

Industrial Clusters and Regional Development. The Case of Timisoara and Montebelluna*

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Abstract: Today’s economic climate is dominated by inter-firms networks, which have become powerful instruments for building economic capacity for regions to compete in the global market place. Industry clusters are recognised as playing a significant role both in regional economic development and in improvements to quality of life. The aim of this paper is to investigate this influence and to tackle the issues of de-localisation, decentralisation and cluster development as strategy for urban regeneration by comparing two clusters: Montebelluna and Timisoara. Clusters are a common reality in all economies and have traditionally been equated with cities. Across all European regions and cities there is a growing specialisation and concentration or clustering of industries in response to increasing competition and outsourcing as a result of economic reforms and globalisation. Industry clusters comprise groups of firms that share common suppliers, distributors and know-how and find advantage in a specific geographic location. Based on such insights, the paper suggests a theoretical proposal, supported by practical evidence.

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“Our aim must be to achieve a new dynamic equilibrium between society, cities and nature. Participation, education and innovation are driving forces of the sustainable society.”

Richard Rogers

1. Introduction

Following the fall of communism in 1989, the South-East European countries started up a massive modernisation process through privatisation, investment inflows and international trade. Many investments have been directed towards these transition economies, following the disappearance of political constraints, privatisation of state assets, foreign trade liberalisation and a newly convertible currency. The transition from centralised to market economy led to major economic and social transformations, including radical economic reforms.

Foreign investment inflows made a positive contribution to urban and regional growth and development in South-East Europe, through the transfer of capital, new technologies, know-how and by fostering entrepreneurship. The decision process of European firms to re-locate in this region is driven by incentives such as the availability of specialized work force, the lower labour costs, the presence of know how, less restrictive legislation and cultural affinity. The economic literature acknowledges that clusters contribute to economic growth, but up until a certain point.

The goal set up by the Lisbon European Council in 2000 to make Europe *“the most competitive and dynamic knowledge-based economy”* has made European policy makers to spark a highly interest towards building industrial clusters. Although in the past, the interaction between industry sectors was rather limited, the new production technologies and the globalisation process led to efficient and competitive production systems. Nowadays, more attention is given to innovative activities, transfer of technology and inter-firm cluster development. Linkages among enterprises replaced the *“atomised”* structure of the early 1990s and formed so-called regional clusters, which have become the focal point for many new policy initiatives in the last few years and has opened a range of new location possibilities for investment.

For the last three decades, industrial agglomerations have played a leading role in the development of cities and regions and have formed a new industrial organisational basis for economic planning and development. The industrial clusters are determined by the trade dependency and concentration of small enterprises at the city and township level. Outside the city boundary, the effect of clustering gradually diffuses into the larger economy, a phenomena that is called *“ripple effect”*. *“When a region becomes too saturated with clusters, the region experiences a diminishing return with the establishment of new clusters thereafter”* (Rosenfeld, 1997).

This paper addresses the intersection of theory and experience, drawing on research plus personal observation, particularly in two clusters that are described in detail, to: (1) define the concept of *“industrial cluster”* and present its typology; (2) examine the factors that led to the creation of

new clusters and present the prospects and challenges for cluster development; (3) describe the cluster of Montebelluna (Italy) versus the Timisoara cluster (Romania), taking into consideration their influence on urban and regional development.

2. Theoretical framework

2.1. Definition of clusters

Studies on industrial clustering date back to Alfred Marshall's contribution on localization economies (Principles of Economics, 1920). He identifies three conditions for setting an industrial cluster: the existence of a pool of adequate labour, the existence of specialized suppliers and the possibility of external spill-overs (the rapid transfer of know-how and ideas inside the cluster). Walter Isard (1960) expanded this concept using the export-oriented industries and its linkages to other industries in the region. According to him, these strong industrial linkages are indicating the existence of an industrial cluster.

