Ca' Foscari University of Venice

Master's Degree

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Final Thesis

# The Murano glass district: opportunities and trends

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# PREFACE

Since ancient times, artistic glass production has concentrated on the Murano Island, a place that managed to become recognized around the world as the leader in this industry. Several factors lie behind its competitive advantage, most importantly the set of skills and local know-how that glassmakers transmit from one generation to the other. However, the beginning of the 21st century marked a turning point in the history of Murano, that ever since has been dealing with a crisis that continues to these days. Moreover, events like the 2008 financial crisis and the 2020 COVID-19 pandemic worsened the already difficult situation. Is there a way out for Murano companies? Which strategies can be followed by local producers to improve their performance and adapt their business model to the challenges of the global economy? How are they dealing with the current and future economic trends, such as internationalization, digitalization and sustainability? These are some of the questions that we will try to answer in the following chapters.

Glassmaking in the island of Murano is recognized by the Italian law as one of the countless industrial districts that make up the country's economic and productive system. Therefore, the first chapter serves as a theoretical introduction on industrial districts, starting from the earliest development of the theory by the English economist Alfred Marshall, and including the successive contributions by other scholars, i.e., Giacomo Becattini and Michael E. Porter. We will then provide some information on Italian industrial districts, reporting data and describing classifications for both districts and companies operating within them. A more recent evolution of the concept of Marshallian district will also be considered, in light of the significant changes that happened to the current world economy.

Starting from the second chapter our focus will shift specifically to the Murano district, recalling its historical development, from the oldest sign of the presence of glass producers in Venice in 982 A.D., through its peak in the Middle Ages, to the first challenges of the 17th and 18th centuries. Through data we will then describe how the district experienced the 2008 crisis, which worsened the difficult situation that it was already living internally starting from the beginning of the new century. We will also provide a brief description of the difficulties companies are facing today, as a consequence of the ongoing COVID-19 pandemic crisis. To conclude the chapter, we will identify some of the key factors that distinguish the competitive advantage of the district, i.e., the peculiar quality of the glass, the transmission of specific manufacturing skills and know-how from one generation to the next, the global appreciation of Made in Italy products and the influence of the Country-Of-Origin effect, and the recognition of the "Vetro Artistico® Murano" trademark, established to guarantee the originality of the glass items.

The third chapter will then explore three current drivers of the industry and of the district, trends that local manufacturers should be aware of and should consider for the future development of the sector. Specifically, we will describe the three megatrends of the world economy, i.e., digitalization and Industry 4.0 innovations, internationalization and global trade, and environmental sustainability, as proposed by the United Nations, and draw parallels with Murano's situation. In order to find empirical evidence on these three areas, the chapter concludes with the interview I conducted with Dr. Sergio Malara, the coordinator of Consorzio Promovetro, who reported interesting contributions on current or future projects the Murano district is undertaking, given the limited financial resources it receives from competent institutions.

Finally, the fourth chapter concludes by analyzing four company case studies, collecting a diversified portfolio of experiences and strategic directions. The four examples will be VENINI, one of the most popular and successful Murano companies, Gambaro & Tagliapietra Murano Glass Studio, a smaller and more traditional workshop, Wave Murano Glass, a recent startup led by the youngest glassmaker in the island, and Andromeda Murano, another relevant company at the international level.

# CHAPTER 1

# INDUSTRIAL DISTRICTS

Due to the high concentration of glassmaking companies in a limited geographical space, the Murano Island can be considered the first industrial district in history. This first chapter serves as a theoretical introduction on industrial clusters and agglomeration economies, explaining why it is an advantage for companies to locate in the same geographical area. The first contributions will be those made by Alfred Marshall, Giacomo Becattini and Michael Porter, whose analyses are considered to be the foundation of industrial districts' theory. Afterwards, we will focus on Italy, a country that presents a large number of economic activities established within industrial districts. Following some relevant academic papers, we will provide a classification of both Italian districts and companies operating within them. Finally, we will consider how the concept of Marshallian district evolved, as a consequence of the globalization of the world economy and its supply chains, and which are their new sources of competitive advantage.

## 1.1 Theoretical contributions on industrial districts

### *1.1.1 Literature review*

The formation of industrial districts is a phenomenon that affects regions all over the world: Silicon Valley for semiconductors, Hollywood for movies, the Detroit's auto industry, Wall Street and the City of London for financial services, Sassuolo's ceramic tyles and Prato's textile are only few examples of the multitude of clusters that exist throughout the globe. Due to their relevance, several authors have analyzed the dynamics that arise within industrial districts, how they emerge and why they are beneficial to its members: here we report the main contributions from three key authors, i.e., Alfred Marshall, Giacomo Becattini and Michael E. Porter.

The concept of industrial district was first coined by the English economist Alfred Marshall in the late 19$^{th}$ century, and later rediscovered and reinterpreted by the Italian Giacomo Becattini and the American Michael Porter.

In his well-known publication, *Principles of Economics*, Marshall explains that the main causes behind the localization of industries have been geographic conditions and the availability of appropriate natural resources, such as the quality of the soil, climate, proximity to water, and more. Several advantages arise from the colocalization of firms belonging to the same industry: skills and knowledge "become no mystery; but are as if it were in the air" (Marshall, 1890), they are transmitted from one generation to the next, and children learn them unconsciously and with ease; innovative ideas coming from one entrepreneur are shared with others who contribute to them with suggestions and improvements, and become sources of further developments; subsidiary industries grow in the area, supporting the district with supplies and materials; highly specialized machinery is developed thanks to the large aggregate production; the district attracts specialized labor thanks to its constant demand for the specific skills workers possess. Thanks to their proximity and frequent interactions, small and medium-sized firms can avoid pursuing vertical integration and instead focus on only one step of the production process: such division of labor within the value chain enhances specialization, efficiency and productivity. Due to its peculiar structure, firms in the district experience both competition and cooperation, each working on activities that are functional to others. Due to co-location, it often happens that the employer-employee relationship, or the one between entrepreneurs, are personal relationships, so that economic forces interact with social ones. This surely poses both advantages and disadvantages: on the one hand, it enables for more informal communication and interactions, on the other, the relationship might be damaged by issues that might arise on the workplace.

While Marshall developed his theory on industrial districts by analyzing the textile industries that flourished in England after the first Industrial Revolution, another scholar, Giacomo Becattini, observed similar patterns in his home country, Italy, at the time of the strong industrial development that happened after the Second World War, coined the Italian economic miracle (1958-1963). This period coincided with an increase in exports of Italian products, especially those produced within industrial districts. Instead of big well-known companies, it was small and medium enterprises that managed to expand to international markets and improve their economic performance. This fact contradicted traditional economic thought, which suggested that smaller firms were at a disadvantage compared to big ones. In fact, following Marshall, Becattini recalls that the benefits of a large scale can be replicated by the interaction of several smaller firms that are specialized in different phases of the production process, without losing the flexibility that characterizes small business ventures. Such “external economies” that arise from the cooperation between members of the district replace the internal capabilities given by the size of the firm, enabling the network of small units to thrive.

Becattini defines an industrial district as a socio-territorial entity characterized by the presence of a community of people and firms in a limited geographical area (Becattini, 1989). The district also includes a stable network of suppliers and distributors, who collaborate in the production process. Firms operating in the district usually belong to the same industrial sector, or to others that are ancillary or complementary to the main one and play a specific role in the value chain of the industry. For this reason, there are frequent and continuous interactions between members of the district, which cooperate in the production process. However, the main contribution Becattini provided in the reinterpretation of the Marshallian thought is his emphasis on the social and cultural character of the local community: the core element of an industrial district is the system of values that permeates its members and institutions, including shared beliefs about work ethic, family, reciprocity and change. To give rise to external economies, proximity between players must be not only geographical, but mostly social and cultural, with firms sharing the same language, common values and implicit rules of conduct. This “communitarian factor”, a characteristic belonging especially to Italian agglomerations, allows for a mutual understanding between actors, reducing transaction costs and facilitating knowledge flows (De Marchi, Grandinetti, 2014).

Together with the system of values, it is necessary that a system of institutions develops within the district, capable of propagating and transmitting such values within the members and from one generation to the next. Institutions include markets, companies, families, the Church, schools, public administration, local political associations, unions and cultural entities of various forms. There must be a congruence between the type of production and the system of values that permeates the people and the institutions of the district.

Not all industries are suited to be organized into an industrial district: in order to work successfully in a district structure, production processes must have some specific features, such as the divisibility into phases, and the possibility to move intermediate products between the different producers. Moreover, the industries that are more suited to agglomeration are those for whose products it exists a differentiated and variable final demand, that is not standardized in time and space: a fragmented demand, in fact, requires the flexibility that a big vertically integrated company cannot provide, while it is well suited for a similarly fragmented production process.

The third and final perspective we will discuss is the one by the American scholar Michael Porter. Porter, mostly known for his five forces of competition framework, also contributed to the development of industrial district theory. In the article entitled *Clusters and the new economics of competition*, Porter argues that the contemporary world economy is dominated by clusters, i.e., "critical masses – in one place – of unusual competitive success in particular fields" (Porter, 1998). Paradoxically, he says, in a world where everything can be sourced from the most convenient locations, local knowledge, relationships and skills create an advantage that distant competitors cannot replicate. However, global sourcing matters in the sense that nowadays, differently from what Marshall observed at his time, proximity to natural resources or factors endowment does not matter as much, making comparative advantage less relevant. Instead, it is competitive advantage, i.e., the productive use of inputs through constant innovation, that makes clusters successful.

Porter reports the typical definition of a cluster, similarly to Marshall and Becattini, as a concentration of interconnected companies and institutions in a particular field. It also includes an array of connected entities that are necessary for the development of the cluster, such as suppliers of specialized inputs, manufacturers of complementors, and companies working in related industries. Institutions, such as universities and governmental agencies, often provide specialized training, education, and support with research and development activities. Clusters represent an innovative industrial organization that lies between arm's length transactions and vertical integration, solving the issues given by contract incompleteness in arm's length relationships on the one hand, and the inflexibility produced by vertical integration on the other. Porter goes on listing all the benefits that clusters provide: companies that join a cluster experience enhanced productivity, because they have better and cheaper access to inputs, technology, institutions, information and a specialized labor force, which lowers the cost of internal training; having a localized source of supplies reduces transaction costs, inventory costs, importing costs and delays, without sacrificing flexibility for the sake of vertical integration; personal relationships and reciprocity norms make the flow of information easier and faster, especially when it comes to tacit and complex knowledge that cannot be codified but only learned through direct experience, something which plays a major role when it comes to innovation.

Thanks to the advantages produced by clusters, a positive self-reinforcing mechanism arises, with new entrants and suppliers that choose to locate in the cluster rather than in an isolated area. The growth of the cluster is facilitated by favorable barriers to entry, that are lower than elsewhere, due to easily available assets, inputs, skills, and employees, coupled with an already existing customer base that conceives the cluster as their reference point in the industry. This means that also innovative startups will likely locate in the cluster, bringing their fresh ideas to the surrounding companies, something which continuously promotes innovation to be developed within the cluster.

### *1.1.2 New sources of competitive advantage*

Historically, the key source of competitive advantage for industrial districts has been what we call "static efficiency", i.e., the benefits coming from the specialization of firms and of the workforce, proximity, low transaction costs and the division of labor among firms. However, in the contemporary world, these factors do not seem to be as relevant anymore, due to the practice of outsourcing to distant locations, which is often more convenient than producing internally. In this complex scenario, where competition is fierce and conditions continuously change, another set of capabilities is necessary to give rise to the so-called "dynamic efficiency", i.e., the ability to react quickly to environmental changes, which is the true source of today's competitive advantage.

Differently from the past, when purely monetary advantages were at the core of industrial districts' competitive success, the focus now shifted to knowledge accumulation and knowledge-sharing: the key source of the districts' competitive advantage is their ability to create, transfer and apply innovative knowledge (Carbonara, 2018). And it is due to the peculiar character of knowledge flows that industrial districts continue not only to survive, but also to achieve superior economic performances. The reasons lie on the distinction between codifiable and tacit knowledge: if, on the one hand, there is a part of knowledge that can be easily articulated, stored, transmitted, and understood, there is another part that is context-dependent and involves skills and know-how that can only be acquired through learning-by-doing. While codified knowledge can be smoothly transferred through Information and Communication Technologies (ICT) across long distances, and thus does not require physical interactions, this does not hold for tacit knowledge. It is straightforward then to understand that tacit knowledge is more suitably shared within industrial clusters, where geographical proximity, a common language, culture and values facilitate informal knowledge exchanges of various kinds. And it is precisely because of the ease of transfer of codified knowledge through ICT that the value of tacit knowledge is increasingly precious (Pinch et al., 2003).

To avoid lock-ins and stagnation, the district must be able to integrate its contextual tacit knowledge that is "in the air", as Marshall would say, with new codified knowledge coming from the external environment. The combination of these two complementary knowledge sources gives rise to a process of continuous incremental innovation and renewal, that is at the core of the districts' successful development (De Ottati, 2018). But since codified knowledge can be easily accessed by anyone, what gives districts an advantage in receiving and applying such knowledge in advance with respect to isolated companies? In other words, does contextual knowledge facilitate the reception of codified knowledge?

To answer to these questions, some authors drew a parallel between firm and district architectural knowledge (Pinch et al., 2003). At the firm level, we can distinguish between component and architectural knowledge: the former refers to specific skills and functions that pertain to individual parts of the organizational system, while the latter relates to the firm's system in its entirety, and the structures and routines it developed to make use of component knowledge. While component knowledge is unspecific and easily codifiable, architectural knowledge is context-specific and evolves within the organization over time, a feature that makes it hardly transmittable to other firms. If properly developed, architectural knowledge also plays a fundamental role in the firm's ability to receive, welcome and interpret inputs of component knowledge coming from the outside, i.e., its absorptive capacity. In fact, there is a complementarity between internal and external sources of knowledge: if architectural knowledge is not present within the firm's boundaries, the organization will not have the resources that are necessary to understand the value, the potential, and the proper use of external inputs. However, associated to architectural knowledge and absorptive capacity is the risk of paradigm lock-ins: when companies become too reliant on their existing architecture, they accumulate absorptive capacity that relates to a specific paradigm, i.e., a way of doing business that they familiarized with and that they easily work around. But if they stop investing in alternative architectures internally, they may become unable to see and recognize inputs coming from emerging paradigms that challenge the current business model, and may eventually be left out of the market, being unable to adapt to a radical innovation.

Similarly, we can bring this distinction to the cluster level, and identify the existence of a "cluster-level architectural knowledge", as the authors define it, consisting of a system to manage component knowledge that is shared between a set of proximate firms. As firms' architectural knowledge enables them to develop absorptive capacity, clusters' architectural knowledge does the same at the district level. Thanks to the commonalities that exist among them, all firms in the cluster interpret component knowledge in similar ways, which makes its propagation faster between district firms than isolated ones. So, though component knowledge is widely transferrable and accessible, such facilitation gives the cluster a short-term competitive advantage before the knowledge spreads to the outside, which is incrementally transformed into a long-term, sustainable superiority. In today's information economy, it is mainly this knowledge-sharing kind of competitive advantage that keep industrial clusters alive and successful.

## 1.2 Italian industrial districts

After the Second World War, during the economic boom, the Italian economy started witnessing the rise of several small and medium enterprises (SMEs) located in highly specialized areas of production: Italy is a perfect example of an economy organized around industrial districts. What enabled the development and success of industrial districts was the spontaneity of their formation coming from individual entrepreneurs, who had acquired specific competences in certain sectors and based their growth on informal relationships with other small enterprises in the territory (Ricciardi, 2013). Such spontaneity that stands out in the expansion of the districts and in the connections between the firms operating in the same area makes this process hardly replicable in other regions through artificial industrial policies, making the district unique and irreplaceable.

The contribution of industrial districts to the Italian economy is noticeable: the district system represents a fourth of the productive system of the country (ISTAT, 2015), both in terms of productive units and number of employees. In 2011, 141 industrial clusters were identified in Italy, distributed as follows: 45 located in the North-East, 37 in the North-West, 38 in the Center, 17 in the South and 4 in Sardinia.

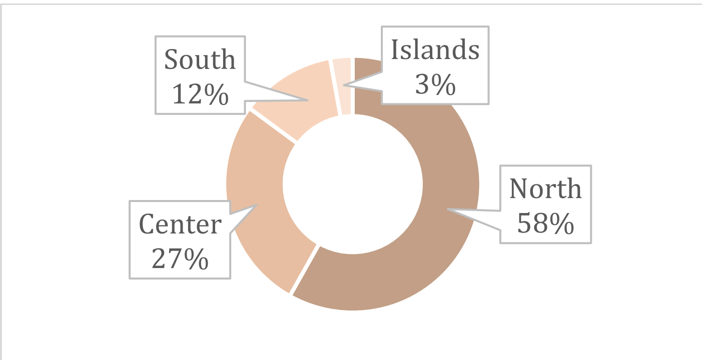



*Fig. 1 : Geographical distribution of Italian industrial districts in 2011*

*(source: ISTAT)*

These data show that there exists a positive correlation between the presence of industrial districts and the degree of industrialization: the regions with a higher number of districts are also those which have experienced a faster industrialization growth (Becattini, 1991), forming the so-called “Third Italy”.

The vast majority (92,2%) of Italian industrial districts operates in Made in Italy sectors like mechanics, textile and clothing, home furnishings, leather and footwear, food and beverages, jewelry and goldsmithing, and musical instruments. In 2019, among the twenty best performant Italian districts, nine belonged to mechanics and automation, six to agri-food, three to fashion and two were specialized in rubber and plastics (Intesa Sanpaolo, 2019). From a geographical perspective, sixteen of them were located in the North, three in the Center and one in the South. Many of these districts show the presence of leader companies, that are on average one tenth of district firms.


