the more logical consequence to the high levels of internationalization reached by MNCs particularly, but in general terms

²⁵ Bair, Global commodity chains: Genealogy and review. In *Frontiers of commodity chain research*, Stanford University Press, 2009

²⁶ Gereffi, Humphrey, Sturgeon The governance of Global Value Chains, *Review of International Political Economy*, 2005

²⁷ Kogut, *Designing global strategies: comparative and competitive value-added chains*, *Sloan Management Review* 26(4), 1985

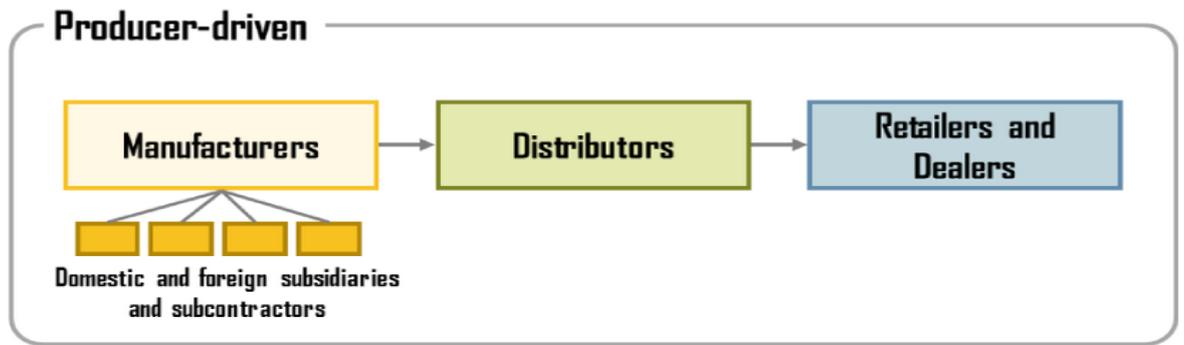
by the major part of industries around the world, and the dramatic pressure on prices due to competition that pushed firms to set part of their activities in foreign countries to exploit lower production costs (due to lower attention to human rights and wages that are a fraction of those paid in developed countries and for many other reasons).

Furthermore the evolution of markets has offered also the possibility of exploring with relative easiness many more markets than ever before, allowing companies to establish distribution channels that can deliver products all over the world. This is maybe, the biggest opportunity of development that the globalization is offering, a market with dimensions that are sharply bigger than those offered in the past (obviously we are talking only of a potential market and a more precise research for every industry is required to obtain clear information, but it is pretty sure that to have the entire world as potential market is better than to have Italy or EU or US).

So for GVCs we have to say that the theoretical research has been first of all the result of something that underway was happening in reality and that has been underestimated for long time. At the beginning the analysis of GVCs has been mainly relegated to the field of economic development, trying to understand how the insertion of companies (or clusters) in a GVC may affect the growth of a region.

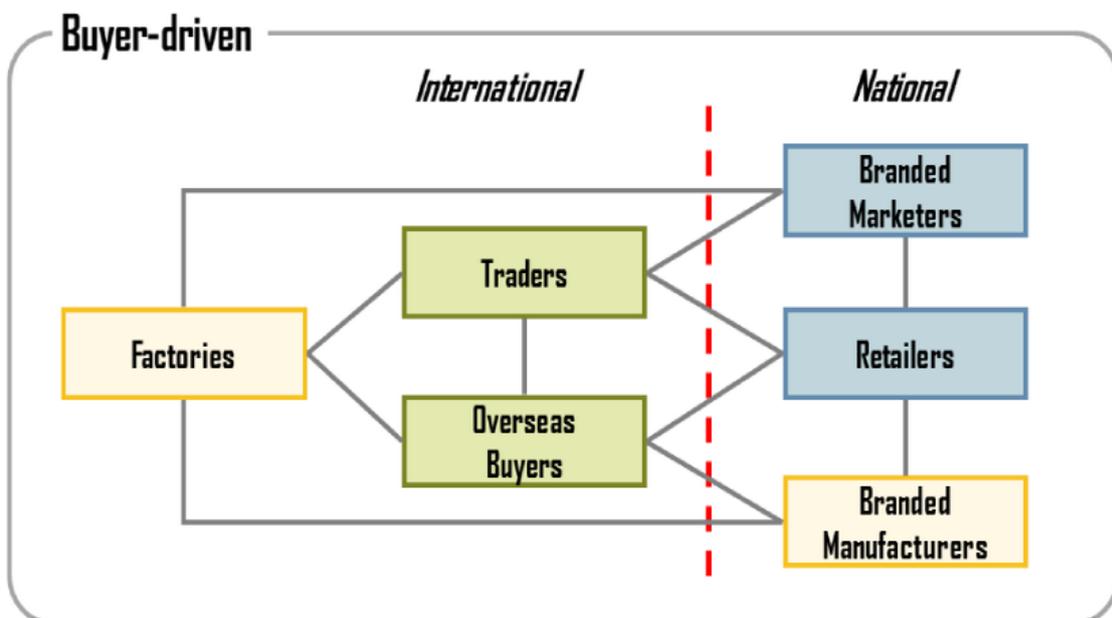
An important issue that Gereffi analyzed in depth and that represents a sort of precondition for all its subsequent works is the distinction of GVCs in two main groups that are characterized by the dominance of different group of actors:

1. **Producer driven value chain:** these are value chains in which the bulk of value-adding activities is strictly kept by manufacturers or producers. These industries often require really high investments and are characterized by significant levels of capital required that enable incumbents to build high barriers to entrance. For these reasons the pressure exert by distributors and sales channels on upstream levels of the value chain cannot be very tough and the biggest part of margins is tightly kept by producers. The classical example of industries are automotive, aerospace naval and specialized health care machineries manufacturers.



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2. **Buyer driven value chain:** these industries are characterized by the presence of relevant players in the latest steps of the value chain that use their well-known brand name to assure customers on the quality of the products they sell. The large distribution firms as WalMart, Tesco, H&M that around the world are easily recognized and manage easily to put pressure on the margins of other actors in the value chains (especially those in the initial stages like manufacturers and assemblers). The classic examples are industries like footwear, some areas of food and textile, agriculture.²⁹



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²⁸ Adapted from Gereffi "Shifting governance structures in Global Commodity Chains, with special reference to the internet", *American Behavioral Scientist*, 44, June 2001

²⁹ Gereffi, *The organization of buyer-driven global commodity chains. How US retailers shape overseas production network*, 1994

³⁰ See note 4

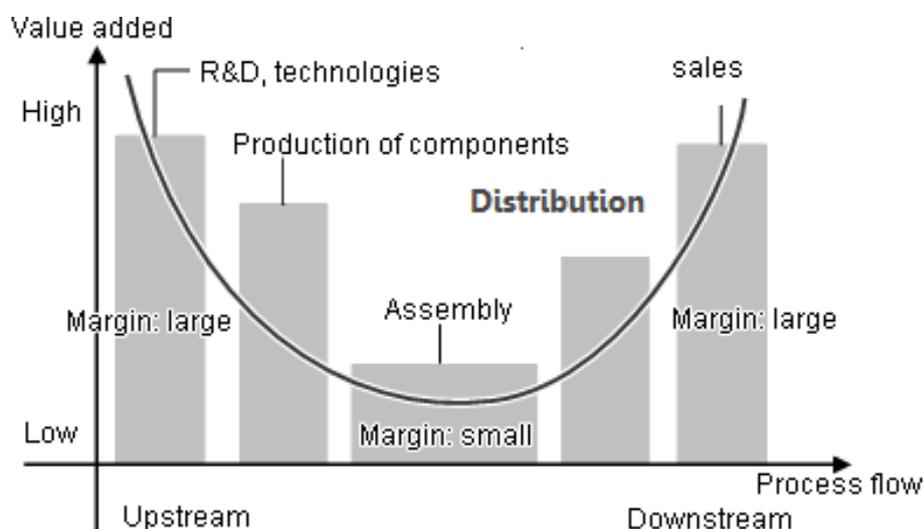
This division it's much more than a simple technical and academic classification. In its clearness explains properly and with sufficient precision where the power inside the value chain is located and which are the players that can influence all the other with their decisions and strategies.

Indeed all the authors keep in mind always this scheme distinguishing if the industry they were currently analyzing is a buyer-driven or producer driven (even though the majority of works is related with the latter one because it results more innovative and with higher value-added activities).

Deepening its analysis, Gereffi focuses his attention on a different type of value chain that is a sort of evolution of the one seen in the chapter related to Porter contribution. He distinguished 5 main stages and created an interpretation matrix that linked every stage to the average importance that it plays in terms of value generation, underlining also the position of the stage along the process flow.

The 5 stages are:

- Design
- Components production
- Assembly
- Distribution
- Sales



We can easily comprehend that is a simplification and that this scheme must be declined to the industry under examination (and also referred to a certain historical context³¹) but it is clear from the observation that, on average, the author considered some stages more relevant than others and thinks that they can provide more perceived added-value to customers (and so margins for the actors involved in that areas of the value chain) than other ones.

The stage at the beginning involves the complex process of product ideation, designing and requires high competences and high expenses on research and development. Those who operate in these area, linked with the concrete manufacturers of the products that has invented and engineered the product are commonly known as the earliest part of the value chain and if the power of the overall value chain is concentrated at the beginning, as we have already seen, we can talk of producer-driven value chain.

On the other hand the latter part comprehends the areas of distribution and sales that are particularly relevant in the labor-intensive industries in which the loyalty to sales brand is fundamental to obtain good levels of sales and feed the entire value chain that otherwise may face great problems to find market acceptance. These are the buyer driven value chain.

It is clear that the extremes of this curve has potentially the highest level of added value in these scheme. This phenomenon has been called “smiling curve” by Stan Shih, the founder of Acer in 1992³² and has been observed in several industries with different levels of impact.

This kind of framework is highly-debated because put scarce attention on the manufacturing and assembly phases which in many industries represent the focus of the entire value-chain and warranties the building of durable competitive advantage. The industry analyzed in this paper, is one of them and I will try to demonstrate the inconsistency of the smile effect pattern.

3.2 The Governance patterns of GVCs

The more significant contribution that Gereffi gave to the study of GVCs it is without any doubt its work on governance patterns inside a value chain. Indeed starting from the traditional distinction among the possibility of keeping completely internally an activity

³¹ Penrose, The theory of the growth of the firm, 1959

³² Shih talked specifically of personal computer industry

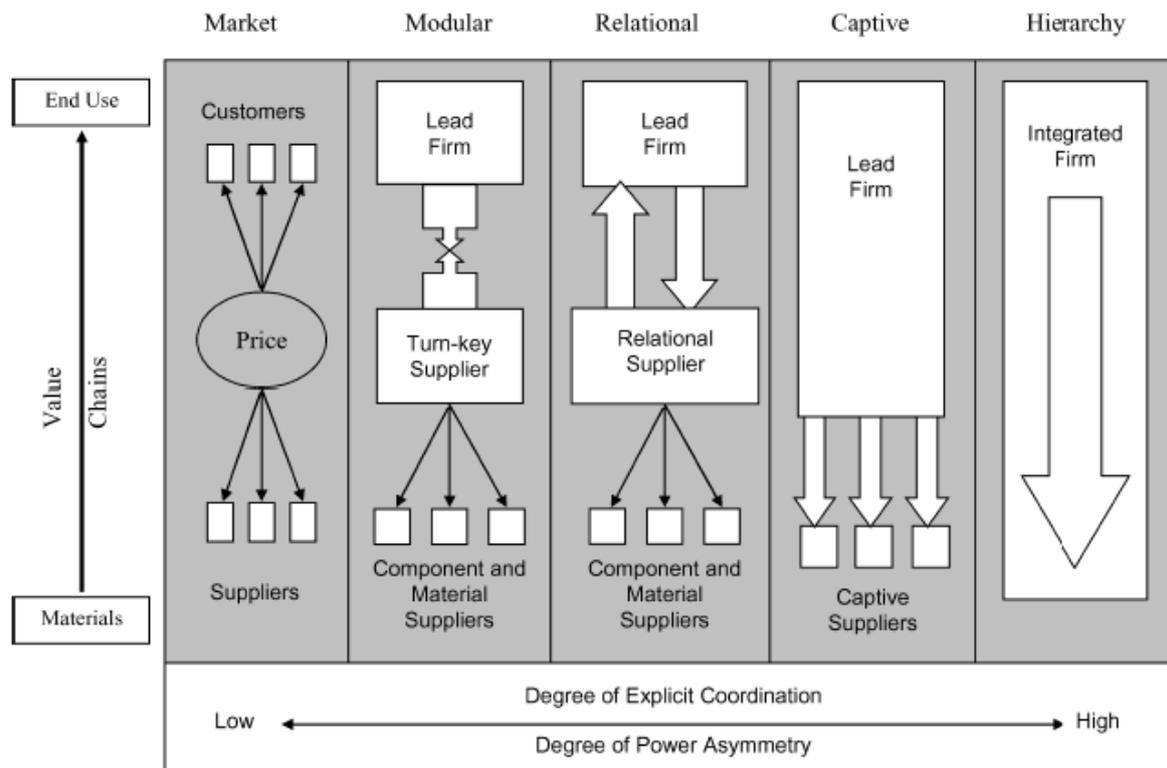
because it is considered valuable and profitable for the company and the idea of buying a product from external suppliers, the author recognized different intermediate possibilities that can be adopted from a company that has peculiar characteristics and necessities.

These are the 5 governance patterns³³:

- 1. Markets:** the governance of a relationship characterized by the market is pretty clear because it involves a buyer and a supplier that negotiate the selling of a product through the simplest negotiation tool, a price. The exchange of information is very limited and the relationship may last for a single transaction, to satisfy the requirements of the buyer offhand.
- 2. Modular:** in this pattern the level of interaction among actors become a little bit tighter even though both the players have interest to keep a meaningful degree of independence. Indeed in this case the company requires to its supplier a product with specific characteristics and specifications provided in detail by the buyer. Typically the objects of these negotiations are not particularly valuable and are largely used by other players in the market, keeping low the switching costs for both the parts. Suppliers are not required to invest huge amount of money and time in the negotiation even though it is required an high level of codified information and the transaction may become complex.
- 3. Relational:** for our purposes this pattern is probably the more interesting, though it is also the most difficult to implement successfully. In fact this transaction is characterized by two different actors that are formally independent but they are mutually dependent from the other part, and that have great interests on the negotiation. The management of a fragile balance like this is linked to the climate of faith and reputation that link the two parts, often guaranteed by a similar background, language but above all, from geographical proximity and ethnical sharing. Everyone recognizes immediately that this kind of relationship is typical of industrial districts or clusters and it is probably the real secret of district success because it is a resource that cannot be replicated outside and requires very long time to be established. For this simple reason, players invest huge amount of time in the relationship so the switching costs are particularly high and players has the maximum interest to keep the negotiation at work; furthermore the knowledge that is exchanged in relational

³³ Gereffi, Humphrey, Sturgeon "The governance of global value chains", Review of international political economy, vol 12, 2005

schemes is really difficult to be codified and this issue contribute to make the relation durable and idiosyncratic.



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4. **Captive:** in this relationship the two actors have completely different negotiating powers that affect completely the final result of the transaction. Indeed this is the usual example of relationship that we can observe in buyer-driven value chains where buyers result enormous in relation to their suppliers that are submitted and have little power to exert. Clearly in this case we observe a significant asymmetry because little suppliers invest much of their resources on the relationship and are dependent on the relationship to survive (in other words, their switching costs are really high) but on the other hand the buyers put an high control on the counterpart and are free to change supplier with relative easiness
5. **Hierarchy:** In this case the transaction is completely internalized inside the company so it is sublimated in vertical integration. Clearly in this case, the importance of the activity is perceived as maximum for the player and suppliers are not considered reliable or sufficiently able to provide the good. It can be also the case of high added value activities that assures high returns.

³⁴ Gereffi, Humphrey The governance of Global Value Chains: an Analytical Framework, 2005

As we start to comprehend this 5 possibilities are sorts of archetypes along the continuum that goes from the complete internalization of the activity where the control is maximum and information are kept inside the organization to the pure market approach where two players negotiate a good or a service in exchange of money. The possibilities of relationship are infinite and this scheme should be used only as an indication for transactions management but we must be aware that it brings with it many useful information.

Gereffi to establish this 5 governance patterns used essentially these determinants to distinguish the different possibilities and to classify properly the nature of relationships:

- **Information Complexity:** This aspect measures how much the information that must be exchanged during the relationship are intricate to obtain the realization of the two players' requests. Clearly an high level of information complexity, requires high time of negotiation and a meaningful investment of time and resource by both the parts. This unequivocally, raises switching costs and requires close interaction.
- **Information codification:** it measures how much complex information that are necessary to implement successfully can be expressed by detailed and explicit written rules that can be exchanged easily. This is clearly a fundamental tool in relationship as the modular one, which requires a complete understanding of buyer's requests by the supplier to meet its requirements and satisfy standards of quality
- **Supplier capabilities** this aspect is related to the capacity of suppliers to satisfy properly all the requests that buyers' present to him with adequate levels of quality and quantity. Capabilities required often are not only linked to physical characteristic of products but also to lead-time, environmental standards and after-sales services. Furthermore customers require to collaborate on the engineering of the product and in the maintenance, tightening the relationship and claiming high standards. We will talk with precision of mutual competences building afterwards, talking of upgrading processes.

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

Dynamics of changes in governance:

① Increasing complexity of transactions also reduces supplier competence in relation to new demands.

② Decreasing complexity of transactions and greater ease of codification.

③ Better codification of transactions.

④ De-codification of transactions.

⑤ Increasing supplier competence.

⑥ Decreasing supplier competence.

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As the table above rightly describes, we can observe that an high level of transaction complexity is typical of governance patterns where the necessity of control is perceived as fundamental and dominant like hierarchy or captive ones.

On the other hand an elevate faith on suppliers capabilities pushes negotiation towards the “light” patterns like market, modular and relational.

The use of codified transaction is typical of patterns like captive and modular, and it is clearly less important in relational(were the common language or way of thinking represent the real linkage that empowers the entire relationship).

3.3. The disaggregation of traditional value chains to a global network of sourcing

Taking into account the contribution offered by Gereffi and the other relevant authors that has studied GVCs, we have now the possibility to understand properly how this phenomenon has affected the way business are conducted, transforming actors from whatever part of the world into possible interesting partners both in sense of customers or suppliers. It is the clear (but not simple) reflection of the globalization processes underway that we briefly observed in the

³⁵ www.microlinks.org

previous paragraphs but that are still not completely understood by the most number of people (and companies). The development of GVCs is not a “linear” and “simple” process that involves only an entire organization that tries to understand which are its capacities and weaknesses in order to organize its structure with the final aim of competing properly in the market and obtain profitable results and continuous growth. This responds to past necessities and it is more or less the definition of the traditional value chain that Porter presented over 30 years ago.

Nowadays the challenge it is far more demanding and harder. No one can internalize all the production phases of an industry; the rate of technical complexity embedded in production processes, the competence and knowledge of customers, the ability of competitors to develop rapidly and constantly breathtaking new products through flexible research and development platforms, and many other factors has forced companies to cope with their structure and commit themselves to avoid the traps that threaten the existence of successful but slow-to-react big companies (the classical example of incumbent inertia³⁶).

The disaggregation of value chains, except for very little cases, has become a necessity and the governance of relationships with external actors the biggest problem (and at the same time opportunity) of each company that desires to compete beyond a tiny local market (that is not part of my analysis).

³⁶ See Lieberman and Montgomery, *Strategic Management Journal*, Vol 9, Summer 1988, page 48. The authors recognized three main causes of incumbent inertia: the inability to a firm to react because of its past great investments on a specific set of fixed assets, the desire to not cannibalize other existing products that are still providing good results and the scarce flexibility of the organization. All these factors represent huge drawbacks of structures highly verticalized and relevant in our analysis.

Chapter 4 Local systems of innovation and commons

4.1 Local systems of innovation

After the analysis of the significant contributions brought by studies on the field of GVCs and IDs, I would concentrate my attention on a concept that represents an evolution of previous contributions and at the same time an interesting perspective around competitiveness and regional development studies.

We are talking of Local systems of innovation, that takes the move from similar points of IDs and comprises a very broad group of studies that face the problem of creating innovation on a specific territory, posing the environment and social relationships as the crucial players in the study. It is deep the contraposition that this framework establish to the philosophy already seen of GVCs, recognizing the bulk of economic development in the establishment of a strong and powerful regional industrialization.

In reality this issue has been firstly conceptualized in the first part of 19th century by Friedrich List in 1841. He, considering the specific historical moment that was facing the world in that moment, faced the problem of industrialization in underdeveloped countries and in particular Germany, its native country. Observing the initial processes of industrialization in Great Britain, with a constant perspective on racism and on the race to colonialism, he tried to understand how other countries may initiate embryonic transformations of their economic systems in order to establish an industrial sector that may compete with the actual leading innovation system (England in the specific case).

He poses his attention on the competition not of single firms but of entire nations and on the role that a territory plays in the creation of richness, anticipating many of the themes that has been the backbone of economics studies in the following century (and still nowadays). The author put emphasis on the role of institutions as policy-makers able to establish a decisive boost on industrialization and guides on the process of economic growth.³⁷

The work of this author represents a pioneering attempt of highlighting the role of a territory and, above all, of some institutions that may take the lead of complex processes of industrialization, in the creation of entire competitive industries and so, in the process of value creation for customers and at the same time, of richness for local people. Everything inserted

³⁷ Friedrich List, The National system of political innovation, 1841

in a context of innovation that spans on a specific territory and that may boost from the initiative of some political groups, recognizing the huge problems that are embedded in the development of the process for single citizens and entrepreneurs.

The actual level of knowledge in a territory is the result of long and difficult processes that are linked to the historical and social context of a territory as List pointed out in 1841: “ [...] *The present state of the nations is the result of the accumulation of all discoveries, inventions, improvements, perfections and exertions of all generations which have lived before us: they form the intellectual capital of the present human race, and every separate nation is productive only in the proportion in which it has known how to appropriate those attainments of former generations and to increase them by its own acquirements. [...]*”³⁸

It is clear that List was inserted in a completely different context compared to actual days, worried especially to the political and economical supremacy of a country that can be dangerously too heavy for Germany, but its thoughts has been a precious starting point for the analysis of an entire school of thought that blossomed in the 80's and 90's of the following century.

Indeed a group of researchers recovered List's work and gave it a deepening in relation to the new market conditions and obtaining a meaningful impact in the design of actual policies in developed countries.

Lundvall³⁹ in his article Product innovation and user-producer interaction, in 1985 analyzed the role played by interactions of players in the development of products that are neither managed by relationships of pure market nor hierarchy and restated the concept of “system of innovation”, explaining in deep the role of many groups of local actors in the process of innovation development as universities, basic and applied research centers, private firms and hybrid organizations work as aggregators of competences and knowledge and enable to create a place of ideas exchange and technological development.

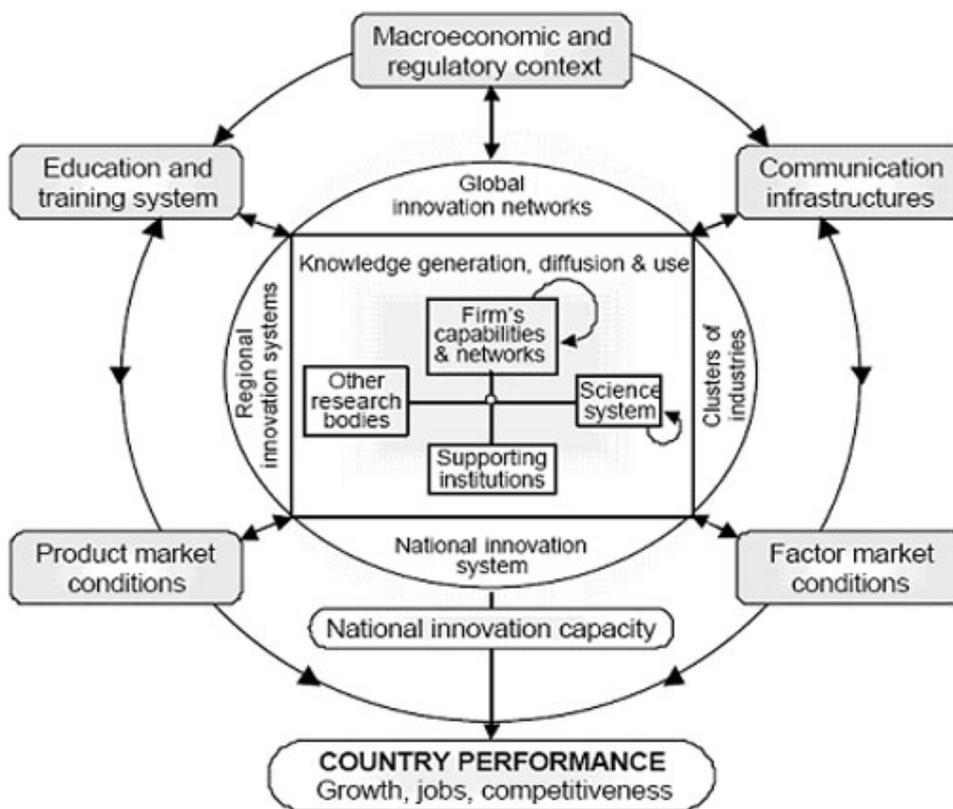
The role of relationships, within a context managed by institutions and so partially different from the one observed in the first conceptualization of IDs, is crucial in the work of Lundvall:

³⁸ Friedrich List, The National system of political innovation, 1841 in Chris Freeman, “The National System of innovation” in historical perspective, Cambridge Journal of Economics, 1995

³⁹ Bengt Ake Lundvall deepened the concept of systems of innovation when he was in charge of IKE Group, a research group of Aalborg University, Denmark. The team enriched the papers of its director with studies on interactive learning, relationships users-producers and technology- application for innovation. Relevant members were Andersen, Wilumsen, Dalum, Fagenberg and Johnson.

“[...] We shall also suggest, that the strength and form of the relationships between producing units and R&D- units influence the overall innovative performance. The pattern of historically established information channels and codes will determine how easily the agenda responds to signals from the production sphere. [...]”⁴⁰.

The concept of national innovation system has been made famous by Chris Freeman⁴¹, that in 1987 after a deep collaboration with IKE group, offered its insight on the Japanese economic system and on the causes of its success, even if this concept has been reformulated by many authors afterwards⁴². The author defined it as a deep network, led by institutions that spurs over the single private sector and embraces also the public one, that is able to create, modify and diffuse new technologies through its internal interactions⁴³.



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⁴⁰ Bengt-Ake Lundvall, Product innovation and user-producer interaction, research series 31, Aalborg University Press, 1985

⁴¹ See also Freeman, Technological infrastructure and international competitiveness, Draft paper submitted to the OECD ad hoc group on Science, technology and competitiveness, 1982 for the initial recovery of List's work.

⁴² See Charles Edquist, Systems of innovation: technologies, institutions and organizations, Pinter, 1997:

“[...] (the author defined a system of innovation as) all important economic, social, political, organizational, and other factors that influence the development, diffusion and use of innovations”

⁴³ Freeman, Japan: a new national innovation system?, Pinter, 1988

⁴⁴ Diagram of forces involved around a local innovation system. Source: OECD, 1999

Freeman's idea of national systems of innovation became more clear in its sequent works, criticizing the attention put on globalization (but recognizing its importance) and inviting researchers to concentrate their attention on national or regional systems as the essential seed for innovative processes with the focus on the different categories of actors involved at local level.

He compared the success and decline of different economic systems as US, Japan and USSR to understand properly how the economic balance changed over time and which has been the main causes that has enabled this systems to prosper or to collapse.

Particularly interesting is the analysis of Japan rise around 1970 that the author remarked, it is not only a matter of resources invested, to highlight the importance of good-working institutions and the crucial impact of capable policy-makers in the establishment of research programs and industrialization. On the other hand there is a counterexample of how a system can decline rapidly even if it spends lot of money in the attempt of modernizing its economic structure as the USSR did during its competition with US for technological and economic world dominance.

