

THE CERAMIC DISTRICT, ITS EVOLUTION AND POSSIBLE FUTURE ALTERNATIVES. ITALY AND SPAIN, A COMPARISON.

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ABSTRACT

The territorial agglomerations, in whichever of their conceptualisations, have laid the basis for growth in a large number of countries and in many of their businesses. Nevertheless, as is well known, they are currently going through a period of uncertainty and are faced with wide-ranging challenges. As a result, academics as well as businessmen and managers have started to rethink the principles of these territorial systems. As our contribution to this theme, in this study we have compared two ceramic industrial districts in Spain and in Italy, to establish their recent evolution, their interaction and other aspects that allow us thus to better understand what has happened and what might happen in the near future. As a conclusion, we propose an industrial district more open to the outside; including a relocation of certain activities and a restructuring of those that remain in the region.

We have structured the work in the following parts. In the first place, following the conceptualisation we have proposed a new district model suitable to the new conditions reigning in the international market. Then we have illustrated the theoretical development comparing the two districts: Sassuolo in Italy and Castellón in Spain. Finally we have proposed a number of recommendations as a conclusion of our work.

1. THEORETICAL FRAMEWORK

1.1. THE CONCEPT OF THE INDUSTRIAL DISTRICT

The concept of the industrial district has traditionally been defined as a *social-economical entity characterized by the active presence of a community of people and a population of companies in a historically defined natural space* (Becattini 1990: 39). The industrial district includes the presence of a group of companies specializing in one or more phases of the production process. It is typified by a group of companies working together, where the work division tends to be more spread than concentrated between the companies themselves. Furthermore, there exists a public and a private institutional framework that offers what Brusco (1990) calls *real services*.

Even though the conjunction of relations developed on the basis of geographical proximity can vary considerably in the details, their fundamental logic is constant. Thus, the organizational principles forming the basis of the districts in the southwest of Germany and the north-eastern region of Italy, though possessing specific characteristics, can be broadly applied. One can often find similar examples of inter-company cooperation in the sphere of regional economic activity (for example in Scandinavia) or local activity, as in the case of Silicone Valley (United States of America). Thus, the case study demonstrates the universal nature of the phenomenon.

An initial justification of the benefits the companies receive from the industrial districts is that of the *Marshallian or agglomeration economies*. The originator of the Industrial District concept, Marshall (1925), identified a kind of external economy centred on the benefits obtained by the individual companies from the increase in the endowment of such common factors as: a qualified workforce, specialised suppliers, and technological *spillovers* (Krugman, 1991). In the same way, Marshall's concept of the *industrial atmosphere* can translate as the existence of intangible resources based on experience, knowledge and information common to the district's businesses. In general, various investigators argue that the territorial agglomerations benefit the companies with intangible outside influences, or *untraded interdependence* (Storper and Scott, 1989; Storper, 1992).

Other authors emphasise the superiority of this form of industrial organisation over the large, vertically integrated, mass production companies (Piore and Sabel, 1984; Best, 1990). Nevertheless, as Harrison (1991), Crewe (1996), Russo (1997), or Paniccia (1998) have shown, the most important advantage of the industrial districts resides not so much in the agglomerated economies as in the existence of a community of people. Mutual knowledge, continuous commercial relations and experience stimulate relational confidence (Harrison, 1991; Russo, 1997; Paniccia, 1998), and this itself sets a limit to opportunism between the members of the *common market* in the industrial district (Lorenz, 1992; Dei Ottati, 1994; Foss and Koch, 1995). In fact, the relational confidence is fundamental in explaining the most important net result: the paradoxical combination of cooperation and competition found in the industrial district (Harrison, 1991).

In the context of our work we understand the concept of district in a broad sense, as a physical and relational space, which generates external influences for the businesses. As such, and despite the differing visions, a review of literature provides us with a combination of ideas and positions useful to our investigation. These we will specify in the following affirmations.

- (1) The face to face contact and the physical proximity of the businesses facilitates the interaction between them, as well as the passing of resources and of knowledge, which are all more difficult in longer range relationships.
- (2) The critical value of the districts lies more in the social or relational resources than it does in tangible outside influences or physical infrastructures.
- (3) The map of those participating in the districts includes as principal actors not only the end companies but also suppliers of the different intermediate products and services plus a broad conjunction of institutions (Universities, business associations, industrial political agents and other local and regional institutions).