*Fig. 2 : Top 20 best performant Italian districts in 2019*

*(source: Intesa Sanpaolo, 2019)*

### 1.2.1 District classification

There exists a strong correlation between economic performance and the quality of the districts' governance structure: the success or the crisis of a district does not depend exclusively on the industrial sector it belongs to or its geographic location, rather to the nature of its governance. Therefore, depending on their historical evolution, degree of cooperation, and strategic choices, we can categorize Italian industrial districts into four typologies (Ricciardi, 2008). "Dynamic" districts display efficient governance structures, which favor constant development, improving economic performances and export levels, and show strong cooperation and interdependence between companies and production cycles. In this category fall the most successful Italian districts, such as that of ceramic tyles in Sassuolo, ham in San Daniele, sportwear in Montebelluna, Santa Croce's leather and Lecco's metal. "Mature" districts are strongly rooted in the local territory and community, but lack an efficient governance structure, firm cooperation is spontaneous rather than planned, and they also possess a lower ability at innovation and marketing. "Vulnerable districts" have both a weak governance and tie to the territory, and are characterized by competition, rather than cooperation, between companies, which work in isolation. Performances are fragile and unstable, and, under certain critical circumstances, belonging to the district becomes a risk factor, rather than an advantage. Finally, "virtual" districts exist only due to some regional decrees but are actually mere industrial areas.

Within the district, Ricciardi also distinguishes four typologies of enterprises, depending on their degree of autonomy and the development of certain competencies: "blocked" firms are small and micro companies (artisanal workshops), specialized in single phases of the production process, that guarantee low costs and high quality standards, but cannot work autonomously on the market, being highly dependent on their B2B customers; "pulled" companies deal with critical operations, but are usually unable to bring process and product innovation, rather they assume an adaptive behavior where they merely reproduce existing processes; "specialized" enterprises focus on key production competencies, from design and prototyping to delivering the final product, but hardly with a proprietary brand and commercial capabilities, often making use of third-party manufacturers and distributors, since their main activities revolve around technological innovations and exclusive know-how; finally, in some districts we can observe the presence of “leader” companies, that are more structured and directly active on the final markets, with well-known brands on the international scene and greater autonomy and bargaining power: their role is to create a link between the local system and the market, to promote the image of the district and to coordinate activities between the members of the district.

A similar classification is proposed by Chiarvesio (Chiarvesio et al., 2010), who explains the current transition of the Italian industrial district system, that necessarily needs to adapt to our complex, globalized world. The authors identify four organizational models of district firms, that differ in the degree of internationalization: the “traditional local firm” relies exclusively on the local environment for sourcing and production, and exports are usually its only contact with foreign markets; the “traditional local firm with commercial outlets abroad” is one step forward in its internationalization process, having some form of investment abroad, but still sourcing locally; the “firm with upstream suppliers” has a global approach to sourcing, but no direct investment abroad; finally, the “open network” firm is internationalized both in its sourcing and in its presence on the market: such open networks are the leading firms in the district.

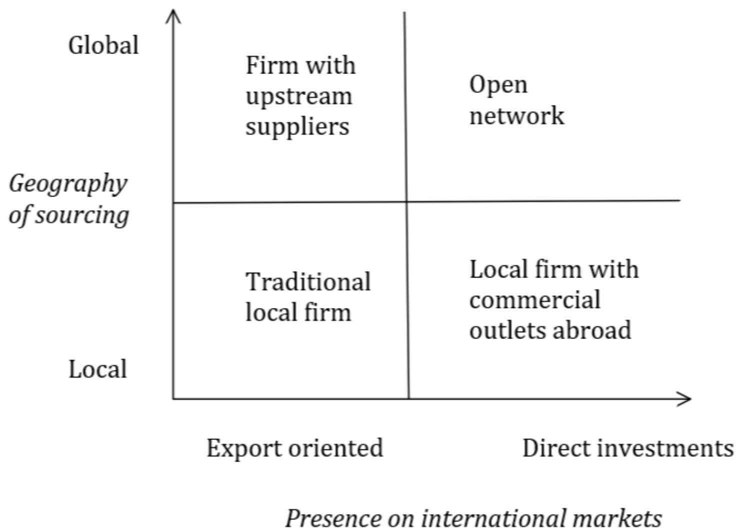



*Fig. 3 : Four models of firms in industrial districts*

*(source: Chiarvesio et al., 2010)*

Starting from the 1990s, in fact, the evolution of Italian districts witnessed the rise of single firms as leading actors, characterized by a well-defined strategy and the ability to bring innovation to the local territory. The figure of the leader company is especially noticeable in mature districts, like the majority of Italian ones, because of their need to find new sources of competitive advantage to face the challenges of the global economy. Leading firms are the key players in the process of internationalization of marketing channels and manufacturing processes. Abroad they also find services that are not available, or not sufficiently well-developed, in the local territory, such as design and technological innovation. While, on the one hand, this may seem like a threat to the integrity of the local district, on the other it may become an opportunity for other firms to adopt best practices and innovate their business models, following the example of the leader.

The authors continue their analysis by distinguishing four groups of companies based on their economic performance, signaled by the rate of growth in their turnover and profitability in a four-year period (2000-2003). Results show that the majority of open networks are "winner" firms, i.e., those that were able to increase both their turnover and profit more than the industry average. However, we also note that setting up foreign direct investments must not be a rushed move, especially for small to medium-sized companies, as it is not without risk: local firms with overseas commercial outlets mainly fall in the category of "loser" firms, i.e., those that failed to maintain both their turnover and operative profitability in line with the average. The highest percentage of firms with upstream suppliers is made by "runners" i.e., those firms that had good results in terms of growth but at the expense of profits. Traditional local firms are similarly distributed between winners and losers, although a significant percentage is also among "cautious" companies, meaning that they are able to maintain a high profit, but have few opportunities to grow. The following table specifies all the percentages cited above.

| Model of firm | Winner | Runner | Cautious | Loser |
|---|---|---|---|---|
| Traditional local firm | 27,9% | 17,9% | 25,3% | 28,8% |
| Firm with commercial outlets abroad | 28,3% | 25,6% | 14,4% | 31,7% |
| Firm with upstream suppliers | 23,3% | 34,2% | 24,7% | 17,8% |
| Open network | 33,8% | 17,5% | 25,0% | 23,8% |

*Table 1 : Internationalization and performance of district firms*

*(source: Chiarvesio et al., 2010)*

## 1.3 Contemporary threats

While Becattini's contributions are definitely the backbone of the theory on Italian industrial districts, it is undeniable that, given the profound changes the global economy went through in the last decades, they too have modified their structures and dynamics.

The first factor to consider is globalization, i.e., the increasing interdependence of the world's economies, markets, cultures and populations. The emergence of new countries as sources of intermediate and final products at low production costs is a competitive threat that all industries of the Western world have had to deal with. As a result of such difficulties, data about Italian industrial districts show a simultaneous growth in company mortality rates and a decline in birth rates, with a consequent reduction in the number of district firms. On the other hand, those districts that were capable to respond to such threats have managed to react and grow, especially through the incorporation of other local firms (De Marchi, Grandinetti, 2014). Another consequence of globalization is the emergence of global value chains, i.e., supply chains where the stages of the production process are located across several countries. Many district firms, following the opportunity to exploit favorable production costs, have transferred part of their supply chain abroad, through outsourcing, offshoring, joint ventures or proprietary investments. In this way, supply relationships that were internal to the district were replaced by long-distance ones, that transcended national borders. Entering foreign countries also meant that firms found new market opportunities, expanding their customer base. Connected to globalization are people's movements, that migrate towards those locations that can offer them better working and living conditions. With the increase in the number of migrant workers in Italy since the 2000s, industrial districts also welcomed a new multiethnic workforce.

All these changes are seen as a threat to the very survival of industrial districts as Marshall and Becattini have defined them. The more leading companies within districts open up to the outside world and set up relationships with foreign suppliers, the more they will be influenced by their different ways of thinking, systems of values, diverse modes of behavior. It is then evident that, once they internalize these new cultural notions, these companies will bring those influences inside the district, displaying them in their daily activities. This will make them somewhat different from the rest of the district's productive sector, to the point that it will be harder for partners to understand each other. The fundamental sociocultural homogeneity of the district, which is necessary for its proper functioning, will be undermined, and transaction costs will increase. Migrant workers will produce similar effects, having developed their way of thinking within a different cultural context, and having entered the district bringing their own system of values with them.

A second dynamic that has been observed in contemporary industrial districts, and one that is extremely related to the Murano district specifically, is the issue of generational change. Since industrial districts are for the vast majority formed by small to medium family businesses, the usual path followed by entrepreneurs is to pass the activity to their children, one generation after the other. However, young people today are different from their parents: they have grown up in a general state of economic well-being, they have a higher level of education, and do not share the same values and work ethic (De Marchi, Grandinetti, 2014; De Ottati, 2018). As a result, for them, it is not an obvious choice that of taking over their parents' enterprise. On the other hand, due to the economic uncertainty younger generations have experienced over the years, and due to the apparent saturation of the domestic market, they no longer view setting up their own business as an advantageous opportunity, with a consequent decline in company birth rates.

Therefore, we should ask ourselves if districts have managed to survive to these recent adversities and evolve overtime. The district form appears to be threatened by the profound changes of the global economy: are districts still valuable today as an economic model? Does close interaction still provide advantages with respect to temporary, arm's length relationships and a weaker tie to the local territory? How can industrial districts adapt to the new challenges of the $21^{st}$ century? To answer these questions, we will analyze how Italian industrial districts have behaved in the first two decades of the new millennium, characterized by dramatic transformations and two global crises.

### *1.3.1 The 2008 crisis*

Since the mid-2000s, Italian industrial districts have witnessed signals of slowdown, both in the number of active firms (-2,5% from 2004 to 2006) and in the number of employees (-3,8%). This was the consequence of profound transformations that modified the dynamics of the global economy. Specifically, the more significant changes for industrial districts can be grouped around three areas: the ease of knowledge exchange, less and less concentrated around a physical space, thanks to the web; the openness and liberalization of domestic and international markets, and the consequent globalization of competitive models; the shift of advanced economies towards the service sector, also in manufacturing industries, while production moved to developing countries (Osservatorio Nazionale Distretti Italiani, 2010). All these transitions required an equivalent remodel of the district system, that needed to find its place into a newly globalized world. In this regard, it is interesting to note that, from 2000 to 2006, 60% of district companies have looked for new strategic directions, pursuing innovation, internationalization or brand awareness, a much higher percentage than non-district firms, proving that industrial districts still retain a stronger flexibility and a proactive approach.

On top of that, the 2008 financial crisis, that started in the U.S. and quickly spread throughout the world, also hit Italian companies, which, in the first semester of 2009, experienced a -21% contraction in export levels compared to the same period in 2008. Typical Made in Italy sectors like automation, fashion and furniture registered the worst decrease, while food and high-tech proved to be more resilient. According to a survey conducted by Censis, 35% of entrepreneurs expected a phase of downsizing, 36% registered a period of stagnation, while 28% awaited consolidation and growth (Osservatorio Nazionale Distretti Italiani, 2010). Specifically, among the latter group were leader companies of the more dynamic districts, that were able to react to the crisis, rather than passively suffering its consequences, and obtain new competences, relationships and markets, while innovating and diversifying their manufacturing and commercial strategies. These firms were often so robust that they provided support to the weaker partners of their supply chain, to guarantee the preservation of their districts' reputation and capabilities in the long term.

While, at first, district firms showed greater difficulties than non-district firms, in the long-run, districts were able to recover and obtain better results than their isolated competitors. This was due to their higher reliance on exports and foreign markets, so that, at first, they were more damaged because of the slowdown of international exchanges, but were also the first to recover when foreign business proved to be stronger than internal demand. In 2010, in fact, district firms started to see signs of recovery, with 34% of them registering an increase in revenue, compared to the 4% of the previous year. Every year, from 2010 to 2015, district firms have produced better economic results than non-district firms, with an overall difference of 6% in the period 2008-2015.

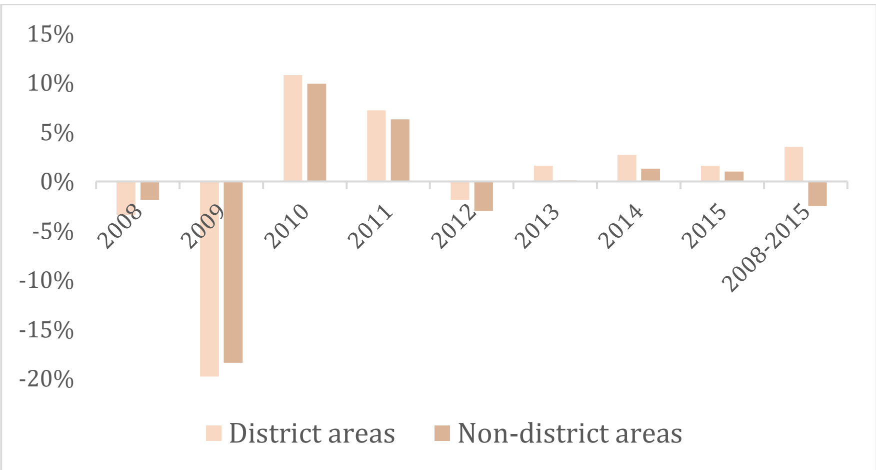



*Fig. 4 : Revenue evolution for district and non-district firms 2008-2015*

*(source: Intesa Sanpaolo, 2010, 2016)*

To overcome the crisis, successful district companies have not focused only on product quality and design but have also been attentive to other elements, such as incremental innovation and an increased control on the single phases of the value and distribution chains. At the same time, in some cases, they engaged into a structural reconfiguration of the district value chain, that often entailed vertical integration and the adjustment of micro-firms around leader companies. This is reflected in the evolution of the number of firms belonging to industrial districts: lots of micro (-800) and small firms (-658) have exited the market between 2008 and 2016, while we have assisted to a more hierarchical verticalization of the supply chain. Together with a higher level of exports, district firms recovered also thanks to their higher productivity, higher number of registered brands and patents at the international level, and higher participation in direct investments abroad.

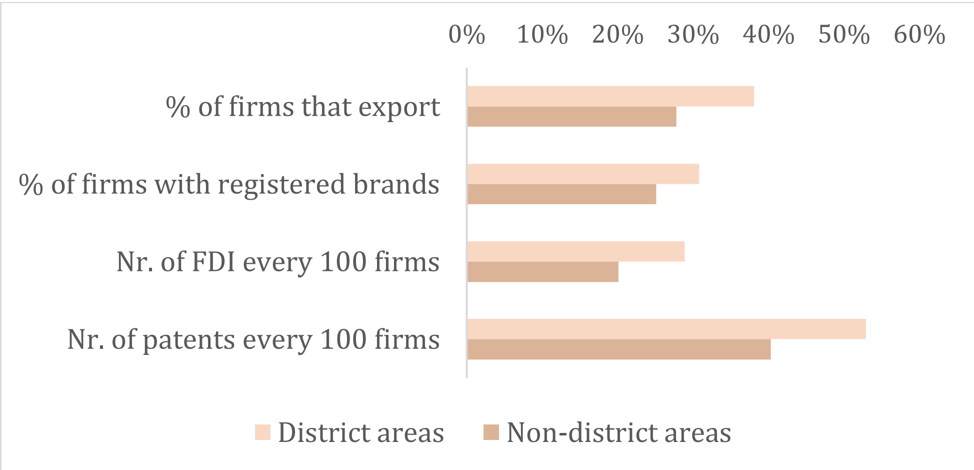



*Fig. 5 : Strengths of district firms compared to non-district firms*

*(source: Intesa Sanpaolo, 2016)*

Another dynamic that characterized Italian districts in the aftermath of the crisis was the reinforcement of suppliers' networks, that increasingly transcended the local territory (Ricciardi, 2013). Again, the enlargement of networks is to be attributed to leader firms, that had internationalized their production, often incorporating their small local suppliers in the process. This phenomenon is empirically supported by a survey conducted by Unioncamere (Osservatorio Nazionale Distretti Italiani, 2013), according to which less than 30% of district companies' principal suppliers were located close to the firm, while almost 45% of the sample sourced from outside the region or abroad. Also, extra-district relationships have intensified since 2008, as we can see in the graph below, in which we compare the responses obtained in 2010 and 2013.

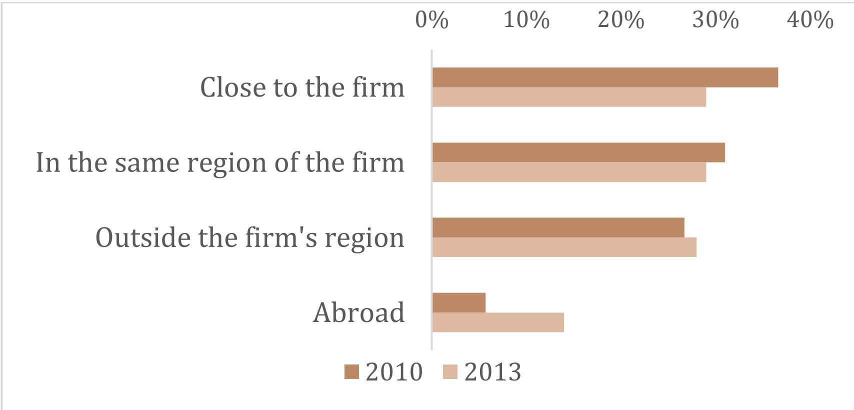



*Fig. 6 : District firms' principal suppliers' location*

*(source: Osservatorio Nazionale Distretti Italiani, 2011, 2013)*

The tendency to create broader networks was pushed by two main motivations: on the one hand, for efficiency and cost saving, on the other, to look for the best competencies and resources to improve product quality, regardless of where they are located. In fact, in the choice of suppliers, most producers do not evaluate only the price factor, but a mix of criteria including quality, reliability and speed in deliveries, and the capacity to develop product improvements.