Japan	USSR
High GERD/GNP Ratio (2.5%) Very low proportion of military/space R&D (<2% of R&D)	Very high GERD/GNP Ratio (c. 4%) Extremely high proportion of military/space R&D (>70% of R&D)
High proportion of total R&D at enterprise level and company-financed (approx. 67%)	Low proportion of total R&D at enterprise level and company-financed (<10%)
Strong integration of R&D, production and import of technology at enterprise level	Separation of R&D, production and import of technology and weak institutional linkages
Strong user-producer and subcontractor network linkages	Weak or non-existent linkages between marketing, production and procurement
Strong incentives to innovate at enterprise level involving both management and workforce	Some incentives to innovate made increasingly strong in 1960s and 1970s but offset by other negative disincentives affecting both management and workforce
Intensive experience of competition in international markets	Relatively weak exposure to international competition except in arms race

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The author remarked that in USSR the expenses for R&D in relative terms of GDP was really high, around 4% but they were nearly completely concentrated on military purposes, leaving only 1% for civil purposes. Furthermore the funds were invested in separate research institutes for every industry, with loose linkages with firms leaving enterprises without a solid

⁴⁵ Freeman, The National system of innovation in historical perspective, Cambridge Journal of economics, 1995

institutional development support. The absence of coordination and firms' involvement in R&D processes, added to scarce user-producer interaction that may help the blossom of creativity, caused a slowdown in the process of innovation in the society that heavily contributed to the rapid decline of USSR economy.

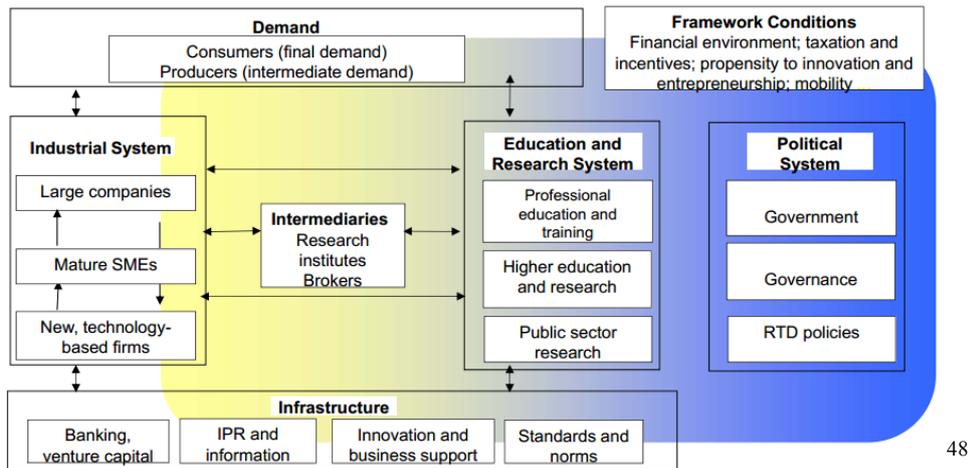
On the other hand Japan showed a brilliant capacity to exploit its quite low R&D expenses(around 2% of GDP for civil purposes), creating a tight relationship between enterprises(that received significant direct support) and institutional structure as MITI, spurring innovation on different sectors. The role of local research centers has been properly coordinated with needs expressed by firms, with the support of government institutions in a well-defined plan of development, that has allowed the Japan economy to outperform foreign competitors in many technology-intensive industries. Furthermore Japanese firms managed establish deep relationships with subcontractors and users, leveraging on their respective skills in a continuous learning process driven by faith. All these factors allowed a consistent speed up of innovative processes and the adoption of avant-garde tools for rapid development of processes and absorption of competences⁴⁶.

Nowadays, according to Edquist, a system of innovation is characterized by an explicit function that is shared by all the actors and that results in the production of innovative projects. This system must be perfectly distinguishable and managed by a series of rules and routines(institutions) that govern the relationship among the different players.

The interactions can be of different kind(reminding IDs) like competition, cooperation or transactions and the possible activities embrace different purposes and fields like financing of innovation processes, establishing of external networks for continuous learning, skill and competence training, creation of new organizations, consultancy and particularly the creation of powerful institutions through shared regulation.⁴⁷

⁴⁶ Takeuchi and Nonaka, The new product development game, Harvard Business Review, Jan/Feb 1986

⁴⁷ Edquist, the systems of innovation approach and innovation policy: an account of the state of the art, paper presented at the Druid Conference, Aalborg, 2001



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As we can easily comprehend systems of innovation are now object of a wide range of research, considering the wideness of fields embedded, as technology improvement, economic growth and regional development. Probably the more interesting aspect of this kind of studies for our purposes is the continuous reference to the necessity of a powerful institutional framework and a comprehensive development plan for a geographical area in order to obtain economic success and richness production for a certain population.

In the era of globalization, systems of innovation represent an apparent contradiction because of their object of analysis itself, a regional area and its specific characteristic with the analysis of actors, relationships and institutions present.

This is all but a contradiction, and it is a really relevant point for economic development policies and for my thesis particularly. Indeed the era of globalization with the progressive integration of markets and the continuous exchange of information is challenging firms to innovate relentlessly and to adapt themselves to a muting environment. It is evident that a precondition to reach this goal is having a structure that is able to leverage on local human resources and on a stimulating network of competences and skills.

But the reaching of this goal is far from foregone for many areas in the world and this fact is dependent from the specific characteristics of an industry in a specific territory and on which actors are involved in the process of value creation. Recovering the example on USSR economy in 1970s, the resources for an economic development were present and many companies were potentially able to produce innovation and create value but the process failed because the system was not able to create a network of research centers, universities and firms that worked all together to explore new technologies applicable on new products or processes.

⁴⁸ Structure of an innovation system. Source: Kuhlmann, Arnold, 2001

So it is now clear that financial and social resources' availability is not enough for the success of a company.

In fact the role of the economic system in which the company is mainly involved (even for MNCs), affects dramatically the performance of the firm through many different factors that may lead to success or to failure. The local system provides the large part of production factors as the availability of skillful workforce, a well-working financial market and above all, the existence of private and public institutions that support and encourage innovation through rules and reciprocal faith.

The main difference with IDs studies, that recognize the importance of a certain cultural scheme and of skillful people concentrated in a well-defined area where proximity enables continuous interaction and exchange of ideas, stays on the necessity of a "formalization" of the process, with a detailed plan of action and rules for the innovation process that involves people from different organization. The systems of innovation base their capacity of renovation on the ability of its members under the direction of capable institutions that are able to understand the direction of the process and to support members with knowledge and money.

The absence of powerful institutions has been in many cases the main drawback for a cluster that was trying to enhance the quality of its products and to gain a more powerful role in the international scenario⁴⁹, slowing the upgrading process and constraining the local area to provide low added value activities inside the GVC. The theme of local innovation permeates all the different research fields that has been analyzed by authors in the last century, creating linkages as we had seen with upgrading processes in GVCs and competences' creation in IDs and also in Porter's diamond but IS contributed significantly to explore the role of institutions, linkages around local actors and also about the abilities of a territory to leverage on its characteristics, observing the problem from a completely different point of view.

It is generally shared the idea that the availability of a set of commons⁵⁰ is a precondition that may deeply affect the ability of a territory to create richness and take the lead in some

⁴⁹ See examples of difficulty upgrading process in Pietrobelli, Rabellotti, Global Value Chain meet innovation systems, are there learning opportunities for developing countries? Idb Working paper series 232, 2010 for Sinos Valley shoe industry in Brazil and Bair, Gereffi, Local clusters in global chains: The causes and consequences of export dynamism in Torreon's blue jeans industry, World development, 2001

⁵⁰ See Barnes, Capitalism 3.0, 2006 for Commons definition "all the gifts we inherit or create together. This notion of the commons designates a set of assets that have two characteristics: they're all gifts, they are all shared." The author talks of a river with three tributaries: nature, community and culture. See also Ostrom,

industries international competition⁵¹. Innovation systems authors managed to enrich this belief, adding the necessity of a direction that provides continuous fuel to the innovation processes of a territory that has the possibility to leverage on its material and intangible assets, establishing a positive cycle that may reinforce existing commons, attract new skillful people and foreign investments and create abilities and hybridizations across industries necessary for the establishment of new commons. These will be more intangible and sophisticated, with a higher level of barriers to imitation and for these reasons more profitable for the entire territory, contributing to competences building and people richness.

The actors that would benefit from a similar coordination, as Japan taught us, are at the same time companies inserted in GVCs, firms involved in clustering processes, supporting industries and territories themselves with all their inhabitants.

4.2 Commons

The concept of Common has been sharply debated in latest years, gaining attention also of generalist media and public opinion. The reasons are different, even though the main can be considered the growing attention on sustainability and saving of environmental resources linked with a growing attention on local linkages in contraposition to globalization processes and uniformity of markets.

Around this term a large amount of authors put their attention in the attempt of understanding better which characteristics may boost a territory growth and how these resources can be preserved and duplicated.

The author that mainly contributed to highlight this concept has been Elinor Ostrom, that described a common as "a general term for shared resources in which each stakeholder has an equal interest". Furthermore the author presented "common-pool resources that are natural or human-made resources where one person's use subtracts from another's use and where it is often necessary, but difficult and costly, to exclude other users outside the group from using the resource"⁵².

Governing the commons: The evolution of institutions for collective action, Cambridge university press, 1990 for commons" The commons is a general term for shared resources in which each stakeholder has an equal interest"

⁵¹ Since Porter's The competitive advantage of nations

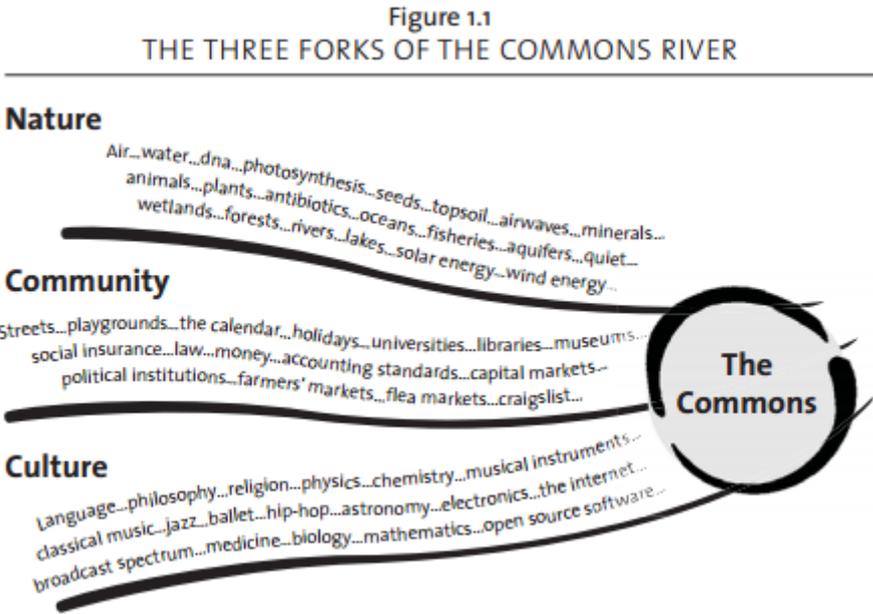
⁵² Ostrom, Governing the commons: the evolution of institutions for collective action, Cambridge University Press, 1990. The author won also a Nobel Prize in 2009 because of her ideas expressed in this book.

Ostrom included in the list of commons not only physical attributes as forests, water resources or agriculture but also intangible assets as social organization and this is a crucial point to properly understand how a territory success can be deeply affected by phenomena as culture, entrepreneurial attitudes and social structure .

A pregnant definition of the term has been given by Barnes in 2006, defining it as ” all the gifts we inherit or create together. This notion of the commons designates a set of assets that have two characteristics: They are all gifts and they are all shared. A gift is something we receive as opposed to something we earn. A shared gift is one we receive as members of a community, as opposed to individually”.

The concept of community becomes central with Barnes, in sense of a thoughts sharing and of an underline common culture that enables to comprehend the reality in the same way, further than sharing simply the same territory.

The author thought that the commons are similar to a river that takes force from its tributaries that in the comparison are Nature, Community and Culture that are part and preconditions of commons.⁵³



This synthesis drives immediately the necessity of simultaneous existence of different pillars to establish a common and reinforce relentlessly it.

⁵³ Barnes, Capitalism 3.0, A guide to reclaiming the commons, 2006

The attribute “nature” is linked to natural resources that characterize a specific territory and for this reason are part of the landscape; they can be described as the physical aspect of the landscape of a territory. The other two pillars are more complex to understand and almost impossible to reproduce in territories that are different from the original one.

Indeed community and culture are deeply embedded in the way a group of people perceive its environment, its infrastructures, its rules and even the hierarchy of values that a population establish informally. Every economic system has a specific set of public organizations, social structures and rules that allow to operate with profit and cooperating with other people; this characteristics are peculiar and totally bind with the concept of culture and the way a population perceive itself and evaluate human behaviours as correct or wrong.

This problem has been particularly clear in the historical attempt of imitation case of success in the cluster field, replicating the adoption of public institutions or meaningful infrastructures that shall boost the profitability of a specific territory as they did in other part of the world. This purpose is very difficult to realize, even if the natural resources are similar, because of the specific characteristics, attitudes and behaviours of a population within a regional area. The role of commons is gaining more and more importance in the development of economic systems, considering that the availability of particular commons is clearly the driver for success in many cases and represent a defensive tool to prevent imitation and foreign competition.

Furthermore commons can be a driver to attract external resources, and so support innovation through skilful external people or precious foreign investments so their role will be highly debated in the next years and should not be ignored by policymakers nowadays.

4.3 Pisano contribution

Gary Pisano⁵⁴ has been able to resume this concept and contribute widely to put attention on industrial commons role in the overall richness production capacity of a certain geographical area. The studies of this author, in collaboration with Professor Shih, are mainly focused on the loss of competitiveness of American companies since 1980s in high-technology sectors due to massive off-shoring and outsourcing policies in Asian countries of big parts of the entire value-chain, included the so-called high value added activities (for instance design).

⁵⁴ Professor Gary Pisano is actually Professor of Business Administration at Harvard Business School, Professor Willy Shih is Professor of Management Practice in the same school.

In “Producing prosperity: Why America needs a manufacturing renaissance” of 2012 the authors talked diffusely of industrial commons introducing a personal definition of the industrial common concept; resuming from the concept already widely debated by scholars, authors gave it a new dimension and a growing importance related to the complex process of richness creation within a territory and recognized the reliance of knowledge that affects several different sectors in the existence of industrial commons:

“[...] for any given industry – say, automobiles - companies in any given region usually draw from a common set of suppliers and human resources. While accessing these industrial resources is not free (as was true for grazing commons), they provide a shared benefit to multiple companies. If, for example, suppliers of precision machined parts become weaker technically or there are fewer first-rate mechanical engineers in the labor pool, all companies needing these capabilities suffer. The existence or absence of a commons in a particular geographical area, helps explain why some new industries take root in a particular area, whereas others have difficulty getting started[.]”⁵⁵

“ [...]Once an industrial commons has taken root in a region, a powerful virtuous cycle feeds its growth. Experts flock there because that’s where the jobs and knowledge networks are. Firms do the same to tap the talent pool, stay abreast of advances, and be near suppliers and potential partners.[.]”⁵⁶

The authors recognized as a necessary precondition for the successful development of a positive knowledge-creation process cycle the establishment, protection and continuous reinforcement of commons in specific territories, underlining in specific the dramatic effects of some outsourcing choices pursued in United States that has undermined the innovative capacities of several commons: the erosion of competences creation and high-technology handling has ruined American capacity of ruling several profitable sectors and threatens the evolution of many others which are rooted on the same industrial commons.

The advantages brought by a commons establishment are the same that we have seen in Industrial Districts analysis and are drivers for a thorough empowerment of the territory in many different sectors, as it happens in Italy for automobiles, furniture, apparel and household products with the design commons or in Germany with the excellence in machine tools

⁵⁵ Pisano G., Shih W., Producing Prosperity: Why America needs a manufacturing renaissance, Harvard Business Review Press, 2012

⁵⁶ Pisano G., Shih W., Restoring American competitiveness, Harvard Business Review, July 2009

industries and automobiles due to mechanical-engineering commons.⁵⁷ These commons represent the real extraordinary and difficult-to-imitate attitudes and skills of people located in one area, settled by years of experience and trial and error processes.

Pisano observes deeply the different stages of outsourcing process that involved US manufacturing high-tech industries (in particular PCs production), that started a slow but relentless disaggregation of the whole value chain since late 1980s:

1. In the first phase, US companies started to outsource low-added value activities to Asian producers, in the attempt of exploiting the cost advantages provided by production of components and assembly in countries where the labour costs were fractional compared to those of developed countries. This phase affected only the manufacturing of small technical pieces under strict requirements by US producers in a modular-captive relationship, no spaces were left to foreign producers to suggest new solutions or to ask for high prices for their works.

In US managers' eyes this step of value chain disaggregation was completely reversible and would increase the competitiveness of their products, due to higher margins and more spaces for market conquer policies, concentrating their companies efforts and resources towards the real-competitive-advantage-provider phases of the value chain, which didn't embrace manufacturing.

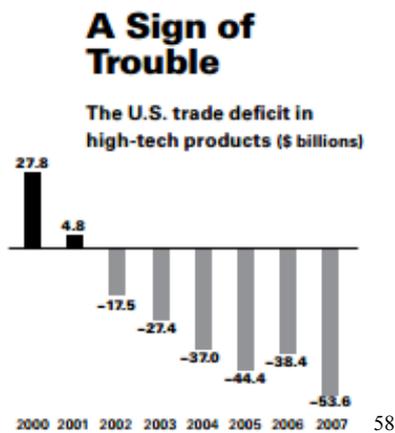
2. Progressively, foreign producers pushed for the outsourcing of other activities like the overall assembly of the whole products and production of more complex parts, due to razor-thin margins and high competition (their own survival where uncertain because of huge competitive pressures). American companies accepted, sure that their position of design-and-conception holders would allow them to keep the control of the whole value-chain without any problems.

Contemporarily the larger part of US producers were forced to follow the same strategy of outsourcing-pioneers to save their market shares, requiring big amounts of components necessary for the manufacturing of their products and the relative assembly to foreign producers in developing countries (South Korea - China and Taiwan). A large number of Asian OEMs started to gain more bargaining power and

⁵⁷ Pisano G., Shih W, Restoring American competitiveness, Harvard Business Review, July 2009.

The German instance is suitable also for the case study of this paper due to German manufacturers excellence in compressors production for air-conditioning industry

competences on manufacturing processes and at the same time overall US balance trade in high tech products started to show signs of difficulties after several decades of success.



3. The decisive step has been the outsourcing of design, initially under tight control of American companies which provided detailed dispositions on features to be inserted in the products in a kind of modular relation. The engineering process were shared and guided by Americans but in this way, foreign OEMs (that in the meantime has started to define themselves as ODM, original design manufacturers) enhanced sharply their competences and skills also in the first stages of the value chain, starting to think as designers and consolidating their knowledge locally, with workers that progressively acquired key capacities and managers that start to imagine a new future for their companies.
4. The final and predictable stage has been the launch of independent brands of these Asian ODM which, gained the complete knowledge of the value chain and being aware that they could gain more profits abandoning the supplier status for American producers, became suddenly competitors of their former customers, after several years of tight relationship and knowledge sharing.
5. The problems for US producers were not ended because they soon understood that their ability to manufacture domestically and create high-value solutions to compete in

⁵⁸ Source: National Science Board, "Science and engineering indicators 2008". Sectors include biotechnology, ICT, electronics, aerospace, weapons, computer software and others.

the new competitive arena were partially compromised because of the commons disaggregation in US: workers were no more able to offer value-adding knowledge and the territory that once represented the real source of durable competitive advantage were no more fertile to seize new opportunities.

The effects of considering manufacturing and assembling as low-added-value phases of the value chain to be outsourced in order to focus on other parts of the value chain demonstrate all the inconsistencies of this strategy and undermines the overall existence of these US personal computers producers and also the survival of different correlated industries which were based on the same commons.

The authors invite governments, companies and managers to take into account carefully the risks pose by the off-shoring and outsourcing processes which can bring short-term advantages but has long-term huge costs that may compromise the entire economies of certain geographical areas and their capacities to create richness and innovation.

The establishment of commons, which represent the backbone of nations' competitive advantages, requires time, efforts and continuous challenging objectives to reinforce directly on the field the baggage of competences and to fuel the innovative capacities of local workers. In authors intentions', the protection of commons should be carefully treated and highly considered in institutions' agenda, linked with the establishment of a tight network of linkages with the territory through efficient scaffolding structures⁵⁹, a necessary condition to offer good possibilities to companies to succeed in the global scenario.

Furthermore, Pisano invites to put high attention on the concept of Proximity as a key driver to successful architectural projects; it is more than a facilitator for high-complexity innovation processes, it is an essential condition that it is confirmed still nowadays by several different clusters worldwide. The knowledge sharing made possible by information and communication tools has already demonstrated its inability to substitute the key role played by direct, informal and free confrontation among actors specialized in the field, which can

⁵⁹ For an insight on scaffolding structure see David Lane and Robert Maxfield, *Ontological uncertainty and innovation*, *Journal of evolutionary economics*, 15 3-50, 2005: "[...] *Through these structures (scaffolding structures), the agents who operate within the market system jointly confront their ontological uncertainty. Scaffolding structures provide a framework for controlling the kinds of new entities – both agents and artifacts – that enter the market system, and for aligning the attributions of agents in the market system [...]. Through scaffolding structures, agents can consolidate a zone of agent-artifact space, making it sufficiently stable to support both markets and the generation of new artifacts to be traded within those markets. At least for a while...*"

learn and modify their baggage of competences through the contribution of other people who work on the same field but possess different background and points of view.

This process is fundamental also to establish competitive companies in other profitable sectors that are indirectly linked to successful ones, because of the reliance on the same set of competences and basic research. This sort of knowledge platform is represented by industrial commons.

“[...]When a major player in an industry outsources an activity, cuts funding for long-term research, and gains a short-term cost advantage, competitive pressure often forces rivals to follow suit. As potential employment opportunities shrink, experienced people change jobs, moving out of the region, and students shy away from entering the field. Eventually the commons loses a critical mass of work, skills, and scientific knowledge and can no longer support providers of upstream and downstream activities, which are, in their turn, forced to move away as well. That is what happened to the industrial commons serving a number of high-tech sectors in the United States.[...]”⁶⁰

The authors invite both government and companies to spend time and resources in the research processes for manufacturing, in specific in the applied research field more than basic one, in order to give new fuel to old industrial commons and settle new ones. The focus on the short-term has already demonstrated all its pitfalls and dangers for entire economic systems and a detailed plan of action is required to regain competitiveness in traditional manufacturing developed countries like U.S., Germany and Italy.

The role of government specifically is considered crucial, especially when it embeds some characteristics as US made in the past:

- Government role has been successful and favoured innovation when it concentrated its efforts towards the solution of a concrete need (as it was a customer), through the patronage of basic/applied research that can span in different sectors
- On the other hand, US demonstrated that ignoring customers' needs and concentrate on projects that embeds an uncertain possibility of commercialization or also the possible absence of a market often ended in a failure

⁶⁰ Pisano, Shih, Restoring American competitiveness, Harvard Business Review, July 2009

Chapter 5 Problems with traditional conceptual frameworks

5.1 Crisis of traditional IDs

The analysis of traditional IDs, especially those located in so-called Third Italy⁶¹ (regions of North-Eastern part of Italy and central regions: Veneto and Emilia Romagna in particular, but also Trentino Alto Adige, Friuli Venezia Giulia, Toscana, Marche and Umbria), demonstrated an extraordinary capacity of these territories in the period 1960-1985 to drive an astonishing growth and a process of richness creation that reinforced the entire economic system, attracting skilled human resources and investments.

This model represented a dramatic success that has been able to compete with highly integrated multinationals settled in developed countries as U.S. and Japan due to its specific characteristics of flexibility and rapidity to follow market changes that has undoubtedly affected the way of doing business in the world, which has been underestimated for long time but that has ruled several sectors, especially those so called labour-intensive. Through an high level of companies specialization in separated phases, the relevant role played by social community and a shared way of thinking, IDs revolutionized many different sectors.

Several problems related with this kind of model started to become evident around 1990 in Italy, when some phenomena started to undermine the renovation capacities of IDs and their extraordinary internal dynamism, highlighting the fragile overall structure and delicate equilibrium that allows an ID to prosper and grow.

The main drivers of typical continuous and long-term transactions within districts which are fostered by geographical proximity and similar cultural background, are faith and reciprocal respect linked with a large availability locally of high-quality inputs and complementors⁶².

⁶¹ Bagnasco A. Tre Italie. La problematica territoriale dello sviluppo industriale, Il mulino, 1977. The author differentiated three specific areas in Italy with economic, social and political peculiarities:

- First Italy embraces the North-West part of the country, with the regions more industrialized and already well-developed in 1960-1970: Liguria, Piemonte and Lombardia
- Second Italy comprehends the region on Southern Italy, characterized by difficult economic situation, weak processes of industrialization and tough government support intervention to establish a positive economic development

⁶² Complementors are products which enhance the value of another product sold by another company and that are necessary for the use of the main product; the perception of added value by customers originated by the contemporary usage of these products is largely superior than the value perceived by a separate usage of

Companies of the district rely on each other to cooperate and obtain success in the market, even though they may also face competition among them in final markets. Obviously these features are powerful drivers to innovation and relentless evolution, forcing all the actors to enhance the qualities of their products and their attributes to satisfy the requirements of other companies in the district, find a continuous collocation in the market and manage to keep the pace of competitors, which can be, as we have seen, other producers of the ID.

As Becattini pointed out⁶³, this model has also some necessary conditions that must be present to establish a profitable ID in a certain territory:

- Production processes must be divisible into phases and the phase products must be transportable through space and time (to foster the active contribution of the entire community in the different phases of the production process, reinforcing also supporting and correlated sectors)
- Existence of a linkage between local producers and the external final market. This feature is crucial because allow the establishment of a district image in customers' eyes and let the myriad of producers to collocate jointly the products on the market
- High mobility of labour market
- Climate of emulation among actors
- Combination of competition and cooperation (as we have already seen)
- Existence of a well-working bottom-up innovations flow

In this way the industrial district has the possibility to enjoy large-scale economies, keeping an high rate of flexibility and adaptation due to the small average size of its units and enjoys its internal resilience capacity rapidly, keeping a competitive advantage towards highly-integrated companies.

The settlement of all these characteristics is undoubtedly difficult and require big effort to all the actors involved in district's life. Furthermore the real challenge is to maintain a climate of reciprocal faith within the district along time, because the overall system of values perceived as important by actors may change and affect the collaboration spirit that represent the real engine of growth for the entire IDs.

them. It is also considered as the Sixth force in Porter's five forces model by Brandenburger and Nalebuff in their book "Co-opetition" published in 1996.

⁶³ Becattini G. , Italian Industrial Districts: Problems and perspectives, Int. Studies of Mgt. & Org. Vol 21, No. 1

The experience of Italian industrial districts reveals us other critical moments in the life of districts that represent real turning points in their evolution, threatening the disaggregation of them and the loss of value creation capacities. Indeed a natural flow of new entrances, which substitutes some agents that may not have the capacity to compete in the market is perfectly normal during the life of a successful district. This phenomenon warrants the inflow of new skilled entrepreneurial activities and new perspectives related to the sector in which the district is involved, powering the flexibility-oriented attitude of all the members.

These inflow and outflow of companies (and so of people, which are the real keepers of adding-value competences and are the drivers of innovation, through their capacity of relationship, sharing and hybridization of concepts with other workers) are really delicate and complex to be managed, because they are absolutely necessary to guarantee the survival of the district and its prosperity but, at the same time, they may drive the ID to rapid disaggregation.

The motivations are mainly attributable to two main groups of reasons:

1. The new entrants may not share the same set of values that are considered as crucial within the district due to a different mindset or a different way of conducting business. This aspect, which is tightly linked with the social dimension and relationships between actors is crucial because shared values, knowledge and language (in a word, culture) are the real glue that make successful the entire district, fostering reciprocal faith and sharing of ideas.