1.2. RECENT EVOLUTION OF THE DISTRICTS AND THE DYNAMICS OF THE NEW COMPETITION

The evolution of the European districts can be summed up briefly as: their formation in the 1960s, consolidation and growth during the following decades, and finally, and in particular, during the last decade, creation of an uneven but critical situation for the all districts.

Since the sixties, highly specialised SMEs, soundly interrelated and localised within defined territories have managed to establish themselves as leaders in a number of industries. The major characteristic of the districts has been its assignment to a territory. Internationalisation meant that, while the final products of the district reached the international markets, the entire value chain remained rooted in its entirety in the territory of origin. Notwithstanding, this fidelity to the territory was not seen as a limitation, but rather as a deliberate strategy, since therein lay the competitive advantage of those companies.

Nevertheless, nowadays, due to a series of factors within the globalisation phenomenon such as the emergence of China and other low-cost countries, the European districts are suffering a tremendous competitive pressure. In some districts, the growth rate has fallen drastically, sometimes into negative figures. Many companies have disappeared, others have moved to outside locations. The newly emerging countries (low-cost producers) are densely populated countries going through a period of rapid growth, producing a wide variety of industrial products, using up-to-date and universally accessible technology.

To conclude, the European industrial districts have been forced urgently to rethink and redesign their strategies. The responses to these challenges might, however, require the companies to change their forms of operation. Companies depend more and more on their environment, including universities, research institutes, and other institutions concerned with the generation of new knowledge. Even more so, the sources of knowledge might reside far from the local area. And on the other hand, the new opportunities probably mean a greater specialisation, as the companies need to expand their markets beyond the confines of their local territory and thus scale up their growth. Generally, the companies in both districts need to re-dimension their markets, cooperate, and create alliances and collaborations with other districts or other countries.

1.3. THE BASES OF THE NEW INTERNATIONAL COMPETITION

We can look at the transformation of the district as a change from one of *vertical coordination and territorial adhesion* to one of *horizontal coordination and multi-location*.

In the first model, that of *vertical coordination and territorial cohesion* the activities of the district are vertically coordinated. An internal work division exists, wherein the businesses place themselves in different phases of the local process. The *inputs* and the supporting services for the principal activity of the chain come mainly from within the district itself, while local and regional institutions support the combined process, also within a local framework. Only the end producers have access to the external markets. There is a relatively low level of specialisation due to the limitations of the local market, with production and technical aspects in the forefront, and hardly any development in the fields of advanced business and marketing services, and in general those commercial activities nearer the end market.

Nevertheless, the new district model of *horizontal coordination and multi-location* suffers a double transformation: either, on one side, in the re-localising of some phase of the production filament, through subcontracting agreements, or in direct investment in production activity in other zones. These latter are production activities of low added value, "invited" to abandon the territory and move to new production localities. These activities are part of the process called *ubiquity* (Maskell, 2001) wherein a region loses its competitive advantage to others where costs are lower.

A secondary process of re-localising affects the product distribution channels: the control of the distribution channels through the establishment of commercial subsidiaries or the creation of combined companies in the export marketing countries. The companies need to make additional efforts to control the channels in the countries of destination, in markets progressively dominated by marketing-related aspects.

A third element is the development of regional strategies with suppliers outside the district in activities such as technological innovation, product projection and design, marketing, and financial services.

Those activities that stay inside the district carry on enjoying the advantages of the traditional district model based on the internal development in a local context of a market of intermediate goods, services and resources. One can add that the existence of a network of local institutions favours the articulation of the whole internal system (Corò and Grandinetti, 2001; Grandinetti and Passon, 2004). The internal activities suffer a process of division in their attempt to take advantage of new business opportunities. Generally the production activities lose significance compared with those related to commerce and to services. Alternatively, the specialisation of activities becomes accentuated, this requiring collaboration and partnership with other external companies. Nevertheless, this model requires the re-sizing of the markets; thus previously competitive territories are converted in natural extensions of the new products and services that the local firms have generated. This requires the coordination of inter-territorial activities horizontally. The principal activities that defined the districts could be substituted or sidelined by new activities that adapt better to the new circumstances. In other words the companies lose their bond with their region of origin.