Since then, many academics have been discussing on the importance of regional industrial agglomeration in relation with the major transformations that have been taking place globally in the economic development and structure of nations, cities and regions. Many generations of industrial economists, such as Piore, Sabel, Porter or Krugman closely studied this phenomenon. The interest for industrial clusters increased when the dominant model of the Fordist firm was questioned (Piore and Sabel, 1984) and regional clusters were seen as key driven factors of economic growth and competitiveness (Porter, 1990). Piore and Sabel (1984) argued that the late twentieth century had seen the arrival of a "*second industrial divide*" that lead the way to regional specialization organized around networks of small scale producers. While the Fordist economic reality was characterised by huge industrial conglomerates, clusters provide the example of a "*propagative economy*", based on low barriers and small amounts of capital.

Krugman (1981) argues that the origins of industry clusters are due to economies of scale rather than comparative advantage and that clusters are a result of accidental reasons and sustained external scale economies. Rosenfeld (1997) emphasises the importance of social infrastructure, information flow and firms cooperation. According to him, a cluster is "a geographically bounded concentration of similar, related or complementary businesses, with active channels for business transactions, communication and dialogue, that share specialized infrastructure, labour markets and services, and that are faced with common opportunities and threats."

Michael E. Porter (1998), one of the most recognized economists in the field of cluster policy, defines clusters as "geographically proximate group of companies and associated institutions in a particular field, linked by commonalties and complementarities". In an era of global competition, industries tend to cluster. It may seem a paradox but global competition can be fostered with local elements of competitive advantage. Porter submits that "in theory, location should no longer be a

source of competitive advantage. Open global markets, rapid transportation, and high-speed communications should allow any company to source any thing from any place at any time. But in practice, location remains central to competition.”

“Although location remains fundamental to competition, its role today differs vastly from a generation ago. In an era when competition was driven heavily by input costs, locations with some important endowment – a natural harbour, for example, or a supply of cheap labour – often enjoyed a comparative advantage that was both competitively decisive and persistent over time.” (Porter, 1998)

Jacobs and De Long (1996) expand Porter’s classification and presents a more in-depth definition of industry cluster, taking into consideration the geographic and spatial clustering of economic activity, horizontal and vertical relationships between industry sectors, presence of a central actor, firms' cooperation and the role of social interaction.

United Nations Industrial Development Organisation (UNIDO) defines clusters as “a sectoral and geographical concentration of enterprises that produce and sell a range of related or complementary products and thus face common challenges and opportunities”. These opportunities include, for example, access to specialized human resources and suppliers, pressure for higher performance in head-to-head competition and learnings from the close interaction with specialised customers and suppliers.

According to Ketels (2004), a particular cluster shares four critical characteristics:

- *proximity* – as they need to share the same common resources and to allow positive spill-overs;
- *linkages* – their activities need to share a common goal;
- *active interactions* between the firms inside the cluster;
- *critical mass* – only a significant number of participants has a major impact on the companies’ performance.

2.2. Types of clusters

Porter popularized the concept of industrial clusters in his book *The Competitive Advantages of Nations* (1990), in which he examines two types of clusters:

- *vertical clusters*, made up of industries that are linked through buyer-seller relationships;
- *horizontal clusters*, that include industries which might share a common market for the products, use a common technology, labour force skills and similar resources.

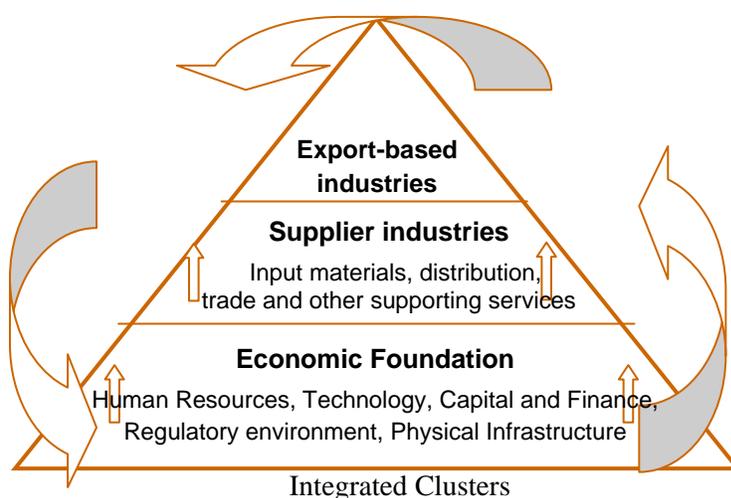
Nowadays, the industry clusters that drive regional economies are very different from the old ones that were mainly entrenched in manufacturing¹. The new economy is all about innovation, flexibility, networks and building critical mass. Production functions are becoming more