As a final remark, it is interesting to understand how entrepreneurs themselves saw the future of industrial districts after facing the 2008 crisis and know which strengths and weaknesses they identified in the system they were part of. In this regard, the majority of producers believed that the main sign of advancement for district firms was their greater openness and presence at the international level, together with the launch of business in new sectors and the growth of new leader companies. The worrying aspects of industrial districts, on the other hand, were identified mainly as the issue of generational change, the lack of new investments, unfair competition from foreign entrepreneurs, and the lack of qualified personnel.

In conclusion, while the district form has been damaged by the evolutions of the new millennium, and despite there are still criticalities that should be addressed, Italian industrial districts have managed to reconfigure to a structure that is more suitable to the competitive challenges of the current economic system. Several are the elements that lie behind the recovery and improvement of Italian industrial districts (Intesa Sanpaolo, 2017):

- The consolidation of the market, with the exit of the weakest players and the concentration of small firms around leader companies;
- The effort to expand into foreign markets, with an increase in the average export distance for all sectors;
- The growing presence and investments abroad, with productive and commercial units from leader firms, aimed at strengthening their distributive capacity in foreign markets;
- The excellence of some Italian district supply chains, especially for agri-food and mechanics;
- The development of ICT poles near district areas that supply new technology;
- The birth of new district specializations (e.g., the recent development of the cosmetic district in Lombardy).

### *1.3.2 The 2020 crisis*

Italian industrial districts had just recovered from the shock of the 2008 crisis, when they found themselves facing a new, dramatic threat. The current COVID-19 pandemic has challenged once again the evolution of Italian districts in foreign markets, interrupting a ten-year-long growth that peaked in 2019 with export levels at €125,5 billion. Due to the closure of many productive activities and prolonged periods of restrictions on the movements of people and goods across the world, in the first semester of 2020, exports declined by 19,8% (Intesa Sanpaolo, 2020). The recession was quite homogeneous throughout the country and industrial sectors, with the most damaged sector being the fashion industry, given the prolonged closures of physical shops, the reduction in people’s purchasing power, their feeling of uncertainty for the future, and the consequent refrain from buying luxury and unnecessary products. The only exception to such a diffused crisis were agri-food districts, that managed to register a 4,8% growth. This figure is remarkable especially in light of the fact that, on the other hand, agri-food companies not belonging to district areas accounted for a 0,4% decline, something that shows once again that the district form still gives a direct contribution to financial success.

Although the pandemic and its broader effects are still far from over, we can start drawing some considerations about how district firms dealt with this unprecedented crisis. One big issue that resulted from the prolonged closures of business activities was the interruption of the business cycle and, consequently, delays in payments towards suppliers and from customers. However, district firms had to extend payment terms towards their suppliers less than their non-district counterparts, showing a more solid financial structure.

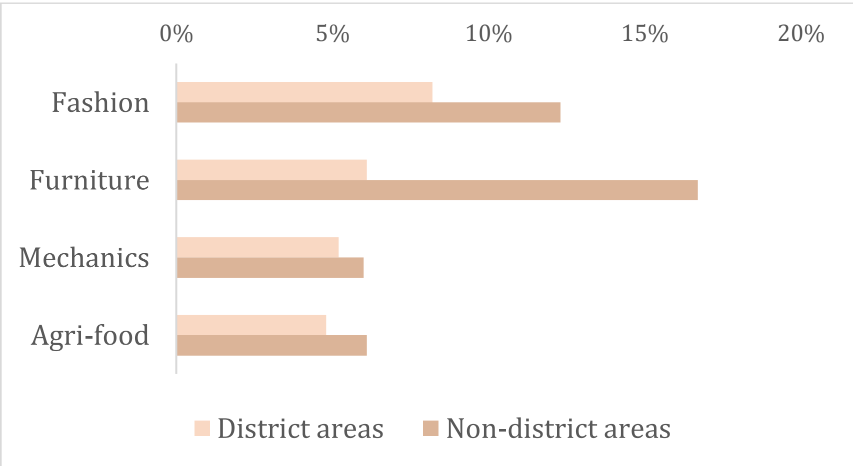



*Fig. 7 : Percentage of big and medium companies that extended payment periods towards suppliers (source: Intesa Sanpaolo, 2020)*

One factor that contributed to this behavior was the average distance of purchases, which is significantly lower for district firms compared to non-district ones, in all the sectors analyzed. At the beginning of 2020, the first country that closed down due to the diffusion of the virus was China, which meant that Western firms that relied on it for manufacturing and intermediate goods were the first to suffer the consequences of the crisis. All throughout the year, then, travel restrictions and speculations on the prices of raw materials continued to make it harder for them to operate, compared to companies, like the ones we find within district areas, that had implemented a nearshoring strategy and a regional value chain.

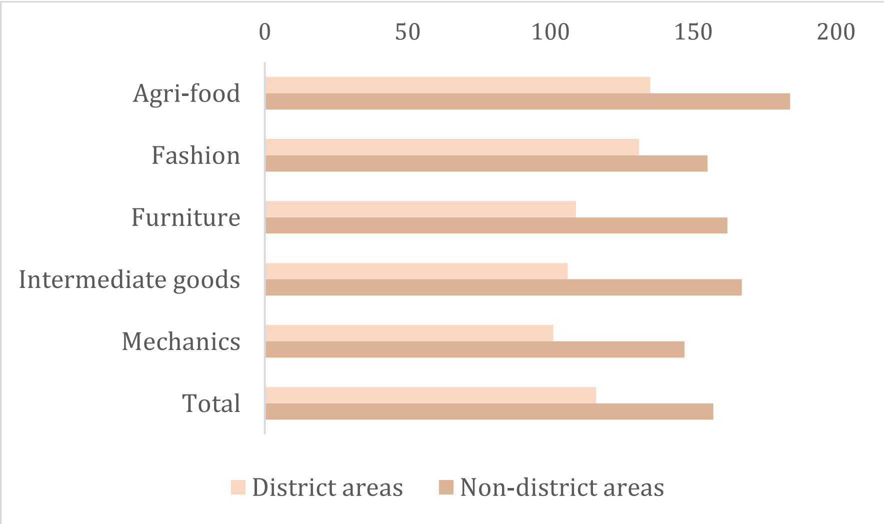



*Fig. 8 : Average distance of purchases (January-September 2020; km weighted by amount)*

*(source: Intesa Sanpaolo, 2020)*

Estimates for 2021 expect a rise in productive levels, with a +11,8% increase in revenue for Italian district companies, though they will still remain 2,9% lower than what was registered in 2019. Crucial for the recovery of the Italian productive system will be investments in key areas like Industry 4.0 technologies, automation, digitalization, green economy, and human capital, strategic dimensions industrial districts will have to be prepared to confront.

# CHAPTER 2

# THE MURANO GLASS DISTRICT

Murano, one of the countless small islands that surround Venice, located in the North-Eastern part of Italy, is the most renowned location for glass production. Its glass craftsmanship is a centuries-old tradition that has developed throughout history and that survives to this day. In this second chapter, we will analyze the historical developments of the island, how it dealt with the recent crises, and how it appears today. We will also identify some of the reasons that contributed to its competitive advantage, namely the peculiar quality of the glass and its production techniques, the transmission of local knowledge, the role of Made in Italy in its Country-Of-Origin effect, and the protection mechanisms enacted by the Consorzio Promovetro.

## 2.1 Historical background

### *2.1.1 The origins*

It is traditionally supposed that the birth of the glass industry in Venice happened because of glassmakers from Aquileia, who moved there to escape barbarian invaders in the 5$^{th}$ century A.D., bringing their knowledge with them. However, this theory does not explain the considerable time gap existing before the discovery of the first findings of Venetian glass production, even though new archaeological projects may bring to light older traces. An alternative view believes that the techniques of glass production reached Venice thanks to its commercial relationships with the Arabs and the East. In fact, the oldest sign of the presence of glass producers in Venice dates back to 982 A.D., when a document was found containing the name of Dominicus Phiolarius, a glass artisan. In any case, we can notice how Venice has always had a global mindset, being able to welcome foreigners and absorb information coming from the outside, internalizing know-how to its advantage.

The concentration of glassmaking in "Amuranium", the ancient name of the Murano Island, strengthened in 1291, when authorities prescribed that all Venetian glassmakers would be moved there, creating the first industrial district in history. Three were the principal reasons behind this choice: firstly, to preserve the mainland from the risk of fire, given the high temperatures that ovens reach during glass masters' work; second, due to the gas emissions produced in the process, that could be better dispersed in the island than in the city center; third, the convergence to this limited area also helped maintain the secrets and expertise of the industry within local producers. In those same years, the glassmakers' guild prohibited imports of foreign glass and activities of foreign glassmakers in Venice, to protect the domestic industry. On the other hand, Venetian artisans were not allowed to leave the island without permission and revealing trade secrets to foreign producers was a crime punishable with death. Thanks to these peculiarities, for several centuries, Murano kept the monopoly of glass production in Europe, focusing both on commercial and luxury glass products.

### *2.1.2 The golden age and the first crisis*

Between the 15th and the 18th century, thanks to the cooperation and the sharing of ideas and techniques between all producers, several innovations were developed in the island, such as the first transparent glass, "cristallo", created by Angelo Barovier, Murano's greatest glassmaker. This new invention boosted demand and supply of drinking cups, bottles, vases and jugs, and also led to the production of other innovative products, like higher-quality mirrors. At this point, Murano glass works reached a high social value, and were requested by the greatest Italian and European nobility. This was also the time of Europeans' geographical discoveries, and it is thought that, when Christopher Columbus arrived in the New World, he gifted original Murano pearls to indigens in San Salvador. At the time, international trade was also flourishing, and Murano glass artifacts were exported to Spain and the Indies, the Ottoman empire, and Northern Europe.

The first competitive challenge for Murano came between the 17th and the 18th century, when Bohemian glass producers learned how to make crystal, which was thicker and less breakable, however it could not reach the complex and sinuous designs of Venetian artworks. The crisis was worsened by the fall of the Venetian Republic, conquered by Napoleon first, and later subject to the Austrian Empire. The latter started to incentivize Bohemian glass, imposing high tariffs and taxes on Murano glass and limiting the amount of raw material that could be imported to the island, which was necessary for glass production. This new economic regime caused almost half of the furnaces to close, and the surviving ones narrowed production to commercial objects.

It was only with the annexation of Venice to the newly born Italian Kingdom in 1866 that Murano glassmaking started recovering from the crisis, thanks to the revival of luxury production. Later, the inauguration of the first Venice Biennale, in 1895, inspired Murano artisans to create stylish and modern designs, reinforcing the idea of luxury that they wanted to convey.

## 2.2 Murano today

The first data about the contemporary glass industry in Murano date back to 1961. Two trends are found in the employment data of the second half of the 20$^{th}$ century: the drastic decrease in the number of workers, which declined from roughly 5.000 in 1961 to only 1.980 in 1996, and the simultaneous increase in the number of firms, which rose from 135 to 266 in the same time period. This happened because of a reconfiguration of the industry: in the 1960s, 55% of firms were medium or large companies with 50-100 workers, while in the 1980s and 1990s, 60% of firms were small furnaces with less than 10 employees.

During the 2000s, the Murano district started to develop an internal crisis, that was worsened by the 2008 global financial crisis. The roots of the internal difficulties can be found in the late 1990s, when the government cut incentives on gas that allowed the factories to save up to 40% in energy costs. Moreover, up to that time, no standards or regulations existed relative to environmental and occupational safety. Going into the new millennium, companies had to adapt their activities to new norms on the matters, which had negative repercussions on costs. Most companies responded by either reducing margins or personnel, while only 12% faced the challenges by redirecting their strategic decisions. Also, most producers did not have the resources to invest in innovative processes that could satisfy the regulations, looking for new energy sources, materials, or techniques. Another threat came from the diffusion of counterfeits, that in those years started to be sold everywhere in Venice to tourists who did not have the expertise to recognize them from the higher quality and more expensive original Murano products. The comparison to fake souvenirs, which made up the majority of glass objects sold in shops, caused the decline in the value of authentic artifacts, which were increasingly associated with low-priced items.

### *2.2.1 Protective mechanisms*

At that time, producers started to establish some forms of collaboration, with the aim of defending and relaunching the district. Starting from 1975, local manufacturers have been part of several associations, like "Associazione Industriali di Venezia", "Consorzio Venezia Vetro" and "Consorzio Promovetro". Consorzio Promovetro was born in 1985, today it includes around 50 local producers and deals with the promotion of the district and its products by funding marketing campaigns and participating to fairs and events.

The biggest recognition of the importance of the district came in 1994, with the introduction of the "Vetro Artistico® Murano" trademark by the Veneto region (Legge Regione del Veneto n. 70 of 23/12/1994), now managed by Consorzio Promovetro. The trademark is displayed through a label, applicable only to items manufactured in Murano by the producers who received authorization, granted after special examination procedures have taken place. This makes original products stand out from counterfeits, conveying the value of their higher quality and design, at first glance, also to inexperienced customers. Starting from 2016, labels have five safety and anti-counterfeiting systems and three traceability mechanisms, through which customers can learn everything about the producer and the item they own.

Later, in 2003, another law was enacted that recognized Murano as an industrial district (Legge Regione del Veneto n. 8 of 04/04/2003). According to the lawmaker, an industrial district is defined as a territory displaying a high concentration of firms whose activities are interconnected into a proper production process, and a system of institutions that support the local economy. Firms belonging to the district shall be able to agree on a three-year strategic plan to follow for the prosperity of the district (Art. 2). To be considered a proper industrial district, a territory must include at least 80 firms and 250 employees working in a specific sector, it must show a great level of integration and collaboration in the supply chain, and it must display a sufficient innovation capability, proven by originality in the products and processes, the presence of leader companies in the specific sector and sub-sectors, the number of registered patents, and the presence of training programs and institutions that document the local culture (Art. 3). Since Murano satisfied all the requirements described above, it was formally classified as a proper industrial district.

### *2.2.2 The crises*

The global crisis of 2008 severely impacted the Murano glass industry, exacerbating the already precarious situation glass producers were living. Given that a great portion of the industry's customers comes from the United States, where the crisis had its roots, the sector quickly started to see the repercussions coming from the financial recession.

The first relevant data about the crisis regard the level of exports, which accounted for over €88 billion in 2008 and declined to €65 billion in 2013, with annual variations going from the -20% of 2008-2009 to the -9% of 2012-2013. For what concerns operative firms of the glass industry located in Venice, in the aftermath of the crisis, between 2008 and 2011, active firms declined by 8.8%, while in 2011-2013 the trend continued with an additional -6.2%. Mortality rates for companies were also significant in this period, peaking in 2012 at 9%.

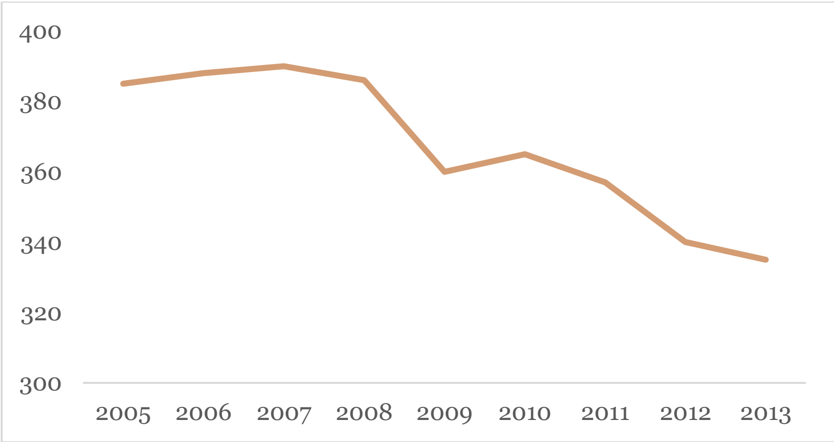



*Fig. 9 : Number of firms active in the glass industry in Venice*

*(source: Confartigianato Venezia, 2015)*


*Fig. 10 : Birth and mortality rates for firms of the glass industry in Venice*

*(source: Confartigianato Venezia, 2015)*

On the other hand, artistic blown glass showed greater resilience compared to the overall glass industry: we see that, in the pre-crisis period, the number of active firms was growing, and it recovered quickly from the downfall of 2009, displaying both the highest number of active firms and the highest birth rate already in 2010.

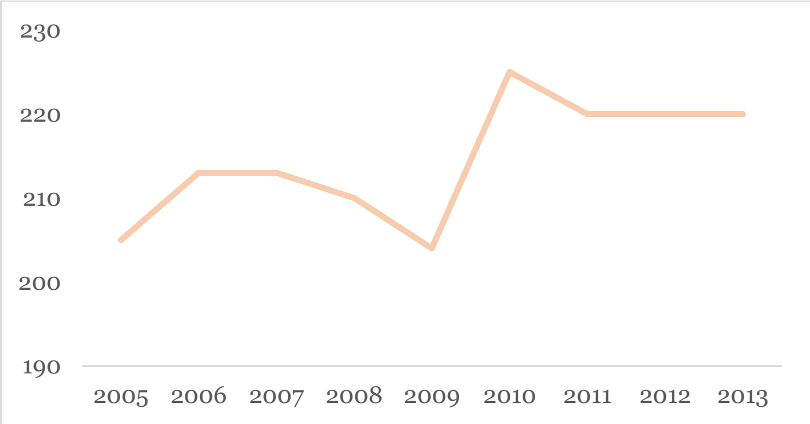



*Fig. 11 : Number of firms active in the artistic glass industry in Venice (source: Confartigianato Venezia, 2015)*


*Fig. 12 : Birth and mortality rates for firms of the artistic glass industry in Venice (source: Confartigianato Venezia, 2015)*

Employment also suffered due to the crisis, and both the glass industry and the artistic blown-glass sub-sector experienced a contraction in the number of workers between 2008 and 2013, showing a -23,1% and -13,4% respectively.