A continuous insertion of new values is surely worth to be done in order to keep dynamicity within the cluster but this process is inevitably slow and require time of adaptation by members (and also to be accepted by customers, which recognize in products the same values that are shared by district's members).

An excessive inflow of different values, associated with a meaningful turnover of district's actors may create big communications problems and identity crisis within the district, risking to threat the positive climate of reciprocal faith; this feature can interrupt the positive cycle of innovations' creation, skilled workers attraction, and unique-value-proposition offering to customers . As already seen, the management of a great number of independent actors under simple behaviour agreements and tacit respect represents a tough challenge and the equilibrium inside the district is difficult to be kept for long time.

For these reasons, the districts can rapidly lose their identity and adaptation capacity, bringing rapidly to the disaggregation of relationships, which drives rapidly to the disruption of the whole network.

2. The natural exit of members from the district, which is absolutely normal in every cluster's life when it involves a limited number of actors compared to those who continue their activities, can sometimes erode some key competences when a large number of companies leave the group, due to different values, personal choices or discussions with other members.

Furthermore, not every company has the same importance within the cluster, some actors work as crucial network nodes, allowing the rapid exchange of information and fostering communication channels for all the others.

Some firms retain specific know-how and are particularly innovative and able to perceive the requirements from the market, spreading competences inside the cluster and allowing all to prosper together.

The leave of some companies that play these kind of roles represent a priceless loss for the network that often find difficulties to replace these key actors with new entrants or with other companies, leaving a space inside the internal district value chain that undermines the long-term capacity to innovate of the entire cluster.

This event can bring an economic disaggregation of the district and huge problems for the majority of its members, that has to wholly rethink their supply-chain structures and commercialization policies without the support of the cluster.

In particular the role played by some key companies is gaining more and more importance actually to warranty districts prosperity, especially in the establishment of solid and profitable linkages with external markets through distribution and sales structures. These crucial players, which normally are bigger than the average size of the district, must guide the entire district and exploit the internal supply chain to convince the market of the absolute value of the products manufactured in the district. Many districts have already demonstrated how risky is the absence of some lead firms that can accompany the overall district towards a process of growth, guaranteeing a sure collocation of products outside the natural borders of the district, collecting also knowledge and trends outside the district in order to reap new competences, opportunities and to challenge the entire internal supply chain towards a process of modernization.

Another big threat for the development of a district along time is the lack of tight relationship with powerful institutions that can guarantee a continuous flux of valuable resources (especially intangible as skilled workforce), opportunities of periodic ideas sharing through formal and informal channels and a regeneration-defense of the commons that represent the roots of the entire ID peculiar competitive advantage.

Absence of institutions and scaffolding structures, dissolution of commons and lack of leading firms which guarantees a window to external actors in distribution channels and that challenges the entire supply chain actually are the main reasons of districts crisis, especially in Italy, linked with a tough competition from countries in which labour-costs are fractional.

5.2 GVC's drawbacks: economic, political and social implications

GVC model has revolutionized the way of analyzing value chains, taking into account the growing importance of globalization and the powerful tools provided by ICT tools advancement, considering a complete evolution of supply chain that can rely on multiple far-located actors for each single part of the value chain in order to reap a durable competitive advantage under a complex system of relationships government.

We have seen that almost every sector worldwide is actually affected by the insertion inside a GVC especially in so-called buyer-driven value chains, characterized by an high level of competition in the production systems which result very geographical dispersed and force manufacturers to survive with low margins.⁶⁴

In particular GVC has demonstrated how some companies can keep the control over a value chain that involves the entire world, reaping the advantages of wage compression in emerging countries to obtain valuable raw-materials and semi-finished products, lowering the impact of inventories and forcing suppliers to provide in time products and discharging the problem of stocks towards earlier parts of the chain. Also the phase of assembly has been often outsourced, forcing the entire manufacturing process to be marginal in the perception of overall value creation along the value chain.

⁶⁴ Gereffi G. , International Trade and industrial upgrading in the apparel commodity chain, Journal of International Economics, 48, 37-70, 1999

These common policies, has started to raise some problems worldwide, changing deeply the geography of sourcing towards less developed countries, especially those of BRIC⁶⁵ and second-tier emerging markets⁶⁶ which benefited from a big demand by large multinational companies to obtain production components and assembly processes provided rapidly and efficiently to outperform competitors due to cost-advantages.

These countries, had to deal rapidly with this modified situation, having to answer to an high demand of products, rapidly and constantly without having high-qualified skilled people and infrastructural support. They managed to develop big supplying networks, guided by big local players which worked as aggregator and collected all the production of small producers in order to provide to big foreign customers the amount of goods that they require. The main aim of foreign multinational is the reduction of production costs so the profits for local producers are limited and margins are razor-thin, keeping low-labour costs and difficult work condition for local people, which in the first phase are limited to execute orders, because of their lack of competences.

The problem with this kind of sourcing system arose soon with the matter of upgrading related to foreign suppliers when the set of activities delegated to foreign supply networks (or to OEMs which worked as collectors of local production) grew and the problem of growing payrolls to workers became clear and evident. Many authors analyzed the problem of upgrading⁶⁷, in particular Gary Gereffi has been occupied to evaluate the effects of this huge demand towards emerging countries for low-cost products, both in economic and social terms.

An interesting research in the apparel sector, made by the author together with Jennifer Bair, analyzed the evolution of a manufacturing jeans cluster in Mexico located in Torreon which faced a huge growth in the first years of 1990s due to NAFTA agreement signing and peso devaluation and a big exploit of *maquila* industry by big American retailers. In fact big

⁶⁵ BRIC stays for Brazil, Russia, India and China, the terms were first pronounced by Jim O'Neill former chairman of Goldman Sachs

⁶⁶ In particular South Korea, Mexico, Indonesia, Turkey

⁶⁷ See for upgrading problems: Gereffi G., International trade and industrial upgrading in the apparel commodity chain, *Journal of International Economics*, 48 37-70, 1999 , with the analysis of GVC in apparel industry in Asia

Humphrey J. Schmitz H., How does insertion in global value chains affect upgrading in industrial clusters, *Regional Studies*, vol 36 n 9, 2002, for the analysis of Sinos Valley shoe cluster in Brazil

Bair J., Gereffi G., Local clusters in global chains: The causes and consequences of export dynamism in Torreon's Blue Jeans industry, *World Development*, 29(11), 2001 and their analysis of Torreon's (Mexico) jeans sector

leading US buyers leveraged on the free trade agreement to obtain low cost assembled products from Mexico, exploiting also countries' proximity.

Maquiladores in authors words are “[...] *in-bond factories that produce goods primarily from imported US inputs. These goods are then re-exported for sale in the US market, with only a minimal duty paid on the value-added in Mexico [...]*”.⁶⁸

Mexican cluster of Torreon, has been tightly protected by local government around 1950s to foster the development of it through an import-substituting industrialization strategy that involved many Mexican sectors; the liberalization process of 1980s, the waves of local currency devaluation and the FTA signing transform the entire local system towards an export-leded district with remarkable US manufacturers as customers (Levi Strauss, Wrangler, Farah and Sun Apparel) and US retailers (Sears and Wal-mart for instance). These customers tried to outsource their supply chains in Mexico as much as they can in order to obtain full-packaged products with low duties. Progressively Torreon district managed to extend its services, enlarging from simple assembly to textile production, labeling, cutting and distribution, leaving only design and marketing-retail in US customers hands. This phenomenon is tightly linked with the emergence of big first-tier Mexican suppliers politically linked among them, that started to work as intermediate with US big customers and to collect local production, retaining a large amount of revenues and exerting high pressures on employees, denying further upgrading processes on high adding-value activities as design and marketing. The authors remarked also the effects on social conditions of Mexican people and the effect on economy: this growth of Torreon district turnover brought also disparities among genders' wage, disaggregation of trade unions, scarce attention on workers condition of second-tier and third-tier suppliers (who are really under costs pressure, more than large local assemblers, the so called first-tier suppliers and direct supplier of US chains). Furthermore the difficult working conditions pushed employees to change often work, enhancing the turnover rate and reducing employers desire to invest in the long term people skills. No powerful institution has been established to reinforce the growth process in Mexico.

The final result has been that a slowdown in the US market in 2001 caused a huge crisis in Torreon, forcing to reduce the production of 20% in a single year and layoff 8.000 people,

⁶⁸ Cit. Bair J., Gereffi G., Local clusters in global chains: The causes and consequences of export dynamism in Torreon's Blue Jeans industry, *World Development*, 29(11), 2001

especially among small producers. Furthermore, this crisis has been worsened by the absence of supportive institutions to re-launch the district.⁶⁹

The Torreon example demonstrated the other side of GVCs that may bring political and social terms inequalities, poverty and labour-rights denial. But this case demonstrates also some critical points on the economic side, as US retailers changed rapidly in 1980 their suppliers from South-East Asia to Mexico in order to pursue cost-advantages, it is easy to predict that the growing labour costs in Mexico will convince US retailers to consider production alternatives and evaluate to leave Torreon in the future.

Furthermore a similar model cannot foster the development of skilled people, modern policies and innovation because it is based on simple-cost reduction policies and it is not long-term oriented. Now more than ever, companies are requested to provide high quality products (both in producer-driven and buyer-driven value chains), launch relentlessly new products that satisfy customers needs, and reduce time-to-market while paying attention on cost control. A model like Torreon can be really dangerous also for US retail chains, which rely on assemble-packaged goods provided by foreign producers, not embedded in technological innovation processes and simple executors of orders in a modular-captive relationship. The contribution to innovation of these people that are directly involved in the production process, risks to be nothing leaving the company without a capable counterpart, able to suggest new paths of growth, new possibilities and opportunities. At the same time foreign customers may lose fundamental competences in manufacturing processes that can be hard to replicate in the future, and may require time and effort to be restored in another countries, leaving time and space to competitors to gain market shares (as already seen with Pisano's industrial commons).

GVCs successful model embeds many contradictions and social problems so it requires to be adopted with attention, committing a huge effort in relationships' management and competences retaining. GVCs which are only cost-reduction oriented, risk to drive big failures and subject entire economical systems to big danger of social problems, poverty increasing and richness destroying. The risk of competences loss for big players should be carefully taken into account, when they establish complex geographically-dispersed value chains, on the one hand they can clearly bring huge advantages for companies competitiveness, but on

⁶⁹ Bair J., Gereffi G., Local clusters in global chains: The causes and consequences of export dynamism in Torreon's Blue Jeans industry, *World Development*, 29(11), 2001

the other hand they can also disrupt companies' specific competitive advantage and undermine the entire business model, due to their captive approach towards several categories of suppliers.

Furthermore, especially in producer-driven value chain, the role played by manufacturing-assembling is crucial and it is the real provider of value for the entire value chain, whereas the studies related to GVCs tend to underestimate the role played by these phases, focusing on the initial and the final parts of the value-chain (design and distribution-sales)⁷⁰.

5.3 Difficulties with the classical “one-best way approach”

The main problems that emerged from the analysis of IDs and GVCs approach are directly linked with the fundamental baseline that guided the entire development of strategy studies in the second part of 20th century: the research for a one best way.

The challenge, introduced by Michael Porter as seen in previous chapters, for scholars and researchers has always been the design and definition of a common path, that all managers and companies can pursue to obtain success and build solid competitive advantages, reinforcing the business model and building high barriers to imitation. This attempt, has fostered the production of huge amount of books and papers on the theme, influencing the majority of firm's strategy and regional and economics studies, especially in 1980s, and encouraging writers to imagine complex interpretation schemes and matrix to explain entrepreneurs how to compete in their sector and how to enhance the profitability of their firms.

This approach, which had brought astonishing results and that allowed a big progress in the comprehension of companies and districts dynamics, pushed by a tough effort made by researchers to better understand trends within industries and companies strategies to deal with them, drove the growing attention on strategy firm issues and attracted the attention of worldwide managers to access these information, increasing the attention of actors on the overall strategic choices, both for single companies and territories as geographic cradles for success.

⁷⁰ Remind of “Smile effect model” which considered as fundamental phases in a value chain only the initial and the final parts, relegating manufacturing phases to “outsource-ble” parts of the chain.

We should be aware that a similar aim answered to the needs of a static market situation, the one that was faced in 1980s in particular, which was less globalized, less oriented to relentless innovation spanned along the entire value chain, less oriented to time-to-market reduction than the actual one.

Furthermore, customers in the large majority of markets worldwide were less conscious of their needs and the buying process were less complex. Nowadays, more than in the past, every industry presents specific characteristics with a complex network of actors that provides small parts of the value chain, which often are not geographically concentrated in the same place; the value provided by these chains to customers is perceived through a unique-value-proposition that assigns profits and margins along the entire chain, forcing actors to cooperate in order to reach common profitability and success.

The role of relationships has increased its importance to enhance knowledge, competences building and innovation processes, linked with the growing effects that globalization is spurring both in production and commercialization markets.

In a complex world (both in economic and social sense) that tends to evolve rapidly following the necessity of relentless innovation and costs reduction through outsourcing processes, it looks utopian and anachronistic daring to understand which is the unique correct strategy to compete worldwide across different industries.

The examples of huge failures that accompanied the last years (i.e. Eastman Kodak Company⁷¹ filing for Chapter 11 in 2012 and even more astonishing the filing for Chapter 11 of Michael Porter's management consulting company Monitor Group⁷² on November 7, 2012) highlights the difficult to trace a sure path to be followed to reach success, also for big market leaders, first-movers and big innovators, directly supported by skilled strategy consultants.

The analysis of sectors actually needs to be tackled with attention and deep insight to gain a huge amount of information in order to build a concrete map of network relationships in place

⁷¹ Actually Kodak has overcome the crisis of 2012, selling the majority of its assets and patents to concentrate its attention only in digital imaging segment, reducing sharply its turnover and leaving completely its former core business: photographic film production

⁷² Monitor Group has been founded in 1983 by Michael Porter and 5 entrepreneurs linked with Harvard Business School. The core business of the company was the strategy consultancy services to top management of multinationals and governments, in different economic fields as strategy, innovation, marketing and organization. Actually Monitor Group is part of Deloitte, which acquired the company in 2013.

and the role played by every actors with its correct contribution in the process of value creation in customers' eyes. The era of universal recipes for success has demonstrated its drawbacks and leaves place to researches more challenging that requires integrated competences on territories development, value-chains insight and firms' deep analysis to find paths of development which are suitable for specific organizations, geographic areas and value chains.

Chapter 6 Necessity of a new approach for successful competition

6.1 A new way of doing business exploiting internationalization

The financial crisis that invested firstly the American market in 2008, followed by two year of world slowdown and, lately the European economic crisis that it is still underway contributed to project shadows on the growth perspectives of several firms located in developed countries and exert pressure on clusters' economic systems that are required to demonstrate once time again their capacity to compete successfully in world markets.

In this particular historical moment, the tough duty for industrial districts is to gain a bigger part of their revenues outside not only national borders but also European ones, to overcome the risks of markets turmoil and differentiate targeted countries allowing a secure collocation for products and bigger profits. Globalization is offering giant opportunities for localized production systems which are based on well-established commons and that has the ability to continuously innovate, to approach far countries and consider the entire world as a potential customer.

Clearly, industrial districts to reach this goal must create a network of relationships outside the cluster and focus their attention on value-creation processes both in the marketing-sales area through well-working distribution channels and keep an high pace in manufacturing innovation processes to consolidate the roots of their real competitive advantage.

The success in international markets passes through 3 necessary conditions:

1. **Creation of linkages with final markets (role of lead firms).** The establishment of a solid distribution channel it is a precondition for success in the globalized world, both for companies located in industrial districts or affected by GVCs. This aspect, especially in Italy, has not been developed in all its potentialities, leaving space for further growth and unexpressed potentialities that can bring to astonishing results and rapid upgrading processes for firms and districts.

This difficult attempt of creating a credible and worthy product at foreign customers' eyes, using diffuse storytelling to enhance the perceived value of district-made high quality artifacts, can be well-performed by institutions (that often lack of resources to

reach all the global markets and vision to make in practice such a complex objective) or by a new generation of companies that has the ability to outperform competitors through their ability of presenting in final markets the work of entire districts, reaping the maximum added-value: the so called lead firms⁷³.

These lead firms are the real pull for the growth of the entire district and require continuous innovation to their partners within the district to continue the relation; the size of these lead-firms it is clearly bigger than the average of the district but it is normally far smaller than global competitors. They represent the natural linkage with outside markets and has the ability to present themselves as district's champions but at the same time, are able to valorize the entire work of their network, leveraging on the geographical provenience of their products and on the craftsmanship ability of workers. Furthermore, these companies foster also knowledge networks outside the industrial district, to follow different paths towards innovation and exploiting specific competences developed in other parts of the world; this attitude contributes to retain valuable competences and spread them within the district , reinforcing the overall competences baggage.

2. **Establishment of commons-infrastructures also for GVC involved companies:**

the problems faced in last chapter related to risks of competitive advantage loss and competences destroy for companies inserted in GVCs in case of massive value-chain off-shoring should be taken into account by every manager that desire to make its company prosper, especially if it is inserted in a producer-driven-value-chain. The availability of low-cost materials and assembly services as a key driver for a manufacturer may not be the best solution to guarantee future innovations and cash-flow generation; the fast changing scenario requires relentless effort in all the phases of the value chain to obtain efficiency, cost control but above all, effectiveness and continuous improvement of policies to offer new products to customers that are really differentiated and can provide high margins. In this way companies can take the lead of competition and force competitors to follow, prevent imitation processes and occupy relevant positions in markets that they rule, leaving space to the creation of new blue oceans.

⁷³ See Chiarvesio, Di Maria, Micelli, Global value chains and open networks: the case of Italian industrial districts, *European Planning Studies*, 18(3), March 2010 for a deep analysis on Italian lead firms and the transformations in Italian industrial districts foreign markets sales approach

To obtain these results, companies must be linked with reliable partners and manage relationships with them through a continuous exchange of information and ideas, across the entire length of the value chain, since designing to distribution. Processes of co-design, co-manufacturing and of shared research are fundamental to enhance the overall level of competences within the value chain and are particularly useful when conducted locally with a frequent and continuous interactions of people.

The role of districts in this sense become fundamental to foster innovation also in some parts of GVCs (especially in the first parts from design to manufacturing), in order to produce unique products that are perfectly tailored to consumers needs and to develop fastly and continuously innovation. The positive cycle of value creation with partners through relational-based transactions allow the continuous reaping of competences avoiding the risks of hard outsourcing in research processes that can cause problems in company's future and that can limit the possibility of changing partners, having the complete control on innovation processes.⁷⁴

To foster this kind of collaborative research projects, it is fundamental to recover the concept of commons, as a warranty for the capacity of a territory to produce high quality products and provide adding value to its members. Companies involved in GVCs may prove really attractive to join the district to gather capacities and at the same time, offer new competences and a different way of doing business, reinforcing the entire district structure and its members abilities.⁷⁵ A fundamental role should be placed by institutions, both public and private to reinforce the commons, attract people and new companies and transmit the image of the district outside to make recognizable its research projects and its ability to innovate.

3. Rethinking manufacturing: this is an absolute priority to compete actually in GVCs.

In late years the growing awareness reached by the importance of distribution and sales phases, contributed to obscure the role played by manufacturing in the process of value-creation. In particular, the large amount of papers related to the analysis of buyer-driven value chain where big retailers worldwide manage to take the lead of

⁷⁴ See Zirpoli F., Becker M. The limits of design and engineering outsourcing: performance integration and the unfulfilled promises of modularity, R&D Management, Vol 41 Issue 1, 2011 for an insight on Fiat Automobiles excessive outsourcing processes and relative problems in knowledge reaping from OEMs and successive manufacturing processes renovation

⁷⁵ We will analyze a really interesting example of technological cluster with Brembo case study and its Headquarters in Lombardy, Kilometro Rosso; this structure hosts many organizations and companies in the same place linking the advantages of traditional industrial districts to the insertion in a valuable global value chain under the control of the lead firm of the district, Brembo

meaningful GVCs, gaining the large majority of profits and forcing the manufacturing phases to low margins and big pressures on production costs reduction through large offshoring phenomena, contributed to spread a common perception of manufacturing limited importance.

Also the diffusion of certain famous GVCs both in producer-driven value chains and buyer-driven ones like Apple and Zara, contributed to establish in managers' thoughts a growing attention on design and sales/distribution phases, relegating manufacturing on a secondary role.

Nowadays some authors has started to rethink the overall manufacturing role and its ability to generate added-value, offering it the central role in the entire value chain structure; similar contributions are fundamental especially for economic systems that hold an heavy and dynamic industrial capacity through the presence of solid commons and industrial districts.

In particular, "*Rethinking the role of manufacturing in global value chains. An international comparative study in the furniture industry*"⁷⁶ represents a persuasive and solid analysis of the contribution provided by manufacturing in GVCs, contributing to renovate the overall GVCs perception of contribution made by each single phase. The paper focuses on the effects of tight production management instead of outsourcing to gain success in a complex low-tech industry as furniture one.

In particular, authors highlight the growing space gained by the "art of making stuff" as a return to manufacturing key role in the process of value creation, through interconnected network of competences locally produced: "*[...], the participation in extended networks enables firms to develop innovation capacities, primarily by exposing them to novel ideas, accelerating access to resources and facilitating the transfer of knowledge. Thus to fully reap the benefits of being part of an integrated system, firms must establish and maintain an effective process of resource sharing. Knowledge transmission is enhanced when firms share spatial proximity or other communalities, such as language, culture and business procedures[...].*"⁷⁷

⁷⁶ Buciuni, Corò, Micelli, Rethinking the role of manufacturing in global value chains. An international comparative study in the furniture industry. Academy of management Conference, Orlando, 2013
See also Chiarvesio, Di Maria, Micelli, Global value chains and open networks: the case of Italian industrial districts, *European Planning Studies*, 18(3), March 2010

⁷⁷ CIt. Buciuni, Corò, Micelli, Rethinking the role of manufacturing in global value chains. An international comparative study in the furniture industry. Academy of management Conference, Orlando, 2013

It is interesting to highlight that industrial districts and clusters in general have built their own successes relying on their peculiar ability to develop continuous innovation in manufacturing through the network of relationships and the relentless innovation ability to adapt to the changing market conditions of its internal actors; the problem for districts has been mainly, as we have seen, the capacity of providing a fascinating image to customers, to develop an effective storytelling and establish valuable linkages with distribution and sales in international markets. Instead the GVC model tended to focus mainly on the contribution provided by the last phases of the value chain, limiting the impact of production in the process of value-creation.

Buciuni, Micelli and Corò stated the evolution of industrial districts towards the concept of regional innovation systems, gaining a fundamental contribution also from ecosystems theory; ecosystems are defined as *“the set of organizations that directly contribute to the process of value creation led by a precise focal firm. The rationale behind this theory is that the ecosystem structure allows a firm to create a value that no single firm could generate alone”*.⁷⁸ It is interesting to underline the reconnaissance of authors of both the fundamental contribution offered by a localized and capable network of professional actors in the innovative knowledge production linked with the focal attribute associated with firms that has the task of managing the process of value creation.; these companies are required to coordinate the entire process of innovation since designing to its retailing. In this sense, lead firms are required to establish tight linkages with every part of the value chain to obtain competences, provide ideas and suggestions in order to improve the contribution of each phase and work as an integrator of competences into a “unitary systemic innovation”. The role played by these companies is crucial to allow the entire economic system to prosper and to reap continuous knowledge from the research projects, overcoming the risks of ability-loss related to outsourcing.

Rethinking manufacturing paper takes into consideration 10 firms of the furniture sector in North Carolina and Italy, analyzing their control over production (through the location of their suppliers and the percentage of internal production as indicators) and the rate of product innovation (through the existence of an internal design center and the adoption of new materials as indicators) taking into consideration the evolution of their GVCs and their overall level of competitiveness. It is interesting the

⁷⁸ Cit. Buciuni, Corò, Micelli, *Rethinking the role of manufacturing in global value chains*. An international comparative study in the furniture industry. Academy of management Conference, Orlando, 2013

classification made by authors that distinguish the companies in 4 groups depending on the ranking reached along the two variables of control over production and rate of product innovation.

Particularly interesting is the category of “innovative makers” characterized by high levels of the two variables, that bases its strategy on high levels of internal production and keeps tight linkages with local suppliers, linked with the presence of internal research departments.

The proximity of designers and technicians allows a close cooperation and a rapid process of product refinement, that affects also suppliers in a shared context of competence creation. These category is able to overcome the price competition trap with competitors that has outsourced massively their manufacturing phases, due to the high differentiation of their products and the high availability-to-pay of customers for products that are recognized as highly customized to consumers requirements, with an overall perception of high quality. Furthermore the investments in research and development made by these companies and by their supplier warranties the keeping of a durable competitive advantage through the creation of continuous new unique-value-propositions that reinforces the awareness in customers eyes of brand ability to manufacture high value products.

This analysis highlights the importance that manufacturing still have in technology-driven complex innovations, and reminds companies that rapidly decide to outsource massively their production phases in low-cost countries to take into account the risk of operational competences loss.⁷⁹

The role played by continuous interactions in development processes is still fundamental to build competitive advantage and the contributions given by knowledge networks as industrial districts especially in intangible assets it is crucial to find new blue oceans where the driver for companies it is not the simple margins' compression and bloody price-war.

At the same time it is important to underline the huge possibility that globalization provides to lead firms, which are in charge to reap knowledge from various industrial districts across the world, enhancing dramatically the level of competences of internal employees and researchers. Every territory, relying on its industrial commons can provide a specific expertise on some products features and enhance the overall value

⁷⁹ Zirpoli P., Becker M.C. What happen when you outsource too much? MIT Sloan Management Review, 52(2), 2011

for customers; lead firms has the possibility to leverage on them and co-design and co-manufacture products in foreign innovation systems, acting a clever off-shoring process through a tight control and a valuable collaboration with foreign actors. This process of learning by doing enhance hugely the innovative capacity of the company, and contributes to establish a positive firm culture oriented towards a continuous improvement research, based on the strict establishment of relationships with local and foreign people that fosters ideas sharing and personal growth. Actually manufacturing is also crucial in the recovering of craftsmanship and it is evident the growing awareness of customers for the quality embedded in products developed by the ability of skilled artisans; a large number of consumers recognize an higher availability to pay for products that contains a “history” and are representation of a territory mastery in some specific activities.

At the same time the desire to “make stuff” embraces also different contexts, giving life to social movements that profess their desire to re-discover the pleasure of making things as a necessary activity to express our human beings: it is the case of “Makers movement” that is gaining importance worldwide and contributes to highlight the trend currently underway in manufacturing re-discovering.

Manufacturing it is absolutely crucial for customers in order to recognize in the products that they buy the same values in which they believe, to acquire goods that are the result of difficult process creation. These characteristics are totally in contraposition to the philosophy that often accompanied the buying process in the last 15 years which were based mainly in the research of low-cost solution due to attractive sales and distribution channels, especially in low-tech industries. It doesn't mean that the acquisition of products actually it is not deeply affected by prices, but companies should commit themselves to establish a strong image to their products, related to real high-adding value attributes based on high-quality manufacturing produced by real professionals in well-known territories to foster the establishment of real durable competitive advantage, and so, a detailed plan of growth along the years.

6.2 Cost leadership and differentiation are not necessarily a dichotomy

Porter's dichotomy can actually be overcome by lead firms which leverage on valuable competences developed by specific territories, collecting the mastery expressed by industrial districts and taking the lead of entire ecosystems in order to retain the competences which enables the value growth.

The phases of design and manufacturing, if carefully treated can foster the creation of competitive advantage and reinforce the strategy of lead firms, giving fuel also to the reinforcement of local systems of innovation structures with new competences. At the same time the insertion into global value chains enables firms to establish relationships with foreign suppliers and other local systems of innovation that might satisfy better than a local supplier the needs for the development of certain projects, through a better level of effectiveness or with less resources (cost reduction policy).

In fact the establishment of relationships with low-cost producers must not be ignored, because efficiency is actually more than a necessity to secure profits and provide shareholders satisfying results; it is crucial even for this kind of relationship to manage carefully the outsourcing process in order to keep the possibility of learning from suppliers, without losing the ability of "doing things", the operational skills that may represent a big problem if the relationship with a certain supplier may terminate.