¹ See Ketels (2003)

decentralised and many operations are using sub-contractors. In an era of entrepreneurship, the small and medium-sized firms that now comprise many of the industrial clusters are interacting in confined geographical locations and are using *niche* production (Becattini & Rullani, 1996).

The concept of clustering has a significant importance in the new international economy. Globalisation, economic restructuring and new production technologies have led to massive outsourcing of production and services and to a growing network of suppliers and distributors. This made possible the creation of new industry clusters. “Clusters are a striking feature of every national, regional, state and even metropolitan economy, especially in more economically advanced nations”(Porter, 1998).

Figure 1. Cluster Pyramid



Source: Akundi, 2003

When addressing the issue of the origins of industrial clusters, many academics point out that regional clusters had their origins in particular local factor conditions, local demand, and the presence of a related industry (Enright, 1993).

Figure 2. Enright's typology of clusters by stage development

Type of cluster	Features
Potential cluster	Some good opportunities and some key elements are already in place
Latent cluster	Cluster with a high number of firms but with a low level of interaction due to the lack of trust, low cooperation and high transaction costs
Working cluster	A well developed industrial district

Source: Enright, 2001

Adapting and modifying Enright's terminology, a working cluster, as exemplified by Silicon Valley (USA) or the ceramic tile industry in Sassuolo (Italy) is an "agglomeration of connected companies that are aware of their interdependence, value it, act on it, and collectively operate as a system to produce more than the sum of their individual parts" (Rosenfeld, 1996).

Based on different kinds of knowledge, there are two types of competitive clusters:

- *techno clusters*, which are high-technology oriented, well adapted to the knowledge economy;
- *historic know-how-based clusters*, which are based on more traditional activities that maintain their advantage in know-how over the years.

Other interpretations offered by the literature (Rosenfeld, 1997), as following:

- ✓ Gulati (1997) distinguishes between "*modern urban clusters*", which serve large metropolitan and export markets and "*artisanal rural clusters*", which satisfy mainly local demands;
- ✓ Sandee (2002) describes a spectrum of "*dormant clusters*" at one end, manufacturing simple items for poor rural consumers and "*dynamic clusters*" at the other end, where firms are closely networked and can enter wider, even global, markets;
- ✓ Schmitz and Nadvi (1999) distinguish between "*incipient clusters*", in the early stage of industrial development, usually located in poor areas, producing for local markets with simple technologies and labour skills, and "*mature clusters*", which are more advanced in terms of technology and skills, often producing for global markets and thus vulnerable to global competitive pressures;
- ✓ Altenburg and Meyer-Stamer (1999) distinguish between "*survival clusters*", "*advanced mass production clusters*", where firms produce for local markets but increasingly face global competitive pressures and "*clusters of transnational corporations*", made up of technically advanced foreign firms that locate in particular areas to draw on regional agglomeration economies but with limited links to local firms and institutions.

Industry clusters include groupings of firms that differ significantly with respect to the characteristics of member firms, intra-cluster dependencies and prospects for employment. As a result, Markusen notes that there are four types of clusters:

- ✓ Marshallian;
- ✓ hub and spoke;
- ✓ satellite platforms;
- ✓ state-anchored.