According to Sergio Malara, the coordinator of Consorzio Promovetro, what saved Murano companies during the crisis was, on the one hand, their flexibility and adaptability, on the other, their relationships with foreign markets. While firms that worked domestically had no chance to recover, as the Italian market deteriorated more and more over the years, export-oriented firms had more opportunities. Specifically, they were able to shift their focus to different countries, depending on the economic conditions they were facing at the moment. The United States, Murano's principal foreign market, was the first to show the negative impacts of the financial recession, and, at first, that was a big shock for firms. However, they started to move their focus first to the Arab market, then to Russia, before it went into a crisis itself, and more recently to China, which is not only a source of competitive counterfeits but also provides a wide customer base with an interest towards original Murano glass.

For what regards the 2020 crisis, similarly, it was once again export-oriented companies that had the opportunity to keep doing business, while smaller domestic firms shut down completely. The former still had old orders to complete, while a few new ones arrived, so they could somehow deal with the situation. Given the high costs of heating up the ovens, the method these companies adopted was to collect a sufficient number of orders before turning on the furnaces, which then had to stay operative all day for a long period of time.

According to the analysis conducted by Consorzio Promovetro in September 2020, 60% of the sample interviewed reported at least a 50% contraction in revenue after the first national lockdown, with 36% of them revealing a decline of 70% or higher.

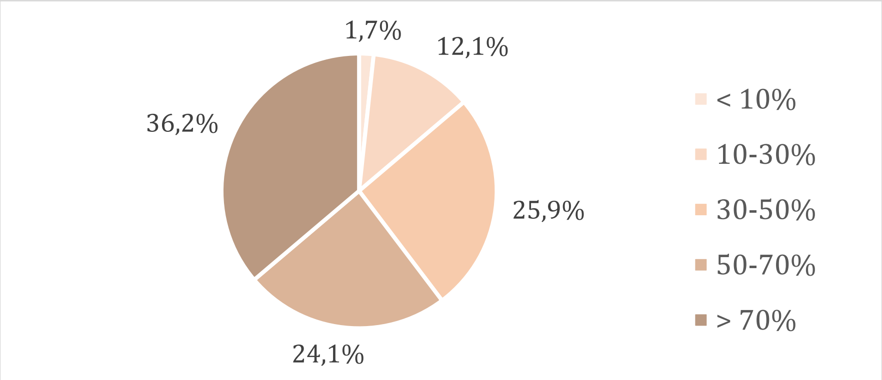



*Fig. 13 : Answers to the question: "How much did your revenue decline in the 1st semester of 2020 compared to the same period last year?"*

*(source: Confartigianato Venezia, 2020)*

Also, we see how, at that time, there was mistrust for the short-term development of health and economic conditions, given that more than half of the interviewees did not expect any increase in revenue for the following semester. In fact, during the last months of 2020 and the first of 2021, the pandemic was still far from over, and Italy experienced additional limitations to personal movements and social activities, though not as severe as during the 2020 national lockdown.

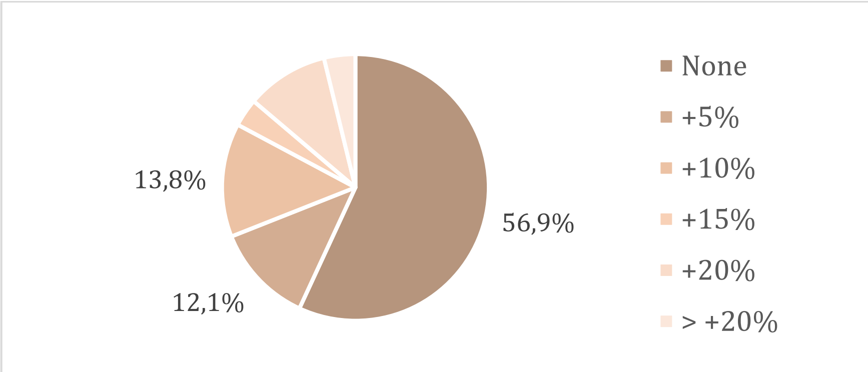



*Fig. 14 : Answers to the question: "Which commercial expectations do you have for the future?"*

*(source: Confartigianato Venezia, 2020)*

The survey showed that the majority of firms took advantage from financial support policies the government put in place to assist Italian companies, such as non-refundable aid, tax benefits, payments postponements, and layoff. The majority of the sample interviewed also suggested that layoff should be postponed for at least another 12 months.

In 2021, companies were just starting to recover from the crisis, and to participate to fairs and events again, when another big problem arose, i.e., the enormous increase in gas prices, up to 400%, something that will put many small firms at a risk of closing down.

### *2.2.3 Industry structure*

Venice is the Italian city with the highest concentration of firms operating both in the glass industry (333 as of 2014; 6,8%) and artistic glass industry (258; 25%). Murano alone hosts around 150 companies of the specific blown-glass industry (14,6%). Overall, the glass industry represents 82% of the economic activity of the island.

Today, the majority of glass producers in Murano consists of micro-firms led by the owner. Almost the totality of them is family owned, held either by the founder or by his descendants, while only a small fraction (3,1%) was acquired by external entrepreneurs. The average number of employees is 4,2, distributed as follows: 1,4 master glassmakers ("maestri"), 0,8 assistants ("serventi"), 0,3 apprentices ("serventini"), and 1,7 other unspecialized workers. For what regards legal forms, the majority of firms are sole proprietorships (65,6%), while the remaining are equally divided between partnerships and limited liability companies. The average age of employees is 46 years, a number that shows the issue of generational change, something that is threatening the transmission of Murano's local know-how.

The main sources of costs are energy (27%), personnel (26%) and raw material (22%), while logistics, marketing and advertising remain marginal expenses. A significant portion of costs is also given by legal and environmental adjustments (9%) that producers need to implement to protect the Venice Lagoon, a fragile area from the environmental perspective.

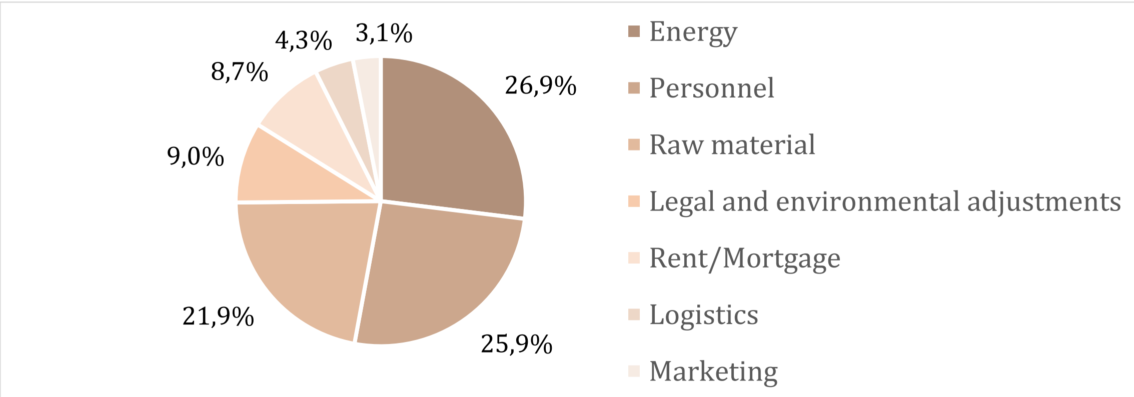



*Fig. 15 : Main sources of costs for Murano glass producers*

*(source: Confartigianato Venezia, 2015)*

According to Dr. Malara, on average, a furnace with three employees costs 600€ a day and should collect at least 500.000€ in revenue a year (Fratton, 2017). Instead, average revenues for firms in the sector are in decline, lowering from €480.000 in the 1990s to €455.000 in 2013, with 30% of firms collecting under €100.000 a year.

Moreover, furnaces based in Murano have higher costs compared to equivalent producers in the mainland, such as logistics or compliance to safety standards for buildings that date back to the 19th century, all of which makes their products 30% more expensive for the final customer and hinders their competitiveness.

| Number of employees | Number of firms (estimate) | Average revenue 2013 (estimate) |
|---|---|---|
| 1 | 68 | € 51.563 |
| 2 | 53 | € 125.000 |
| 3-5 | 57 | € 334.135 |
| 6-9 | 27 | € 560.714 |
| 10-15 | 16 | € 861.111 |
| 16-19 | 9 | € 1.866.667 |
| 20-25 | 11 | € 2.025.000 |
| > 25 | 15 | € 3.972.222 |

*Table 2 : Estimate of revenues of firms of the Murano artistic glass industry in 2013*

*(source: Confartigianato Venezia, 2015)*

As for production phases, most firms (41%) practice the so-called "first production", meaning that they produce artifacts starting from rough glass, while 33% are involved in the "second production" (decorations, grinding, etching, etc.). Most production is devoted to sculptures and lighting (42%), decorations, and objects for the dining room.

Machines and automated processes in production are very limited, since Murano glass objects always have an artistic background: manual skills and the artistry of glass masters are what make these products so unique and irreplaceable. The machines used in the process, e.g., melding and annealing furnaces, are still similar to those used in ancient times.

Signifying the district nature of the Murano production, the majority of suppliers of local glassmakers comes from the island itself, or from the city of Venice, especially for what regards core components like glass canes and molds. Only logistics, a less critical phase of the production process, is outsourced outside Murano.

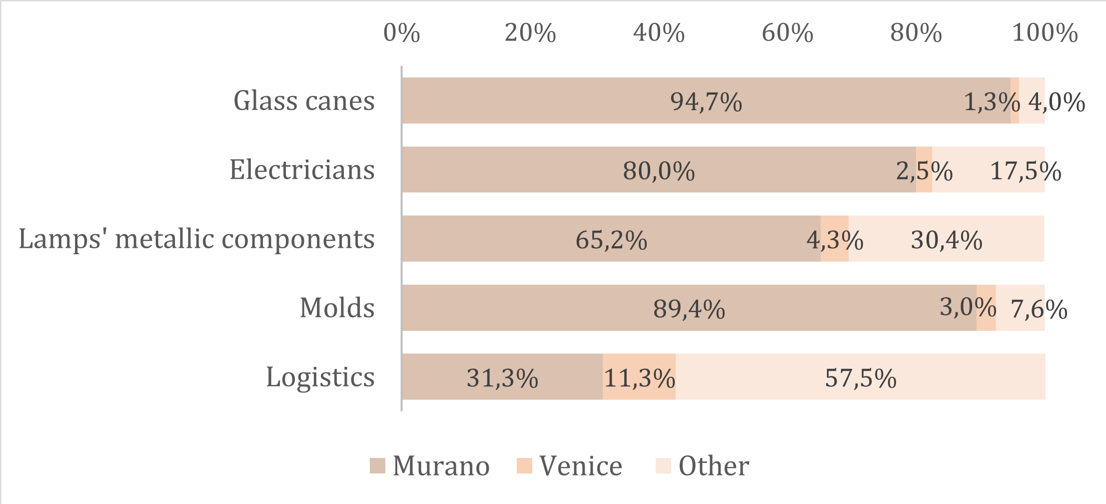



*Fig. 16 : Murano companies' suppliers' geographic location*

*(source: Confartigianato Venezia, 2015)*

Distribution channels are heterogeneous, and include proprietary shops, third-party shops in Murano, in the center of Venice, in Italy, in Europe, and in other world locations. In 2014, e-commerce was the principal retail channel for only 5,6% of Murano producers, an opportunity that we will explore in the next chapter.

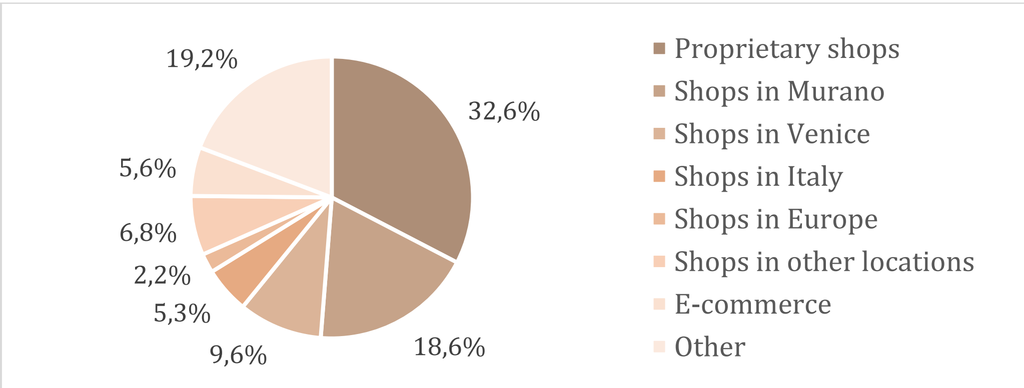



*Fig. 17 : Principal distribution channels of Murano companies*

*(source: Confartigianato Venezia, 2015)*

### *2.2.4 Innovation*

Leszczyńska and Khachlouf (2018) distinguish two different types of interactions that drive learning in the Murano glass district: interactions between glassmakers and master glassmakers for knowledge transmission, and relationships between glassmakers and artists or designers for incremental innovation.

About the first type of interaction, as mentioned before, skills and know-how are learnt by doing, as young glassmakers observe the elders and follow their actions. Learning is shared within the furnace and between furnaces, favored by the mobility of glassmakers from one studio to another. A third form of such "horizontal" learning happens at events like exhibitions, fairs and conferences, where glassmakers meet and discuss about their common job.

For what regards the second type of relationships, the authors identify interactions with artists and designers as the main source of incremental innovation of Murano glass products. Murano glassmakers continue to work by following the traditional techniques that their ancestors applied a thousand years ago, using the same tools and ingredients, something that makes process innovation hardly welcomed. Glassmakers look quite skeptical about new production methods, as they argue that it is hard to innovate such a traditional activity. Others understand that technologically advanced ovens are available on the market but admit that they lack the financial resources to invest on them. Instead, product innovation and aesthetic restyling are the only possible renovations that are feasible for Murano glass, and designers have a crucial role in this. As the research suggests, it is the cognitive distance there exists between glassmakers and designers, given by the fact that they are experts in different fields, that makes this kind of collaboration better suited for innovation. While the cognitive proximity glass masters have with their peers favors knowledge-sharing, their cognitive distance with designers is a source of cross-fertilization of ideas for both parts, which leads to incremental innovation. Their artistic background provides fresh ideas on new product concepts and designs, while the masters' technical expertise steps in to discard those projects that prove to be unfeasible, because they do not match the peculiarities of glass working. Also, glassmaker-artist interactions are more successful for innovation due to the friendly character they display, as opposed to the hostile and competitive behavior that often develops between glassmakers, which is exacerbated in a time of crisis like the one Murano is currently living.

## 2.3 Murano's competitive advantage

Competitive advantage refers to a variety of factors that allows a business to outperform its market rivals. Examples of such factors include a more efficient cost structure, branding and reputation, access to natural resources, highly skilled labor, and more. When a company develops a competitive advantage, it is able to offer a greater value to its customers, either providing a higher quality or a lower price for its products.

In the following sections, we will present some factors that lie behind Murano's competitive advantage in artistic glass production.

### *2.3.1 The quality of the glass*

The first element we need to consider to understand Murano's competitive advantage is the glass itself: why is Murano glass superior to glass produced anywhere else? What makes it so special? Does it have any chemical features that make it a higher-quality glass? These are the first questions that anyone would ask.

As any other glass, Murano glass is mostly made of silica, but other substances are added to this basic element, the so-called "fluxes", mainly soda and limestone. These components are all heated up and melted in furnaces that reach 1500°C. This specific mixture enables the glass to be malleable and solidify slowly, which gives glass masters the time to mouth blow and handcraft it until it reaches the desired shapes. So, Murano glass is not necessarily the purest or the finest glass, but its slow cooling allows artisans to manufacture it in endless and innovative shapes. Moreover, other minerals are added to the liquid mixture to create the beautiful and vibrant colors typical of Murano glass: every oxide creates a specific color, such as zinc for white, manganese for violet and cobalt for blue. This is the second feature that makes

Murano glass an exclusive product of craftsmanship: the wide range of colors that stand out from its underlying transparencies.

Therefore, we can conclude that it is the extreme variety of its shapes and colors, created thanks to the ability and craftmanship of local glass masters, that makes Murano glass an exclusive product of human artistry. Everything that comes out from a furnace is a one-of-a-kind and unrepeatable glass product. Glassblowing is, in fact, not merely a production technique, but a form of art: glass vases and chandeliers are not simply decorative items for home-décor, but unique pieces of art.

### *2.3.2 Local know-how*

Ever since the beginning of the glass tradition in Venice, the preservation and transmission of the local know-how was thought to be fundamental for Murano's competitive advantage. As we have seen in the historical introduction to the chapter, in ancient times, glass artisans were granted some privileges and a high social status, something that increased the chances that their children decided to start working in the same sector. Also, local regulations tried to preserve the expertise of glassmaking, forbidding artisans to leave the island without permission.

Centuries of co-location in the small area of Murano made it possible for glassmakers to benefit from all the advantages of clusters, namely knowledge-sharing, capabilities complementation and protection of trade secrets. Know-how and secret techniques are passed down from fathers to sons, since, as we have seen, the majority of glassmaking furnaces is family-owned. The complexity of the production process makes it hardly possible to transmit this knowledge without face-to-face learning and on-the-job experience, something that made it easier for it to remain secluded in the island.