For this reason, especially in the relationships with foreign producers, a continuous sharing process and direct involvement is useful to reinforce the overall capacities of the entire company organization, a necessary step to focus the workforce towards innovation.

The contemporary pursuing of cost reduction and products differentiation it is actually not a paradox, especially for those companies that has been able to recognize the importance of manufacturing, keeping a large part of it internally or tightly controlled with a direct relationship with key local suppliers (part of local systems of innovation) and that has at the same time seized the opportunities that has flourished due to globalization through GVCs in its entirety.

In fact many firms has been able to reinforce their manufacturing capacities and exploit the big possibilities that globalization embeds finding new collocations for their high-quality products in foreign markets that are willing to pay for these kind of artifacts.

Also this phase it is crucial to obtain products differentiation, and the development of GVCs in the final parts of the value-chains (marketing and sales) requires competences and attention, with continuous relationships management in order to reap the maximum from customers and guarantee the maximum profit for the entire ecosystem (and in particular to value-adding companies established in local systems of innovation that plays a meaningful role in the providing of high-quality products to lead firms), spreading richness in the territories involved in the production phases.

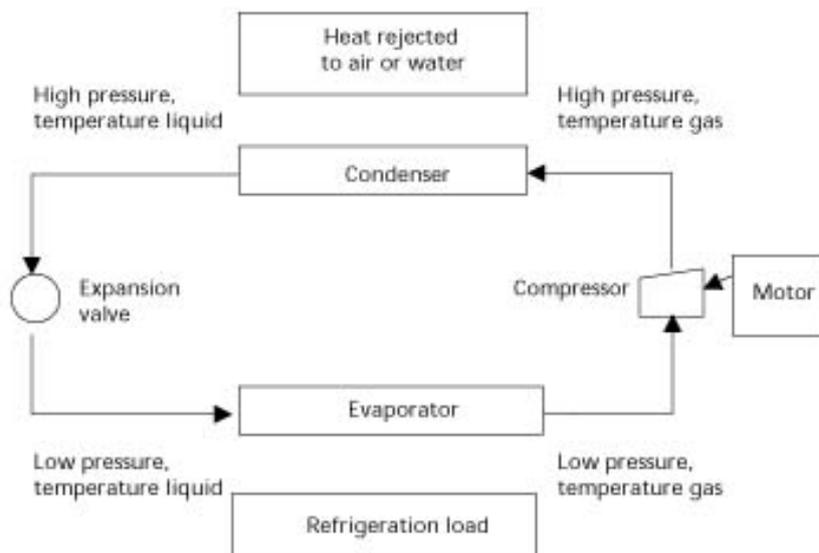
Chapter 7 The air conditioning industry

7.1 History of the sector and main players

The industry that we are going to focus on has followed different paths in various areas of the world, and despite its short history, it is characterized by some peculiarities that make it really interesting and profitable also for the future.

The entire sector takes the moves from the great successes and innovations that chemicals managed to reach in the first part of 20th century. The concepts of refrigeration and heat conditioning has been already faced by many scientists of 1700s and 1800s(like Benjamin Franklin and Michael Faraday) but, at that time a concrete application in industrial processes were really far from an implementation.

The official birth of air conditioning system arrived in 1902 by a brilliant American engineer, Willis Carrier that managed to invent the first electrical air conditioning unit, exploiting its knowledge on heating processes to revolution the scheme and reverse completely the heating stream.



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⁸⁰ A simplified scheme of the refrigeration process (source: www.atp.nest.gov) based on refrigerating liquids capacity' of absorbing heat energy and transport it, divided in its main phases

- Air enters in the refrigeration system and through the help of a compressor(an engine) it is brought to high pressure and temperature.
- Air enters in the condenser through a small hole and change its state to liquid through condensation process and dissipation of heat

The system were able to control and adapt rapidly contemporarily values of temperature and humidity, representing a giant leap in processes' complexity and value creation for customers. The product were immediately commercialized through the company where the inventor was working at, the Buffalo Forge Company.



Carrier immediately understood the potentialities of such a technological innovation that managed to successfully satisfy one of the basic human needs and may boost the standard of living of potentially the entire world: he established Carrier Air Conditioning Company of America in 1915 with few engineers and started the growth of the still nowadays worldwide leading company in the sector.

The establishment of a new industry represented a huge competitive advantage for this company that managed to exploit in the best way its first-mover position from a technological point of view and allowed the company to anticipate competitors in the creation of a successful distribution network in US.

The company reached a breathtaking success around the 1950s when it approached the huge American residential market, boosting its growth and gaining power and financial resources to approach different areas of the world .Nowadays Carrier bullies the world market with an outstanding number of employees of 57294 people, committed in its worldwide branches, and a turnover of 16,8 billion dollars⁸¹.



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- The expansion valve reduce further the temperature of refrigerator liquid through Joule Thompson effect, the rapid reduction of stream temperature when a liquid material is forced to pass though a tight hole and then is allowed to expand, reducing rapidly the pressure.
 - Within the evaporator, liquid refrigerant is forced to turn into gaseous state and cool air is pushed out of the refrigerating system, managing to reduce environmental temperature. Than the process restarts.

⁸¹ Data provided by UTC Report 2013, they comprehend the entire businesses of United Technologies that controls Carrier. It involves integrated home solutions that spans from refrigeration systems to alarm, security and fire detection systems

Around 9 years after the establishment of Carrier, in a completely different area of the world, Japan, an aircraft radiator tubes producing company was founded, Daikin⁸². In the first years of its life this Japanese companies concentrates its efforts on the development of lubricators and refrigerants liquids that enabled the company to build a durable competitive advantage worldwide.

The result of such an intense commitment brought to life an outstanding product that managed to revolutionize the entire industry, Mifujirator⁸³,

After the launch of this product, Daikin continued its aggressive policy of product innovation and approached with huge success both the residential and commercial sectors of the industry reaching huge dimensions and a global dimension that is acknowledged all over the world(Daikin established its European branch since 1972 with the creation of Daikin Europe N.V. in Belgium, and in 1982 founded a company in Bangkok, Siam Daikin Sales Co., as a strategic outpost for sales but also as a production plant).

In 1984 Daikin managed to reach the cumulative production of 1 million packaged air conditioning, taking the lead of the entire sector and continuing its approach of new markets through the creation of a branch in Hong Kong. American market were approached with a production plan and a dedicate sales structure in 1991 in order to compete directly with Carrier.

The policy of Daikin brought to important partnerships like the joint venture with Danfoss⁸⁴, a compressor producer established in Denmark⁸⁵ and the strategic acquisition of another huge player in 2006, McQuay International.

⁸² The real name at that time of the company was Osaka Kinzoku Kogyosho Limited Partnership and were founded in Osaka by Akira Yamada. The company turned officially its name in 1963 to Daikin Kogyo company and finally in Daikin industries LTD in 1982. (source www.daikin.com)

⁸³ Mifujirator is a methyl chloride type refrigerator that were firstly adopted in 1936 by Nankai Railways becoming the first air conditioner for trains. The relentless research of the company to improve the product brought to the development of the commercial version of Mifujirator in 1951, that represented the first instance of Japanese packaged air conditioner. It was very easy-to-use, differently from previous versions of air conditioning systems and were suitable for customers that don't have a solid knowledge on technical fields.

⁸⁴ Danfoss is a relevant compressor producer, with an incredible history that takes the move from 1905 in the Southern part of Denmark, near the German border. The baseline of the company has always been the focus on the innovation processes and on the technological development, keeping the bulk of production still in the native production plant of Nordborg. In 2000 Danfoss signed an important merge with Sauer, a German company, in the field of hydraulic solutions. Nowadays the company employs more than 23000 people worldwide.



This company, that has been founded in 1933 in Minneapolis, become soon one of the best competitors of Carrier in the American country. Mc Quay managed to develop the first hermetic compressor for air conditioning in the first part of its life and became soon a global player with the focus on air-conditioning and heating systems for commercial structures. Its business spanned from designing and manufacturing to selling of complex systems and services.

The partial acquisition made by Daikin in 2006, and then the total absorption of it in 2013, reduced the number of global competitors, creating a huge company able to reach 1783 million yens of turnover all around the world⁸⁶.



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Beside those actors, actually the competitive arena is populated also of other global companies that are makingng a growing effort on an industry that still warranties good margins and profitability. Companies like the Japanese Mitsubishi (with its 3567 million yen of turnover⁸⁷ and its powerful growth policy in new markets⁸⁸), Hitachi and Toshiba are still

⁸⁵ Compressors are the most important parts of the entire refrigeration system, embedding an high level of technology and playing a key role in the process of value creation for companies involved in air-conditioning and HVAC(heating, ventilating and air conditioning) industries

⁸⁶ Data provided by Daikin Annual report 2014, the value comprehends all the results of all Daikin's subsidiaries around the world(Daikin Industries Ltd and consolidated industries years ended March 31).

⁸⁷ Data provided by Mitsubishi Electric Corporation 2013, and the total turnover comprehends all the businesses of the company, not only air conditioning solutions but also automotive, energy distribution and home appliances. The number manages to explain the huge financial capacity of the company

⁸⁸ Mitsubishi acquired Klima Plus at the beginning of 2014, its Turkish distributor(and also a meaningful distributor of Climaveneta for Turkey and Turkmenistan for the close control business). The Turkish market is actually growing by 15% annually as Mitsubishi reports in its Release no 2825. This strategic operation

competing both in the residential and commercial segments, exploiting their global attitude and their productive technological knowledge.

The peculiar structure of these Japanese conglomerate companies allows a rapid span of skills and resources from a market segment to another and this feature represented a meaningful competitive advantage in the past in many sectors for these huge companies.

Furthermore the development of different industries within the same brand, favoured the cash-flow production and reinforced the capacity of these companies to approach new markets around the world to feed their production sites.

Also other giants as Samsung are becoming more and more aggressive in their policies of market entrance, through a massive advertising and marketing strategy and leveraging on the global brand name that allows to invest huge financial resources worldwide.

The Korean company, that is specialized mainly on semiconductors and telecommunications entered largely later its direct competitors in the air conditioning industry, moving its first steps in 2005, especially in the residential segment through its well-designed products, the focus on noiseless attributes and a tough wave of marketing and advertising initiatives. Samsung overcome easily the weaknesses of its late-entrant position thanks to its technological knowledge and through the power of its brand, that is widely acknowledged worldwide and allows a rapid acceptance from customers which are used to Samsung products in the electronics and telecommunication devices sectors. The image of reliability of the brand played a key role in the successful approach to the market.

7.2 Main characteristics of the sector worldwide

The worldwide air conditioning industry, as we saw is populated by huge global companies that competes hardly with a common focus on the creation of a wide and complete range of air-conditioning solutions and integrated systems for customers, high production volumes to pursue toughly economies of scale, big R&D departments to sustain the innovation processes and partnerships with key technological suppliers.

underlines the focus of the company in the direct presence in fast growing markets through acquisitions of meaningful local players that in this kind of industry are often the key to reach the local market leadership.

The most successful companies are present on the market from long time, exploiting the capacity of being innovative in the specific technological field of the industry along their entire history (Carrier, that is the real inventor of an entire market and managed to establish a blue ocean⁸⁹ at the beginning of the past century and Daikin that through a different path that we already analyzed leveraged on its technological abilities and reach a critical mass that allows to bully the market) or using properly their knowledge on related sectors mixed with a outstanding financial capacity and marketing strategy (Samsung).

All these companies are committing themselves in recent years towards a policy of costs reduction to keep good margins and internationalization to approach relentlessly new countries, both to find new production sites and potential customers markets.

All the global players has established and are consolidating their presence in supporting and correlated industries, in order to distribute their R&D expenses over many different sectors and market segments, warranting a fast return on investment and the production of a constant cash flow that allows to satisfy shareholders and boost new investments on the market.

At the same time the common attempt is to enlarge the range of products offered towards completely integrated systems for residential consumers and a complex variety of services for Commercial & Industrial customers that requires the development of a full range of solutions with different characteristics and power usage. This trend is pursued through 3 different paths:

- **Internal growth**, with a continuous focus on R&D departments that are committed to satisfy with new products the requirements of customers, which are sharply different one to another and especially for the industrial segment requires a tough effort for the company in the design of specific solutions for a single customer.
- **External acquisitions**, as we have already seen one well-defined trend of the industry is a slow but relentless attempt of global players to gain access to relevant resources, both upstream through suppliers of key technologies(especially in the field of compressors and condensers, which are the most expensive parts of the final product) and downstream through the acquisition of distributors, that often represents the only way to succeed in some markets that require specific relational capacities. In these markets consumers relies their faith on local distributors or intermediaries that can influence the choice of brands and products.

⁸⁹ See Kim, Mauborgne, "Blue Ocean Strategy", 2005

- **Approach of new markets with proprietary structures**, the continuous growth of subsidiaries made by every big company in the air-conditioning sector makes clear one of the peculiarities of this industry. As Climaveneta's purchasing manager confirms, "[air conditioning industry], tends to replicate the supply chain domestic model in new markets, requiring the establishment of a stable structure that links the company with local suppliers and allows the development of the entire business"⁹⁰. The creation of powerful subsidiaries in important markets is crucial to succeed and poses big challenges to headquarters in order to control foreign performances and ensure correct support in terms of financial resources, marketing activities and technology knowledge sharing.

The main world markets, both in commercial and industrial air conditioning sector and home system integrated solutions, are United States, Japan, Europe and China and the situation is deeply different in all of them.

The distribution systems and technological solutions offered by Carrier allows this company to keep the leadership of the American market (even though Daikin is becoming more and more aggressive, using properly the resources and intangible assets that the acquisition of McQuay has brought, in the attempt of threatening Carrier in its domestic market) whereas an high competitive scenario is present in Japan where different companies competes hardly and this feature has pushed the process of internationalization of Daikin and Mitsubishi towards new countries to find collocation for their huge production capacity.

China and India are now the real war field for all the global players that have understood how important actually is (and in the future will be even more) the building of tight relationships with local producers and the establishment of powerful distribution systems in difficult markets like China. The peculiar structure of the social-economic texture require the signing of joint ventures agreements and poses new challenges to this players that are used to keep the control of the entire production and distribution processes under their huge structures.

On the other hand the Chinese and South East Asian markets are expressing more and more their potentialities, due to the fast growing Asian economies and from an increasing request for efficient air conditioning systems for industrial and commercial plants. Even the tendency to be sustainable and green, one of the biggest trend of the last decade for air conditioning

⁹⁰ Climaveneta SpA Purchasing manager Alberto Valente interview, 10-10-2014

industry in “mature” markets, are now recognizable for China, that is rapidly learning the complexity of the products, overcoming the first phases of low sophistication requirements.

Europe is worth of a specific analysis because of its particular market potentialities and production sites characteristics. I have mentioned no huge European player able to compete worldwide with Japanese, American and South-Koreans simply because it doesn't exist but this doesn't mean that European countries manufacturers are not successfully taking part to the air conditioning industry growth.

Italy in particular has been and actually is the natural heritage and ideal territory for the flourishing of a myriad of SMEs that brings innovation and, through their embedding to the territory, reach to grow and obtain astonishing economic results and high levels of internationalization.



This firms created a district, the air conditioning one in the northern part of Italy, managing to establish a solid relationship with another group of companies specialized in the production of technologically innovating compressors and other key parts of HVAC systems which is located in Germany and well-known around the world.

The protagonist of this German district is Bitzer, a compressor producer headquartered in Sindelfingen, Germany with a turnover of 630 billion Euro in 2011 and around 2900 employees⁹¹. This company supplies most of European producers, keeping the bulk of innovation and technological advancement of the sector, and represent a worldwide recognized brand in the field of scroll compressors production.

Other relevant companies are GEA(with its refrigeration technologies segment) and Bauer compressors.

⁹¹ Official website figures, www.bitzer.de

GEA group is a multinational company involved in many sectors specialized in process technology supply and components production for food and energy industries. The company is headquartered in Dusseldorf and keeps the largest part of its operations in Germany. It generates 4,3 billion Euros of revenues in 2013 and counts around 18000 employees⁹².

Its refrigeration technology branch is a meaningful supplier for European market of piston compressors, screw compressors, packaged systems, chillers and heat pumps, representing a sort of hybrid between a components' supplier and an assembler for the final market.

Bauer compressors has been founded in Arnsdorf (Bavaria) 1888 but started the production of compressors in 1946, nowadays it counts a turnover of over 35 million euro.⁹³ The company has now several subsidiaries worldwide but keeps proudly its headquarter near Munich. Many other producers of air conditioning support technologies or correlated sectors are located in Germany feeding the necessities of European producers, dividing their leadership in compressors production with Danfoss.

This is a peculiar attempt of threatening global players through a different strategy that may figure too ambitious but that has already brought success in many European countries and that has enabled an unexpected very good performance in China.

We will see in next paragraphs which is the state-of-art of air conditioning industry in Italy and how Italian companies manages to compete internationally with good results using such an original business model.

7.3 Analysis of actual situation in Italy

7.3.1 An atypical but successful modern district

The evolution of the industry has been deeply different in Europe, and particularly in Italy where the birth and growth of the sector has followed a path that is for many reasons peculiar and interesting for my purposes, worth to be analyzed with attention for some social dynamics that affected the performance of local actors and allowed an astonishing success.

⁹² Official website figures www.gearefrigeration.com

⁹³ Official website figures, www.bauer-kompressoren.de

Air-conditioning sector in Italy made his appearance widely later U.S. and Japan where, as we saw in detail, the industry have already reached a mature phase and is characterized by the establishment of global players that populate the market from a century.

Indeed, a real sector of local air conditioning producers was absent till the first years of Sixties, period in which Daikin tried to approach the market. But it doesn't take into account the situation that was rapidly evolving in the northern part of Italy where a meaningful number of actors were moving their first moves in the competitive arena, involved in many different specific part of the air conditioning industry value chain⁹⁴. They were tiny parts of a complex value chain and were able to produce small amounts of products, keeping a sort of craftsmanship in the development of their work, in some cases companies that employed no more than ten people and that can be compared to small technical laboratories.

These texture of small structures has become the real backbone of a sector that nowadays is an instance of success and capacity to exploit local competences in approaching international markets.

In the second part of Sixties and also in Seventies those companies pursued two fundamental paths that cannot be ignored in the analysis of this sector and can be useful to understand the reasons of their future success and evolution. Beside this 2 phenomena, realized through the contribution of local companies directly involved in their own growth and so indirectly responsible of district creation, a further indirect effect was emerging rapidly that represented an engine for the sharing of knowledge and competences across the district

1. **Research of technical solutions:** companies that were established in that period rapidly understood that this sector could be really profitable and tried to deepen their knowledge on technical aspects of a reality that, for this territory, were completely new.

It was fundamental to enhance the competences of workers and owners, that cooperated together to develop their first products and solutions for a domestic market that were not completely established and that were not able to provide detailed information on what were precisely its needs in the air conditioning field.

⁹⁴ The first relevant player that approached the market with local management and production in Italy has been Riello Condizionatori in 1961 that rapidly established its brand Aermec in 1963, starting to produce own products under a single brand(in the first two years Riello produced only for third parts)

The day-by-day difficulty to find supplying parts and the small size of companies (that were the large majority, considering that the sector in the first phases of its existence had few firms able to employ more than 50 workers), forced people to commit themselves hardy, tackle the technical hurdles that the air conditioning field naturally embeds and find new ways to solve problems creating an heritage of technical competences made on the field, through a continuous experimentation process.

This allowed the creation of a group of specialized workers that for many reasons are probably the real competitive advantage of Italian companies nowadays that managed also to coagulate the attention of public institutions on the sector and boosted in the next years the virtuous cycle of valuable human resources development.

Fortunately many northern Italian workers were already prepared in mechanical sectors, due to the existence of other sectors already developed and a common range of competences were widespread across specialized technical workers, so the process of learning and skill development in the new sector has been facilitated and speeded up.

- 2. Creation of a relationship network:** another characteristic of small enterprises is clearly the necessity to be inserted in a value chain that allows to create a vertical stream from the purchasing of raw materials to the delivery of final complex products to customers, especially in industries where technological complexity is an important feature.

The creation of a network of relationships and linkages is far from being an easy work and requires efforts and continuous commitment, especially in a new industry that has low experience in the field and requires many supporting technologies and correlated sectors to flourish.

In the Northern part of Italy this phenomenon realized itself in the seventies and eighties giving life in many sectors, as we already saw in previous chapters, to industrial districts.

In the specific case of air conditioning the process has followed a similar path of other Italian districts in the first phase of its life, sharing many of the classic characteristics of IDs, turning slightly towards a different direction in recent years (we will focus on this part later). It is important to underline the ability of people in the early stages of industry's life to create a system tightly integrated, horizontally and vertically, able to contribute to the establishment of a profitable value chain, based on the common

territory and on the easiness to negotiate together development processes and strategies.

The elevate number of actors without the possibilities of exploiting scale effect, far from being a drawback for the industry, allowed the development of a complex structure of suppliers, intermediates and distributors that relied on personal relationships as the necessary warranty for long-term agreements, transmitting a sense of faith and reciprocal respect within the cluster in the attempt to reach a shared success.

This capacity of negotiation and reciprocal knowledge were applied also to distribution channels and to agents with effects that are still nowadays well-established and represent the roots of success for many companies in Northern part of Italy. At the same time this approach become a real competitive advantage when companies started to apply it to the last phases of value chains in the attempt of capturing rapidly the necessities of final customers.

The ability of producing few different products(without huge range as Daikin or Carrier were already able to provide in those years), but with a huge capacity to customize and modify products in relation to customers requests create a business model that outperformed the big players that tried to approach the market and were confident to occupy easily the market leadership.

3. **High mobility of workers:** the high tendency of people to leave their own employer to establish new companies, exploiting their past experiences and basing on their own ambitions and self-confidence is a peculiar trait of successful districts. In air conditioning companies of Northern part of Italy this feature has been particularly evident and has dramatically affected the whole development of the industry.

This tendency of specialized workers to set their own activity (or to change often their employer), allowed a process of competence hybridization between different parts of the value chain, involving also parts of correlate industries. This cross-exchange of information contributed to reinforce the common heritage of competences and prepared a big number of engineers and technical experts in the territory, reinforcing the linkages with Veneto region in particular.

Furthermore the growing request of workers specialized in HVAC⁹⁵ competences contributed to highlight the necessity of a public source of such valuable resource: an institution public-financed that prepare people and feed the district of technically prepared and open-minded to innovations employees.

7.3.2 Institutions role in district's growth

The aggregator that has been able to solve this problem has been, and still nowadays is, Padua Università degli Studi, an organization that has been able to understand properly the needs expressed by companies in the territory and fuel their growth with its students, through the teaching activities of its Professors and its attention on hybridization processes between industries, as confirmed by Marco Vialetto, Climaveneta Research and Development manager (former purchasing manager).⁹⁶

The common perception of several managers within Climaveneta organization is that the public sector has not completely understood the potentialities and capacities of the industry to provide richness to the territory through its relevant growth, especially in the first part of its young life.

The activities of Padua University has provided a valuable flow of specialized workers but, as pointed out by several managers within Climaveneta's organization, they have been limited to the phase of students preparation with the future aim of inserting them in mechanical industries where the technical and engineering aspects were fundamental.

There has been a lack of direct relationship between the public institution(in this case Padua University) and the main players of the district that could have pushed a process of long-term collaboration and competence sharing; in this way no ambitious plan of innovative processes or products development with the contribution of university's professors and structures has been put in place.

⁹⁵ HVAC stays for "Heating, Ventilating and air conditioning" and identifies the macro industries that involves both producers of air conditioning solutions and heating systems providers, who are deeply present in the territory with famous brands as Riello or Baxi in Bassano del Grappa

⁹⁶ Interview performed in Climaveneta headquarter 16-10-2014

We have several examples in Veneto region of a better management of collaboration among private companies and public institutions as the engagement of forces around fashion and clothes industry, where universities on the territory (IUAV), firms' collective institutions and companies coagulate their competences around the products trying to reinforce the entire industry value chain through prepared workers, public support and network establishment.

This process has not been put in place in air-refrigeration industry, Padua University managed to prepare students and comprehend partially the competences required by firms through its internal organization without a detailed and organized plan designed by public and private actors; but the existence of this institution is crucial to understand one of the competitive advantages that has accompanied all the firms of the industry along its 50 years of life and that represents today the main added value driver: a well-working technical workforce easily available in the region that many parts of the world doesn't have(we can find a similar level of competences in Germany in the production of compressors and refrigerators).

The official recognition of Venetian air-conditioning district by local institutions has been signed in 2003⁹⁷, when the success of the cluster was clear and the contribution to local richness of the companies spread in the territory impossible to be ignored. The district is actually diffused in the entire Venetian region with the predominance of companies presence in Padua, with a meaningful contribution of Rovigo, Vicenza and Belluno areas.

Furthermore a new entity, Refricold, has been founded to support the activities of the district, facilitate relationships among public actors and firms, establish periodic meetings and possibilities of ideas sharing to foster the collaboration of small companies to reinforce the entire system. It is in charge also of operating management in shared projects and in services providing for all its members through a long-term development program.

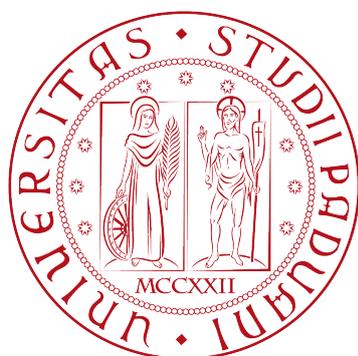
The latest report provided by Unioncamere about actual situation in the district reports the following main figures, underlining the health and relevance for a sector that is leader in Italy and counts for around 60% of overall European productive capacity in its product category and that is dealing with the challenges of last years with positive overall numbers⁹⁸.

⁹⁷ See regional government deliberation n. 2502, 8th August 2003, Recognition of industrial district named "Air conditioning and industrial refrigeration Venetian district"

⁹⁸ Source: www.osservatoriodistretti.org

Total turnover in million Euro(2011)	4.956
Number of firms(2012)	8.995
Number of firms with less than 10 employees(2011)	7.734
Number of firms with less than 10 employees(2011)	8.437
Number of employees(2011)	42.349
Export value in million Euro(2012)	1.605
District Added value in million euro (2011)	1.303 ⁹⁹

All the data refers only to companies involved in the core business of the industry, ignoring the contribution given by correlated sectors and supporting activities (which counts for 2001 million euro in 2011, with 79266 employees¹⁰⁰).



This figure underlines the impact of Air conditioning district in Venetian region, with over 42000 people employed and almost 5 billion euro of turnover (and an export value of almost one third), reminding the value of a cluster that is considered relatively new but that is deeply embedded in the territory from almost half a century, providing wealth to local communities and being a crucial player of overall Venetian development.

⁹⁹ Personal table rielaboration of official figures provided by “2014 Air-conditioning and industrial refrigeration Venetian district report”. Data are provided by different organizations:

- Number of firms, source Infocamere
- Number of employees and statistics on labour in the district, source ISTAT – Archivio statistico delle imprese attive (ASIA)
- Export value, source ISTAT, Foreign trade statistics
- Added value and total turnover, source Unioncamere

¹⁰⁰ Source: Unioncamere cited by 2014 Air conditioning and industrial refrigeration Venetian district report

The average small size of companies that manage to survive in the market, certifies the prosperity of the sector that is still not facing a considerable process of verticalization and keeps many of the characteristics of a traditional ID; the astonishing number of companies with less than 10 employees(7734 out of 8995, 86%) put the attention on the disaggregation of the value chain that continues to be made of a myriad of actors(except for few big companies, but they still maintain crucial relationships of sourcing and collaboration with local producers for specialized production phases and logistics nearness, allowing a rapid lead time and delivery conditions) which survive making single production phases in small laboratories.

Differently from public institutions, a crucial role of competences exchanger and aggregation space has been made by a specific organization that collects big Italian producers and actually some producers with Italian subsidiaries in the air-conditioning sector (as Carrier, Daikin, Siemens and Samsung).