Figure 3. Markusen's typology of industry clusters

Cluster type growth	Characteristics of member firms	Intra-cluster interdependencies	Prospects for employment
Marshallian	Small and medium-sized locally firms	Substantial inter-firm trade and collaboration, strong institutional support	Dependent on synergies and economies provided by cluster
Hub and Spoke	One or several large firms with numerous smaller suppliers and service firms	Cooperation between large firms and smaller suppliers on terms of the large firms (hub firms)	Dependent on growth prospects of large
Satellite Platforms	Medium and large-sized branch plants	Minimum inter-firm trade and networking	Dependent on ability to recruit and retain branch plants
State-anchored	Large public or non-profit entity and related supplying and service firms	Restricted to purchase-sale relationship between public entity and suppliers	Dependent on region's ability to expand political support for public facility

Source: Markusen, 1994

A fifth type of industrial cluster is the *Marshallian – Italian type*, which is characterised by added co-operation, design-intensive work and collective institutions plus local government support. In fact, this typology has relatively little purchase on the matter in hand, which is differentiation of clusters, except to remind us of the variety of ways that large firms may utilise geographical proximity for reasons of history, policy or comparative advantage.

According to Gordon & McCann (2000), the reasons behind the clustering process are the following:

- the proximity induces *Marshallian* external economies from enhanced local skills supplies, cheap local infrastructure, specialised producer support services and localised knowledge spillovers. The *Marshallian* clusters tend to be small, even occupying quarters of cities like Birmingham and Arezzo's jewellery quarters or Florence's art restoration quarter (Lazzeretti, 2003). These clusters are also highly specialised.
- firms may be part of a regionalised or localised outsourcing system designed to generate *Toyotian* logistical and transactional costs reductions that enhance productivity and quality through preferred supplier interactions. A *Toyotian* cluster, including satellites, is urban in scale and while specialised in automotive assembly production covers a wide range of supply sectors.

- firms in proximity may seek to reap *associational* economic benefits from systemic local and regional innovation and learning networks involving research institutes, industry associations, and governance measures. An associational system is likely to be regional in scale, and contain more than a single cluster. For example, Baden-Württemberg contains at least two differently-scaled and distinctive automotive clusters in Stuttgart (Porsche and Mercedes), a printing machinery cluster (in Heidelberg), a surgical instruments cluster (Pforzheim) and a machine tools cluster in the Black Forest.

Figure 4. Clusters or networks?

Clusters	Networks
Networks allow firms access to specialized	Clusters attract needed specialized services services at lower cost to a region
Networks have restricted membership	Clusters have open “membership”
Networks are based on contractual agreements	Clusters are based on social values that foster trust and encourage reciprocity
Networks make it easier for firms to engage in complex business	Clusters generate demand for more firms with similar and related capabilities
Networks are based on cooperation	Clusters take both cooperation and competition
Networks have common business goals	Clusters have collective visions

Source: Rosenfeld, 1997

The “*Californian School*” generalised about the growth of new industrial spaces emphasising vertical disintegration of production chains in a new era of “*flexible accumulation*” (Isaksen, 2001). This approach came to consider the agglomeration itself as a source of industrial dynamics, and in particular saw the region as the locus of “*untraded interdependencies*” (Storper, 1997).

Lundvall and Johnson (1994) represent the “*Nordic School*” of learning economy, which highlights innovation as the basis for achieving competitiveness by firms, regions and nations. Innovation is conceptualised as a complex, interactive, non-linear learning process (Isaksen, 2001). According to Schumpeter (1934), innovation occurs when a new product is developed, a new method of production is used, a new market is created, a new source of input is used and new combinations are created.

3. Prospects and challenges for cluster development

3.1. How do clusters emerge?

“The geographic scope of a cluster can range from a single city or state to a country or even a network of neighbouring countries” (Porter, 1998)

When addressing the issue of the origins of industrial clusters, many researchers recognize the importance of external economies, of the local division of labor, and of the influence of social structures on the nature of competition in the area (Piore & Sabel, 1984; Brusco, 1982). Other authors downplay the importance of materials, climate, university research and typical locational factors in the creation of geographically concentrated industries (Scott, 2000).