2. COMPARISON: CASTELLÓN – SASSUOLO

2.1. GENERAL ASPECTS

Since the 1970s Italy has benefited from a well-known academic study tradition on the industrial district beginning with the seminal work of Becattini (1979). On the other hand, although not so well known as the Italian studies, a considerable number of studies can be found on the Spanish districts (e.g. Costa 1993), particularly in the Valencia Region (among others, Ybarra, 1991 or Soler and Hernandez). Nevertheless, it is not easy to find comparisons between both situations or reflections on possible interactions or mutual influences. In general, investigators are more inclined to analyse the experience of their own country, and are more reluctant to investigate similar districts or countries which could interact or evolve in conjunction.

In comparing the details from both countries the most outstanding fact is the similarity of their structure and the macro-economic results. Although the Spanish economy lagged behind the Italian for a while, it has definitely closed this gap very quickly in the last two decades. Thus, Spanish Gross Domestic Product *per capita* is very similar to the Italian. On the other hand this also means that costs (work costs for example) are similar. Spain, therefore, cannot still be considered a low-cost country in respect to Italy, which means that the companies in both countries are faced with the same challenge of seeking the higher market segments.

Both countries show a predominance of SMEs in their structure, especially those of the industrial districts. As we see in the *Observatory of European SMEs* (2003), the weight of the micro-companies was 95.6% for Italy and 93.3% for Spain. In contrast, the large companies only comprised 0.07% and 0.10% respectively. In terms of employment for each category of company, more than half the workforce is employed in the micro-companies, and less than 20% in the large companies (16.4% in Italy and 18.3% in Spain).

In regard to the existence of industrial districts, according to the *Observatory of European SMEs* (2003), in Italy there were 199 districts, employing more than 40% of the industrial workforce, while the same source credited Spain with 142 districts. Alternatively, the Spanish Ministry of Industry (2005) recently prepared a map of local systems and districts for Spain and also for Italy. Spain had a total of 806 local systems, and 237 industrial districts, employing 1,288,000 persons. The employment ratio between the districts and the whole of industry was a 14.8%. In the case of Italy, there were 784 local systems and 199 industrial districts, with an employment total 2,173,801 persons, which represented 20.1% of the total industrial workforce.

Although these figures are not free from contradictions and imprecision, they can serve us in the context of our study to state that both countries characteristically show similar macro-economic results in terms of Gross Domestic Product and costs, just as in both countries one can observe a dominant presence of SMEs and of industrial districts.

2.2. SITUATION AND EVOLUTION

The ceramic industry includes the production of ceramic floor and wall cladding, decorative pieces, glazes and frits, machinery, equipment and other activities related

with the ceramic process. We are dealing with an industry mainly centred in geographical concentrations such as districts worldwide: China, Spain, Italy, Brazil, Portugal and other countries. The Spanish district is situated in the province of Castellón, and in particular in the zones of *la Plana Alta*; *la Plana Baixa* and *L'Alcalaten*. This area, with a radius of no more than 20 km, comprises more than 90% of Spanish ceramic tile production. Spain is the top European producer, and ranks second to China in the world. In respect to market share, Spain occupies the second place behind Italy, with a share of 21.2% in 2004.

The Italian district is concentrated in the region of Emilia Romagna particularly in the provinces of Modena and Reggio Emilia. In 2002, the two provinces accounted for 80% of the Italian production. If all Emilia Romagna is included, the figure reaches 90%. This district is called Sassuolo, this being the municipality in which a large part of the ceramic companies are found. In Europe, Italy ranks second in production. In terms of the world market, Italy ranks first with 25.7% in 2004.

Comparison of the two districts shows that Sassuolo led the transition from artisan manufacture to industrial production, attaining world leadership. Nevertheless, Castellón was able to close the gap and even to overtake Italy in some indicators at the end of the 1990s. For instance, in comparing production figures, whilst Spain had only half the Italian production in 1990 (225 million square metres as opposed to Italy's 447), at the start of the present decade, Spain had already passed Italy in square metres produced.

According to ASCER, in 2004 production stood at 640 million square metres, with a turnover of €3.671 million, exporting 54% of the sales and employing a total of 25,000 persons. In the case of Italy, according to ASSOPIASTRELLE, in 2004 the sector employed 30,000 workers, with a production of 589 million square metres, turning over € 6,334 million, 70% of sales going to exports. The Spanish companies obtained better results in the financial indicators, with an *average added value* of 33.7% for Italy, compared with 36.2% for Spain, and an *average ROI* of 3.2% for Italy compared with 5.1% for Spain (Ballarini, 2006).