I'm talking about Assoclimate, the specific organization for air-refrigeration producers out of "Anima"¹⁰¹, the Italian federation of mechanical industry associations, established since 1964 under the name Co.Aer, that counts 54 members and all the biggest actors in the Italian competitive scenario.

This organization has the ability of collecting periodically data from members, favours meetings and information sharing, offers constant statistical analysis of market trends and overall results to support companies in the process of decision-making.



All the members are obliged to deliver detailed information about different range of products¹⁰² and markets served, every quarter, in order to collect all the information and gain general analysis of customers changing needs, development of markets and general tendency of products. It is a fundamental possibility to define a benchmark for all the members and obtain worthy information about strategic issues that involve the entire industry.

¹⁰¹ Anima (Federazione delle associazioni nazionali dell'industria meccanica varia ed affine) is part of Confindustria Italia, the main trade union of Italian entrepreneurs.

¹⁰² Some instances are chillers, hydronic terminals and HPAC(which are refrigerating solutions for big servers and data center)

During these meetings, the possibilities of relationship reinforcement are wide and guarantees a continuous exchange of ideas, that may represent the first brick for ambitious common initiatives in some specific production areas or in the approach of new markets.

Anima for many reason seems the ideal infrastructure that facilitates the coordination within a cluster, collecting the external trends in the attempt of drawing a scenario of market evolution, together with internal ideas and ambitions.

The difficult task of matching external market needs and internal skills and capacities represents the most complex challenge for companies of air conditioning and the role played by Anima enables to facilitate the work, with a supporting baggage of data and competences.

7.3.3 Main Italian actors

The peculiar structure of the district, made of a huge number of small firms scarcely vertically integrated has fostered the development of few big companies within the territory that work as lead firms, committing themselves to a relentless process of growth, pushed by the necessity of gaining more space in the domestic market and by the desire of conquering new foreign markets. These companies are crucial for the entire cluster, forcing all the others to follow them in the path of innovation and value-creation through innovative processes; indeed this companies require high quality supply parts and at the same time threaten the existence of their suppliers through their potential capacity of verticalization. The success of this districts' nodes is fundamental to warranty the existence of the entire cluster, and rewards the entire complex and sophisticated heritage of small manufacturers laboratories that populates the Northern Italy air conditioning industry value-chain.

The entire district is actually dealing with the tough challenge of globalization and European economic crisis is exerting pressures on companies, pushing on margins reduction and turnover compression but the industry is demonstrating its capacity to evolve and keeping good results also in last years

The main player of this group of firms is Climaveneta that can be considered a sort of district leader because of its growth strategy that pushed the entire cluster towards a path of innovation processes and product development. We will focus on this firm largely in the next chapters.

The main competitor of Climaveneta is Aermec founded in 1963 by Riello Condizionatori, the real pioneer of air-conditioning producers in Italy. Aermec, till 1998 has been the name of a range of Riello products, being part of a solid group that allowed the establishment of an efficient structure able to serve both Italian and European markets¹⁰³. The company headquarter is located in Bevilacqua in Venetian region near the city of Verona.

The specific characteristic of this company has been the ability of manufacturing products for two different HVAC sectors: heating systems and “cold” air-conditioning solutions, offering the availability of both heating and refrigeration through the split-system technology (an avant-garde of heat-pumps).

In the 90s the company observed a period of growth and consolidation, starting to work hardly on the recognizability of their products through an higher design research and high technology innovation. As already said, Aermec become a company in 1998, keeping the name of the brand,

The new millennium offered the possibilities of globalization and Aermec tried to enlarge its production range to satisfy properly customers’ requirements of big refrigerating systems for commercial and industrial purposes. At the same time the company approached new markets, established foreign subsidiaries in Germany, France and UK.

Nowadays the firm is struggling to emerge also in Middle East, North-Africa and Russian markets, confirming management attempt to reach a wider market and foster a process of company’s growth to compete with world big players.

Aermec in 2013 occupied the second position in Italian producers’ turnover chart¹⁰⁴, reaching 159,023 million euro of sales(suffering crisis’ effects and dropping from 164 million of 2012), keeping a solid net income of 4,177 million euro and employing directly 602 workers.¹⁰⁵ The amount of ROE is 4,6%, reducing sharply from 5,5% of the previous year but keeping a good performance for shareholders. Aermec has been the Italian market leader in terms of turnover in 2011 reaching 177,326 million euro of total sales.

¹⁰³ Source: www.aermec.com

¹⁰⁴ Data based on Ateco database for product category 282500, Manufacturing of non-domestic products for refrigeration – ventilation and production of domestic air conditioners

¹⁰⁵ Source: Aida database

A meaningful actor is represented by Clivet, a young company founded in 1989 in Feltre, a small city between Vicenza and Belluno and that observed an astonishing growth and capacity to take part in districts' life.

Clivet has been the first Italian company to explore the segment of high-efficiency chiller production, designing plate-heat exchangers.

The main focus of the company overall strategy has always been the attempt of leading the technological-innovation processes gaining knowledge on scroll technologies and developing specialized hydronic systems. The firm enlarged its range of products producing also Rooftops, big chillers for commercial use and in 2008 approached the segment of heat pump production for residential systems. Furthermore Clivet offers high-efficiency solutions for air treatment through electronic filters, completing its offer with water and air solutions¹⁰⁶.

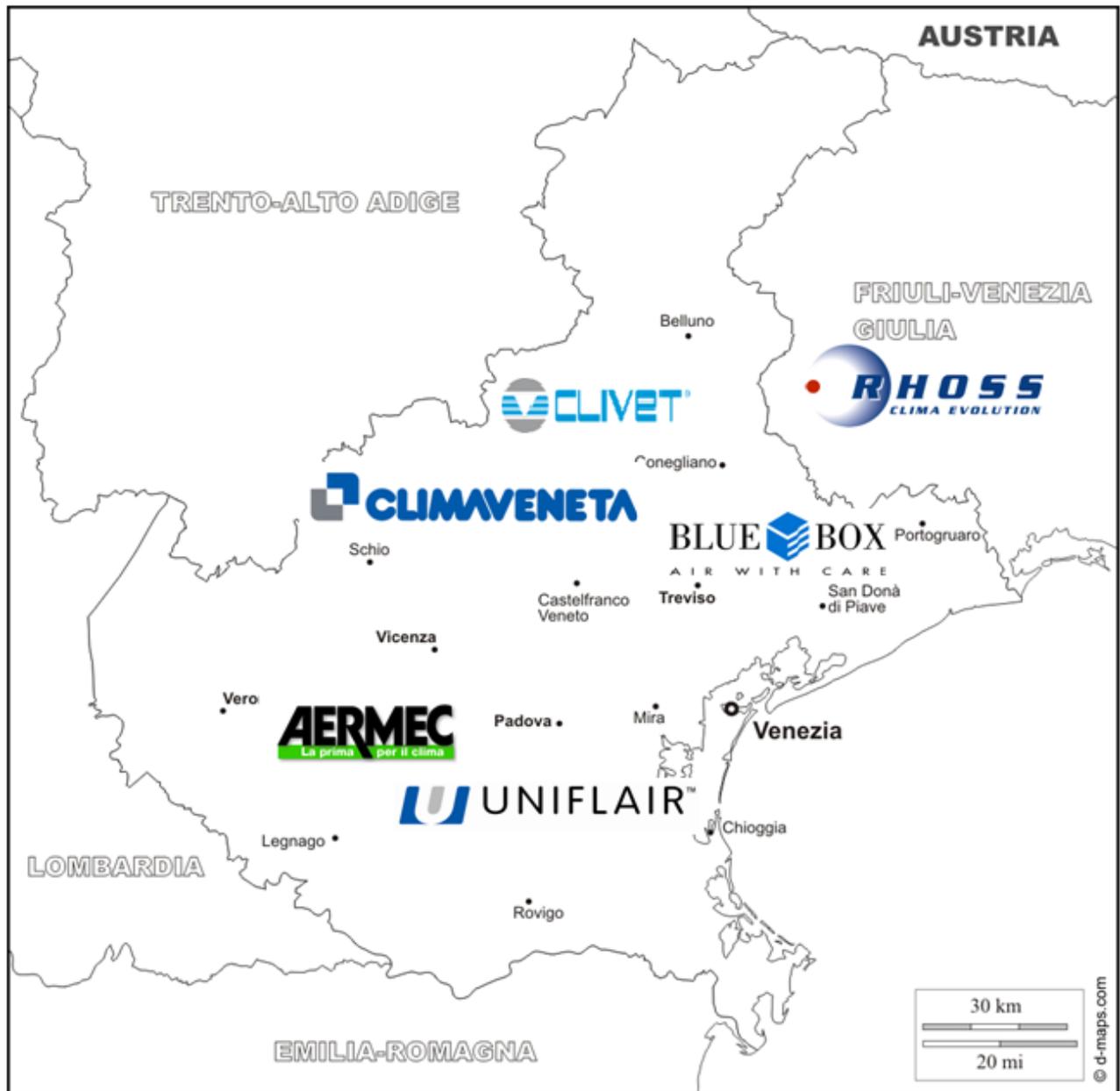
This company in 2013 reached an overall turnover of 85,49 million euros, dealing hardly with the effects of economic crisis and registering a sharp reduction of almost 10% compared with the previous year turnover(93,644 million euro) and of 13% compared with 2011 turnover(98,206 mln Eur).

The number of employees is 484 people, almost aligned with previous years figures. Beside the turnover reduction, net operating profit remains widely positive and amounts to 1,921 mln Eur, registering a sharp reduction from previous years result of 44%(3,456 mln Eur 2012).¹⁰⁷

ROE amounted in 2013 to 6 % coming back to its average of last years after the exploit of 2012 when it reached 11,5% because of cost reduction policies, that involved also overall organizational labour structure.

¹⁰⁶ Source:www.clivet.com

¹⁰⁷ Source: Aida database



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Talking about companies that are located outside Venetian region (it is quite impressive the proximity of many firms among the biggest European companies of air-conditioning in a geographical concentrated space in Veneto region as highlighted by the figure above), RC Group and Sabiana represent two relevant players.

They are established in a second meaningful area for air conditioning located near Milan in Lombardy region, with tight economical linkages with the venetian air conditioning district.

¹⁰⁸ Personal elaboration of main Italian air conditioning producers in Venetian map with their headquarters location characterized by company logo

RC Group has been established in 1983 in Valle Salimbene, and pursued a growing path leveraging on its competences for data centers air-conditioning and high precision refrigeration for technological-advanced industrial processes.

Nowadays RC Group, is part of DelClima together with Climaveneta and reaches a turnover of 44,428 million Eur, continuing its path of sales recover after a tough period between 2008-2010 when it suffered large losses. The company managed in 2013 to generate 757165 Eur of net profit and employs 202 people.

Sabiana represents one of the most long-lived companies in air conditioning industry, considering that its foundation year was 1929 and it is now part of AFG¹⁰⁹, a world group involved in production of materials for building processes. Its plants are located in Corbetta and Magenta, near Milan and employs 180 people for an overall turnover of 68,3 million EUR.¹¹⁰

Returning to focus the attention on Veneto region it is necessary to consider the role of Blue Box with its 54,65 million Eur of turnover characterized by a steady growth in past years since 2009 and that has been able to overcome brilliantly the obstacles posed by European countries in the past two years.

Blue Box has been established in 1986 and covers all the segments of air conditioning industry, with production of chillers of different dimensions and power, heat pumps and data cooling solutions for commercial and industrial use

Blue Box is actually part of Swegon, a Swedish group located in Kvanum involved both in heating and refrigeration industries through the production of air-handling units and also water-cooling products.

Blue Box offered in the 2013 one of the best performances of the entire industry in terms of ROE for its shareholders reaching an impressive 16,7% , recovering the levels of profitability that distinguished the firm before the 2008 financial crisis, generating a net income of 2,5 million Eur. The company employs 227 people.

¹⁰⁹ Arbonia-Forster-Holding AG

¹¹⁰ Source: www.Sabiana.it

The analysis made clear that a large number of significant firms are currently involved in air conditioning industry in the Italian territory, even though are far from turnover figures and employees number of global players that we observed in the previous paragraphs.

The power of this district probably relies on the medium size of this company that are still not able to create huge verticalized-structure and that are concentrating their attention on the enlargement of their sales towards foreign countries (even though the margins of the sector remains really high compared with many italian traditional industries, the level of competition in Italy is quite high and forces companies to find new customers for their products to obtain growth).

Furthermore we must take into account the difficulties that Italian subsidiaries of foreign global players are facing in Italian market: Carrier Italy has dropped to 67,578 million Eur of turnover from 111 mln Eur of 2010 with a steady decrease of sales and registers a net profit of 1,891 mln Eur after the dramatic result of 2012 when the loss reached 14,338 million Eur.

Global players face tough difficulties to reinforce their position in Italy, demonstrating the ability of Italian companies to leverage on their business model developing products customized for their consumers.

Actually one Italian firm is trying to make a step forward and begin the path to learn how to be a global player: Climaveneta.

Chapter 8 Climaveneta

8.1 History of the firm

8.1.1 First years ('71-'93)

Climaveneta S.p.A. represents one of the most experienced Italian companies in the air conditioning industry, and it is among the pioneers of the entire district that, as we have already seen, took its first moves in the late Seventies.

The company has been founded in 1971 in Bassano del Grappa, a dynamic and fertile economical area situated between cities of Vicenza, Padua, Treviso and Trento whose was observing the birth of several industrial districts, especially in wood-furniture production, glass-manufacturing and textile industries. In those years the city was observing a brilliant period of economic growth and many specialized workers were trying to open their own activities, becoming entrepreneurs of small but profitable firms that reinforced the entire economic system.

The air-conditioning industry were not developed at that time but an heritage of technicians and skilled workers in the mechanical sector were available in the territory because of the existence of several large companies in the neighbor area, in the city of Schio and in Padua province, making the city of establishment particularly interesting even in the first years of Climaveneta existence.

The company began its production as a refrigerators manufacturer, spending its first years of life pursuing a path of technology innovation and products range enlargement, with the main aim of developing customized solution for every kind of customers, warranting the maximum level of flexibility and rapidity to the service.

The attention for highly-customizable solutions has always been the baseline for Climaveneta, that has developed this concept as a motto and tried to establish a durable competitive advantage and a distinctive sign for customers around this strategy. The firm reached rapidly a meaningful position in the Italian market, representing one of the biggest companies in terms of revenues.

8.1.2 De Longhi acquisition and organizational renovation ('94-'02)

The first turning point for the organization has been the acquisition of the company made by De' Longhi S.p.A.¹¹¹ in 1994, which speeded up the process of competences building, reforming the organizational structure and reinforcing the managerial focus of the company towards a steady process of economic growth and profit creation.

This step pushed the company to overcome its traditional national focus, with more attention towards the entire European countries market, and made the entire organization conscious of its internal strengths that were not completely exploited.

The acquisition made by De Longhi forced Climaveneta to re-think its own objectives, due to its dependence from a new shareholder that required high performances in terms of profit generation, turnover growth and organizational renovation, with the support of a company that were already a multinational in the early Nineties. This specific acquisition has probably been the turning point for the success of the entire air conditioning industry in Italy, enhancing the level of competition and starting a more conscious and organic approach of foreign markets, especially in Europe in the first phase.

Climaveneta were already a big player in the European market and one of the biggest producers in Italy but the entire national air-conditioning industry, due to its scarce experience and its short life still had not reached the characteristics of a technology-advanced mature sector.

¹¹¹ De' Longhi S.p.A. is an Italian company, involved in the manufacture of small appliances for home, heating and refrigeration systems located in Treviso.

The company is actually listed in Milan stock exchange and in 2013 registered 1,623 billion Euros of turnover, a net profit of 116,9 million euros and 5993 workers(source: De Longhi S.p.A investors relations 2013), representing one of the most powerful companies in its own industry

	Air conditioning industry	Automotive industry
<i>Manufacturing</i>	High customization of products Scarce focus on cost reduction Low importance of offshoring activities Long lasting R&D processes Manufacturing as key function	Continuous improvement processes Focus on cost reduction of every component Non-stop R&D processes Importance of savings in production processes R&D as key function Offshoring of several production activities
<i>Marketing & Sales</i>	Scarce focus on corporate marketing Personal relationships with key distributors Scarce focus on products image	Growing awareness of communication role Establishment of company's values Positioning processes Unique value proposition establishment
<i>Distribution</i>	Managed by headquarters and local/foreign distributors	Establishment of foreign commercial subsidiaries ¹¹²

The comparison with many other mature Italian relevant industries like the automotive showed a dramatic difference in terms of performance and focus along the value chain, highlighting many spaces for improvement and innovation for the entire industry.

Air conditioning were not expressing all its potentialities, keeping many characteristics of a young industry with good margins and low focus on cost reduction on the manufacturing field, linked with a limited awareness of sales possibilities for a product that were ready to reach international success, if carefully driven by marketing activities and direct presence on targeted markets.

The results of the acquisition became soon clear with the rapid modify of Climaveneta strategy, that affected all the activities within the company.

The entire production process has been modernized and radically improved, making the manufacturing area one of the key parts of Climaveneta's value chain. The focus on certification programs as Eurovent became a necessity and the firm joined the club in 1999.

¹¹² Air conditioning and automotive industries situation in Italy at the beginning of Nineties with main differences along the value chain, personal elaboration of the author.

8.1.3 Internationalization and lean production ('03-'10)

Growing skills acquired in manufacturing area pushed the R&D department towards a steady and profitable technology innovation program that allowed a deep modernization of products offered through an integrated and wide range of air-conditioning solutions, that no one could provide in 2000 in Italy. The company were starting to take the lead of the industry and resulted a technology leader.

Climaveneta exploited its competitive advantage and began a new strategy that allowed a further huge step forward and the reach of a new multinational dimension through two main paths:

1. The establishment of lean organization and kaizen program in 2004, which allowed a further renovation of production process towards an objective of waste reduction, costs savings and maximum efficiency.

The program, which has been the first instance of lean organization within the air-conditioning Italian industry, brought astonishing efficiency-enhancement and boosted Climaveneta's margins that still benefited of high-availability-to-pay of industrial customers that still nowadays populate this atypical sector made of many actors and long value-chains.

Company's economic results, and cash-flow generated from this initiatives made possible the development of the other fundamental policy of 2000s.

2. The desire to establish foreign subsidiaries were already tough with the advent of the new millennium and 2003 represented the second turning point for Climaveneta development after the De Longhi acquisition in 1994.

The company seized a big opportunity signing a joint-venture in China with Chat Union Group, to gain an outpost in the fast-growing Asian market through a direct relationship with some key actors in the Chinese market. The two companies established a new firm, Climaveneta ChatUnion Refrigeration Equipment in Shanghai and started a manufacturing activity of chillers and heat pumps for the Chinese market.

This specific initiative, that resulted particularly complex and required time and effort to be put in place, represented the initial attempt of the company to face fiercely the challenges posed by globalization, with full awareness of personal point of strengths

to leverage on and weaknesses that must be overcome with a rapid process of competences acquiring and mindset change.

It is remarkable to underline that one of the first initiatives undertaken by the firm with direct presence outside Italian borders, is related with a joint-venture with Chinese people in a context that the company knew little and required an organizational effort that the whole company were not used to make.

The rate of complexity embedded in this initiative could not have been more challenging but the empowerment obtained by the company allowed a giant leap forward for the whole organization.

It has been a real managerial slap that enhanced hugely company's competences and returned Climaveneta more mature and aware of which are the possibilities that the entire world market were offering and on the other hand of the different way of doing business due to different cultures in other parts of the world.

The company along the decade 2003-2012, established many foreign subsidiaries in Europe, India and as we already saw, China.

The purpose of the project, which is still underway nowadays is the improvement of company capacity to serve properly foreign markets with an internal sales force, exploiting long-lasting relationship with historical distributors through mergers or joint ventures when it is possible.

At the same time this strategy allows the company to reap the advantages that flourish with a multinational direct presence, a necessary precondition in order to “study and learn to become a global player”¹¹³ with the aim of transforming the entire organization towards a transnational company¹¹⁴.

- 1997, Establishment of Climaveneta Deutschland

¹¹³ Interview with Luca Pianura, Financial & Control Manager Climaveneta

¹¹⁴ See Bartlett and Ghoshal, *Managing across borders, The transnational solution*, Harvard Business Press, 2002. Transnational companies are characterized by a complex multidimensional strategic approach made of global efficiency research in production, national responsiveness to customers needs' in distribution-sales and a relentless exploit of knowledge produced in subsidiaries plants in R&D departments. The authors recognized this multidimensional approach as particularly tough and difficult to be pursued by a multinational company because it forces managed to avoid the following of a single strategy-driver, which in the Seventies where the natural managerial concept for multinational companies.

The authors, analyzing several case studies of multinational companies, recognized as a necessity to gain success worldwide the establishment of the transnational approach that links efficiency-effectiveness and continuous learning process to avoid problems of products obsolescence, incumbent inertia (inability of markets leader to recognize trends and adapt big organizational structures to change) and to seize new opportunities offered by the presence in different markets

- 2003, Establishment of Climaveneta France
- 2007, Acquisition of Top Clima SI and establishment of Climaveneta España
- 2008, Acquisition of A.C. Refrigeration Sp. Z.o.o. and establishment of Climaveneta Polska
- 2010, Establishment of Climaveneta Climate Technologies, the Indian subsidiary of Climaveneta, through a joint venture with TFA Climate Technologies
- 2012, Establishment of Climaveneta UK, the first step of a strategy for the Britain market that brought to the acquisition of the biggest company distributor in UK, Powermaster. This acquisition pushed Climaveneta to establish a new holding in January 2014, Climaveneta Powermaster that controls three different legal entities¹¹⁵ and ensures coordination and knowledge sharing.

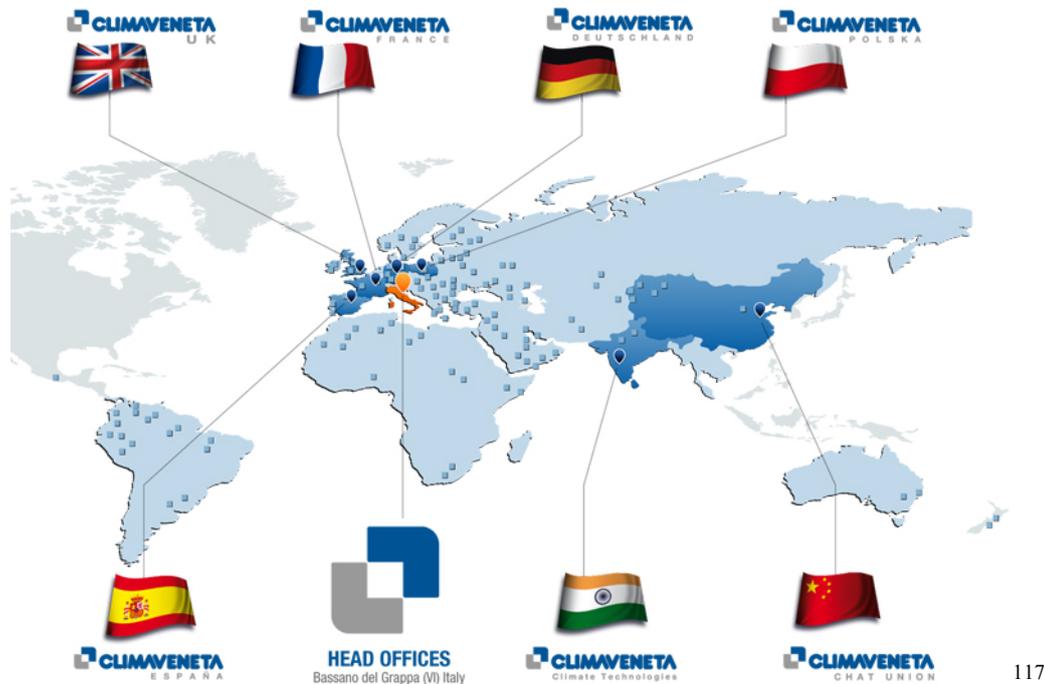
Climaveneta continued also in 2014 its legal entities establishment program with the birth of two new strategic subsidiaries in markets that are perceived as crucial by the management for the future development of the company in fast-growing geographical areas:

- Climaveneta Middle-East located in Dubai which is in charge for sales in United Arab Emirates and in Arabian Gulf area
- OOO Climaveneta, which reinforces the presence of the firm in the Russian country with a direct subsidiary located in the city of Moscow. This legal entity is in charge for the sales in the entire Russian state and in former Soviet republics of Eurasian Economic Union¹¹⁶.

¹¹⁵ The three Climaveneta legal entities in UK are :

- Climaveneta Uk, the historical first outpost of the company in Great Britain, located in Birmingham
- Powermaster Products, which is embedded in the commercialization of company commercial and industrial products and acted in the past as a distributor, located in London
- Powermaster Service, the after-sales division of Climaveneta Powermaster, located in Stirling, Scotland

¹¹⁶ Eurasian Economic Union is an economic union, established in 2011 and ratified in 2014 between the states of Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan with the main purpose of economic integration (Armenia and Kyrgyzstan are actually committed to join the union but they are still not active members) . The organization is actually led by V. Khristenko, former Russian Industry Minister. It involves an estimated population of nearly 170 million people and occupies 15% of the world's firm land (Source: www.eurasiancommission.org)



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8.1.4 DelClima establishment ('12-'14)

In 2012 another event has deeply affected the overall structure of Climaveneta S.p.A. through the reshaping of some strategies of the company, the demerger from De' Longhi in a renovation process that has affected the entire air-conditioning segment of the Treviso-based company. De' Longhi decided to establish a new holding for three different companies under its direct control, Climaveneta S.p.A., Rc Group located in Villa Salimbene near Pavia and DL Radiators, which is De' Longhi division in charge for heating radiators production.

This new holding, called DelClima, represents nowadays a huge player in the HVAC industry in Europe and it's able through its 3 companies to cover a large range of solutions both in air-conditioning and heating sectors for industrial and residential use.

Delclima has been listed in Milan Stock Exchange on the 1st January 2012 and it is still controlled by De' Longhi group as major shareholder.

Obviously, the joining of Climaveneta has brought new challenges for Climaveneta, that is the leader and biggest company of the group, both in organizational terms to develop

¹¹⁷ Map of Climaveneta foreign subsidiaries and distributors in 2013(before Climaveneta Powermaster establishment) Source: www.climaveneta.it

synergies with RC Group and DL Radiators and in terms of cash-flow generation for external shareholders.

The process has been quite disruptive and forced the company to renew many of its internal policies to satisfy duties required by stock exchange, posing some difficulties in the process of data periodic publication.

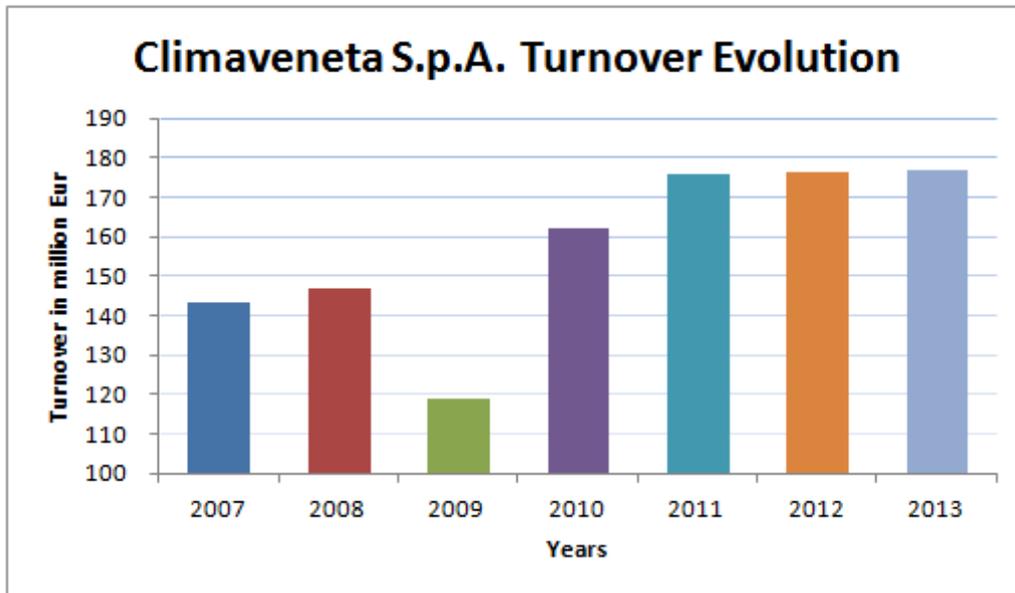
On the other hand the necessity of continuous high-quality data provision from the organization has brought the possibility of observing more in-depth the overall company strategy and made more conscious the organization of growth's necessities, profit enhancement and cash-flow generation which can be made only following a detailed development plan on a long term base. All these objectives depend on the performance of the entire value-chain and has caused a process of internal policies revision to make really possible the next step: compete with global players outside Europe and China.