But, they all agree that there is no general law on how clusters are born. In fact, the conditions underpinning the emergence of new clusters are highly varied, as following:

- *A lead or anchor firm.* The cluster emerges out of the formation of one or two critical firms that subsequently feed the emergence and growth of numerous smaller ones (Wolfe & Gertler, 2004). The best example is provided by Silicon Valley where cluster emergence is linked to the founding and growth of Hewlett Packard (Porter, 1998).
- *Public sector investments and activities.* The existence of public research laboratories has been held responsible for the origin of knowledge-intensive clusters. An example is Massachusetts Institute of Technology and Harvard University, which are responsible for the biotechnology sector development in the Boston area (Porter, 1998; Owen-Smith & Powell, 2004).
- *Shocks and precipitating events* are held responsible for the emergence of clusters. For instance, mass redundancies at a Fiat tractor factory in Modena in the 1950s, have given rise to a local economy of small producers in the mechanical sector.
- *Local demand and market patterns.* This factor plays a major role in the emergence of clusters that later obtain an international level of competitiveness. An example is the cases of the Dutch transport and logistics industry.

“The building of industry clusters is a progressive and learning process. Winning the confidence of business to share information, collaborate and operate as a cohesive industry cluster may take many years to develop. Overcoming these difficulties requires a strong commitment by government and industry champions to provide the leadership, the vision and the wear-with-all to make industry clusters happen” (Roberts, 1998).

The most obvious manifestation of clustering is Europe’s industrial districts and America’s industry agglomerations, both of which have fascinated and attracted many researchers and policy planners (Goodman & Barnford, 1990; Pyke & Sengenberger, 1992). Well known examples of clusters are the computer technology cluster in Silicon Valley, the financial clusters in New York and London, the movie production cluster in Hollywood, the automotive clusters in Southern Germany and Detroit, the aerospace cluster in Toulouse, the fashion clusters in Northern Italy, the

software outsourcing in Bangalore, the diamond cluster in Antwerp and others (Porter, 1990). And then there are the major clusters in Asia and China in particular, focused on high-volume contract manufacturing of low value footwear products.

“The cluster known as the Packaging Valley is one of the most successful clusters in Italy. It is located around the northern province of Bologna and has the highest concentration of production of packaging machinery in the country. In this cluster we observe the joint presence of the biggest manufacturers of the industry, at the Italian level, and a large number of assemblers and specialized suppliers of parts and components, mainly small and medium-sized firms” (Boari, 2001).

Moreover, small and medium-sized firms interact profitably in confined geographical locations. It is the case of Como in Italy, where the world’s leading silk design capabilities are found, or Carpi, from where similarly high-quality knitwear originates.

3.2. Evolution of clusters

“Clusters develop over time; they are not a phenomenon that just appears or disappears overnight” (Ketels, 2003).

Studies regarding the evolution of clusters are still in its infancy. The statistical analysis of the more than 800 clusters mentioned in the existing literature gives a cross-section of clusters at different stages of development, but so far does not allow to look more deeply at the factors shaping the evolutionary process over time (Ketels, 2003).

Many authors claim that with the lower cost and the new tools of communication new types of clusters can emerge. They can supersede the need for physical proximity. Others claim that because of better communication technology as well as lower transportation costs, the world economies will face a “*de-clustering process*”².

“The Maniago district, specializing in the production of knives, is now undergoing a serious crisis, mainly because of the globalization of the industry. While many Italian districts are confronting globalization by focusing on differentiation, firms in Maniago suffer uniformly and seem unable to identify new market niches and differentiate their production” (Boari, 2001).

International experience shows that while this phenomenon occurs world-wide, many clusters have developed without the presence of any policies or efforts to upgrade them. Also, each cluster has its own development path. “The inherent economics of proximity have been enough to over time attract increasing numbers of companies and other institutions, leading to a self-reinforcing cycle that was often started by a chance event”(Ketels, 2003).