3. THE STRUCTURE OF THE DISTRICTS: COMPANY SIZE AND ACTIVITY SPECIALISATION

In the case of Castellón, some of the founders of the companies are still active. One can say that the first generational change has not yet ended. Meanwhile in the Italian case, the businessmen are of second or third generation, with a greater percentage of professional managers. In the end product companies, average company size was 99 employees in the case of Spain, compared with 132 in that of Italy.

Although in both cases the production of ceramic flooring and wall cladding is the principal activity, other important production activities have been developed. In Sassuolo, apart from the products, and the complementary inputs and services, the most important of these is the machinery and equipment sub-sector. According to ACIMAC, the Italian sub-sector in 2005 numbered 175 companies with a business volume of €1777 million, 74% of this being exported, whereas in Spain there is no important machinery sub-sector.

The Spanish sub-sector comprises some 70 members of ASEBEC with a business volume of €235 million and exports of 18%. A large percentage of these companies are subsidiaries of or joint ventures with Italian companies. In order to explain the Italian advantage, it should be clarified that scale economies occupy a more important place in the machinery production sector than in other processes. Especially when the firms contract whole plants it is difficult for new companies from other countries (as in the case of Spain) to compete. It should also be noted that the Italian region (Emilia Romagna and especially Bologna) boasts a brilliant mechanical tradition, clearly ideal for hosting this production in particular.

In Spain, the most relevant production sub-sector is that of frits and ceramic glazes. Some reasons for their success have been discussed. In the first place, one can name cost advantages (especially up to the nineties) in labour and fewer environmental controls. Secondly, the existence of a well integrated network of research institutions, from the Institute of Ceramic Technology, and Jaume I University, and above all an innovative effort by the companies and the process of internationalisation. In the Castellón district one can find 26 frit and glaze companies, with 3669 employees in 2004, and sales totalling €889 million, with an export rate of 60%. It is also worth mentioning a recent and relevant process of relocation of activities with the consolidation of large multinational groups stemming from the district. This activity seems to be less important in Italy, with 20 firms associated in CERAMICOLOR, and with the notable representation of some Spanish firms (Esmalglass, Torrecid, etc.). The last figures for 2004 show a total turnover for the Italian sub-sector of €518 million, with a 29% export rate.

Although Italy and Spain often compete in the same markets and segments, there is a certain specialisation between the two countries. Traditionally, Spain has centred on wall cladding and Italy on flooring. This fact has enabled the development of specific technologies. In Spain, the technology of porous single firing developed to overcome the more demanding problems involved with calibres and gloss. Alternatively, although Spain entered in a belligerent way in the production of earthenware tile or wall tile, Italy has specialised in the production of *porcelanatto*, a more resistant product in a higher market segment. According to ASCER (2000) while Spain produced 55,300 square metres, comprising 8.5% of the total, Italy produced 308,000 square metres, 55% of the total. This specialisation dichotomy could explain the larger Italian sales figure, despite their lower production.

4. INSTITUTIONAL NETWORK AND DISTRICT GOVERNANCE

In Castellón, the district receives important help from the local and regional authorities. Much relevant work is being done by employers' associations such as ASCER (ceramic floor and wall tiles), ANFFECC (frits and glazes) ASEBEC (machinery and equipment). Jaume I University, Institutes of Professional Training, Instituto de Promoción Cerámica; Instituto de Tecnología Cerámica, S. Carpi Laboratory, and others, all undertake research activities, and the education and training of human resources. Other key institutions are the CEVISAMA trade fair, and the international congress, QUALICER.

In the Italian district the support from the public authorities is visibly more limited and less specific. There do exist strong employers' organisations, and a higher qualified body of workers in design and company management, added to an educative system

more focussed on professional training with less university presence. One finds an environment in the companies of particular abilities in design and commercial aspects. The associations are ASSOPIASTRELLE (ceramic floor and wall tiles) CERACOLOR (frits and glazes) and ACIMAC (machines and equipment). Other major institutions are the Universities of Bologna and of Modena, CERFOM and the Ceramic Centre of Bologna (CCB) run by a consortium from the University itself.

The governance of the whole system can be understood as the combination of processes, customs, politics, laws, and institutions, which affect the manner in which one can run, administer or control a district. We must also include the relations between the many stakeholders involved. The district is an entity without a head, wherein the different stakeholders must maintain a balance and harmonise all those aspects that affect them together. Thus, power is decentralised, and companies and institutions of many different kinds play a part in the decisions. District governance is complex, when one bears in mind the different levels of administration (local, regional, national and European), public and private institutions (some representative, and others relating to particular fields). Companies of different importance, with differing growth dynamics, etc.