8.2 Climaveneta today

Climaveneta S.p.A. is actually the biggest Italian company in air-conditioning industry in terms of turnover, and keeps the Italian market leader position since 2012 when it overcame Aermec, managing to deal better with the general slowdown of Italian air-conditioning industry in the last three years.

Observing the 2013 figures, the company has reached 176,681 million Euros of turnover, keeping substantially unchanged the result registered the previous year (176,422 mln Euro) in a particularly difficult year for the company and for the entire domestic market (among the big Italian companies only RC Group managed to not decline its turnover, growing of almost 5 %, after several years of decline, pushed by new shareholders requirements of performance and profitability enhancement).¹¹⁸

¹¹⁸ Companies considered in the survey: Climaveneta, Aermec, Clivet, Uniflair, Sabiana, Rhoss, MTA, Blue Box, RC Group, data obtained by companies income statements and Aida database



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The company, after several years of good performances (except for 2009, *annus horribilis* for the company), Climaveneta has faced a period of low turnover growth from 2011 till 2013, dealing with the slowdown of some key markets but managing to compete better than Italian competitors, obtaining new market shares and consolidating its position of leadership

Year	Turnover (in mln Eur)	Delta vs previous year
2007	143,14	
2008	146,89	2,63%
2009	118,94	-19,03%
2010	162,34	36,49%
2011	175,74	8,26%
2012	176,42	0,39%
2013	176,68	0,15%

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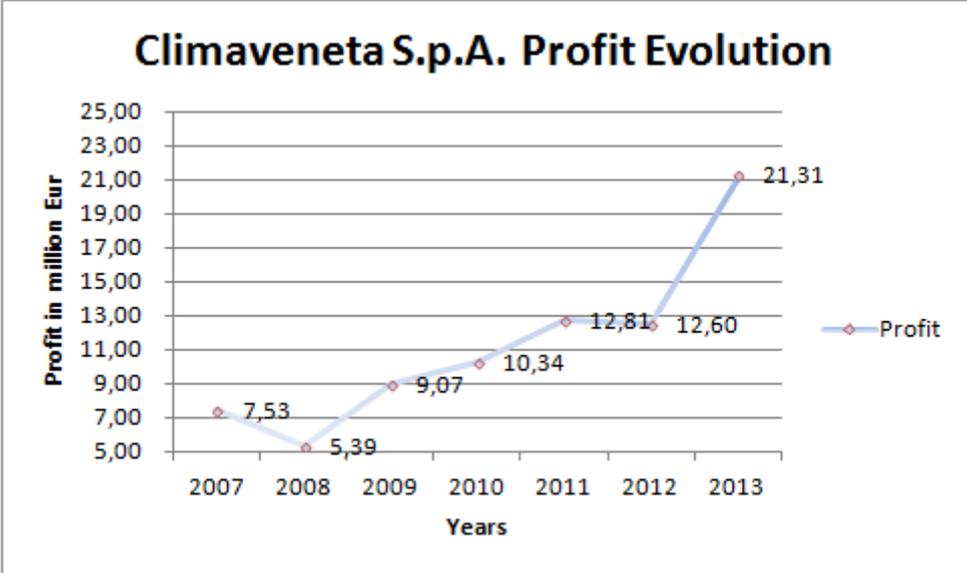
The process of turnover consolidation has been accompanied by an astonishing performance in terms of operating result for 2013, which highlights the growing attention of the company towards the production of good economic results to shareholders, especially after the listing of company's holding Delclima in Milan Stock Exchange.

Climaveneta S.p.A. obtained 21,31 million Euro of profit in 2013, making a huge leap from the results obtained in previous 2 years, 12,602 mln and 12,805 respectively (+69%). The amount of profits highlights the remarkable work made by the company in this relatively

¹¹⁹ Personal elaboration of the author, data provided by the company

¹²⁰ Personal elaboration of the author

young sector in margins' protection and cost reduction, which demonstrates its ability to deal with a stagnant turnover lowering the burden of its structure .



The trend of profit creation increase, underlines company's capacity to produce growing returns on equity and ensures the solidity of the company, allowing the reduction of leverage and financial costs and leaving large space for investments.

The equity/invested capital ratio highlights the progressive move of Climaveneta towards a highly-capitalized structure, benefiting also from a policy of profit retaining in the last years that reinforced the overall financial structure of the company. The dependence on low-term bank loans has been toughly tackled, reducing the impact of financial costs on the overall company's result.

The ROE indicator regained significantly in 2013, reaching a satisfactory 13,1% after two years below the 10% level, benefiting from the policy of costs reduction and margins improvement. This indicator confirms the high level of profitability offered by Climaveneta SpA, which is sharply above the performance of Italian competitors.

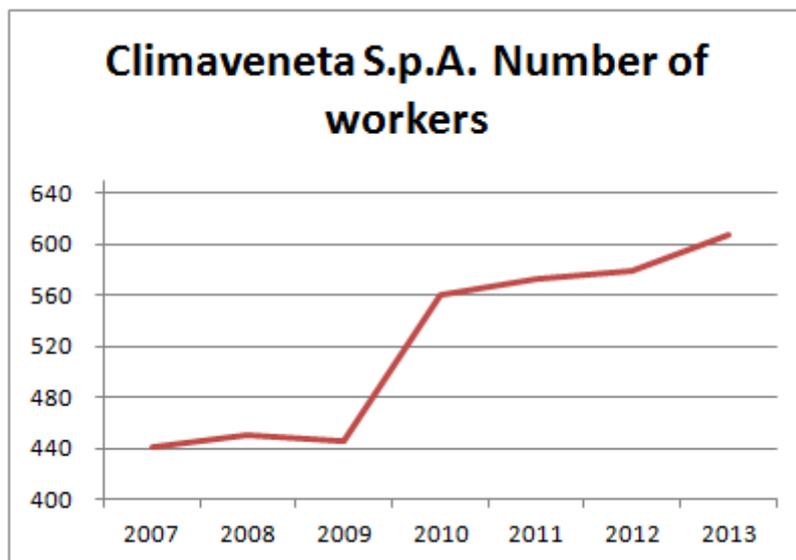
Year	Profit (in mln Eur)	Delta vs previous year	Equity / invested capital	ROE
2007	7,53		22,10%	14,90%
2008	5,39	-28,40%	25,30%	9,70%
2009	9,07	68,30%	27,10%	15,20%
2010	10,34	13,94%	28,50%	15,60%
2011	12,81	23,86%	55,10%	9,90%
2012	12,60	-1,59%	63,50%	8,90%
2013	21,31	69,10%	64,90%	13,10%

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The figures related to Climaveneta's workforce, underlines the big effort made by the company to collect skills and competences from the market, with a steady growth of workers' number in the last 6 years even though the turnover has faced a slowdown recently.

The investment in human resources' represents the biggest challenge for the company in order to make a further step towards the global competitors, which benefit from a more complex organizational structure and consolidated managerial policies. In company's intentions, this commitment would represent a necessary condition to resume the turnover growth process associated with new competences and high margins.

In 2013 the company reached 608 workers directly employed registering a meaningful growth with 29 new entries compared with the previous year figures(+5%).



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¹²¹ Personal elaboration of the author, data provided by the company

¹²² Personal elaboration of the author, data provided by the company

8.3 Delclima 2014 results

Enlarging the focus on whole Delclima group and analyzing more recent data available, the first 9 months of 2014 shows a positive performance compared with the same period of 2013, obtaining a turnover of 296,8 million Euro with a corporate increase of 5,2% from previous year 282,1 million Euro offered by both the segments of ICC&R(indoor climate control and refrigeration) and radiators(which are made by De' Longhi radiators within the group)¹²³.

ICC&R Turnover	9 months 2014	9 months 2013	Delta	Delta%
Europe	158,00	156,50	1,50	0,90%
Asia	78,80	69,20	9,60	13,90%
Rest of the world	12,60	11,90	0,70	6,20%
Total	249,40	237,60	11,80	4,97%

¹²⁴

The 2014 data for the whole group till the end of September, shows an increase of turnover in all the geographical areas taken into account, with a substantial invariance in Europe, where DelClima manages to defend and slightly reinforce its position of market leader in the industry. Very interesting the results obtained in Asia, where the overall turnover rockets to 78,8 million Euro in 9 months, managing to generate almost 10 million Euro of sales more than last year.

The Asian markets counts already 31,6% of total ICC&R DelClima turnover, and are expected to grow steadily in next years, being the main target for the group strategic choices linked with the maintenance of market-leading in Europe, which on the other side it is expected to not follow a path of tough growth¹²⁵.

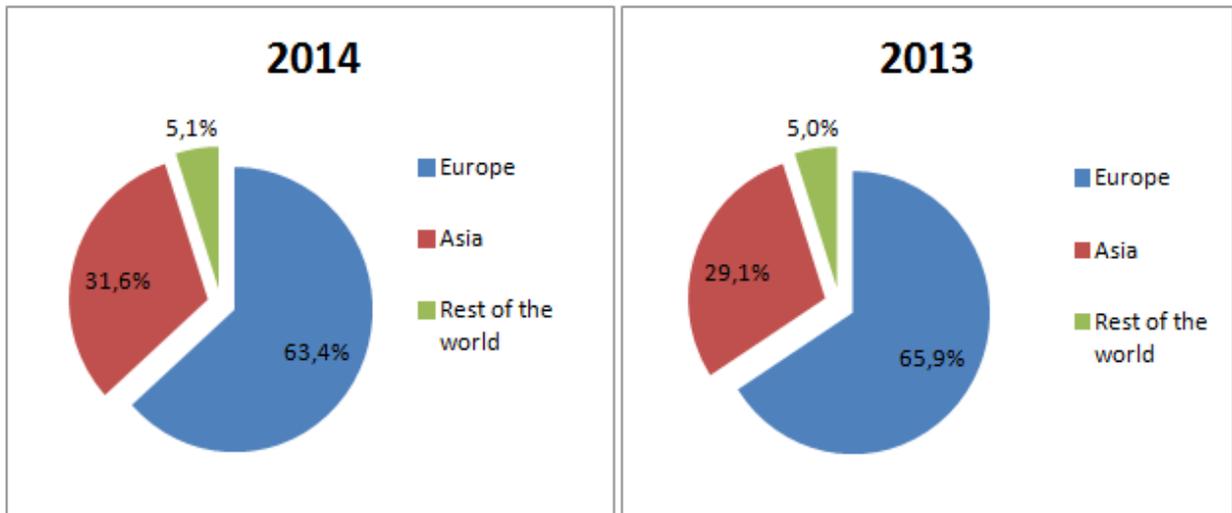
Also the rest of the world shows a good result in terms of turnover reaching a 6,2% growth compared to same period of last year.

¹²³ The data of turnover are adapted to the accounting modify requested by IFRS 11, in order to have a comparison with same accounting criteria. From 2014, one of Climaveneta Chinese joint venture, CUCCL, is consolidated entirely within company's perimeter, changing the accounting method that till 2013 followed the equity method. Ignoring the effect of this accounting modify, Delclima turnover in 2013 counted 230,2 million Euro and the growth in 2014 reaches 29%. Furthermore 2014 data benefits from the first consolidation of Powermaster Products and Powermaster Service, Climaveneta's Uk subsidiaries from this year and simple distributors last year

Source: Delclima interim financial report as at 30.09.2014

¹²⁴ Personal elaboration from data available on Delclima interim financial report 30.09.2014, data are expressed in Euro and are referred only to ICC&R segment, ignoring radiators.

¹²⁵ Europe is considered quite mature by almost all market operators of air conditioning industry. The perspective of growth, associated with a difficult economic scenario, are really faltering and uncertain.



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The previous graphs shows the growing importance of Asian markets for the group that relentlessly increase its market share within DelClima total turnover: in only 1 year Delclima faced a further move of 2,5% of its total turnover towards Asian markets, reducing its high dependence on European markets that are considered more dangerous because of deteriorated macroeconomic conditions.

The diversification of markets around the world qualifies the company’s attempt to become less “European” and more global, reaping the opportunities that fast-growing markets are offering and competing in markets where DelClima doesn’t play as market leader and where all the global players are already struggling to conquer market shares. The rest of the world result underlines the huge spaces that still DelClima may approach in the future to gain more profitability but that nowadays are well-occupied by international competitors, as Japan and North-America which are populated by the giants that we have analyzed in previous chapters as Carrier and Daikin.

¹²⁶ Personal elaboration of the author, data are related to first 9 months of 2014 and 2013, taking into account the total consolidation of CUCCL for 2013, to provide consistent comparison

Reclassified Consolidated Income Statement as at September 30, 2014

Euro Millions	9M 2014	% on Revenues	9M 2013	% on Revenues
Net revenues	296.8	100.0%	282.1	100.0%
<i>Change 2014/2013</i>	5.2%			
Consumption and manufacturing costs (services and industrial payroll)	(191.5)	(64.5%)	(181.8)	(64.4%)
Gross Profit	105.3	35.5%	100.4	35.6%
Services costs, expenses and other provisions	(45.0)	(15.2%)	(44.5)	(15.8%)
Payroll (non-industrial)	(28.0)	(9.5%)	(27.5)	(9.7%)
EBITDA	32.2	10.8%	28.4	10.1%
<i>Change 2014/2013</i>	13.3%			
Amortisation & Depreciation	(8.0)	(2.7%)	(7.7)	(2.7%)
EBIT – pre-impairment	24.2	8.1%	20.7	7.3%
<i>Change 2014/2013</i>	16.7%			
Write-downs	(0.1)	-	(21.5)	(7.6%)
EBIT	24.1	8.1%	(0.8)	(0.3%)
Financial income	3.0	1.0%	2.1	0.8%
Financial charges	(4.3)	(1.5%)	(3.9)	(1.4%)
Share of result of joint ventures and associates	(0.1)	-	(0.1)	-
Profit/(loss) before taxes	22.6	7.6%	(2.6)	(0.9%)
Income taxes	(6.7)	(2.2%)	(5.5)	(1.9%)
Net Profit/(loss)	16.0	5.4%	(8.1)	(2.9%)
Profit (loss) pertaining to minority interest	(4.0)	(1.3%)	(3.0)	(1.1%)
Group Net Profit/(loss)	12.0	4.0%	(11.1)	(3.9%)

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The income statement of September 2014 shows the positive results of DelClima from net revenues that we have already analyzed to EBITDA that highlights the firm's capacity to generate earnings considering only its current typical activities (ignoring financial costs, taxes, depreciation and amortization policies).

The EBITDA reaches 32,2 million Euro in first 9 months of 2014, with a tough growth from 28,4 million Euro gained during the same period of previous year result and DelClima manages also to increase the ratio of EBITDA in terms of net revenues to 10,8% from 10,1%.

The group net profit made a huge step forward to 12 million Euro that represent 4% of overall net revenues, compensating the bad result of last year (-11.1 million Euro) which was caused

¹²⁷ Income statement provided by: DelClima Interim financial report as at 30.09.2014

by the high writedown operations related to Radiators sector that impacted for 21,5 million Euro, and absorbed all the profits.

We can observe also a substantial reduction of overall financial charges which amounts in 2014 to 1,3 million Euro from 1,8 millions of past year, clue of a continuous dependence reduction on external resources policy for DelClima which follows a policy of reserves' constitution and equity reinforcement to secure the future development of the three companies under the holding DelClima. In the first 9 months of 2014 the total financial charges represents only the 0,44% of total revenues, from 0,64% of the previous year, reducing to an astonishing level for the whole sector the burden of external financial sources to final net profit.

This is a big advantage that may support the company in the development of an aggressive investments strategy for the next future, being aware of the solid financial structure of the entire holding.

The condensed cash flow statement is as follows:

Euro Millions	30.09.2014 (9 months)	30.09.2013 (9 months)
Cash flow from operating activities excluding Adeo effect	17.5	21.2
Adeo financial effect	-	(11.5)
Cash flow from investment activities	(6.7)	(5.2)
Operating net cash flow	10.8	4.5
Change in consolidation scope	(4.8)	-
Cash flow generated (absorbed) from non-recurring movements	(4.8)	-
Financial expenses in the period	(0.9)	(1.8)
Cash flow from changes in net equity	(0.8)	0.7
Cash flow generated (absorbed) from net equity movements	(0.8)	0.7
Cash flow in the period	4.3	3.4
Opening net financial position	(7.0)	(24.5)
IFRS 11 and control JV China effect	-	7.2
Closing net financial position	(2.7)	(13.9)

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The cash flow statement confirms the good health state of the holding also in terms of cash-flow generation, a concept that is gaining more importance in the companies of the group

¹²⁸ Cash flow statement provided by: Delclima Interim Financial report, 30.09.2014

since the listing of DelClima in 2012, with the final aim of maximizing value generation processes for shareholders.

The cash flow from operating activities in this year has reached a satisfactory result which allowed to finance properly the investments policies decided by Delclima and improve brilliantly the net financial position which in less than 2 years passed from 24,5 million euro of negative financial position to only 2,7 million euro.

The reduction of the negative financial position since 1st January 2013 amounts to 89%, and seems to anticipate next year the achievement of a positive net financial position.

We can see that 17,5 million Euro of operating cash flow has allowed to:

- Feed the investment policies (6,7 million Euro), which increased of 29% from the previous year and are a fundamental part of overall holding strategy to ensure internal growth and products range enlargement.

The growth of investments are related to innovative technological projects, organizational structure improvements, ICT structure reinforcement and plants modernization to provide avant-garde solutions for the whole structure

- Enlarge the consolidation scope (acquisition of Powermaster Products and Powermaster Service included), which is another fundamental driver for future growth of the companies, especially talking for Climaveneta that already counts more than 15 international subsidiaries within its perimeter.

The desire to reach a global player position forces Climaveneta, and in general DelClima to think ambitiously, exploiting its cash-flow generation and solid financial position to evaluate possible acquisitions of competitors to enlarge the range of solutions provided or key distributors to gain a dominant position in profitable markets.

Climaveneta because of its economic structure has a great possibility and at the same a duty towards its stakeholders to pursue with decision the external acquisition policy.

- Satisfy the low financial necessities that we have already analyzed in depth and equity movements that impacts for 0,8 million euro
- Reduce toughly the passive initial position.

Chapter 9 Climaveneta, sourcing and manufacturing

9.1 Importance of inputs in Climaveneta

The natural entry-point of Climaveneta competitive advantage analysis is necessarily represented by the role played by inputs along company's history, both externally acquired or internally produced.

Since its birth, Climaveneta has focused its attention on the development of innovative solutions for customers, through a well-working internal R&D department and an intense cooperation with external partners, in particular local manufacturers.

The attention paid by the firm on the quality of its products, linked with the availability of highly-customizable wide range of products, forced Climaveneta since the first years of its life to establish, as a strategic priority, the focus on manufacturing processes, through quality control and tight relationship management with the local district(that represents the majority of firm's total purchases), and with foreign systems of innovation for specific products categories.

Climaveneta has been able to rely continuously on the initial parts of its value chain through a tight relationship among external actors and internal buyers, technicians and designers to exploit properly the high level of competences within the company in the manufacturing process; the real turning point has been in the 1990s when a complete renovation in production department allowed to re-think the entire manufacturing flow, introducing tough innovations and fueling a dramatic enhancement of productivity that shocked the entire district.

The introduction of lean production¹²⁹ policies and kaizen¹³⁰ management, allowed the company to pursue the evolution already underway in many technology-advanced sectors, taking the move from the Japanese production model, firstly introduced by Toyota.

At that time, air-conditioning industry in Italy were a young sector compared with mature ones as the automotive, where the continuous effort for cost control in production processes

¹²⁹ Lean production aims to reduce maximally the waste and time loss along the production process. It has been boosted by Toyota Production System (TPS), that applied this discipline to its manufacturing department reaching astonishing results and gaining powerful cost leadership advantage compared with competitors, keeping also a leading position in the manufacturing process and innovations' launch capacity among its competitors.

¹³⁰ Japanese term for continuous improvement

and push for innovation exerted on production department by the external market and internal expertise as designers, marketers and technicians, were already a necessity.

The attention for operations in air conditioning industry were still elevate but mainly focused to satisfy R&D indications and to develop effective products than to pursue a tight efficiency.

The spaces for a productivity revolution were clear and the company has been able to tackle this challenge with success and gain big profits with the new production focus.

This improvement in company's organizational priority contributed to enhance its competences on manufacturing processes and nurture the knowledge on the entire operations.

That internal shock allowed the company to take the lead of Italian manufacturers and enhanced Climaveneta awareness of its strength points, confirming the necessity of pushing that part of the value chain to reinforce the entire business model.

9.2 The role of internal production and continuous development

Climaveneta, as the entire air-conditioning sector in the first phase of its life, absorbed widely the capacities of technicians that were already present in the territory, due to the presence of several mechanical industries and a fertile territory for innovation. The relevant hub for competences' creation, Padua University (with an interesting contribution from Milan and secondly Rome Universities in the formation of technical workforce¹³¹), and the large availability of skilled people represented the main industrial commons that enabled Climaveneta and the entire district to prosper in the early stages of their lives.

This natural heritage of competences, deeply rooted in the territory and made clear by the availability of numerous skilled workers, allowed the company to hire rapidly local people with a meaningful baggage of competences, developed in correlated sectors but immediately applicable on the specific young air-conditioning industry.¹³²

The availability of a dynamic and efficient workforce in the territory where the company established its activities has probably been the real engine of the entire Climaveneta growth path and the main pillar of overall company competitive advantage along its entire history. The quality of engineers and designers have deeply affected the entire Climaveneta strategy, pulling the company towards a rapid growth and innovation processes in the crucial phases of

¹³¹ Interview with Marco Vialetto, R&D manager Climaveneta

¹³² Interview with Luca Pianura, financial and control manager Climaveneta

its life. Nowadays it is still clear the importance that the company assigns to its entire workforce, through competences' building courses and long-term retaining program developed by its human resources department to reinforce the linkages with employees.

The turning point of lean production introduction and kaizen management, at the beginning of 1990s, contributed to modify the strategic drivers of the company: internal manufacturing phase enlarged widely its importance, becoming the engine of the process that brought Climaveneta to the leadership of Italian producers and one of the largest producers in Europe. Through the high efficiency reached in firms' factories and due to an operations management more conscious of the contribution that the internal manufacturing process may provide to designers and engineers, Climaveneta made a huge leap in front of competitors obtaining contemporarily 4 fundamental objectives:

1. Cost reduction and growing attention on efficiency as a strategic driver for the reaching of satisfying economic results.
2. Dramatic speed up of the entire manufacturing process, to reduce the impact of inventories in the cost structure and, at the same time, to provide rapidly the products that customers has ordered with their specific requirements (rapid lead time, linked with high customization, ensures higher margins due to higher availability-to-pay of customers, and a reduction of the entire economic cycle, reducing financial costs).
3. Multidimensional strategic approach. The development of lean production in factories forced the workforce to change its attitude and apply different strategic drivers in their activities: efficiency to reduce costs, effectiveness to provide rapidly the products required and learning by doing in the process of manufacturing, enhancing dramatically the competences of people that are stimulated to find new ways for producing products in order to obtain savings or products' improvement.
4. Competence building and organizational stimulus to innovation. Skilled workforce, determinate a valuable counterpart for designers, engineers, buyers and marketing employees to reinforce the innovation process in the entire company, due to the continuous inflow of information and suggestions that workers, directly involved in the daily production, may provide.

This bottom-up process of innovation creation, already seen in the TQS, represents probably the most important result reached by the lean manufacturing program and allowed a continuous spread of competences, ideas and opportunities within the entire organization to improve relentlessly the process of value creation for the company.

The sum of all these results allowed the company to reinforce its overall technical competences knowledge, improving widely the firm focus on continuous innovation, both through architectural innovations (due to a well-working R&D department) and also incremental ones, pursued in factories observing constantly production processes. This strategic move towards continuous innovations brought by every single actor of the manufacturing process, launched the company in a different way of competing, making it a valuable partner for co-developed projects with high long-term cash-flow production generation.

At the same time a similar attitude, enables the organization to enhance the level of absorptive capacity in research projects with actors involved in the district or also with external districts operating in foreign countries; in this way every single relationship brings a baggage of intangible assets in “making stuff” that improves people’s competences and allows the development of new internal projects with skills learned from previous negotiations and relationships.

Climaveneta capacity of being a manufacturer innovator, contributed also to nurture the competences of internal buyers and marketing employees about the requirements of products that are externally bought from local and foreign suppliers, in order to submit further information and establish well-functioning quality control and benchmark to external actors. This aspect became more and more important in Climaveneta history, following the size growth of the company and its leading role within the air-conditioning industry in Italy.

Indeed, as already seen, the company has been able through its skilled workforce, its lean production program and the continuous innovation processes to revolutionize the district, forcing competitors to follow its strategy and enhance dramatically productivity within the sector to save market shares.

At the same time also suppliers were required to become more rapid to provide components in order to feed the company productive process (that were oriented to limit massively its inventories), and to provide components that answered to stringent quality requirements (in order to reduce time and expenses in the inbound logistics of Climaveneta). The adaptation to new projects, and development of components necessary to launch the product are required to be fast and effective.

The role of Climaveneta as the district manufacturing champion¹³³ has driven the firm to take the lead of the district and leverage on its suppliers competences to foster the growth of the entire network, through a slow process of upgrading that became clear in the 1990s. Still nowadays, Climaveneta through its absorptive capacity, aims to learn continuously through the cooperation with its suppliers how to manufacture and produce components that the company actually assembles in its plants.

Climaveneta has been able to rely on the infrastructures of the district to create a well-working network of local relationships that still nowadays warrants a continuous inflow of competences and resources, leveraging on the valuable intangible assets that the district is able to provide, as the natural heritage for engineers' preparation.

The crucial role played by Climaveneta within Anima producers', the tight relationship established by the human resources department with Padua University (the real creator of air-conditioning industry sustainable competitive advantage), the development of Climaveneta Graduate Program in collaboration with Manpower¹³⁴ to secure the most talented newly-graduated engineers of the territory through interesting paths of formation within the firm, are all demonstrations of company capacity to establish tight linkages with the territory and obtain all the resources that are necessary to enhance its internal production capacities. At the same time Climaveneta is actively part of the richness creation process within the territory, spreading competences to its suppliers network, offering job opportunities to local people and reinforcing the specific characteristics of the commons that support the district, which has been deeply affected by the economic turmoil that in recent years have shocked the sector.

Furthermore Climaveneta averages retain its workforce (and particularly engineers) for long time, trying to establish partnerships that continue across decades and allows to develop several projects within the organizations, contributing to create a well-defined culture and a shared way of thinking. The sense of belonging to the company's objectives, the reciprocal investments of time and resources by workers and employer and the widespread willingness to sacrifice represents intangible assets that permeates the entire structure and that has been developed in the long-term¹³⁵.

¹³³ Pietro Tonon, group accounting manager Delclima, during an interview confirmed the role of Climaveneta as the district leader both in economical and technological sense, and highlighted the company crucial role in the process of value creation for the entire local economic system

¹³⁴ Manpower Group is one of the leading human resources consulting companies in the world

¹³⁵ Interview with Pietro Tonon, group accounting manager DelClima

The company demonstrated its focus on manufacturing as a key driver for further growth and to keep the market leadership, starting to create several outpost in foreign countries to serve properly far located markets and establish new projects and researches in different contexts from the Italian one, boosting company's capacity to learn. Actually Climaveneta has foreign production plants in Spain, India and China.