² See Porter (2003)

The forces that foster the subsequent growth of regional clusters are not necessarily those that gave the locations their initial advantage (Enright, 1996). But other clusters have developed much faster because of the determined action of regional leaders that had spotted the potential of their region for the cluster. “Government can help or hurt the process, but it seems less able to create vibrant clusters on its own” (Enright, 1996).

The spectacles cluster of Belluno originates from 1878 where a local man, Angelo Frescura, in collaboration with Giovanni Lozza and Leone Frescura, opened a craft workshop for the production of spectacles near Calalzo, in Cadore.

Cadore remains the historical heartland of the Belluno spectacles district and after more than one than 125 years, it is still the area with the highest concentration of companies. Nowadays, the cluster produces two-thirds of the world’s spectacles, its turnover accounting for 85 % of Italian production with more than 70 % exported.

3.3. Clusters and economic performance

“The presence of positive externalities explains the clustering process, whereas specific location sites for each cluster depend on either historical accident or the cost advantages provided by immobile factors that attracted the firms anchoring the cluster” (Doeringer & Terkla, 1995).

As evidenced in the literature cited above, their varying definitions of industrial clusters help explain the differing arguments regarding the methodology to identify clusters. As nations develop, they progress in terms of their characteristic competitive advantage and modes of competing. Following the Porterian model, we identify three stages of economic competitiveness: factor-driven economy, investment-driven economy and innovation-driven economy³.

Governments can use clusters both to become more successful in attracting foreign direct investments (FDI) and to increase the economic value FDI generates for their economies. Countries should concentrate their marketing efforts on companies that fill the gap or increase depth in clusters where they have an establishment or at least emerging position. First, for such companies the country will be inherently attractive because it provides established markets, suppliers and skilled employees. This increases the likelihood of attracting them.

Second, the negotiations with such companies will tend to quickly move from financial incentives alone and concentrate on the quality of the cluster-specific business environment and how it can

³ Michael E. Porter developed the "diamond of advantage" in order to determine which firms and industries has competitive advantages at national and regional level. The four corners of the diamond include: factor conditions (e.g. physical infrastructure, skills), demand conditions (e.g. product and consumer regulation), related and supported industries and firm structure (e.g. depth on the cluster), industrial strategy and rivalry (e.g. competition laws). According to him, clusters have the potential to affect competition by increasing the productivity of the companies in the cluster, by driving innovation in the field or by stimulating new businesses in the field.

be improved. In these areas much more can be done especially when the ability to compete on financial packages is increasingly restricted.

Third, attracting such companies not only creates direct benefits through job creation, but also improves the quality of the location for the companies already present in the cluster, partly by adding relevant activity in the cluster and partly by upgrading the business environment to attract new company. This will increase the sustained impact of FDI attraction and it avoids the focus-loose plants exploiting only short-term arbitrage opportunities (Hunya, 2002).

Because of the proximity, both in terms of geography and of activities, companies inside the cluster benefits from numerous positive location-specific externalities, such as:

- *cost savings*, due to the easy access to specialised suppliers, distributors and human resources;
- *leanings* form the close interaction with specialised customers and suppliers;
- *knowledge spill-overs*, which is critical in an effective industry cluster (Rosenfeld, 1996);
- *pressure for higher performance* in head to head competition;
- *fast change reaction*, due to the extreme specialisation inside the cluster and high productivity;
- *imitation* facilitates faster adoption of innovation.

3.4. Regional and urban development

“Clustering is a term describing a phenomenon in which events or artefacts are not randomly distributed over space, but tend to be organized into proximate groups. Industrial clustering is a process that has been observed from the beginning of industrialization. From the cotton mills of Lancashire and automobile manufacturing in Detroit, to the textile mills of Ahmadabad and Bombay and the tanneries of Calcutta and Arcot, even the casual observer can visually discern the evidence on industrial clustering by industry type” (Cbakravorty, Koo & Lall, 2003).

Many industries are tied to their location by the need to be close to their local markets. These industries are clustering in a more narrow geographic sense like a part of a city - mainly due to complementarities in attracting customers - but these effects are not strong enough to influence the locational patterns across regions (Ketels, 2003). Productivity is likely to be higher in areas where an industry is more spatially concentrated due to the buyer-supplier networks, access to specialized labor pool and to efficient subcontracting relations⁴.