However, nowadays the district is facing difficulties in this respect due to the lack of specialized workers and the issue of generational change, which could harm the preservation and transmission of the local know-how. In 1862, a school specifically designed for glassmaking was founded by Abate Zanetti, with the aim of forming young artisans who could learn the secrets of the art, but, according to representatives of the industry, the project was found to be quite unsuccessful. Today, the average age of employees in the industry is progressively increasing, and 50% of owners fear that they will find difficulties when they need to replace their workforce. The majority of them sees the reasons behind the lack of personnel in the inadequacy of candidates' skills and the disinterest of young people to the sector. The process to become a Murano glass master is a long one, it starts from a very young age and requires years of learning. In fact, 82,4% of masters started working in the furnaces after finishing elementary or middle school, while only 14,4% of them have second-degree education, with either a professional qualification or a high-school diploma.

### *2.3.3 Made in Italy and Country-Of-Origin effect*

Italy's manufacturing capabilities have traditionally concentrated around three broad sectors, the so-called "3Fs" of Made in Italy: food, fashion, and furniture. In these fields, the excellence of Italian products and their competitiveness are given not by cost-efficiency or scale economies, but rather by their high quality and style. As a consequence, thanks to the continuous appreciation that Italian goods have received from customers around the world, the country itself is now associated to this peculiar stylistic taste that gives an immediate and innate superiority to Italian products belonging to such sectors. This phenomenon is recognized as the Country-Of-Origin (COO) effect. More specifically, we define the COO effect as a psychological effect which occurs when customers are unfamiliar with a product, and the image of the product's country of origin has a "halo effect" on their evaluation of the product.

The notion of the COO effect as an international marketing strategy emerged in the 1960s, thanks to the contributions made by Robert D. Schooler, who found, by testing a group of students, that a significant discrepancy emerged in the evaluation of identical products whose only difference was the name of the country written on the label (Schooler, 1965). Successive studies continued to confirm that people seem to adhere to certain stereotypes when comparing products coming from different foreign countries. Such perceptions of foreign countries are not constant, but evolve in time, and the degree of the country's economic development is also a factor that contributes to people's preferences. Also, the image of a country is not absolutely positive or negative for all categories of products, but varies depending on the country's productive traditions, so that, as an example, Italy has a good reputation when associated to fashion and agri-food products, but not to electronic goods, where other countries like Japan stand out. Due to the complexity of production processes, whose phases are carried out in global value chains, the COO effect has now lost some strength. Today, the relevant association is not merely with the country where the product was fabricated (the made-in country), but rather with the one that is perceived as being its true place of origin (the country of association), which is not necessarily corresponding to the real origin of the product.

Murano products mainly fall in the category of home furniture (vases, centerpieces, sculptures, mirrors, lamps, etc.) and partly in the fashion one (jewelry): both sectors are among those where Italy has reached a level of international supremacy. Therefore, we can say that, among the factors that contribute to the competitive advantage of Murano glass, is the positive image that Italy has gained in such sectors thanks to the COO effect. In this way, especially if customers are inexperienced and not well-informed about the products, it is easier for them to choose Murano glass rather than any other foreign glass, expecting to receive a high-quality and aesthetically pleasing piece of furniture to style their house in the "Italian way", following the "Made in Italy taste".

### *2.3.4 The trademark "Vetro Artistico® Murano"*

Fake souvenirs coming from China and East Europe, sold as original Murano glass, represent today a worrying 40-45% of sales[1]. The main tool for local manufacturers to differentiate from counterfeits is the adoption of the official Murano glass trademark. However, up to 2015, only 45 companies of the artistic glass industry in Murano, out of 150, had adopted the trademark. Among those that adhered to the trademark, only a minority of firms stated that they see benefits coming from higher visibility or promotion of the product, which is the principal function of Consorzio Promovetro.

[1] Source: *Glassmakers of Murano fight to survive influx of cheap imitations,* The Guardian, available at https://www.theguardian.com/world/2012/jan/30/italy-murano-glassmaking-industry-imitations?INTCMP=SRCH

Instead, the majority recognizes the value coming from certifying and guaranteeing the originality of their products.

The main reasons why two thirds of companies have not adopted the trademark are that fees are excessively expensive, and the trademark is not thought to be useful for revenue growth, due to a lack of interest for it from customers. It is interesting to note that some of the most recognized brands do not adhere to the trademark: it is not only a matter of financial resources, as we have mentioned, but other reasons lie behind this choice. In fact, well-known brands do not need an additional recognition of the high-quality standards of their products or of their authenticity. Also, customers do not seem to request the trademark, as they are probably not aware of its existence.

Another critical reason is that the trademark can only be applied to items that are fully manufactured with Murano glass, something perceived as a disadvantage from producers that have a diversified range of products. For example, it is necessary to resort to external partners when producing artistic glass tumblers that can be washed in a dishwasher, as this would not be possible by relying solely on traditional techniques (Fratton, 2017). On the other hand, the trademark is now granted also to producers that are located in the mainland, provided that they work with original Murano glass. This has caused some criticism from firms located in the island, that face higher costs and difficulties due to their location and claim additional protection. Some of them even decided to withdraw from the consortium for this reason, as stated by Daniel Vecchi on behalf of Andromeda Murano[2].

We can conclude therefore that the trademark is popular among mid-sized companies, rather than among micro firms on the one hand and the biggest ones on the other.

[2] See par. 4.4

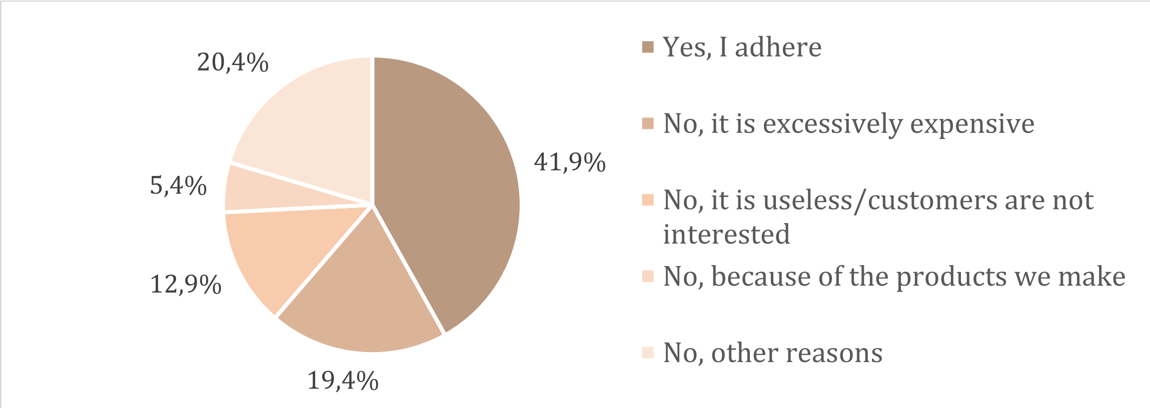



*Fig. 18 : Answers to the question: "Do you adhere to the trademark?"*

*(source: Confartigianato Venezia, 2015)*

It is clear then that the trademark is still a long way from reaching its full potential, which is why for Consorzio Promovetro it is a priority to focus on its promotion. Specifically, to do so it committed to participate to fairs and events both in Italy and internationally, especially in the markets that are most relevant for the district, such as the United States, Japan, France, Germany, but also new emergent countries like East Europe, the Middle East, Arab countries and Asia, to set up permanent showrooms to display Murano products, to organize workshops and seminars both in Italy and abroad regarding the history of Murano and its production techniques, and to conduct market research.

However, it is important to highlight the difficulties Consorzio Promovetro faces is terms of resources and funds available to support these projects. As explained by Dr. Malara, the consortium is a private association of firms, meaning that it lives off member firms' fees for belonging to the consortium, adhering to the trademark, or both. These resources are just enough to cover the daily activities of the consortium, while additional projects need to be financed through external funds. As the formal owner of the trademark, the Veneto region should be the principal supporter of the consortium, as it is expected to have an interest in promoting its own proprietary trademark. Instead, until some years ago, the region did not provide any money at all, while it was the City of Venice that decided to contribute. The situation then reversed, and now the region does provide some funds, although in very limited amounts[3]. Moreover, what is most problematic is that the consortium lacks the continuity to put into practice the many projects it has in mind, because such external funds are never guaranteed in a specified amount but are defined and communicated at the beginning of every year. Under these conditions, it becomes challenging for the consortium to make strategic investments and commit to long-term projects.

[3] Dr. Malara reports a maximum amount of €50.000, a sum which is insufficient to undertake important and expensive investments, e.g., related to digitalization, innovations or sustainable production.

# CHAPTER 3

# FUTURE DEVELOPMENTS

In the third chapter of this work, we will present some innovation and development strategies that might be followed by producers operating in the Murano glass industry to improve economic performance. Three main paths are proposed, adapted from the three current trends of the world economy, as highlighted by the United Nations: an increased attention to exports and the expansion to foreign markets, a renovation of production processes to become more sustainable, and digitalization, that can raise sales thanks to the possibility of online retail.

## 3.1 Megatrends of the global economy

After years of prosperity and increased cross-border openness, over the last decade, the world's economy has witnessed a progressive slowdown of international economic activities, corresponding to a period of stagnation for global value chains. To analyze the features of today's global economy, the United Nations identified some megatrends that are driving the transformation of our economic system and paving the way for the future of globalization. Such megatrends can be grouped into three wide themes (Giroud, Ivarsson, 2020):

I. Technology trends and the new industrial revolution

The application of new digital tools and Industry 4.0 technologies to global value chains is having a profound impact on the way multinational enterprises manage their production networks. The two major trends that the integration of such technologies will create are digitalization, i.e., the use of digital technologies in the production process, and automation, i.e., the replacement of human labor with machines.

Digitalization includes all internet-based technologies like the Internet of Things (IoT), cloud computing, augmented reality, Big Data analytics, e-commerce, fintech and blockchain. On the other hand, automation relies on robotics, 3D printing and additive manufacturing.

The application of digital technologies results in more integrated value chains and more effective coordination of complex and dispersed production processes. The implementation of IoT to machines provides large amounts of real-time data that can be used to optimize the production process. The application of Artificial Intelligence enables better strategic planning, using predictive models to reduce risk, while cloud systems allow remote working.

Even more profound will be the changes automation will bring, which will lead to the reconfiguration of the traditional global economy: while, in the past, advanced economies found in developing countries a source of cheap labor that they could exploit as an arbitrage opportunity, the availability of cheaper industrial robots will reduce this advantage and favor the process of reshoring of manufacturing activities back to developed economies.

II. Global economic governance trends

In the last few years, especially since the 2008 financial crisis and the rising awareness about the risks of global integration, there has been a substantial shift from a laissez faire economic approach to an increasingly protectionist and nationalistic one. Trade tensions are threatening cross-border interactions and many people have become skeptical of globalization and the benefits it was supposed to bring. Current investment restrictions reflect countries' concerns about national security and foreign ownership of strategic firms, assets, or natural resources. Core technologies, intellectual property and know-how will be considered the backbone of national competitiveness and nation states will seek to protect them. The implication of such policy trends in the near future will be the expansion of regional and bilateral economic relationships, at the expense of the broader multilateral exchanges that have characterized our economic system starting from the advent of globalization in the 1980s.

Alongside protectionism, many national economies have also promoted a more interventionist role of the State, with the adoption of industrial policies aimed at stimulating productivity in key industrial sectors. Such policies often support the development and concentration of know-how in technology-intensive industries, which are considered essential for long-term economic growth. This approach will lead to the consolidation of few large clusters that will support the most valuable global value chains.

### III. Sustainable development trends

The safeguard of the environment is one of the key themes of our times, as, after centuries of harmful production, our planet is rapidly collapsing. As stated by the United Nations in 1987, sustainable development is a way of living that satisfies our present needs without compromising the possibility, for future generations, to meet their own (World Commission on Environment and Development, 1987). Sustainability does not refer solely to environmental protection but is applied to economic and social issues as well, and to the interconnections between these three fields. The seventeen sustainable development goals that world leaders agreed upon in 2015, at the United Nations Sustainable Development Summit, include tackling poverty, hunger and inequality, ensuring health, well-being and economic growth for all, and simultaneously halting climate change and protecting ecosystems and biodiversity.

Recently, people and governments have expressed criticism about the social and environmental impacts of multinational corporations and their value chains. Due to the increasing pressure by the civil society and stricter regulations by governmental bodies, companies had to transform and update the way they operate. New requirements will also come from the market, as customers will progressively requests corporate social responsibility actions and responsively produced goods and services.

Climate change will also affect international business at the physical and geographical level, due to changes in weather conditions, soil characteristics, exposure to natural calamities, etc. Transportation routes and distributions chains will become more vulnerable to climate change disruptions. The impact of climate change will affect especially those industries that are dependent on natural resources (e.g., agriculture, fishing) and those that are more exposed to weather events (e.g., transportation, travel, energy).

The table below summarizes the three megatrends that will characterize the future global economy, recalling the major themes that will drive each of them.

| Digital technologies | Global economic governance | Sustainable development |
|---|---|---|
| Digitalization in the supply chain | More interventionism in national policies | Sustainability policies and regulations |
| Advanced robotics and Artificial Intelligence | More protectionism in trade and investment | Market-driven changes in products and processes |
| Additive manufacturing (3D printing) | More regional, bilateral and ad hoc economic cooperation | Physical supply chain impacts |

*Table 3 : Future trends of the global economy*

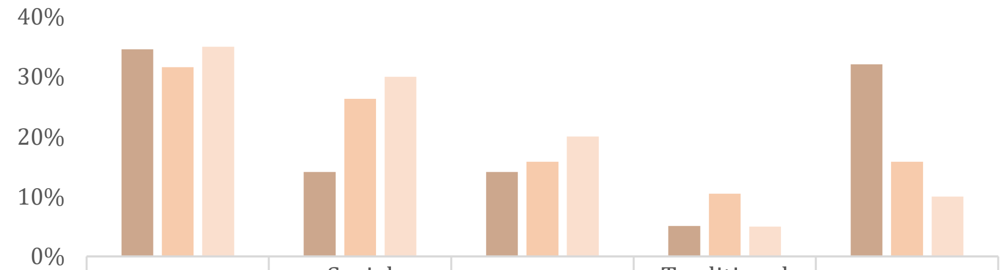
*(source: Giroud, Ivarsson, 2020)*

In line with the structure proposed by the United Nations, we will now adapt these megatrends to the Murano district, considering its smaller scale, to understand how Murano is coping with the transformation of the global economy and which strategies may be followed by local producers in the future.

## 3.2 Digital transformation

In the context of the digital revolution companies have gone through in the past decades, three terms need to be specifically defined: digitization, digitalization and digital transformation. Digitization regards the conversion of information into digital formats: text, paperwork, pictures, and all the other analog data the company possesses are turned into a digital format that can be stored, read and processed by a computer. Digitalization, in turn, has a broader scope: it is the process through which a company uses digital technologies to transform its business model and provide greater value for clients through an enhanced customer experience. Digitalization happens when the company adopts a new technology that allows products or services to be innovated and presented in a better form for customers' benefit. Finally, digital transformation includes both digitization and digitalization, as it is a comprehensive initiative the company implements to develop all its digital capabilities to their full potential.

For smaller companies, like most of those in Murano, implementing digital technologies often means simply setting up a website and social media accounts, while only a few engage in online retail, either selling to third-party platforms or on their proprietary e-commerce. Websites and social medias are mainly employed as marketing channels, replacing traditional trade fairs and events. In fact, participation to fairs has been decreasing for years, due to the high cost of business trips, especially abroad. In 2013, 41,6% of the companies interviewed stated that they took part in fairs and events less than they did ten years ago, while 38,2% had never been to one. Therefore, the website becomes the easiest and cheapest marketing instrument for firms to promote their products. Other channels, especially for bigger enterprises, are social media platforms and collaborations with architects and designers, while traditional medias remain marginal, again due to their expensiveness.




| | Website | Social Networks | Collaborations | Traditional medias | Nothing |
|---|---|---|---|---|---|
| € 0-500k | 34,6% | 14,1% | 14,1% | 5,1% | 32,1% |
| € 500k-1m | 31,6% | 26,3% | 15,8% | 10,5% | 15,8% |
| € > 1m | 35,0% | 30,0% | 20,0% | 5,0% | 10,0% |

€ 0-500k € 500k-1m € > 1m

*Fig. 19 : Marketing strategies of Murano companies by revenue*

*(source: Confartigianato Venezia, 2015)*

Recently, some innovations have been developed concerning the online presence of Murano glass:

- E-commerce: numerous are today the platforms that sell original Murano glass on the web, collaborating with glass masters who devote part of their production to online retail. One of these platforms, launched in 2011 with the support of Consorzio Promovetro, is YourMurano, a registered brand of the Italian company Venicecommerce s.r.l.: the e-commerce website collects a variety of products from twenty selected glassmakers that have adhered to the trademark, and sells them online to international customers, guaranteeing the originality of the products, safe packaging and free returns.
  Another possibility for firms is to open their proprietary e-commerce platform, although this is often not an option for smaller enterprises that lack specialized personnel to manage it.

- Augmented reality: Vaporetto, a project led by the Venetian entrepreneur Enrico Trabacchin in partnership with two Murano glass masters, the Ballarin brothers, implemented an augmented reality service on its e-commerce platform, that enables customers to see the products placed into one's own home environment.

- Online marketing campaigns: the most recent marketing initiative led by Consorzio Promovetro is #RestArtMurano, a digital campaign launched in September 2021 on its social media platforms, that shows some insights on glass manufacturing inside the furnaces, to promote the trademark "Vetro Artistico® Murano".

## 3.3 International trade

In 2019, Italy exported a total of $525 billion, making it the eight best exporter in the world[4]. "Made in Italy" products are highly appreciated by foreign customers, especially those belonging to the sectors that can benefit from Italy's Country-Of-Origin effect, i.e., fashion, food and furniture.