It is interesting to underline the main purpose that pushed Climaveneta to manufacture in foreign countries, that has not been the desire to off-shore for costs' reduction, but it is a strategic move to enhance the quality of service to its customers', reducing lead time, creating logistic outposts and fostering research processes that are often independent from the ones developed in Italy. Climaveneta particularly in China found a different mindset for engineers and researchers in the development of complex innovations and process renovation: Chinese people tend to demonstrate an higher level of experimentation, developing fastly several projects and trying to create prototypes in short time for a rapid commercialization. On the other hand research projects in Italy are more cost-saving oriented and tend to be managed through different stage-gates and a solid theoretical background.¹³⁶

The results already obtained by Chinese R&D Department are certified by the existence of several products, specifically designed for the Chinese market, that have been developed directly in the foreign plants, enlarging the range of products available for customers and trying to adapt the solutions to the different needs that the specific geographical market requires. At the same time, Chinese engineers are collaborating with Italian ones to the development of new products that can be adopted in all the markets that Climaveneta serves, with a focus on the creation of global products that can be able to compete with foreign global competitors.

This complex process of competences hybridization and different cultures meeting, has deeply challenged internal Climaveneta organization, representing a difficult but necessary aim to be reached in order to create a new range of products and reap completely the opportunities that cultural differences may provide. This process is still underway, but the reciprocal contribution of local and foreign R&D is starting to provide its results, the organizational differences are overcome through a reciprocal knowledge and leveraging on experience.

¹³⁶ Interview with Marco Vialetto, Research and Development Manager Climaveneta

9.3 Local suppliers network

Deeply linked with company's ability to manufacture internally, the contribution given by local suppliers has been crucial to determine Climaveneta as it is today.

The share of Italian components acquired by the company for its manufacturing and assembly processes has been in 2013 55% of total purchases costs, representing still today the large majority and highlighting the company's reliance on local manufacturers. This share has been far bigger in the past decades, when the company leveraged completely on the local competences of the district when it served solely the European markets and the majority of its revenues came from Italy.

The 2013 data showed around 400 local active suppliers, that represent the bulk of Climaveneta supply chain and 50 of them are considered of great importance for the company, in terms of supplying rapidity and products quality¹³⁷. Actually the modifications of geographic targeted markets are rapidly changing the sourcing model of the company that it is trying to support the approaching of new markets through global value chains also in the phases of components and assembly, but it is clear that the role of Italian air-conditioning district is far from becoming irrelevant.

As the purchasing manager stated, Climaveneta averagely commits itself to long-term relationships with local suppliers that are required to satisfy stringent quality control to join the supply chain of Climaveneta but that are embedded in processes of joint growth along time, in the attempt of exploiting the shared language and culture to reduce negotiations costs, changing costs, and enhance the reciprocal investments for valuable innovations, through a climate of faith and respect.

The role of the district for Climaveneta is slowly changing, due to the multinational attitude that the company is developing and its necessity to obtain components and semi-finished goods with rapidity and without losing time in negotiations.

The structure of the district, which is made of a myriad of small companies that still nowadays manage to survive and compete mainly through deep imitation processes and well-working linkages with key actors in the distribution channel, it is slowly encouraging the growth of some OEMs. These suppliers are in charge to collect the competences of small

¹³⁷ Interview with Alberto Valente, Purchasing Manager Climaveneta

producers and assembly some artifacts useful for lead firms as Climaveneta, that, in this way, can obtain a semi-finished good made of many different components and reduce the number of transactions with local companies.

The industry is still very far from a tough verticalization process and hierarchical control exerted by few companies to the entire value chain, but the presence of some firms with meaningful turnover and relevant presence in foreign markets (Climaveneta S.p.A. actually made the large majority of its turnover, beyond Italian borders) it is inevitably affecting the overall district structures.

Despite the international focus and research for new supplying networks that can provide intangible assets and entry points for foreign markets, the added-value provided by the territory it is related with its ability to offer a massive exchange of information with extreme rapidity and by the contemporary presence of many companies that, although their small size and scarce possibility of producing huge amounts of goods, are able to cover the different phases of the production process.

The availability of correlated activities and supporting structures highlights the dynamicity of the district, that it is evolving to an organizational network of competences for manufacturing, driven to globalization by few large companies as Climaveneta and that benefits from tough imitative processes in its smallest unities at the base of components' production. It is remarkable also the process of competences' export from Climaveneta that allowed the establishment of other lead firms of the territory, highlighting the leading role of the company and its capacity to upgrade the entire district.¹³⁸

The company recognizes in particular the key importance of some suppliers located in Vicenza, Verona and Padua province, especially in electronics field that are able to fuel the innovation processes actively with a direct contribution of competences and adding-value ideas. The specific characteristics of the sector, which is made of very long supply chains and knowledge networks, reinforces hugely the importance of local relationships, which can benefit from the shared culture and the institution of informal channel that can flourish and resist for decades, warranting low transaction costs and protecting margins.

¹³⁸ This issue is related to the foundation of Clivet, founded in 1989 in the city of Feltre by former Climaveneta employees and that reached a big size and remarkable innovation capacities in short time. This theme has been analyzed during the personal interview with Pietro Tonon

The relatively low impact of labour costs in the overall cost structure of the district supports the decision of the firm to continuously invest on local suppliers; Climaveneta has always considered strategic the role played by purchasing department to secure key resources in the manufacturing process; actual Climaveneta's managing director Maurizio Marchesini is the former purchasing manager of the company and also Marco Vialetto who is the actual R&D manager of the company has a long-time experience on the purchasing field.

Different interviews highlighted how the company perceives as crucial the management of components acquisition to obtain profitability in the long-term, pushing on the acquirement of valuable semi-finished goods through relational governance transactions as one of the fundamental pillars of Climaveneta S.p.A. strategy in the last 30 years.¹³⁹

9.4 Global suppliers and foreign economic systems for innovation

The establishment of tight relationships with foreign producers, able to deal with specific and complex technologies has been one of the main strategic drivers for purchasing department in Climaveneta of the last years.

Through the huge flow of technical information and competences provided by internal manufacturing processes both in Italy and foreign countries plants and due to the experience accrued along its long-term relationships with local actors, the company has developed the ability to actively deal with foreign suppliers in order to secure idiosyncratic inputs that can generate differentiation and value creation in the attempt of enlarging the range products and further enhance the customization capacities.

The interview with Alberto Valente, current Climaveneta Purchasing Manager, made clear that the company network of suppliers is enlarging its borders in some specific technical fields into a European network; the objective it is not the reduction of costs, because of the small impact of labour costs in the sector, but the following of a differentiation strategy and the access to fundamental technologies that are developed with mastery in foreign countries.

Particularly emblematic is the growing and relentless inflow of high-complexity components provided by German producers in the manufacturing processes of Climaveneta. As seen in previous chapters, the existence of a fertile local system of innovation for compressors and

¹³⁹ Interview with Alberto Valente Purchasing Manager Climaveneta and Marco Vialetto, R&D Manager Climaveneta

ventilation systems production in Germany (due to specific commons of the local territory, that is populated by a huge amount of producers of high-tech components and by industries more technology-advanced oriented than the Italian ones), represents an opportunity that Climaveneta desires to seize with a tight relationship with these key-competences foreign holders.

The partnerships with compressors manufacturers as Bitzer, enables a competence-building process within the company and fosters the establishment of joint innovation programs to reinforce the reciprocal competitive position.

The different attitudes and commons of countries where Climaveneta is an active player, provides several opportunities also in the detection of key competences that can boost the future growth of the company, and represent a challenge for purchasing department in order to secure key technologies and high-quality components in the manufacturing and assembly internal Climaveneta processes.

Valente, highlighted also one peculiarity of air-conditioning industry worldwide, which tends to replicate in foreign countries similar sourcing networks to domestic ones.

This specific characteristic is linked to the necessity of providing rapidly products that requires a meaningful level of technologies, that are not simple to be moved and needs to be installed, tested and maintained by technicians; the establishment of local linkages in far located countries it is a common policy in the sector that also giant players as Daikin and Carrier are taking widely.

As already seen in previous paragraphs, Climaveneta developed an internal manufacturing strategy that brought to the establishment of production plants in China and India to serve better those countries.

The sector peculiarity is represented by the common establishment of main suppliers' foreign subsidiaries, near the plants abroad of their biggest customers.¹⁴⁰

In this way, it is possible to observe a sort of sourcing model replication, that for certain technological fields, it is developed similarly both in domestic and foreign markets. This phenomenon brought to the development of several logistic and organizational hubs for air conditioning worldwide, and reinforced the linkages among air-conditioning producers and the territories that host them and their suppliers.

¹⁴⁰ Interview with Alberto Valente, Climaveneta Purchasing Manager

The company's capacity to create profitable linkages with foreign suppliers to establish new innovation projects has brought several results in the last years: beside the continuous collaboration with German producers, facilitated by the presence of a key actor in Climaveneta Deutschland that collaborates to improve the quality of partnerships¹⁴¹, an interesting and very ambitious partnership with a crucial Australian supplier has fostered the development of "*the state-of-the-art platform for chiller management and control*"¹⁴².

This project, an astonishing controller for complex refrigeration systems, able to adapt and optimize the performance of each component involved in the air-conditioning system to guarantee the best performance to users, represents an avant-garde solution that should enable the company to move a decisive step towards a new market, more complex and less populated by competitors.

The analysis of components-assembly phases of Climaveneta value chain highlighted clearly the capacity of the company to pursue contemporarily several paths for different purposes, keeping a tight control on the manufacturing processes even if they are performed in dispersed locations outside Italian borders.

The company perceived as crucial the manufacturing processes and try relentlessly to develop new innovation projects through its domestic and foreign research centers, and at the same time aims to co-operate with external actors, as suppliers or competitors for specific applied researches; this attempt is made in Italy, leveraging on the versatility and flexibility of small firms of the Italian district, through relational-based transactions (that can be also modular for some components that are perceived as less important or that can be provided successfully by suppliers (or OEMs) through detailed requirements).

At the same time Climaveneta is tightly involved in innovation processes with other local systems of innovation, for components that can make the difference in customers' buying process and that has a tough relevance in the total product costs, as for compressors and ventilators produced in Germany.

The complexity of Climaveneta upstream global value-chain embeds also the design phase, that affects producers and suppliers from other countries as in Australia and China, to develop breakthrough innovations for global markets (ClimaPRO), or specific solutions for foreign

¹⁴¹ Interview with Marco Vialetto, R&D Manager Climaveneta

¹⁴² Source: www.climaveneta.com, the product is ClimaPRO.

markets, that can be applied in other countries only after an adaptation process, often necessary to satisfy regulatory requirements, that in Europe are particularly tight.

This feature of the sector forces the company to follow complex standards for different territories, but at the same it is a stimulus that fosters the innovation processes to gain market shares and enter the competitive arena when competitors are not able to satisfy the law requirements.

This analysis aims to underline firm's capacity of retaining and continuously creating new competences in manufacturing processes and enhancing the quality of its products, always keeping under control the cost structure.

Climaveneta is able to drive its value chain both locally, leveraging on its headquarters district competences and globally through its subsidiaries research centers in foreign countries, and through specific projects with international partners; this capacity enables the company to exploit the opportunities offered by GVC model, without pursuing a simple cost-reduction strategy for components but putting in place a complex competence-creation plan. At the same time the company reaps all the advantages warranted by its district, that empowers the manufacturing capacity of the company and ensures rapidity and quality.

The synthesis among GVCs and IDs model put in place by Climaveneta is demonstrating all its potentialities, driving the company to its leading position and allowing the reaching of interesting economic results that we have seen in previous chapters; the innovation capacity fostered by this interesting multidimensional approach that aims to leverage on local and foreign competences is putting the company in the best conditions to compete and thrive also in the future.

Chapter 10 Climaveneta's GVC and distribution network

10.1 The resilience to globalization processes

The peculiar characteristics of air-conditioning industry supply-chain, which is made of a myriad of actors that give their contribution, starting from the design and concept ideation of products, to the manufacturing of components and finally, on the final stages of value chain that are represented by the selling process and the after-sales services, enabled the development of particular dynamics in the latter phases of the value chain that affected deeply the overall profitability of the entire industry.

Indeed, as confirmed by several managers during Climaveneta interviews¹⁴³, air-conditioning industry is characterized by the contemporary presence of intermediates, key foreign and local distributors, installers that contribute to enhance hugely the number of stakeholders involved in the selling process of manufacturers products as Climaveneta.

This large number of people affects deeply the customers choices of Commercial and Industrial air-conditioning solutions, supporting and collaborating with the final customer that often have little competences related to the features of refrigeration products and their differences compared with competitors' ones. The role of this influencers cannot be underestimated because often they are necessary to access some valuable customers and plays a crucial linkage also during the negotiation process to reach an agreement with customers.

This aspect of the industry contributed to secure the margins of the different actors involved in the process, managing to keep a certain information asymmetry linked also with the complexity of actors relationships; due to this phenomenon, producers are forced to foster the development of tight personal relationships with key influencers and fundamental agents. On the other hand, this kind of structure, made of several people with meaningful affection power during the buying process, enables manufacturers to establish solid linkages with actors, frequently based on personal relationships that empower the company capacity of presenting itself as a credible company on the final market, supported by the network of intermediates.

These personal relationships, that actually are not limited to the Italian territory, where obviously geographical proximity and common language foster the development of these tight

¹⁴³ In particular, Luca Pianura, underlined the length and complexity of relationships networks in the sales and distribution phases of air conditioning italian industry

relationships that often last for decades, has deeply influenced also the growth trajectory of Climaveneta, that has been able to deal better than competitors to these specific sales model. The company created a well-working network during the years, first involving some of the main Italian agents for each region and then starting to apply this model also beyond the national borders.

The management of relationships in sales channels, due to the products complexity and particular network of actors involved clearly represent a strategic priority for the company that developed and build internal negotiation competences and a well-working sales department that it is charge to deal with external actors, drive the negotiations and directly control fundamental clients that can skip the complex actors network and directly interface with Climaveneta organization.

The analysis of Climaveneta GVC highlights the great complexity of relationship management that spans through different governance types due to different contexts and projects. In particular, talking about the sales phase, the company may have two different negotiation governance possibilities: govern directly the negotiation with the customer without the intervention of external agents or distributors or rely on key figures, especially in foreign market to find new customers and facilitate the negotiation process.

Phase	Internal/External	Geographical location	Type of governance
Design, concept	Mainly Internal	Italy, EU, China, Australia	Hierarchy, relational
Components	Internal-External	Italy, China, India, Germany	Relational, modular, hierarchy
Assembly	Internal	Italy, China, India	Hierarchy
Sales	Internal-External	All over the world	Hierarchy-relational
After sales	Internal-external	All over the world	Captive-hierarchy

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The role of lead firm undertaken by the company in the last year, contributed to enhance the complexity of the entire value chain, differentiating the management of same phases in different kind of governance, due to specific characteristics of single projects. One of the main modify that Climaveneta observed in the last 15 years is related with the progressive geographical enlargement of its value chain that it is actually spurred all over the world for several processes embedded both in operations and distribution channels.

¹⁴⁴ GVC of Climaveneta with geographical location of main countries where the phase takes place, personal elaboration of the author

This phenomenon, has been tightly linked with the overall reinforcement of company's capacity of exerting control on the entire value chain, which occurred despite its relentless widening of geographical dispersion, making a huge effort to tighten the linkages with the actors involved in the various phases of value creation. The firm managed to take the charge of some key phases, maintaining an hierarchical control on high-value projects and reinforcing its positions in design and concept projects, but at the same time renounced to a massive outsourcing of other phases, comprehending the importance that the overall control on the value chain may represent; a strategic choice necessary to prosper in the future. At the same time, the company keeps a significant focus on internal manufacturing and local supply chain management stating its faith on the development of innovative processes through local innovation systems and guiding the Italian district towards the path of growth and success.

10.2 Value chain analysis

The process of overall value chain upgrading and tightening of control processes despite the growing geographic dispersion emerges clearly from the analysis of the main phases of GVCs model applied to Climaveneta reality; in particular the relationship between local territory contribution and globalization processes doesn't represent a dychotomy and actually continues to co-exist and reinforce reciprocally their roles, spanning innovation to the entire organization through these two different paths

Design and concept: this is clearly the phase where the company is making the biggest effort to improve its competences and that has represented also in the past the natural dimension of Climaveneta to over-perform its competitors, enhancing the quality and complexity of air-conditioning processes both through innovative products and well-designed strategies to follow the main trends that were emerging in the market: from the necessity of speeding up the entire manufacturing process, to the development of bespoke products in air-conditioning in the attempt of answering completely to customers' needs through unique solutions completely adapted to the specific necessities, and also catching the emerging of green trend in advance compared to its competitors.

The company main objective is the maintenance of its traditional role of products and process innovator, re-launching continuously its products range offer that it is expected to cover better and largely the entire air-conditioning sector in the next years, through the launch of new products developed internally in R&D departments located in Italy and China.

The Chinese R&D department represents one of the main challenges undertaken by Climaveneta to secure a different perspective to complex innovation problems through a different culture and a different problems solving mindset. It should foster the overall organizational capacity of designing new products pursuing contemporarily the three strategic drivers of successful multinationals companies: effectiveness through solutions that are considered worthy by customers that are available to pay premium prices to secure high-technology solutions, efficiency through the costs' control correlated with the activities of designing and applied research, and learning by doing, fostering the development of further processes.

Everything permeated by the desire of speeding up the overall innovation process, to reduce dramatically the time to market and overcome competitors new products introduction, allowing the defense and reinforcing of leading position in a continuous positive cycle that allows the production of growing cash- flow for new platforms of research, in the attempt of creating a global products range to compete in every country with foreign global producers. For all these reasons, the company perceives as crucial the tight control of this area, and develops many research projects directly through its internal department, in Italian plants for the large majority. As already seen, Climaveneta leverages also on its Chinese plants, as remarked by company's R&D Manager, for the appliance of some innovations through a different mindset of foreign researchers, more oriented to effectiveness and trial-and-error attitude than Italian ones, which are focused on theoretical field and more careful to efficiency of research processes and cost saving.

Beside these projects, which are ruled directly by the company and hierarchically controlled, Climaveneta fosters the collaboration with local Italian competitors, suppliers and other actors exploiting its belonging to the Italian air-conditioning industry for specific projects which require frequent interaction and thrive through a similar culture and a shared language.

The establishment of a dynamic and fertile network of competences through the years enabled the company also to pursue continuously specific design and research processes in collaboration with foreign partners of its GVC, as done for ClimaPro in Australia, for high-innovative products.

These agreements with meaningful foreign competence-holders allows the company to reap knowledge and skills, being directly involved in the research process and reinforce the relationships with key suppliers or actors abroad. These co-design projects are managed through tight relational-type agreements to enhance the reciprocal faith and improve the quality of innovations, underlining the focus on competences absorption for Climaveneta.

Both through local systems of innovation or GVC, the company aims to encourage innovation with an active direct role that can enhance the internal capacities to drive further future innovative projects.

Components: the issue of this phase has been already widely analyzed in the previous chapter but it is necessary to underline some further specific characteristics of Climaveneta strategy and attitude towards manufacturing processes that increase the company ability to thrive.

The company has deeply upgraded its capacity to manufacture internally components, believing firmly on the importance of this phase and renouncing completely to the off-shoring idea for efficiency purposes; this choice has been motivated by the scarce advantages that could be pursued through a cost-reduction policy in the production area for the air-conditioning industry.¹⁴⁵

At the same time, the company enlarged its geographical purchasing network to foreign suppliers and continues to reinforce the linkages with key actors, especially in Germany for the supplying of high-quality compressors and ventilators, the most expensive components of entire air-conditioning systems.

The development of the value-chain, that has enlarged widely its borders in the components acquirement has reached actually a global status and it is driven by the desire of obtaining high-adding value components from territories where the mastery of specific science fields and applied research are more developed than in Italy. At the same time, the process of sourcing network replication in different countries that has been considered in the last chapter, it is a powerful driver to the enhancement of foreign components acquisitions, due to the international growth of the company and its presence in far countries.

The company enlarged also its same geographical borders, manufacturing directly through its foreign plants in Spain, India and China, reaping foreign competences and trying to compete also in the production area in different cultural context to boost its learning-by-doing strategy and speed up its global status.

Beside this internationalization processes, it is fundamental to remark that actually Climaveneta continues to purchase the majority of its production components (55%) from its 400 Italian suppliers, highlighting the importance that the district still nowadays plays in the fast and effective providing of valuable components to fuel the production processes of the

¹⁴⁵ Information shared by all the managers during the interviews.

company, that relies deeply in the baggage of knowledge developed by the Italian local innovation system. The role of commons in this territory, continues to feed the innovation processes and reinforces the value creation of Italian air-conditioning district, despite the difficult overall economic scenario.

It is fundamental for the future to reinforce the competences building initiatives to allow a district upgrading towards higher technology-based processes.

This difficult duty must be ruled by public institutions with the tight collaboration of local universities and private organizations of manufactures like Anima to overcome the actual threats and exploit the myriad of small producers. The role of lead firms like Climaveneta to pull the entire district should not be ignored and must continue to reinforce the territories richness; the local system, at the same time, it is required of providing valuable intangible resources that cannot be replicated in other parts of the world in a sort of business exchange that it is fundamental for both the actors to prosper. The governance of local network for Climaveneta it is mainly relational-based with some modular exceptions, for easily codified transactions of small components.

Assembly: this phase has always been the core one for Climaveneta that has internalized wholly the assembly processes to create innovative and complex products through valuable external inputs and semi-finished goods internally manufactured. The company has been able to re-think this phase and revolutionize it among its European competitors, leveraging on it to build a durable competitive advantage and take the lead in market competition.

Through the introduction of lean production and kaizen policies, Climaveneta reached an astonishing efficiency in production processes for air-conditioning industry standards and changed radically its organizational attitude, pushing more and more on the manufacturing phases to gain and defend the European market leadership.

The company always kept a tight hierarchical control on assembling that is performed mainly in Italian plants. But in the last decade, with the development of new supply chains in foreign continents, Climaveneta performed assembly also in foreign production plants, to serve the foreign customers better and speed up the delivery process.

The strategy of the company relies meaningfully on the organization capacity to leverage on its components knowledge, design attitude and tight manufacturing control to exploit the inputs in order to produce high tailored products through fast-customization programs that allow the rapid assembly of unique products version, starting from a model with different characteristics.

This adaptation capacity is the result of a long-lasting process that allowed the sedimentation of technical competences and the establishment of an organizational attitude characterized by rapidity and products adaptation towards specific customers' needs.

A similar strategy cannot be pursued by the company if the work directly in Climaveneta's plants was not oriented towards the value creation determined by the optimization of inputs usage, the continuous attempt of reducing lead time, and above all the reaching of total effectiveness determined by the physical production of unique products designed by R&D departments, sold by marketing&sales employees and developed within Climaveneta walls. Assembly and components production are the depository phases for manufacturing processes and are perceived as crucial for the future success of the company, confirming the passionate attitude towards the art of making staff; it is also a fundamental clue of Climaveneta desire to rule the entire air-conditioning GVC through its aggregator capacity of this atypical and relevant producer-driven value chain.

The Italian manufacturer states clearly its refusal towards the already analyzed "smile effect" that considers as crucial only the design-concept and distribution-sales to create value along the GVC, especially for buyer-driven value chains, relegating the role of manufacturers to marginal and scarcely important.

The direct study of this case study highlights the fundamental role played by manufacturing phases in the process of value creation, due to their competences-building contribution and crucial part in the concrete realization of the customization strategy. These phases are the real value providers of the entire value chain in air-conditioning industry, fostered by the high-complexity network of competences required to develop rapidly final products with higher margins than competitors and the scarce verticalization processes within the industry.

Sales: the particular characteristic of air-conditioning industry already seen in upstream analysis, which is made of a myriad of actors that are involved in the process of production, it is present also in the sales and distribution parts of the value chain.

Many people affect customers choices, as installers, agents and influencers that take part in the buying decision and may boost or undermine the capacity of producers to find market spaces for their products; this specific peculiarity drove the creation of a complex network of relationships among producers and distributors that often determine the creation of solid linkages for long-term relationships.

Climaveneta has been particularly able to seize the opportunities that a system like this brought to life, creating profitable relationships with key local agents and foreign distributors,

investing resources on the protection of them to secure a collocation of its products in final markets. This company strategy brought astonishing results and allowed the entrance on fundamental foreign countries markets that actually absorb relevant turnover shares of the firm through the collaboration with some crucial distributors that drove the leadership establishment of Climaveneta in foreign markets.

Remarkable is the success that Climaveneta collects in countries like Israel, Chile or other South-American markets, fostered by the profitable relation with local actors that are able to comprehend products' quality and opened well-working distribution channels for the company, supporting company's expansion towards extra-european markets.

Also the approach of the Chinese market, has been hugely facilitated by the collaboration of a key local actor that cooperated for the establishment of the joint-venture and secured a huge market for Climaveneta that has provided meaningful revenues, big profits and the priceless opportunity to learn from the direct competition with global competitors in a rapidly growing country, that actually represent one of the key markets for global competition.

Climaveneta has been able to succeed in China due to its products quality and through the positive relationship established with local counterpart of the joint-venture, fostering also learning processes in other value-chain phases.

These experiences in countries where the level of competition with global players is particularly tough and requires the margins compression, linked with a continuous innovation requirement are perceived as fundamental by company's management to drive the entire organization to a new level of competition that involves the global players like Daikin and Carrier in countries where Climaveneta cannot rely on its tradition value chain.¹⁴⁶

After sales and spare parts: this final part of the value chain has gained more and more importance in recent years, becoming one of the main drivers for margins reinforcement and further growth for big manufacturers of air-conditioning products.

The peculiar characteristics of these goods which are complex and require maintenance, certified spare parts in case of problems and technical intervention for reparation, open a range of possibilities to producers in order to establish a long-term relationships with their customers and so enlarge the revenues flow for every products sold.

Climaveneta completely understood this opportunity, reinforcing its after sales structure in order to control the process of start-up (the concrete installation of the product in customer's

¹⁴⁶ Interview with Luca Pianura, Financial and control manager

structures and testing, to certify the correct functioning of air-conditioning solutions at the moment of selling), to guarantee rapid and complete support to customers through extra-warranties and provide certified spare parts to extend the expected life-time of its products. All these strategic moves, allow to enhance the value-perception of quality and service by customers, fostering also the creation of new profitable activities that have higher margins and allow the company to accompany customers along time, reinforcing the relationship and fueling the possibility of new products acquisitions in the future.

Climaveneta relies on its internal after sales department to improve its customer care services and offer thorough solutions which comprehend these additional services which are crucial in the overall value perception of such complex and technical products.

Climaveneta manages the after sales intervention both through direct employees of the company, which intervene fastly on Climaveneta products or through external assistance centers which are required to satisfy internal standards and solve fastly and effectively the problems of company's products.

These external actors are tightly controlled by the company, which relies on their capacities to foster the promotion of its image and to reinforce the linkages with customers; this attitude is highlighted by the strategic relevance that Climaveneta put on Service and spare parts business for a further growth in the future in order to strengthen the entire value chain exploitation to secure profits. Obviously these external actors are located in all key markets of the company in order to guarantee a vast geographic covering for rapid intervention, linked with a limited impact on costs, that are mainly bore by external actors.

10.3 Climaveneta future challenges

The analysis made clear the huge effort that Climaveneta is actually bearing to improve the control over its entire value chain to reinforce its leading position and drive the huge number of actors directly involved in the process of value creation, which are not directly controlled by the company, towards a path of common growth and innovation creation.

The geographical dispersion of its value chain has become particularly deep in recent years, when the company started to pursue with commitment the strategy of productive and commercial subsidiaries abroad, to offer a tight linkage with final markets, exploiting also the opportunities that different territories offer in manufacturing field. The reaping of competences and learning process continues to be two of the pillars of the entire company

strategy to be bullish in the future and make a further step of growth to reach a global dimension, comparable to Daikin or Carrier.