The natural resource-dependent industries are concentrated across space according to the presence of natural resource. Also, there are many industries that concentrate across geographies and tend to cluster in attractive specific location (Porter, 2003).

⁴ See Cbakravorty, Koo & Lall (2003)

The theoretical literature suggests that clusters are a factor at every stage of economic development but that in weaker environments clusters will tend to be weaker and more narrow as well (Rosenfeld, 1997).

According to other authors, while internal and external economies of scale are responsible for agglomerations, external economies are more important to economic development, through:

✓ *Localization economies*, which explain that lower production costs and higher output in a given industry at a specific location lead to job growth in that industry (Mills & MacDonald, 1992). The gains from localization economies are expected to lead to the creation of local industrial clusters.

✓ *Urbanization economies*, which states that an increase in a given urban area's economic size (e.g. its population, incomes) leads to an increase in the number of establishments across all industries in that urban area. These urbanization economies include access to specialized financial and professional services, availability of a large labor pool with multiple specializations, inter-industry information transfers and the availability of less costly general infrastructure (Cbakravorty, Koo & Lall, 2003). The gains from the urbanization economies are expected to lead to the industry concentrations in metropolitan and other leading urban regions.

Best practice suggests that cities and regions are seeking to build industrial clusters, as they provide fertile ground for innovations, competitiveness economies of scale, rapid rates of technology transfer and efficiencies through resource leveraging. Enhancing metropolitan economic performance involves the development of industry clusters and so a four-stage process begins (Roberts, 1998).



Source: Roberts, 1998

Other authors consider that small and medium-sized firms usually locate in dense urban areas such as the urban core of metropolitan areas because the core acts as an “*industrial incubator*”. Its diversity depends on the city's ability to produce a variety of goods and services, and variety stems from the number and types of business establishments in the city.

“Nowadays, the focus is on the regions as the centres of economic growth” (Omhae, 1996). Key metropolitan industries are located throughout a region and their linkages span the entire area, as the regions are less and less defined by political boundaries. Most firms do not confine their economic activity to a specific jurisdictional boundary and “when the form of their organisational dependence is the industry cluster, important economic inter-relationships are even more likely to spread across jurisdictional boundaries” (Bernat, 1999).

Industry clusters have traditionally been equated with cities, as cities are by nature relatively large clusters of economic activity. Cities that have allowed and enabled economic clusters to grow have been better able to respond to the global market. Yet clusters can also benefit rural economies.

The rural areas are characterised as lower density regions of business activity, which often suffer human capital gaps. For these areas, the promotion of industry clusters as a feasible development option brings benefits in two major forms. First, clustered firms tend to have higher productivity and are able to pay higher wages to residents. Second, the employment and income spillovers from these businesses may be greater than other forms of economic development.

“Regions are replacing nations as the principle competitive instrument for trade and economic development. Across all regions and cities of the world there is growing specialisation and concentration or clustering of industries in response to increasing competition, outsourcing and corporate downsizing as a result of national economic reforms and globalisation” (Roberts, 1998).

Also, as new firms emerge and develop in a rural community, they demand raw materials, equipment, real estate and personnel, needs that are translated into expenditures in the local community. The more a local community is able to respond to these new business demands, the more job and income growth that is likely to occur locally. The financial and technological benefits to firms also translate into community or social benefits. “These benefits include new job opportunities and employment creation, wealth and income creation and greater level of economic growth overall when compared to regions without clusters” (Bernat, 1999).

4. The Northeast Italian case – the cluster of Montebelluna

4.1. Northeast Italy as a case

“Northern Italy is home to a very successful, high wage cluster, serving the world market and focusing on design, brand building and high value production” (Ketels, 2003).

The crisis in Fordism together with a progressive change in the demand structure, directed towards high quality consumer goods and exchange rate policies has contributed to the transformation to the Italian industrial system⁵. The productive system that emerged was characterized by a large number of small and medium-sized enterprises (SMEs) and fundamental became the role of the industrial clusters.