Exports to foreign markets represent a substantial stream of revenue for the Murano district: in 2013, almost 40% of revenues (€66 million) came from foreign sales. However, what is interesting to observe is that, between the 1990s and 2013, this percentage remained quite stable, without substantial variations, signifying that there are definitely more opportunities to be exploited.

| | **1990s** | **2008** | **2013** |
|---|---|---|---|
| **Italy** | 61,3% | 61,8% | 62,1% |
| **Foreign** | 38,7% | 38,2% | 37,9% |

*Table 4 : Percentage of internal and foreign sales of artistic glass produced in Murano (source: Confartigianato Venezia, 2015)*

There is a direct relationship between firm size and export level: firms with revenues below €500.000 get only a 27,9% of them from foreign markets, while the percentage rises to 50% on average for bigger firms with revenues higher than €500.000. A possible explanation of why the increase in exports for Murano has not followed the overall increase in global trade that has taken place since the second half of the 20th century, then, may be connected to the progressive shrinkage of companies' size that Murano has witnessed during the past decades.

According to the opinion of local manufacturers, the countries showing interest to the Murano glass production have also remained unchanged since the 1990s, with the

[4] Source: Observatory of Economic Complexity (OEC)

United States keeping the top position, followed by Japan, France and Russia. As already mentioned, Murano producers had the ability to focus on different foreign countries based on their economic conditions, so that when the United States was dealing with the 2008 crisis, their exports were redirected towards the Middle East, then to Russia, and more recently to China.

## 3.4 Sustainability

One useful approach for sustainable development, and one that is particularly interesting for Murano, is the implementation of a circular economy. The standard approach to production processes is a linear one, where production factors (capital, work, land, raw material, energy sources, etc.) are used as inputs to deliver a final product or service as output, in a simple "take-make-consume-throw away' scheme. The primary aim of the linear economy is to maximize profits, calculated as the difference between the market price and production costs. For this reason, manufacturers have an interest in making their products highly perishable and quickly obsolete, so that consumers are forced to buy new items. In this way, a short-term perspective is preferred to a long-sighted one, that considers the consequences on the environment and the depletion of natural resources. On the other hand, with circular economy, we mean a production and consumption model that wants to maximize product life cycle, by sharing, lending, repairing, refurbishing, reusing and recycling products and materials as long as possible. Once a product has completed its primary function, the materials of which it is composed are reintroduced into the economic cycle, thus generating further value. This enables to reduce waste and avoid buying new products before it is strictly necessary, thus also preventing the emissions created by additional unnecessary production processes.

### *3.4.1 The issue with glass production*

Due to the high temperatures reached during the melting process, glass production is a sensible activity for what regards environmental impacts. The combustion of natural gas and fossil fuels causes the release of particulate materials in the atmosphere, and the type of substances involved in the production (hydrochloric acid, hydrofluoric acid, arsenic compounds, etc.) are dangerous for the workers involved in glass making (Giusti et al., 2002). Studies revealed that emissions from Murano significantly influence air quality in the Venice area and contaminate the environment of the Venice Lagoon (Rossini et al., 2010), which is part of the UNESCO World Heritage List.

Over the years, several legislative changes regarding health and workers' safety targeted toxic chemical components used in the production of Murano glass, with consequent limitations on production processes: for example, *conteria* beads have not been produced since 2000, due to the abolition of sylvite; arsenic trioxide was prohibited in 2014, causing difficulties in controlling the opacity of the glass, while the European Union classified cadmium as carcinogenic in 2018, an element that was fundamental to obtain ruby red glass.

Another serious environmental concern about Murano glass are production scraps: every year, in Murano, glass producers accumulate between 700 and 1000 tons of waste, whose disposal is costly due to their classification as special waste.

### *3.4.2 New production methods*

Today, some experimental studies, conducted by Ca' Foscari University and Iuav University, are trying to find sources of reuse of the scraps, to transform the production process from a linear to a circular economy. Due to the artistic features of Murano glass, the preferred route explored by the researchers is to use the scraps to create a new material for design products and coverings, where its bright colors can still be visible and appreciated.

In parallel with the studies conducted by university researchers, also the Murano district, led by "Stazione Sperimentale del Vetro", is looking for innovative materials and mixtures, also involving scraps, to obtain new glass products that are both sustainable and economically competitive. Innovative mixtures and new materials may also serve to enter new market segments not currently covered by Murano glass, as, for example, containers suitable for ovens or microwaves. Another action promoted by the research hub is to reduce the furnaces' gas consumption, estimated at 40 million cubic meters a year, through process innovation and the usage of residual heat from smoke to obtain electric energy.

## 3.5 Empirical evidence

In order to find empirical evidence on how Murano is dealing with three macro areas analyzed at the district level, I had the pleasure to interview Sergio Malara, the coordinator of Consorzio Promovetro, and Giacomo Moceri, who manages communication and promotion activities.

For what regards the first trend, i.e., digitalization, Dr. Malara admits that it is difficult for small firms like those in Murano to have the skills and funds to invest into digital technologies. They often lack the specialized personnel needed to manage an e-commerce or social media platforms, therefore many of them decide to employ a website only as a showcase for their products. Instead, some projects that the consortium is pursuing regard social media marketing campaigns and some Industry 4.0 applications. Social Media Marketing is today the most accessible investment for the consortium, given the few resources available to them. As already mentioned, their latest marketing campaign was #RestArtMurano, launched in September 2021 on Facebook, Instagram, YouTube and TikTok. The campaign included videos that promote the "Vetro Artistico® Murano" trademark and the ancient techniques employed by Murano artisans in their production processes. As for Industry 4.0, one technology that producers are starting to apply is 3D printing, a technological tool that can be used as an aid to support artisans, instead of replacing their manual skills, as it enables them to create textures and molds that they cannot produce manually.

Visibility abroad continues to be partly sought through participation to international fairs and expositions, although the interest for these events is slowly fading. Currently, one of the main events for Murano is Salone del Mobile, and its branch Euroluce, since many producers work with lamps and lighting. However, since attendance to fairs involves costly trips, right now the consortium prefers to exploit international events held in Venice as a source of visibility for Murano glass. In this context, every year they organize the Venice Glass Week, a festival that celebrates, supports and promotes the art of glassmaking. In 2019, the festival included over 200 events, attracting more than 100.000 visitors from Venice, Italy and abroad. Moreover, instead of making producers travel to distant locations to attend international fairs, recently the consortium started arranging business trips that could bring interested buyers directly to Murano, where they could visit the island and see the products themselves. Of course, this project will not be fully operative until the pandemic is over and trips can be organized more easily.

Finally, in terms of sustainability, the main activities come in response to changing environmental requirements from the national government and the European Union, for example in terms of finding alternative substances to prohibited ones. Another innovation that furnaces are trying to work on is the development of innovative ovens that can be switched on and off more easily, which would save on time and costs for producers, and on environmental emissions too. The main findings just described are collected and summarized in the following table.

| | **Question** | **Main projects** |
|---|---|---|
| **Digitalization** | Are you working on projects to increase the digitalization of the industry? | • Social media marketing campaigns<br>• 3D printing |
| **Internationalization** | How do you intend to increase the visibility of Murano glass abroad? | • Venice Glass Week<br>• International fairs<br>• Business trips for buyers |
| **Sustainability** | Are you investing in projects about sustainable production and circular economy? | • Finding alternatives to banned substances<br>• Ovens that can be switched on and off |

*Table 5 : Murano's main projects in the three macro-areas analyzed*

*(source: interview with Consorzio Promovetro)*

# CHAPTER 4

# COMPANY CASE STUDIES

After having analyzed the current situation of the Murano district and understood how the consortium is dealing with several aspects related to digitalization and innovation, internationalization, and sustainable production, in the fourth and final chapter of this work we will consider some case studies that discuss similar issues at the company level.

Four company profiles were selected so to construct a diversified portfolio of experiences and strategic directions. Specifically, the business cases presented in this chapter are VENINI, Gambaro & Tagliapietra Murano Glass Studio, Wave Murano Glass and Andromeda Murano. All of them are specialized in the first production of vases, cups, sculptures, lamps, chandeliers, home décor and furniture. They all propose a catalog with predesigned products but prefer to focus on custom projects destined to luxury clients, glass experts and art collectors. Two of them – VENINI and Andromeda Murano – are categorized as bigger and better-performing firms, while the two other profiles are smaller enterprises, but with profoundly different histories and mindsets: Gambaro & Tagliapietra Murano Glass Studio is a traditional company founded in the 1970s, while Wave Murano Glass is an innovative startup. The revenue ranges that were selected to classify the firms' size are: < €250.000; €250.000 - €500.000; €500.000 - €1.000.000; > €1.000.000.

Similar questions were proposed to all the interviewees, so to construct a semi-structured interview that could be useful to collect relevant information regarding the three themes analyzed. Some of the questions that were asked included:

- Which were their target clients;
- If production was still completely carried out in Murano and, if so, what advantages this brought, also considering the extra costs locating on an island entails;

- Whether the company adopted the official trademark “Vetro Artistico® Murano”. If it did, what were the benefits it brought, if it did not, the reasons behind this choice;
- How the company was dealing with its internationalization process, and which were their future strategies in this respect;
- If they introduced, or were planning to introduce, technological innovations to their production process, and if it was possible to innovate such a traditional activity like artistic glassblowing;
- If they invested, or were planning to invest, on projects that could lead to a more environmentally sustainable production.

A summary of the characteristics of each company and of the interviewees who answered to my questions are provided in the following table.

| Company | Revenue segment | Number of employees | Adherence to the trademark | Interviewee |
|---|---|---|---|---|
| VENINI | > €1.000.000 | 70 | No | Elena Chiesi, archive and museum curator |
| Gambaro & Tagliapietra Murano Glass Studio | €250.000 – 500.000 | 6 | Yes | Luciano Gambaro, owner |
| Wave Murano Glass | €500.000 – 1.000.000 | 8 | Yes | Marco Vianello, sales and customer relations |
| Andromeda Murano | > €1.000.000 | 10 | No | Daniel Vecchi, agent |

*Table 6 : Profiles of the companies interviewed*

## 4.1 VENINI

VENINI was born in 1921, when Milanese lawyer Paolo Venini and Venetian antiquarian Giacomo Cappellin founded “Vetri Soffiati Cappellin Venini & C.” and chose Vittorio Zecchin as Artistic Director. From the very beginning, Paolo Venini recognized the value of internationalization, collaborating with foreign artists and designers, participating to international exhibitions and opening a proprietary store in Paris. Thanks to the numerous awards won at such exhibitions, VENINI started getting more and more recognition around the world. In 1934, VENINI welcomed the famous architect Carlo Scarpa, who created several innovative glassworks and increased the popularity of the company, which continued to supply the most luxurious hotels, theatres, banks, public buildings, and palaces. In 2016, the majority of the company’s shares was acquired by the Damiani family, who completed the purchase in 2019 and is now the exclusive owner of the company.

The company still carries all of its production in the Murano Island. Elena Chiesi, the curator of VENINI’s archive and museum, admits that, although this choice is not advantageous from a purely financial point of view, locating in Murano still provides inestimable benefits from a cultural and social perspective. Moving away from Murano is not an option for the company, because they continue to employ glass masters generation after generation, and in this way they are able to preserve and transmit Murano’s glassmaking tradition. Therefore, the value Murano provides to VENINI lies in the human resources it can offer. Only in a second time the company can enjoy some monetary returns from locating in the island, and they come only if they are able to convey to customers the historical importance of the glassmaking tradition.

VENINI is without doubts one of the most successful Murano companies, with revenues reaching €10 million in 2019 and retailers all around the world. What lies behind this success is the deep synergy between glass masters, who technically manufacture the products, and designers, who conceptualize them. This is an empirical validation in support of Leszczyńska and Khachlouf[5], who affirmed that product innovation in Murano works better thanks to the cognitive distance there

[5] See par. 2.2.4

exists between glassmakers and designers, a source of cross-fertilization of ideas for both parts. Another aspect that was crucial for VENINI's success was the realization by the founder, Paolo Venini, that Murano's techniques did not have to remain secret anymore, that the district could open up to the external environment, and welcome foreign architects and designers. Working with foreign artists is also one of the factors that contributed to the international expansion of the company, coupled with its constant participation to international fairs and events, which helped establish relationships and contacts abroad. Nowadays, VENINI's main focus is the Asian market, where it has recently opened a proprietary boutique. Thanks to the 10-year collaboration with the Japanese architect Tadao Ando and its presence in local museums, the company had the opportunity to get to know the market before committing with a permanent investment, which it is now ready to strengthen.

Collaborating with new young artists can also be an opportunity to make glass products more environmentally friendly, thanks to their fresh and innovative ideas and their greater sensitivity towards environmental issues. For example, current projects include producing out of scraps and leftovers, abandoning the ideas that Murano glass must always be perfect.

## 4.2 Gambaro & Tagliapietra Murano Glass Studio

Gambaro & Tagliapietra Murano Glass Studio is an evolution of the older Vetreria Artistica Gambaro & Poggi Glass Company, founded in 1974 by Mario Gambaro and Bruno Poggi. After the retirement of Mario, the furnace has been inherited by Luciano Gambaro, who welcomed the young glass master Matteo Tagliapietra. Gambaro & Tagliapietra is associated to Consorzio Promovetro and is also licensee of the "Vetro Artistico® Murano" trademark. The owner, Luciano Gambaro, whom I had the pleasure to interview, is also the President of Consorzio Promovetro, and gives much value to the recognition given by the official trademark, although he complains about the lack of financial support from the institutions that own such instrument. The company is a small artisanal workshop employing around six people, and it belongs to the second revenue segment of the analysis, i.e., the one ranging from €250.000 to

€500.000. Their artistic production covers home décor items and furniture, like vases, cups, centerpieces, sculptures and lamps.

Although being a small-sized entity, the company has been able to reach an international customer base: according to Luciano Gambaro, around 70-80% of what they produce is devoted to foreign clients, while the remaining part goes to Venetian retailers who often export it themselves. Today, a relevant customer segment for the company is also made by luxury fashion brands that are interested in Murano glass for their home appliance items or accessories' lines. According to the owner, these kinds of customers represent the future trajectory for Murano: no more serial production, rather tailor-made, high-quality and exclusive products that satisfy customers' requirements.

When asked about the company's internationalization strategies, Luciano Gambaro recalls that, in the past, international fairs were the primary source of international visibility, allowing Murano companies to establish contacts and relationships with foreign customers. Today, instead, these events have lost appeal, and participation has diminished significantly. Instead, he highlights two alternative paths that can be followed by small artisanal firms like his own: on the one hand, the implementation of a digital strategy, with proprietary e-commerce platforms and web advertisement, although, in his case, he admits that this aspect is not managed as professionally as it should be, due to the lack of dedicated personnel; on the other, the involvement in cultural projects, like the Venice Glass Week, that can, eventually, bring commercial benefits too. These events act as attractors for international customers, artists, designers and exhibitors, who have the occasion to come to Venice and get to know Murano and its products.

In terms of process innovation and technological improvements, the owner remains skeptical: a useful innovation would be about energy-saving ovens, given the sharp increase in gas prices, but not much more can be done, also due to the expensiveness of these projects.

For what regards environmental issues, there seems to be some hesitation too. According to Luciano Gambaro, Murano producers recognize that they have a personal interest in preserving the environmental safety of the island, given that they all live there with their families, and they have adapted all their materials to the legal standards in place. However, he also thinks that too many impositions on this aspect cause them to abandon Murano glass's traditional colors and techniques.

## 4.3 Wave Murano Glass

Wave Murano Glass is a small startup founded in 2016 by Roberto Beltrame. The peculiarity of this company, compared to most other traditional furnaces, is that the master glassmaker is not from the Murano Island, but comes from Brescia. However, Roberto decided to move to Murano for the appeal that this name still conveys when talking about artistic glass and is now the youngest glassmaker in the island. Despite the initial difficulties and hostility from the local environment, that perceived him as an outsider, Roberto found in Murano specialized artisans and glassmakers that could support his company and his innovative ideas. When I spoke to Marco Vianello, employed by Roberto as the responsible for sales and customer relationships, born and raised in the island, he recognized that no one in Murano had the courage to invest and innovate, resting on the renowned brand Murano has always been. Instead, Wave was born to bring some freshness into this traditional environment. In fact, the name of the company was chosen precisely for this reason: they want to be a wave of innovation for Murano.

Like the most successful companies in Murano, from the start, Wave has focused on B2B clients, rather than on serial production for retail shops, and they work with architects, designers, artists and big international brands with custom and exclusive projects. Fairs and international exhibitions were cited again as the principal source of international visibility for them, and they intend to start attending them as soon as the health crisis will allow so.

As we have mentioned, something that makes Wave stand out from the typical Murano furnace is their strong interest towards technological innovation, Industry 4.0 applications and energy efficiency. In this respect, they have recently introduced in their production process a very sophisticated oven that was designed by Roberto Beltrame himself, in collaboration with Gino Cester, an expert technician. This new kind of oven appears as a tank, it has a purifier that takes care of noxious emissions, and a recovery system that reintegrates the hot smoke from production back in the oven to be reused, which increases the thermal efficiency up to 30%, and it is a big advantage in terms of gas savings. Since this oven fit with the requirements of an Industry 4.0 technology, the company received a fiscal reduction that allowed it to save 50% of the investment on the project. Now, the next step they would like to take is to abandon traditional ovens completely, and work with these innovative ones individually for each color, since they require less maintenance and provide big cost savings on gas.

## 4.4 Andromeda Murano

Andromeda Murano was founded in 1986 and is specialized in the production of prestigious chandeliers and lighting applications. Its catalog includes over twenty collections, but the company works primarily with ad-hoc custom projects for private residences, hotels, theatres, banks, shops and restaurants around the world. The company manages all the phases of the orders, from design to logistics and to the final installation.