At the same time the company doesn't lose its insight on the development of the territories where it is inserted, taking into account the logistic, organizational and innovative contribution that the Italian local system of innovation provides actually to the success of the company. The reinforcement of the territory commons is one of the fundamental necessities to reinforce Climaveneta and overall Italian air-conditioning industry structure to prosper and gather growing success in international markets.

At the same time other local system of innovation are tightly controlled and observed by Climaveneta, in particular in German one for the creation and production of green, low-consuming and effective new compressors and ventilators to be installed on Climaveneta products, to reinforce the positioning of the company and enlarge the growing offer of solutions; this strategy is fundamental to approach new market segments in the attempt of becoming more similar to global producers. Also the manufacturing plants in China and India are strategic outpost for the development of new innovative products with the contribution of local actors that may provide new approach to problems and competences.

Actually the company is already the market leader in Europe and is committed to make a further step in its successful history, to gain more market shares in its traditional markets. But above all, the challenge is related with the performance in Asian countries where the global competition is particularly aggressive and price-based. Markets as China, India and other South Eastern countries represent together a huge opportunity to prosper for the Italian company, the real champion of Italian air-conditioning industry which represents the mastery of local manufacturers in the entire world and leads the territory in the global competitive arena.

As already seen Climaveneta is struggling to speed up its learning processes in contexts that are widely different from the European, but that are already providing optimal economic results to the company (take into account that actually Climaveneta is collecting almost one-third of its total revenues as a group from the Chinese market, with relevant margins and good profit creation¹⁴⁷).

¹⁴⁷ 2015 data, Climaveneta internal report

The progressive saturation of European traditional countries markets in air-conditioning industry, forces the company to struggle for new foreign markets conquer and to invest resources on its foreign subsidiaries. The performance of them is crucial to foster and strengthen the positioning in countries that are perceived as crucial by company's management, and the commitment towards the establishment of new hierarchically controlled outposts in countries like UAE and Russia highlights Climaveneta attitude to accept the global challenge.

The success in fast-growing countries depends strongly on the competences that Climaveneta would be able to express in the next future, on its global value chain control and manufacturing competences. The competition in Asian countries is deeply different from European one, with a lower number of actors involved and more difficult for Climaveneta that cannot rely on its solid relationship network, that has been able to establish in its first 40 years of life in Europe.

The experiences gathered in the last decade, especially in China, contributed to highlight and reinforce internal organizational awareness of Climaveneta's strength points, that allowed to reach significative successes in the main Asian country, and to foster the learning processes.

Actually, the company is struggling to reinforce its competences creation processes, enhance the integration with other companies of Delclima group, build up new relationships with foreign distributors and evaluate strategic acquisitions to boost the growth and reach more rapidly a critical mass to compete more easily on international markets.

The approach of main global competitors domestic markets (Japan and U.S.) is still a difficult and tough objective but the growing global attitude of the company and the good performances gathered by the company in Asian markets where already all its biggest competitors are present, should be powerful drivers for a further enlargement of company's geographical borders.

Climaveneta has already demonstrated the overall quality of its internal manufacturing processes, the significant contribution that local Italian suppliers are providing to fuel and speed up the innovation processes and its capacity to rule a complex global value chain in several foreign countries, as China, India and Australia.

The coexistence of manufacturing focus, global attitude and local tight relationship with key suppliers and distributors, which were apparently impossible to be linked because of the big

complexity of all these processes and the multidimensional approach required, has been already successfully established by Climaveneta.

The synthesis between industrial districts approach and GVCs has brought Climaveneta to become the lead firm of an entire Italian district and to take on a meaningful role in foreign profitable systems of innovation, reaching the European leadership position. This innovative strategy pursued by the company, that permeates the entire organization and it is part of the company's culture should be the pillar also for future success and further growth, linked with new key partnerships establishment and strategic acquisitions to reach the global dimension.

This company is the concrete confirmation that the contemporary reliance on local suppliers through innovative knowledge network fueled by the existence of industrial commons, and exploitation of global value chains to reinforce companies capacities and distribution network, is not only a possibility but a necessity to gain the leadership in producer-driven value chains like air-conditioning one.

The drawbacks of IDs and GVCs approaches analyzed in this paper are overcome by a multidimensional strategic approach that embrace the strength points of past theories, through a dynamic and adapting attitude towards market changes.

The turning point for Climaveneta has been the recognition of crucial role played by manufacturing in its value chain, and its huge commitment towards the entire value chain control through hierarchy and relational-type negotiation, in order to foster the exchange of information and competences, as it happens in traditional IDs, combining it with a progressive geographical enlargement focus.

The pursuing of a GVC establishment has always been driven by the desire of building up new competences for manufacturing and distribution phases, leaving little space to outsourcing-offshoring processes driven by costs-saving objectives.

Efficiency is continuously and directly researched within Climaveneta production plants, where internal technicians are able to control the entire manufacturing flow and can improve the production processes through incremental innovation, facing directly on the field the opportunities of costs savings and further innovation provided by Climaveneta products.

Chapter 11 The new paradigm is spreading: Brembo and other Italian case studies

11.1 Brembo history and sales results

Analyzing the business model and peculiar characteristics of Italian companies inserted in producer-driven value chains, located in dynamic local systems of innovation, one of the most interesting and fast-growing companies is undoubtedly Brembo.

The braking systems solutions provider, has been founded in 1961 in the city of Brembo in Lombardy by Emilio Bombassei (father of actual chairmen) and Italo Breda and demonstrated immediately an astonishing innovation capacity that drove the company towards the market leadership: the production of disk brakes began already in 1963, the providing of brakes for motorcycles in 1972 and in 1975 the company joined the Formula 1 World, maximum expression of technology research and continuous improvement systems¹⁴⁸.

Brembo became rapidly the most appreciated brakes supplier for motorcycles and car competitions, highlighting the extraordinary innovative capacity of this company to reach edge-innovations and secure the best conditions to compete at high speeds.

Since the 1985 the company has approached also disc brakes production for industrial vehicles, enlarging its range of customers and solutions possibilities for customers. Brembo has been listed in 1995 in Milan Stock Exchange to gain financial resources in order to foster a further growth step and reinforce the internationalization strategy.

Since 2000 the company has made a huge effort to reinforce its innovation attitude, relying on fundamental internal knowledge and to establish several manufacturing subsidiaries abroad: in 2000 Brembo signed a joint-venture with Chinese producer Yuejin Motor Group to enter the Asian market and establish a productive plant. Actually this partnership allows the production of brakes systems adapted to Chinese standards.

Brembo approached also India in 2005, with the establishment of a local joint-venture for production of motorcycles break systems. This investment has been reinforced in 2009 with a new production plant in India, in charge for the development of brakes systems for small

¹⁴⁸ The approach of Brembo to Formula 1 has been fostered by an agreement with Ferrari.

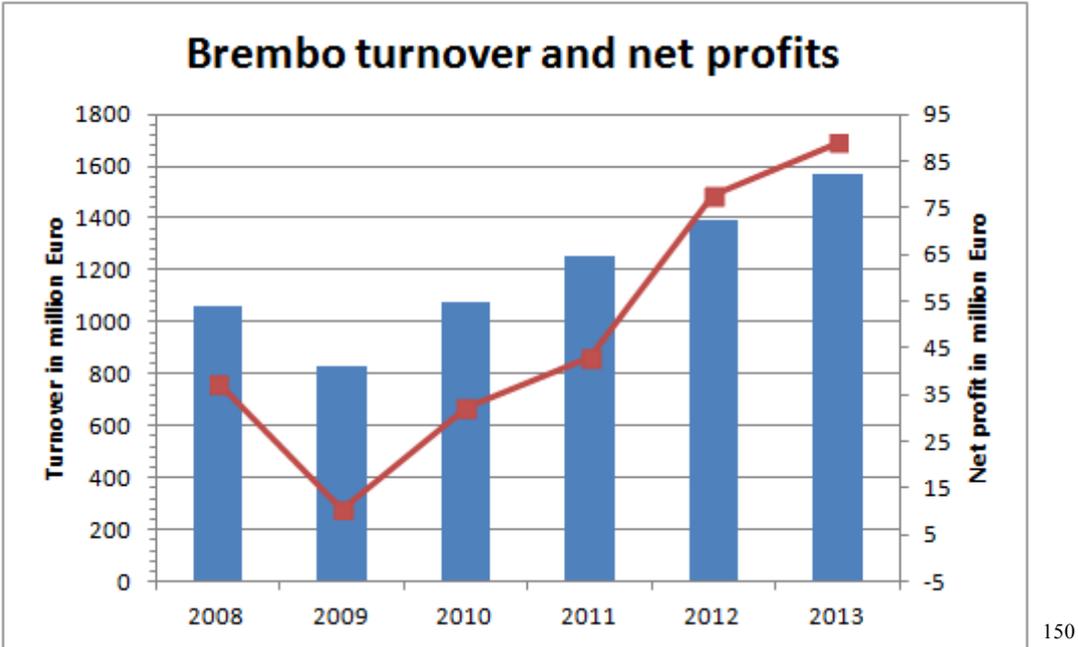
motorcycles, deputed to serve BRIC countries and other south-eastern countries under the brand Bybre.

In 2006 Brembo established its new plant in Poland, for disc brakes production; this structure has been renovated in 2010, contemporarily to the creation of a new plant in Czech Republic.

Fundamental has been the inauguration of Kilometro Rosso in 2004, the technological hub in Brembo that we will analyze in-depth later. Finally, remarkable has been the approach of north-american market with the acquisition of two production plants in Detroit and Mexico.¹⁴⁹

Brembo group reached in 2013 a total turnover of 1566,1 million Euro, with a growth of 12,8% from the previous year, confirming the solid fast-growing trend of the company since 2009, nearly doubling the turnover reached in 2009 in only 4 years.

Even more positive the performance of net profit figures that reached 89 million Euro in 2013, improving the performance of 14,4%.



According to financial indicators reported in the official website, Brembo in 2013 managed to obtain an astonishing ROE result, warranting an optimal performance to its shareholders of 20,8% and a ROI of 15,6%. This extraordinary figures highlight how much profitable is the

¹⁴⁹ Data provided by www.Brembo.it

¹⁵⁰ Personal elaboration of the author, data provided by Brembo website

company, and the ability of management to maximize profits from investment made within the firm, due to its technological leadership.

Also leverage figures are improving rapidly, allowing the company to reinforce its financial structure in order to evaluate continuously new investments for further growth and a more global oriented approach.

The division of revenues for geographical area underlines the tough international attitude of Brembo that is progressively reducing its dependence on Italian market towards North American countries, China and other European countries as Germany. Indeed Italian market accounts only for 13,5% of total company's revenues, leaving the role of main market to Germany with its 24% share.

Remarkable the performance, which it is rapidly growing, of China and North America that demonstrate the growing role played by globalization in Brembo success that is progressively enlarging its activities scope and targeted markets.

Country	2013	
	Revenues(mln €)	%
Italy	212.114	13,5%
Germany	376.007	24,0%
France	69.737	4,5%
UK	114.696	7,3%
Other European countries	173.050	11,0%
<i>Total Europe</i>	<i>945.604</i>	<i>60,4%</i>
India	35.175	2,2%
China	81.283	5,2%
Japan	21.779	1,4%
Other Asian countries	9.423	0,6%
<i>Total Asia</i>	<i>147.660</i>	<i>9,4%</i>
Brazil	66.171	4,2%
North American countries	372.809	23,8%
<i>Total Americas</i>	<i>438.980</i>	<i>28,0%</i>
<i>Rest of the world</i>	<i>33.899</i>	<i>2,2%</i>
Total	1.566.143	100,0%

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¹⁵¹ Personal elaboration of the author from figures in Brembo official website.

11.2 Local systems of innovation as competitive advantage sources: the Kilometro Rosso experience

As already seen, Brembo capacity to explore the globalization path has brought the company to establish several foreign production plant in order to serve better customers and foster research projects in other geographical territories; contemporarily the company managed to reinforce its sales structures, enlarging the number of customers and reaching far located countries to sell its products. It seems to emerge a clear growing importance of firm's global value chain that is progressively removing the bulk of operations from the original headquarters of Brembo towards a new global dimension made of foreign research centers and dispersed subsidiaries.

This is far from reality because the company has invested huge resources to reinforce its local presence in Lombardy and to foster the creativity and mastery in mechanical knowledge demonstrated by the local innovation system located near its headquarters.

To do so, Brembo has been the main promoter of an ambitious project for the realization of a technological hub that can support its innovation projects and foster a continuous ideas exchange among technicians, professionals and companies of different industries in order to develop new projects and boost hybridization to create new profitable market segments:

Kilometro Rosso

Kilometro Rosso is located in Stezzano, near Bergamo beside the principal highway of North Italy and contain over 30 different firms of different sectors, even though there is a majority of meccanic, meccatronic and information technology operators; Brembo moved its headquarters within the technological hub in 2007 becoming the leading company of the entire structure.

The variety of companies, service providers and research centers enabled a rapid growth of Kilometro Rosso and the establishment of a good climate around this ambitious project, that has linkages also with local public organizations. The successes of this structure has rapidly attracted attention from external companies (around 60 firms at the moment) that started to collaborate with the research centre maintaining their organization outside Stezzano.

Brembo acts as a "primus inter pares" taking the lead of the majority of internal projects and boosting the innovation capacity of the entire hub. Brembo normally designs the new product innovation through its internal research center and activates the contacts within the cluster

required to implement the practical innovation, absorbing the specific capacity that every actor is able to express. This process is really rapid, speeded up by the firms proximity and common language and culture, reinforced by past relationships on innovative projects.

Brembo along the entire research and prototype creation act as a network node, managing the process and absorbing know-how and operational knowledge to foster new future projects and to control actively the contribution given by other actors. Reciprocal faith and active control on others' work coexist within Kilometro Rosso to reach effectively and fastly the innovation desired by all the parts involved.

The overall structure of Kilometro Rosso, it is not highly formalized, because it evolves and changes around every new project, improving the level of knowledge and intangible skills of workforce, fostering a continuous cycle of value creation and a reinforcement of overall attitude towards radical innovation. Brembo in this way can rely on a reliable supply-and-research value chain that is located immediately near its headquarters, keeping the leading role on innovative projects and enhancing its internal competences. At the same time its partners are encouraged to keep a tight relationship with Brembo because of its leading firm role, that is able to outperform competitors in foreign markets and warranties a continuous flow of revenues and active recognition of partners' contribution.

11.3 Other Italian companies interpreting the scheme: Eataly, Technogym and Ducati

The number of leading firms that are actually relying on the local territory innovation possibilities generated by industrial commons, leveraging on them to conduct an aggressive strategy of market penetration towards international countries and interpreting correctly the new opportunities that globalization is offering also on distribution structures, is widening and counts several champions of the Italian industry.

I will mention several instances of success, related to firms that has already embraced this new competitive strategy that is tightly linked with the innovation opportunities offered by the Italian territory and are able to intercept and catch completely the requirements of foreign customers, due to a careful policy on products quality, relentless innovation pursuing and overperform competitors through brilliant new products.

EATALY

One of the most discussed Italian company of the last years has been surely Eataly, the Italian food market chain that revolutionized the concept of selling products, through an innovative structure that hybridize the characteristics of traditional markets and mall ones, creating a space astonishingly stimulating for customers. Eataly has been founded in 2004 by Oscar Farinetti and opened its first selling point in Turin in 2007, starting a rapid and dramatic growth that made Eataly one of the main instances of Italian capacity to innovate in a brilliant way.

Actually Eataly counts on 13 stores in Italy, a partnership with NTV, the second train company of Italian market, restaurants on MSC cruises and foreign stores in U.A.E., Turkey, Japan and U.S. where Eataly managed to establish a strategic outpost in 5th Avenue, in the heart of Manhattan , NYC, that enabled the company to decuple the brand awareness of the company worldwide and establish a clear positioning of the company.

The philosophy of Eataly is simple and clear: the firm relies on Italian small producers to supply high-quality valuable products that are the real roots of Italian territories cultures, in the attempt of storytelling to foreign customers the passionate capacity of Italian people to produce a wide variety of food, with large differences from a region to another.

Italy has always been the cradle of good-cooking in foreigners eyes, and Eataly desires to leverage on Italian mastery and intangible capacities to drive a new image of local products, that can finally be recognizable and largely available in foreign countries under a well-known label that ensures quality and goods provenience.

Furthermore, Eataly desires to drive a more complex attitude towards food for foreign markets, that is more careful to products' quality, more oriented towards local excellences, and focused on sustainability with the main aim of transmitting the real importance that food covers in our lives¹⁵². Leveraging on the Italian food and wine tradition that attract millions people every year, the company aims to enhance food importance perception in the general wellbeing of people, as a crucial driver to save health and improve humans happiness.

¹⁵² Eataly made a personal "Manifesto" that highlights company's workforce values that drive the entire organizational structure of the company. The passion for food as the crucial driver towards well-being erupts brilliantly from the 10 rules that the company embraces.

Eataly works as a fundamental actor that is able to collect the production of different Italian geographic areas, buying the real excellences that are made available by local workforce that is responsible through its mastery of the high-quality products. At the same time the Italian food-chain is able to hugely enhance customers availability to pay, through an intriguing store layout and a well-designed products presentation strategy that maximize the emotional involvement of potential customers.

The local supply-chain, benefits widely from the Eataly international position, finding a precious and recognized collocation for its production that is, finally, appreciated and made available worldwide by foreigners that are really passionate towards Italian food and desired a distribution system that can make it available in their domestic country. The problem of products provenience uncertainty is finally overcome by company's image that ensures customers through a transparent value-chain management; Eataly desires also to keep reasonable prices in order to offer the possibility to all foreign market segments to enjoy Italian food, a strategic move towards a further step of growth that can reinforce the Italian food quality perception and supports the entire production system that can thrive brilliantly in the future.¹⁵³

This combination of local production and international distribution, embraced by an innovative brand strategy that fosters customers awareness, has made possible a fast and brilliant success that is far from being finished, highlighting and finally leveraging on Italian huge potentialities in the food sector, that has not been expressed completely in the past due to traditional distribution problems in foreign markets.

TECHNOGYM

Technogym represents one of the most astonishing successes of Italian industry in recent years, due to company's capacity to establish a completely new way of doing fitness through a philosophy more oriented towards private customers that affected the whole humans attitude towards their bodies treatment.

Technogym has been founded by Nerio Alessandri in Gambettola, near Cesena in 1983 and rapidly has been able to establish a new market niche oriented towards customers that has never been used to attend steadily gyms and simply desire to improve their physical state through easy-to-use tools and personalized programs.

¹⁵³ Source: www.Eataly.it

To underline this concept, Technogym created the term “wellness” as the crucial baseline of its offer, that is a neologism made from the fusion of “wellbeing” and “fitness”, fostering the contemporary adoption by its customers of an healthy lifestyle, periodic sport activities, food attention and positive attitude.

Actually Technogym headquarters is located in Technogym village in Cesena, that represents a wholly innovative structure, defined by the company as a Wellness campus. It is a revolutionary structure that allows the reinforcement of the industrial commons at the base of Technogym success and a great opportunity for total innovation in the wellness industry.

It is made of several structures, dedicated to different parts of the innovation process and embeds the development of all the intangible assets that can foster the future growth of the company: it is present Technogym University, ideal place for ideas sharing and continuous meetings with international researchers and professionals to find out new way of doing fitness in the attempt of improving products quality and customers satisfaction; T-Wellness Science center is a complete scientific research center that relies on an effective internal structure of experts that study relentlessly avant-garde biomechanics and medicine evolution, for the creation of new machines more effective and ergonomically safe for customers. Furthermore an internal R&D department counts 130 engineers that are completely committed in the continuous materials selection and innovation research, to enhance the quality of company’s offer, through a tight attention on patents that have already reached a dramatic number(142 patents and 93 trademarks).¹⁵⁴

Technogym has also moved its manufacturing process in the new plant to pursue high efficiency standard and adopt Total quality process strategies and reduce production costs.

Technogym has directly declared the importance that Romagna plays for the company success and in 2002 Alessandri stated its desire to establish the first wellness district worldwide. Rapidly the project of “Wellness Valley” took life, reinforcing the tight relationship among the firm and its territory, in a win-win relationship that allowed a further flourishing for both the parts.

Main objective of the project is the establishment of a profitable network of local competences to promote wellness as a life-style to enhance local people life-quality and attract foreign people to Romagna both for touristic purpose and labour ones. The ambitious

¹⁵⁴ Source: www.Technogym.it

attempt of the project is to gain international visibility and offer the opportunity to skilled foreign people to find in Romagna the ideal workplace and reinforce the local industrial common made of talented people in fitness sector.

This tight relationship with the local community that enabled the growth of Technogym is linked also with the international vision of the company that is actually able to reach more than 100 countries in the world through a complex structure made of 14 foreign subsidiaries located in Europe, U.S., Middle East, Asia and Australia. Technogym is actually the most advanced provider of gym solutions for the large majority of professional athletes worldwide that enjoys the effectiveness of Italian products made in Romagna, from leading football teams to paralympic athletes that obtained the maximum support from the products designed by Technogym, gaining a growing importance in the mass media in last years.

Technogym continues to declare its focus not only on professional athletes, that obviously find valuable company's solutions because of their technological innovation, but especially on normal people that can benefit at a maximum level the solutions made by the company to improve their state of wellness. Through the adoption of customized programs and a fair approach to gym that is not oriented towards a tough effort for immediate results, people can improve their life-style and fully understand the benefits offered by sport activities.

The synthesis of local continuous innovation research, through a huge internal research center completely open to external contributions and a tight relationship with local producers and public institutions, with a completely global attitude that is driven by the ambition of improving people life quality has allowed Technogym to prosper and gain a sustainable competitive advantage that actually is continuously reinforced by company's commitment to preserve its local industrial commons. The partnership signed to foster Wellness Valley, it is the most important agreement of a fundamental local innovation system that hugely benefits from the existence of a leading firm as Technogym.

DUCATI

Ducati is one of the most famous and recognized Italian brand worldwide due to company's contemporary attention towards brilliant engine performances, careful treatment of brand image and passionate story telling of company's fundamental values and manufacturing processes.

The company has been founded in 1926 by Antonio Cavalieri Ducati in Bologna as a technology developer for radio communication, and this remained the core business of the company for more than 20 years. In 1946 started the production of engines and initiated the real success of Ducati has we actually know.

The main driver of company's growth has always been the deep desire to innovate technologically through avant-garde solutions applied to motorcycles: the relationship between a great passion for races and speed, linked with the desire of improving continuously performances represents the real secret success that is widely explicated by company's actual communication strategies.

Ducati actually accounts on 460 million Euros of turnover, that are largely provided by the motorcycle business which represent around the 90% of the entire sales made by the company. The international success of Ducati is certified by the astonishing geographical division of sales: revenues from the domestic market are only 64,8 million Euro out of 460 million Euro (14%).

The biggest market for Ducati is represented by United States (22,8%) that enjoys mostly the brand image and engine power of Ducati products, followed by France (10,9%), UK, Germany and Japan.¹⁵⁵ The presence of Ducati is more solid in countries where the passion for motorcycles is particularly eradicated from long-term and this attitude is linked with a good availability to pay of customers, that are willing to pay premium prices in order to obtain a Ducati motorcycle.

The strong brand image built by the company across its successful history made of incredible motorcycle champions and never-ending myths, is only the logical consequence of a fundamental commitment towards manufacturing processes and innovation research, driven by the organizational attitude oriented to success obtained through the passion for engines.

The production plant of Borgo Panigale is the real provider of competitive advantage for Ducati, that has kept a tight control on manufacturing processes from the designing of new products to the concrete realization within company's perimeter. Despite the progressive offshoring of some activities, driven by the necessity of serving better far-located countries and encouraged by the property change with the acquisition made by Audi, the bulk of production is still kept in Italy with the valuable support of traditional company's partners

¹⁵⁵ Source: Ducati Motor Holding balance sheet at 31.12.2013

located near the headquarters. Ducati has been able to establish across the years a well-working district involved in the motorcycle industry that has found a peculiar and powerful driver towards innovation: common and widespread passion.

The company in its website highlights proudly the quality of its suppliers that are largely Italian firms involved in meccanic, battery provider, and automotive industries in order to develop together with the district node, Ducati, new innovations and continuous products enrichment to satisfy completely the growing needs of international customers. This aim is pursued trying to keep always into account the fundamental role played by the direct involvement in incremental innovation and operations management in order to gain intangible knowledge.

Competences expressed by the local territory allows the company to look with faith towards the future, through a globalization process that is already at advanced level and a continuous attempt to innovate, keeping into account passion as the main driver for successful innovation.

Conclusions: is it possible to compete worldwide, combining IDs product innovation, tight manufacturing control and insertion in profitable Global Value Chains?

The analysis developed in this dissertation highlighted the necessity of reconsidering the contribution offered by economic systems of innovation in the success of companies involved in a global competition within producer-driven value chains.

The relentless push for cost reduction and efficiency pursuing has driven several companies in the last two decades to develop tough outsourcing and off-shoring processes in order to leverage on foreign countries lower costs of labour in order to manufacture their products and outperform competitors through lower prices.

This policy has already demonstrated its disrupting effects on many market leaders that has not been able to retain the control on the manufacturing phases of their value chains, losing crucial competences on the art of “making stuff” and threatening their overall existence due to growing foreign competitors effort towards innovation.

On the other hand, a new wave of Italian companies, has demonstrated to have gained huge competences from the Italian industrial districts experience of 1970s-1980s and pursued a completely different strategy, reinforcing their manufacturing structure in the domestic market. Renouncing to the inviting strategy of costs reduction, Climaveneta and other companies has been able to coagulate a network of intangible competences and workforce development, leveraging on the specific skills expressed by the local territory in order to foster innovation within their clusters.

Through a tight control on designing, components and assembly phases of the value chain, these leading firms managed to create a new successful model that relies deeply on local economic systems of innovation and on the reinforcement of specific industrial commons. The involvement of a large number of local actors which share language and culture, enabled to preserve the original traits of Italian IDs, fostering the innovation projects and allowing a dramatic speeding-up of time to market due to relational-based transactions driven by faith.

These local systems of innovation support toughly the growth of leading firms, that are able to spread competences in the entire district, taking the lead on the realization of shared innovative projects and encouraging local suppliers to search relentlessly incremental

improvements in their working activities. Furthermore the relationships with local public and private institutions is crucial to reinforce the structure of industrial commons that enables the overall prosperity of the district.

Leading firms are also deeply involved in the process of globalization, focusing their attention on potential foreign suppliers that may provide key competences for the development of breakthrough innovations; through co-design and co-manufacturing projects, companies as Climaveneta have the possibility to learn crucial skills from international partners, gaining a more global attitude towards innovation and transfer the new competences acquired on their domestic system of innovation. This positive cycle is fundamental to fuel local district with new ideas and mindsets, and warranties the interception of crucial trends.

The establishment of well-working distribution systems in foreign countries represents the real challenge for these lead firms, that are in charge to collocate valuable goods produced by the local systems of innovation, maximizing the premium prices for high-quality products.

As it emerged from this thesis, Climaveneta has been able to thrive in international markets becoming the leading European company in air-conditioning industry through a complex network of relationships on international distribution channels that allowed to gain important markets shares in countries as China, UK, Germany and India. The company managed to fully leverage on the quality of its components, made largely from its local supply chain and valorized from the internal manufacturing processes to spread richness on its entire local economic system, pursuing contemporarily the research of new foreign valuable suppliers in order to boost continuous innovation.

In these way, global value chains became fundamental to collect competences and improve companies' capacity to be effective and enhance customers availability-to-pay; at the same time GVCs offer the opportunity to approach foreign markets and increase dramatically revenues and profits of Italian companies which can rely on manufacturing leadership and offer valuable solutions to customers.

The establishment of such a complex model that exploits both the advantages of GVCs and IDs, fostering a process of tough investment on manufacturing phases and on the overall local territory growth, in order to warranty a positive cycle of innovation and richness creation, is actually underway in many Italian companies and represents one of the biggest challenges for the future prosperity of the country.

As seen in previous chapters, the role of public institutions in order to develop powerful scaffolding structures and enable the development of specific commons to support the local industrial system is crucial to foster the growth of this model and allow its leading firms to prosper worldwide.

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