5. INTERNATIONALISATION

Both countries occupy leading positions in the international markets. Nevertheless one can notice that the international image of *tiles of Spain* lacks the recognition of the Italian brand. In Italy, the competence in design, commerce, marketing, and client service are superior to that of Spain. The collective identity of the Italian industrial district enjoys a strong country brand.

Recently both countries have been suffering the effects of the emergence of China on the international scene. China has moved from 2.1% to 19.8% in world market share in the period from 1999 until 2004. Nevertheless, Spain seems to be resisting relatively better than Italy (at least according to the recent evolution of their respective market shares). In 1999 Italy held 39.4% of the market compared with 25.6% for Spain, and yet, while Italy lost 14 points dropping to 25.7% Spain remained at 21.2% in 2003).

In the Spanish case exports went up in 2004 to 54% involving a value of €1860 million. The main destinations of Spanish exports were Europe and USA, these two destinations summing 87.3% of the whole. Italy, with a production of 3671 million metres and a business volume of 5334, exported 70% of the sales.

In regard to the Italian machinery and equipment manufacturers the figures available tell of an accumulated growth for the period 1988-2002 of more than 70%, both in volume of business and of exports, marked more clearly in the first part of the 1990s, coinciding with the growth of ceramic production in Spain, followed by a recession and then a recovery at the end of the 1990s, though with a slight decline at the end of that period.

With an approximate turnover of €1500 million, the production of machinery for ceramics has gone through an export dynamic comparable with other segments of the Italian machinery and equipment industry (Russo, 2004). According to ACIMAC statistics for 2005, with a business volume of 1777 million euros exports rose to 74% of the total. In contrast, Castellón reached a turnover of €235 million and an 18%

export share. It is furthermore worth mentioning that a significant percentage of these companies are subsidiaries or joint ventures of Italian firms.

In regard to the Spanish frit and glaze sub-sector, the evolution since 1990 has moved from a business volume of €198 million with €52 million in exports (26%) to the recent figures for 2004 of €889 million, with exports of €535 million (60%). This has also involved an important expansion process abroad, not only in terms of sales but also in the creation of subsidiary companies in the countries of product destination, including Italy. The Italian sub-sector exported 29% of the total turnover, which reached €515 million for 2004.

6. CONCLUSIONS

From this brief comparative review of the two districts it is clear, on one side, that there are a series of distinctive characteristics in respect to other industries. As opposed to what occurs in other areas, such as footwear, furniture, textiles, etc., one sees here a high concentration of the industries in one single territory, with a high inter-dependence between the two districts. On the other hand both districts are facing a series of challenges, which affect the two countries in equal measure. We can mention also the need for an environmentally sustainable development, and the existing competition from China and other emergent countries.

6.1. TERRITORIAL CONCENTRATION

The first consideration one should take is the high concentration of ceramic industry production in both countries, in the districts analysed. As opposed to the norm in other sectors where one finds multiple localisations of districts¹ belonging to a given industry, in the ceramic sector the Castellón and Sassuolo districts and their respective areas represent more than 90% of the national totals. This fact shows how the territorial effect is especially relevant in this industry.

6.2. INTERDEPENDENCE

One of the most notable aspects in the comparison between the two districts refers to their interaction and mutual influence. One could consider that the evolution of one district has conditioned that of the other. For instance, the lack of a strong machinery and equipment sub-sector in the Spanish case, on the one hand, has consequently strengthened that of Italy and, on the other, perhaps, has permitted the focalisation in the Castellón district of other activities such as frits and glazes.

On the Italian side it is evident that the great development achieved by the machinery sub-sector at the start of the 1990s coincided with the great growth of the Spanish ceramic production, and the subsequent increase in the demand for installations it brought. Even though this lack, in the case of Spain, has been considered a weakness, there is no evidence to suggest that the failure to have its own machinery sub-sector has resulted in a disadvantage for the Spanish industry. On the contrary

¹ Just as an example, the furniture sector has various districts of great importance in Italia (including, Livenza, El Quartier del Piave or Udine), while in the Spanish case there are Valencia, Benicarlo-La Sénia, and other areas of Catalonia and the Basque Country.

the technological innovations have presented themselves if not at exactly the same time, at least indistinctly in the one country or the other, an example being that of the roller kiln, or of the heavy hydraulic presses. On the other hand, the frit and glaze sub-sector is a genuine motor of the Spanish district, particularly in its innovative capacity, having as it does the Italian market as its primary export destination.