The company still finds much pride in locating in Murano, but, after having adopted the official trademark in the past, it decided to abandon it. The reason is that they did not agree with the choice of Consorzio Promovetro to grant the certification also to producers located in the mainland: currently, there are no licensee in the mainland, but in the past, there have been some, usually located nearby Marghera and Marcon. According to Daniel Vecchi, agent at Andromeda, this choice was disrespectful towards islanders, who face higher difficulties and costs to maintain their production in Murano.

Regarding their internationalization process, Andromeda works almost exclusively in foreign markets, with Italian clients only representing a minority of projects. They work in direct partnership with international architects and design studios, which act as intermediaries between the company and foreign customers.

Andromeda appears to be a very innovative company: in their design process, they regularly use 3D printing technologies for prototyping, and they collaborate with highly specialized companies from the Veneto region that cut metals with laser technologies, which allows them to create every project precisely according to customers' requests.

Also, they recognize the value of sustainability innovations designed for emission reduction and energy savings: in 2014, they acquired new ovens that allow them to save gas up to 50% with respect to traditional ovens used in Murano, and that do not produce dross. The tanks do not need to be substituted every time the oven is turned off, which avoids waste and is also a big advantage for workers. For the future, they are developing a project that involves the reuse of rainwater for cold techniques like grinding, something that no one currently does.

## 4.5 Common themes

To conclude the chapter, let's draw some final considerations about common themes that were shared by the interviewees of the four companies selected. Four main points emerged from the analysis of the interviews:

i. <u>Locating in Murano</u>

Companies that have decided to keep their production in Murano surely face higher difficulties and costs compared to those that moved to the mainland, especially due to the need of double transportation. However, the benefits the Murano Island still conveys to its entrepreneurs mainly lie in the availability of a highly specialized workforce, made by expert glassmakers and craftsmen that have worked in the industry often for their entire life. The second reason regards the prestige that doing artistic glass is Murano provides, and the fact that Murano itself can still be considered a strong brand for the industry, an element that can be used as a promotional device. However, monetary benefits from this value can be obtained only if companies are able to convey to customers the cultural importance of the glassmaking tradition as it is carried out in Murano. A third benefit regards the fact that only companies located directly in Murano can obtain the certification of the official trademark. As stated by Luciano Gambaro, "the official trademark gives recognition to the most famous brand in the world for artistic glass, i.e., the Murano Island: this is the brand that we need to preserve".

ii. Custom projects

The biggest commonality that was found among the four business cases selected was the recognition of the fact that the market of tourists and retailers is going to be progressively abandoned by Murano producers, since these target clients do not seem to have the ability to recognize what lies behind a glass item and why an original Murano product is so expensive, often preferring cheap counterfeits. Instead, companies are moving towards a niche market made by designers, glass experts, art collectors, and luxury fashion brands, that appreciate the value of this artistic production. Therefore, predesigned catalogs are disappearing, to leave space for exclusive, custom-made, luxury projects that satisfy each customer's specific requests. In fact, the utility of Murano glass itself changed over the years, as explained by Elena Chiesi: "Back in 1921 (when VENINI was born, ed.) glass objects satisfied people's necessities in relation to the new desires of the 20$^{th}$ century's society, whereas today the glass object is not simply a vase anymore but is a design object".

iii. The relevance of international fairs

The internationalization process of Murano companies typically starts by attending international fairs and events, like Salone del Mobile, Macef, Maison & Objet, etc. During these occasions producers have the opportunity to expose their items to an international customer base, and to establish relationships with foreign architects and designers, who serve as a bridge to enter foreign markets. Although international fairs seem to have lost some appeal and attendance has drastically decreased over the years, it is interesting to note that even such a recent startup like Wave Murano Glass, born in 2016, got its main international clients in this way.

Nowadays, due to the ongoing COVID-19 pandemic, which has limited people's movements and crowded events, it remains to be seen if and how Murano producers will find alternatives to this source of international visibility. There are two possibilities for the future, as suggested by Luciano Gambaro: "I think there are now two alternatives to replace international fairs: one is the realm of the Internet and e-commerce, [...] selling either directly or indirectly through third-parties' portals like

Artemest. Another strategy [...] is to attend initiatives that do not have a direct commercial aim, rather a cultural one, but that, in the long run, can give to Murano some international visibility, like the Venice Glass Week. This is a new way, an indirect one, that can somehow reach international customers, artists, designers and exhibitors. Such events are an occasion for customers to come to Venice and also buy from Murano companies".

iv. <u>Technological innovations blend with environmental sustainability</u>

For what regards the implementation of process innovation, most producers remain skeptical, arguing that it is not really possible to innovate an artisanal production like Murano's one. "No one had the courage to invest and innovate, everyone has always taken things for granted, because Murano has always been a renowned brand", Marco Vianello pointed out. Among the four case studies, Andromeda Murano was the only one that had implemented some process innovation technologies, namely 3D printing and laser cutting techniques, in partnership with third-party suppliers. Instead, what emerged was that, most often, technological innovations are designed to target environmental sustainability, so that these two themes seem to blend together. Some have already implemented energy-saving technologies like innovative ovens that can reuse hot smoke or that do not produce dross, like Wave Murano Glass and Andromeda Murano. These new kinds of ovens allow gas savings up to 50%, a great cost advantage especially now that gas prices have soared. Some others, instead, recognize the value of these technologies, but lack the financial resources to commit to such an expensive investment.

# CONCLUSIONS

The aim of this work was to analyze the current configuration of the Murano glass district, describing which factors have made it a world-famous location for the production of artistic glass, and understanding how it is coping with the challenges of the 21st century, namely the 2008 financial crisis and the 2020 COVID-19 pandemic.

In summary, from what it has emerged, we may argue that, in light of the characteristics of the industry structure presented before, we can configure Murano as a mature district[6], as firms exhibit a strong link to the local territory in which they operate, and only those that work with traditional techniques are recognized as certified producers. Also, Murano lacks an efficient governance structure: the productive system is composed of micro firms that display hardly any contact with one another, thus creating a horizontal district, with few supply chain relationships, far from the open network model that was described before, which led to the stagnation of the market that we have observed since the 2000s. Learning interactions between members of the district are scarce and spontaneous, rather than jointly coordinated, as they happen mainly through the mobility of glassmakers from one furnace to another and in special occasions like fairs and events, where they meet with one another. Other than that, producers work in isolation and their relationships with colleagues are characterized by jealousy and competition, especially in such a time of crisis. Some exceptions have arisen from the business cases analyzed, and some forms of collaboration include recommending other furnaces to customers, in case they were interested in products that the company does not produce.

To recall Chiarvesio's classification[7], most companies in Murano are traditional local firms that source exclusively from the local environment, and exports are their only contact with foreign markets. There are indeed big, established companies that made history for Murano, but they cannot be classified as proper leader companies

[6] See par. 1.2.1

[7] See par. 1.2.1

like in the open network model, since they do not show the ability to exert a real leadership on smaller enterprises and guide the development of the district. Rather, thanks to the influence of famous artists or designers who collaborated with them, they were able to create a name for themselves and maintain their brand awareness throughout the years and are still known and appreciated in the international scene, like VENINI. Moreover, those are usually the companies that did not even adhere to the official trademark, because they do not feel like they need an additional recognition of their brand and of the authenticity of their products. In some cases, these big enterprises have been acquired by external companies and groups, thus lack the strong tie to the Murano Island and its institutions that smaller traditional firms still have.

While Murano can still count on the exceptional quality of its glass and the traditional local know-how that enable glassmakers to produce the best glass items in the world, several are the difficulties that have arisen in the past twenty years. One relevant issue is the small size of most of its companies, which prevents them from having sufficient financial resources or the dedicated personnel to manage innovative projects regarding digitalization, internationalization or sustainability. This is coupled with the lack of funds and long-term strategic planning from the Veneto region, despite it being the formal owner of the official trademark "Vetro Artistico® Murano" and thus having an interest in supporting the development of the district. However, it is not only a matter of investments, but there is also the problem of generational change, with the lack of young, interested personnel that could learn and transmit glassmakers' skills and techniques, while bringing some freshness and open-mindedness to an environment that remains tight to its old traditions and that is often skeptical about product and process innovation. The spread of fake souvenirs and the competition with low-cost producers from Asia and Easter Europe is also something local furnaces have had to face, especially when dealing with tourists who do not seem to recognize the value of original Murano glass. Finally, nowadays, the biggest challenge for producers is to adjust to the huge increase in gas prices that has arisen as a consequence of the COVID-19 pandemic and the recent cuts in natural gas supply in Europe.

In conclusion, how are Murano companies reacting to the many difficulties they have been experiencing in recent times? Can they rely on the megatrends of the global economy for future growth? The answers that have emerged from this work indicate that most companies in Murano do not have enough resources to commit to significant investments like those needed for technological innovation, internationalization and sustainability. Therefore, they limit their activities to the cheapest activities, such as Social Media Marketing campaigns, the attendance to cultural events held in Venice, and the search for alternatives to banned substances, respectively. Only the leader players in the industry, like some of the business cases presented, manage to do more, with investments in Industry 4.0 applications, e-commerce websites, and innovative ovens that can save up on emissions and gas consumption.

However, a common theme that has emerged from the opinion of the several experts I had the pleasure to interview, and that all companies in Murano should be aware of, is that the industry is changing, and glassmakers are searching for niche market segments that can appreciate the artistic character of their products. While in the past their production was a serial one, with items that all looked similar and tried to fit into the tourism market, this is not sustainable anymore, as it is unthinkable for traditional Murano producers to compete with foreign low-cost souvenirs that have been spreading in Venetian shops. Instead, today, the most successful glassmakers in the island work in partnership with architects, designers and artists to create ad-hoc pieces for high-end buyers, which can guarantee monetary recognition of their form of art. Only those that will have adapted to this new market dynamic will survive in the future.

# Appendix

## Interview with Sergio Malara and Giacomo Moceri, Consorzio Promovetro

*Sergio Malara is the coordinator of Consorzio Promovetro. Giacomo Moceri works for the communication department of the consortium. The interview was held on video call on October 29th, 2021.*

**Q: Good morning and thank you both for the time you dedicated to this interview. As a first question, I would like to go back in time and ask you how Murano dealt with the 2008 crisis, which were the main challenges you found and how you faced them. How did you recover?**

A: Actually, starting from the 2000s, the golden age of Murano firms was over, as they were already living an important crisis. They did not have the same numbers they had in the past, and things got worse and worse, not better. During the crises, what saved Murano's producers was their flexibility on the one hand, i.e., the ability of Murano glass to adapt to trends, and the fact that they worked abroad, and if one market was in crisis, they looked for another one. The main market for them has always been the United States, so when the 2008 crisis started, that was a huge shock. There was a period when they pushed into the Arab market, then it disappeared, they went to Russia, which then went into a crisis itself, now they restored relationships with China, which is not only an unfair competitor, but there are also Chinese people who want the true Murano glass. On the other hand, firms that work domestically faced more difficulties, as the Italian market deteriorated more and more over the years.

**Q: What was the impact of the pandemic on the industry? Which are the main challenges for Murano today?**

A: According to the analysis we conducted last year, smaller furnaces have shut down completely, because they had no opportunity of doing otherwise. Instead, once again, those who worked with foreign markets still had old orders to complete, some new orders arrived, and thanks to that they were able to deal with the situation somehow. Other than during the periods when they were forced to close down due to national regulations, they were able to work and more or less everyone opened again. Their method was to collect a sufficient number of orders to make furnaces operative again, because ovens need to stay on all day, they cannot be simply turned on and off. Usually, they only turn them off in August and during Christmas time, and when they do it, they also do maintenance, so they need at least 20 days to heat them up again. You can imagine how hard it was for them, since during the pandemic you never knew what would have happened, as one day you could be open and the next day you were forced to close down, so firms were worried a lot.

Now we are in a recovery phase, firms are trying to join fairs again. Currently, one of the main events for Murano is Salone del Mobile, with its branch Euroluce, since many producers work with lamps and lighting. So, Murano was dealing quite well with the 2020 crisis, but now that gas prices have risen by 400%, this is causing trouble to everyone. There is the risk that many firms will close because of this.

**Q: What is the role of the consortium today? Which forms of protection does it give to the firms?**

A: The role the consortium has built overtime is to be a reference point for everyone. When institutions, e.g., the Veneto region, the Chamber of Commerce, deal with Murano, they always contact us, because we are representatives of Murano companies. Unfortunately, not all firms belong to the consortium, since it is not mandatory, but we are still the biggest representative of the district. Those who are missing are especially the most famous ones, because in many cases they are companies that changed property and are now managed by investment funds, so they are not led by Murano's families like the smallest ones, therefore they lack a strong tie to the territory.

The consortium was born as a promotional tool for artisanal firms. We were born as a branch of Confartigianato Venezia, in the 1990s, because firms started attending fairs and needed funds to support the trips. In 2001, the Veneto region gave the management of the official trademark to the consortium, and that was the turning point for us. Since then, the activities of the consortium concentrated around the promotion of the trademark. The difficulty for us is that there is no coincidence between firms that adhere to the consortium and those who adhere to the trademark, meaning that the two are independent from each other. However, the consortium decided to focus principally on the management of the trademark, and partially also on the participation to fairs and events.

**Q: What are the advantages firms have from adhering to the official trademark “Vetro Artistico® Murano”? How do you intend to increase the visibility of the trademark?**

A: Our main problem has always been that the consortium is a private one, and we live from the resources given by member firms, which are firms in crisis. These resources are just enough to keep the consortium alive. To do other projects for the promotion and safeguard of the trademark, we need external funds. The Veneto region, which is the formal owner of the trademark, should have the interest to support its trademark. It has provided us some funds in the last few years, not many, but it has. Instead, until six or seven years ago, it was the City of Venice that financed the promotion of the trademark, still with limited resources, while the region did nothing. Therefore, although the consortium has many ideas and projects in mind, it does not have the continuity to put them into practice, especially because we never know how much funding we will have for the year. In general, it goes to a maximum of €50.000, which is insufficient to do anything. So, the consortium’s policy is to act whenever we get the money, but resources are very scarce. While, in the past, at the beginning of the 2000s, we could do campaigns with international agencies, like Armando Testa, we have had to change our approach. Today it is unthinkable to do marketing campaigns inside airports or on newspaper, like we once did. We have tried to optimize the limited resources we had: we focused on social networks, which are still accessible from a financial point of view, with specific campaigns like we did with Russian-speaking countries that could be a new opportunity for firms, or by exploiting international events that were held in Venice. In the last few years, we have focused on the Venice Glass Week as our main source of international visibility, i.e., a festival dedicated to Murano artistic glass organized by the consortium and other parties in Murano.

**Q: How are you dealing with the issue of generational change?**

A: This is a big problem for Murano, there is the concrete risk of losing such an important tradition like Murano glass. This is not a sector young people are interested in, maybe we would need some famous bloggers or influencers that promoted our products. Often, masters, who are usually the owners of the company, do not want his children to take over the activity, because they see that the situation is constantly getting worse. Also, it is not easy to become a master, it takes years, there is not a proper school – Abate Zanetti teaches them something, but they do not know how to work the glass when they graduate, they need practical experience.

One initiative that could be appreciated by the youngsters is the latest exhibition we organized, Murano Glass Toys, that shows a variety of toys made by glassmakers and which is interactive for kids to play. The exhibition is doing well, and it has been prolonged because of its success.

**Q: Thank you Dr. Malara. Now moving to the three macro-areas I've been focusing on, I would firstly like to ask you how Murano glass is doing with exports to foreign markets. Which strategies or projects you are working on to increase the visibility and sales of Murano glass abroad?**

A: The main source of visibility for Murano producers have traditionally been fairs and events. Until 2010, many of them went to Macef – now Homi – in Milan, twice a year. I remember that we once got to have a pavilion with 36 firms: today, only one of them still goes, just to show you how much things are changing in this respect. Macef as a fair has lost some appeal, because in the meantime other events have gained more interest, like the Maison & Objet fair in Paris. However, due to the costs of participating, not many firms joined even that one.

Instead, nowadays there is the idea of organizing business trips and bringing buyers directly to Murano, instead of producers moving to other locations. Of course, this will only be realizable once the pandemic is over. We had a project of inviting buyers to Murano in 2019, but we had to convert it to something different, in accordance with the Veneto region, because it was impossible for people to move.

**Q: Are you investing on projects that deal with sustainable production and circular economy?**

A: In terms of sustainability, there is some research going on that is supported by the fact that the law imposes some changes. Europe has published a list of substances that are not allowed and that will have to be substituted. This has generated some attempts to do so, for example with cadmium, one of the principal elements to get red glass, a fundamental color for Murano. So, starting from there, they try to find alternative substances to be in conformity with the law.

In the past, they also tried to innovate ovens, moving from methane gas ovens to electrical ones, but the latter were found to not have the necessary characteristics glass needs. Right now, they are trying to design ovens that can be switched on and off more easily, because that would reduce time and costs.

**Q: Are you working on projects to increase the digitalization of the industry?**

A: We want to continue promoting the trademark on social media platforms, with some marketing campaigns, because those are the investments that are accessible for us. For what regards the e-commerce, it has always been difficult to manage, because Murano companies are very small, they are family businesses, and lack the specialized personnel to manage the e-commerce. Some tried but could not keep up with it and decided to abandon it. Moreover, until a while ago, producers kept saying that customers buying glass objects want to see them in person, and the e-commerce could not work well for that reason. I would personally suggest to companies to use websites only as a showcase for the products, if they are not able to manage the e-commerce.

Another example that shows that the approach to digitalization is difficult is given by the label that displays the trademark. The label has a QR code that is connected to a website, where producers can insert videos, pictures, additional information on the product, and so on. However, no one does it, because they find it complex, and they need to spend time on it.

We tried, in the past, to set up a common e-commerce for our member firms, or to manage their social media accounts, but the problem was that we did not receive much collaboration from them in terms of content to post.

**Q: Are you working on product and/or process innovation for Murano glass?**

A: We have tried to suggest some technological innovations that do not hinder artisans' manual skills, but that could support them in their work, such as 3D printing, through which they can create textures or molds that they cannot do manually. However, again, it is not easy, although we tried to promote some projects on this.

Something I always try to point out to institutions that call for research and innovations is that we are talking about a territory that has worked in the same way for over a thousand years, and this is their peculiarity, so you cannot revolutionize it completely. Often, they do not realize that they are dealing with small traditional firms that lack the resources to make substantial investments. They are disconnected from the territory.

**Q: So, in conclusion, how do you think these small family businesses could survive in the future? Will there be changes in the industry structure, e.g., mergers and acquisitions, to create bigger firms?**

A: They are already changing somehow: while before production was still artisanal, but it was a serial production, because they always produced the same objects, today firms are working more with architects and designers, they do more ad-hoc pieces. They are leaving the conventional market, where there is also more competition, and are moving to this niche environment that allows them to survive. Murano's luck, in the past thousand years, has always been the flexibility and adaptability. Their adaptive capacity has helped them, although they are constantly facing new issues.

## Interview with Elena Chiesi, VENINI

*Elena Chiesi is the archive and museum curator for VENINI S.p.A.. The interview was held on video call on November 25th, 2021.*

**Q: Good morning, Elena, and thank you for this interview. Would you briefly introduce yourself and the company?**

A: Our company was born in 1921, so this year marks our 100th anniversary. In 2009, VENINI decided to create a historical museum: at the managerial level, we now have VENINI S.p.A and VENINI Museo, both located here in Murano. I manage the VENINI Museo, I manage the entire archive, which contains around 45,000 drawings, 5,000 objects and vintage photos. We organize this material, and we work to make it available to the people. In this period, we are digitizing all this material to make it available everywhere in the world, in partnership with Le Stanze del Vetro.

**Q: What are your main clients?**

A: Our target is a luxury one. Back in 1921, glass objects satisfied people's necessities in relation to the new desires of the 20th century's society, whereas today the glass object is not simply a vase anymore but is a design object. We work with contract customers, with ad hoc projects, like lighting architectures, and then we produce glass sculptures. Our target is a high-end one made of glass and design experts.

**Q: Is your production still carried completely in Murano? If so, which advantages do you have in doing so, given the higher costs of producing directly in the island?**

A: Yes, we do. The advantage is surely not an economic one, but a historical one, to keep a glass tradition in Murano. We employ Murano's families generation after generation: in this way, we transmit and preserve the glassmaking craftmanship, the value lies in the people, not in the money. Later, we also get a monetary return from Murano, when we are able to transmit the history of glassmaking to our customers.

**Q: I know the Damiani Group has acquired VENINI. Which were the reasons behind Damiani's interest for the company and Murano glass?**

A: When the Damiani siblings visited VENINI in 2016, they fell in love with the company and the complexity of the glassmaking industry. They wanted to bring new investments to develop VENINI's market and products. The main idea is to promote and diffuse the history of VENINI and of Murano's glassmaking tradition.

**Q: I know that VENINI does not adhere the official trademark "Vetro Artistico® Murano". What are the reasons behind this choice?**

A: We were asked to participate in 2005, but at that time the association (Consorzio Promovetro, ed.) did not have a clear market strategy with a defined objective. Therefore, we decided not to join. In the same period, VENINI, together with two other important companies, Barovier e Toso and Carlo Moretti, decided to create "Murano collezioni", with the idea to unify Murano's stronger brands with similar targets. Today, this collaboration is not active anymore, and we do not exclude to create other associations that can sustain and lead the district during the hard time we are living right now.

**Q: We can affirm that VENINI is one of Murano's leading companies. What are the reasons of your competitive advantage? What distinguishes your company from the others? Which strategies brought you to this position?**

A: What has distinguished VENINI over the years is its decision to call architects, designers and artists as Artistic Directors and give them the opportunity to work directly inside the furnace. The glass master is the artisan, while the project is designed by an artist. This creates great synergies and ideas' contamination, which is necessary at the artistic level to create something new. Paolo Venini was the first to realize that the great innovation for Murano glass was to open the doors. While in the past Murano's art was extremely closed and confined in the island, Paolo Venini understood that this secrecy was useless at that time, and he was the first to open the doors to internationalization, the first to have artists and designers coming from the USA. For example, in the 1960s, the young Thomas Stearns, an arts student in Chicago, after two years of training and internship at VENINI, managed to produce some serial production that entered our catalog and also some unique objects, among which

Murano's biggest sale in an auction, *La sentinella di Venezia*, sold in 2018 for a price of $737.000.

Of course, introducing artists and designers inside the furnace is not easy, there is the need of a big space, many ovens, many employees, and also adequate financial resources. When a young artist comes to work with glass for the first time prototyping costs increase a lot. Luckily, we have managed to cover these costs over the years, but not everyone can do it.

**Q: VENINI has a foreign boutique in Tokyo and many sellers all around the world. How did you reach this level of internationalization?**

A: Over the years, we have always participated to fairs and exhibitions, like Triennale in Milan, Biennale in Venice, Quadriennale in Rome, which helped us establish contacts outside of Italy, and make glass known in foreign markets, and consequently attract foreign artists too. All of this gave us the opportunity to expand, to be known all around the world.

**Q: Where are you planning to invest next?**

A: Recently, we have started expanding into the Asian market, however we are still getting to know it. We have worked with Tadao Ando, a Japanese architect, since 2011, but we could not be fully present in the market. Things have improved when we set up the Tokyo boutique, and we are trying to pursue expansion in this market. In our case, the first knowledge sources for the local market are museums and cultural expositions. After you convey the historical value of the brand, then it is easier to commercialize your products as well. Having such a high-end target, our objects are not sold in five minutes, the customer wants to know the name of the product, the author, the production process, and so on.

**Q: Have you introduced, or are you planning to do so, technological innovations to your production processes? Is it even possible to innovate such a traditional production like Murano's one?**

A: It is not really possible to innovate an artisanal production like Murano's one. All our equipment is very similar to the one that was employed at the beginning of the 20th century. The only change was the shift from coal ovens to gas ones. What changed are chemical components that cannot be used anymore by law, because they are dangerous for workers and for the environment. Therefore, today many production techniques cannot be done anymore.

**Q: Can you add more about environmental sustainability?**

A: We have projects involving the reuse of scraps, especially young artists are sensible towards this topic. They refuse the idea that glass must always be perfect.

**Q: In conclusion, what do you expect for the Murano district in the future, given the complex situation it is living?**

A: As you might know, our main difficulty today is the issue about gas prices. In this regard, the State should intervene, because the Murano district is only a small entity. Many furnaces have already closed down because they could not sustain the costs, and this is a pity. Our idea is to help one another, it would be a good idea to create some associations of firms, like the one we had with Barovier e Toso and Carlo Moretti. We do not see these firms as competitors, because we are specialized in different techniques and glass typologies. If we realize that one of our clients does is not interested in our production, we suggest him to contact the others.

## Interview with Luciano Gambaro, Gambaro & Tagliapietra Murano Glass Studio

*Luciano Gambaro is the owner at Gambaro & Tagliapietra. The interview was held by phone on December 6th, 2021.*

**Q: Good afternoon Mr. Gambaro, thank you for taking part in this interview. Firstly, I would ask you if your production is still carried completely in Murano and, if so, which advantages do you have in doing so, given the higher costs of producing directly in the island?**

A: Yes, we have always produced in Murano since 1974, we are a small artisanal workshop employing 6-7 people. Our idea is that it needs to be recognized that Murano glass must be produced only in Murano. Personally, I am a supporter of the originality of the product. This millennial tradition must be carried on in this island.

The biggest benefit is that only us (furnaces located in Murano, ed.) can have this official denomination, since the trademark is given only to producers of the island, although the problem of counterfeits is a relevant one.

**Q: What are the advantages of adopting the trademark?**

A: I get several advantages from the trademark, mainly the identification of the product. People want to know whether the product is made in Murano. For 25 years we have been repeating that artistic glass is made only in Murano, and we have safeguarded the furnaces and its masters, giving the final customer the possibility to understand clearly if the product is made in Murano. Then of course there are companies that have a strong and recognized brand and do not adhere to the trademark, however the official trademark gives recognition to the most famous brand in the world for artistic glass, i.e., the Murano Island: this is the brand that we need to preserve.

**Q: Are there forms of collaboration between the members of the consortium?**

A: Yes, in the recent years especially. For example, we collaborate both on individual jobs or projects, and by recommending other furnaces to our clients, if they are looking for items that we do not produce. My idea is always to attract customers to Murano, so that even if I am not the supplier myself, I still bring them to the district. Nowadays, there is more openness in this respect compared to the past, when there was not much interest in collaborating.

**Q: Moving on to the three themes I am covering, I would ask you how your company is dealing with its internationalization process.**

A: For us, 70-80% of what we produce, we export it, depending on the year. For the remaining 20-30% that we sell in Venice, the majority is also exported by our clients who sell abroad.

**Q: So, what is your target client in foreign markets?**

A: Our market is very dynamic, clients can change from year to year, but we can say that today we are working with some famous fashion brands that have become our principal targets. This is a phase that has gone well in the last years. These brands collaborate with Murano companies for custom projects for their home appliances or accessories like jewelry, shoes and bags.

**Q: Do you have some specific strategies in place for the future in this respect?**

A: In the past, the principal strategy for companies was to attend international fairs, depending on the sector covered by each. Some of these fairs went into a deep crisis and became unattractive from the customers' point of view. The entire commercial system is changing in this respect and has been downsized. I think that fairs are now over. Macef was probably the biggest fair in the world for furnishing and home décor, it was held twice a year, but now it is not attractive anymore. In 2002, I remember we had 40-45 companies from Murano that attended that event: today, only 2 or 3 of them still attend. It is evident that fairs do not attract anymore the customer base that firms need to get contacts and sell there.

I think there are now two alternatives to replace international fairs: one is the realm of the Internet and e-commerce, there are various firms in Murano that are doing well in this aspect, selling either directly or indirectly through third-parties' portals like Artemest. Another strategy, in my opinion, is to attend initiatives that do not have a direct commercial aim, rather a cultural one, but that, in the long run, can give to Murano some international visibility, like the Venice Glass Week. This is a new way, an indirect one, that can somehow reach international customers, artists, designers and exhibitors. Such events are an occasion for customers to come to Venice and also buy from Murano companies.

**Q: The second theme regards digitalization and technological innovations. How is your company dealing with this aspect?**

A: We do not have an e-commerce, but we sell online indirectly. We have social media platforms, but this area is not covered professionally as it should be, since we are a small company. We are doing this step by step. For sure, this is a path that, sooner or later, every company, big or small, will have to take.

For what regards process innovations, I think that it is always possible to improve and innovate, but for us the only changes could regard energy-saving ovens, given the sharp increase in gas prices. But again, it remains to be seen what is actually possible to do. Many talk about hydrogen, oxy-fuel processes, but it would be very expensive without having the assurance that it will work. What we have is already good, when you improve energy saving by 10-20%, you already have a good result.

**Q: The third theme deals exactly with environmental sustainability. Can you add more on that?**

A: Yes, at the environmental level, we have adopted all the regulations about substances, water depuration, smokes, etcetera. We do not really agree with this, because eliminating substances means to eliminate colors and techniques. We cannot delete our tradition and history. We are careful about this theme, also because most of us live here in Murano with our families, so it is in our interest to live in a healthy environment, but we cannot ask firms to do too much, I think we have done enough.

**Q: The final question: how do you see the future of Murano and how can it cope with this difficult situation it is living?**

A: The situation is surely not the best, even before Covid. Murano will never go back to how it was 20-30 years ago; it was different and had different needs. We have the duty to preserve our life, tradition and history. For us, this is not a job but a passion. We need to understand that we need to adapt and change. I think, for example, that serial production will diminish, while specific, high-quality, exclusive and unique products will increase, as our customers are asking. It will be easier to do one very luxury vase than hundreds that look all the same and of a lower quality. We want to give the client everything he wants, with tailor-made products.

This period is hard, and we need to roll up our sleeves, but we also need support from the institutions for the protection of our products and traditions. They need to invest on the trademark they have. The trademark exists but it does not get financed. The trademark is modern and advanced: it has a traceability system that few other districts can offer. If this is not advertised, people do not know it, so they do not look for it when they buy Murano glass. Institutions do not need to spend money, they need to invest.

## Interview with Marco Vianello, Wave Murano Glass

*Marco Vianello is responsible for sales and customer relationships at Wave Murano Glass. The interview was held on video call on December 14th, 2021.*

**Q: Good morning Mr. Vianello and thank you for your time. Your company was born quite recently, when the golden years of Murano had already ended. Why did you decide to enter the artistic glass industry?**

A: We were born five years ago, as we wanted to enter this traditional and antiquated sector – speaking as someone who was born in Murano and whose family and relatives are all glassmakers. Wave was born with the aim of bringing freshness and change, as the name suggests: a wave of innovation. At first it was not easy, also because Roberto Beltrami, our master glassmaker, comes from Brescia and has always been seen as an outsider, but things have gone well, and we have grown.

**Q: Who are your main clients?**

A: We work business-to-business, we work with firms, architects, interior designers, artists, which makes us different from most other furnaces in Murano, that produce for retailers and shops. We work with big brands at the international level, and we do custom and exclusive production for them. This has helped us a lot, also during the lockdown, because we continued to have orders even despite Covid.

**Q: I know Wave's founder and master glassmaker is not from Murano but moved here to set up the company. Why did he do so? What does Murano provide to the companies located there?**

A: Surely the name "Murano" is a brand by itself, when you talk about handcrafted glass you immediately think about Murano. It still has a very strong appeal from a promotional point of view. Moreover, those who come to Murano to start a glass company can find many experienced artisans to employ. Working in Murano gives prestige, but also higher costs: everything is more expensive because of the double transportation, on water and on foot. But Murano usually manages to make us recover these costs. Locating in Murano also gives us the possibility to have the official trademark from the consortium, which increases our visibility.

**Q: Have you invested on projects that deal with environmental sustainability?**

A: In August this year we set up a new kind of oven, a tank, which separates noxious emissions, that are sent to a purifier. This is the first tank of this kind in Murano, it was designed by Roberto in collaboration with Gino Cester, an expert technician. The oven also has a recovery system that reintroduces the hot smoke in the oven, which increases the thermal efficiency by around 30%.

Speaking about recycling, we collaborate with a company that is specialized in glass industrial recycling, so we do not throw anything away. The beauty of glass is also that it can have an infinite life, it can be always recycled.

**Q: Moving to the theme of internationalization, which strategies are you following to increase your visibility abroad?**

A: It is difficult to forecast the future, especially during a global pandemic. Our biggest client is from France, sometimes we work with the USA, but also with Russia and Germany. It is a very unpredictable market in this sense. In the past, we participated to international fairs – we got all our main clients in that way – and maybe in January next year we will go back, but you never know if infections increase, and things get cancelled.

**Q: Regarding the theme of technological innovation, have you introduced some process innovations or Industry 4.0 applications to your production?**

A: We obtained fiscal reductions on new tank I was describing before because it fit the requirements of an Industry 4.0 technology. This allowed us to save 50% of the investment, which was very useful for us. If things go well in the future, we hope to introduce individual small ovens like that one for every single color. These tanks need less maintenance and allow for high savings in terms of gas, so the idea would be to abandon traditional ovens completely and work with these tanks only.

**Q: Were there some specific reasons that allowed you to grow so much in so little time?**

A: I think it is a matter of open-mindedness, our young age has allowed us to bring some freshness. No one had the courage to invest and innovate, everyone has always taken things for granted, because Murano has always been a renowned brand. No one has ever thought about new ideas and new projects. We want to be a wave of innovation.

## Interview with Daniel Vecchi, Andromeda Murano

*Daniel Vecchi is an agent at Andromeda Murano. Answers were sent by email on December 13th, 2021.*

**Q: According to the information I found on the Web, in the past you adopted the official trademark "Vetro Artistico® Murano", whereas now you do not appear in the list of concessionaries. Why did you decide to abandon it?**

A: We have left Consorzio Promovetro because they did not grant the trademark exclusively to companies producing in Murano, but also in the mainland. So, they did not protect those who produce in the island with many sacrifices.

**Q: You sell your projects everywhere in the world: which strategies brought you to be known at the international level?**

A: We work at the international level because we partner directly with architects and designers around the world, so through their studios we can insert our works inside private houses and hospitality structures everywhere in the world.

**Q: Have you introduced, or are you planning to introduce, technological innovations for your production process (Industry 4.0 applications, e.g., 3D printing)?**

A: Yes, we often use 3D printing to prototype frames, and we collaborate with companies from the Veneto region to realize specific customs with highly specialized turnings and companies that cut metal with laser, which allows us to build every frame ad-hoc for each client's requests. We have more than twenty collections in our catalog, but custom projects are being requested more and more.

**Q: Are you developing projects in terms of environmental sustainability for the production of your glass?**

A: In 2014 we have bought new ovens to melt and work glass, they are green ovens that allow us to consume 50% less gas with respect to traditional ovens used in Murano and that do not produce dross, meaning that the tanks do not need to be substituted every time the oven is turned off. This entails savings in terms of waste and in terms of work. We are working on a system that will collect rainwater to be reused in cold techniques like grinding, it seems irrelevant but no one in Murano does so.

**Q: What will be your future strategic choices? How do you see the future of the Murano district?**

A: We will focus more and more on unique projects, catalogs do not have a long future. People are looking for exclusivity.

Unfortunately, I see great difficulties for Murano because there is a big cultural issue, few people know what they are buying and what is behind the products. The appeal there was behind Murano has disappeared, and companies from Eastern Europe are our biggest competitors, having much lower production costs.

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