6.3. SPECIALISATION

Another interesting point is the existence of technologies specific to each district, an example of this being the porous single-firing technique. This technology has developed particularly in the Spanish district and without doubt can be traced to a product specialisation within the two districts. This technology arrived due to a necessity (the need to apply a single firing to the wall tile) that was more urgent in Castellón due to its production specialisation. And surely Castellón specialised in wall cladding, and large formats, just as in Italy one found white-body flooring and *porcellanato*.

As to inter-district commerce, the available figures show that Spain bought from Italy to the value of €52 million (60% of her total imports) and sold to Italy for the value of €68 million, 17% of her export total. On the other hand we have commented that Italy is the principal client of the Spanish frit and glaze sub-sector. Of these Spain sold to Italy for a value of €57.9 million, 11.3% of her total exports, while importing from this country to the value of €28.5 million, 38% of the total Spanish imports. Counting both activities, the total inter-district commerce for 2004 reached €206 million.

Lastly, we have also pointed out how the consolidation of the Italian machinery and equipment sub-sector is explicable only if related to the pull exercised by Spanish demand in the 1990s.

7. FINAL CONSIDERATIONS

In our view the new situation requires a mutual acknowledgement on the part of both districts, moving on from a strictly local vision to a broader European level in order to address the future challenges with guarantees. In this respect certain comments may be made.

Mutual acknowledgement. Finally, mention should be made of the poor consideration given from the Italian side to Spain as a potential competitor. At least, that is, by Italian researchers such as Russo, or those internationally known such as Porter, who have undervalued the Castellón district. The reason for this is that Castellón cannot be analysed simply as a low-cost, poorly regulated country (as Russo suggests, 2004)², nor can one ignore the dynamics of the evolution of the district beyond any temporal image,

² "The permissive Spanish environmental legislation has encouraged Italian manufacturers of colours and glazes to set up business in Spain, reducing production costs and inflicting damaging effects on the Spanish environment" Russo (2004: 15). It is difficult to accept this description of the companies in the Spanish glaze and frit sector. Most of them are indigenous to the capital, where the environmental regulations and production costs actually differ little from the Italian; more so in a sector with high added value where labour and production costs are not so relevant.

as did Porter (1990)³. Bellarni's report (2005) highlights the systematic undervaluing of the Castellón district by Italian companies, and suggests the convenience of working together.

Strategic vision of the agents of industrial policy. The new competition needs a global long-term perspective in which some private interests must be forgotten. The new model means that some existing companies have to disappear, giving over space to other new ones. Even though the territory might be capable of absorbing the redundant work and resources during the process, consensus, confidence and stability are required. Alternatively more points of common interest between the two countries are becoming evident. One could indeed suggest the moving away from a local conception to one of a single European district formed by Castellón y Sassuolo.

Institutional development at supranational level. A second suggestion would be to change the regional and national focus into a supranational one, creating and bettering, moreover, the common organisational structures, such as employers associations, university consortia, etc. According to the ideas set out here, shared projects, trade fairs and commercial missions are particularly important, given their influence in the promotion and dissemination of innovations. One example of supranational organisation in the sense that we are suggesting is the case of the *European Ceramic Tile Manufacturers' Federation*. This supranational organisation can improve lobby activity at the level of the European Union in issues related to common infrastructures, trade regulating legislation etc.

Attention to the aspects of social capital. Another suggestion would be the creation of a community (social capital) multi-district. The communities could facilitate the flow of information and knowledge (including the tacit ones), between different countries, assuring the dissemination of the innovations vertically and horizontally, and creating a community of persons who exchange know-how and experiences. This would definitely involve thinking on a European level. It should favour the flow of resources, especially the human ones, between districts of different countries. One example would be the community of Italian ceramic technicians in Castellón.

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³ "Spain used to have a certain number of diamond elements in the ceramic sector, particularly advantages in factor conditions and in demand, but owing to the lack of a basis of related activities and support, and lower rivalry than in Italy, *the threat to the Italian industry was not imminent* (Porter 1990: 223). Counter to this prediction, by the end of the decade, Spain surpassed Italy in square metre production.

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