In 1965, the “*Sabatini law*” had a major positive impact of the industrial system development in Italy. Till 1993, this law allowed to small and medium-sized companies to buy machine tools that were paid in installments at a discounted rate. The implementation of the law, in connection with

⁵ See Becattini (1998)

the growth of the machine tool industry in Italy, greatly supported the diffusion of new technology and of industrial culture among small and medium firms (Boari, 2001).

Officials from around the world have been fascinated by the success of northern Italy's small firm economy and became convinced in the mid-1980s that the secret of the region's success was the rate of inter-firm cooperation, or networks. But for all intents and purposes, networks are a result of mature and animated clusters, not the source of a local production system.

Italy's Northeast regions house a large number of industrial clusters of SMEs. The organizational structure of these clusters is mainly based on subcontracting relationships within vertically disintegrated production chains and is responsible for several of Italy's best known exports including furniture, textile, leather products, lenses, glass products and industrial machinery. The basis of Veneto's impressive economic results lies in its massive production capabilities, which boasted more than 330,000 companies active in 2000 (excluding agriculture). The region is hosting 20% of the Italian textile districts, 10% of the leather-shoe manufacturing districts, 15% of engineering districts and the biggest district in the world for manufacturing eyewear.

4.2. The cluster of Montebelluna

Montebelluna is an industrial cluster localised at the heart of the Veneto region, north of Treviso, in the foothills of the Dolomites. The district's area is relatively small (about 553 km²) and corresponds to a circle with a ray of about 13 kilometres.

Considered one of the most innovative districts in Italy, the cluster of Montebelluna is specialised in shoe manufacturing. Approx. 425 firms (304 producers of footwear and 121 producers of clothing) form the cluster. Although it employs no more than 9,000 employees, the firms inside the cluster have a turnover of EUR 1.3 billion.

Surrounded by 11 municipalities, the city of Montebelluna has a historical handicraft tradition for mountain boots. Even since 1970s, Montebelluna has been world-wide recognised as "*the capital of snow industry*" (Newsweek, February 1979), because of its dominance in the technologies for the production of ski boots (Belussi & Pilotti, 2000). In figures, the cluster accounts for following percentages of the world production: more than 50% of technical mountain shoes, 65% of after ski boots, 75% of ski boots, 80% of motorbike footwear and almost 25% of "*in-line skates*". Also, the biggest shoe manufacturers for football, cycling, basket, tennis and athletics and cross-country race are based here. Complementary industries are also present including plastic, moulding and mechanical machinery (Sammorra & Belussi, 2006).

Montebelluna first appeared as a *Marshallian cluster*, where production is fractionated into a myriad of small and medium size firms, and where activities are organised on the basis of labour division. The member firms showed a high degree of heterogeneity not only in terms of product and technical specialisation but also with respect to size and ownership-control structure (Sammorra & Belussi, 2006). Then, in mid 1980s, due to the globalisation process, the cluster

began to open itself to the international market. Nowadays, Montebelluna is a *technological cluster*, an area with an extraordinary concentration of international firms with dynamic capabilities around innovation and production⁶.

“Many large local companies had opened commercial offices abroad and an intense exchange of external relationships, commercial and productive contacts, characterised the daily work of local firms” (Becattini & Rullani, 1996).

Since the late 1970s, many leading international firms (Decathlon, Eindl, Mephisto, Raiche, Timberland, Fila, Ambro, Asics, Mitre, Umbro, Rossignol) have located research and development departments or started partnerships/collaboration programmes with local firms in the area⁷. The cluster also counts several world-wide known brands in technical sport shoes niche markets, such as: Nordica, Tecnica, Salomon, Geox and Stonefly. The most important markets for them include EU countries, US and Japan.

The entry of multinationals inside the cluster has contributed to elevate the level of competitiveness among local firms, accelerating an exit process among the less competitive. Also, many firms have merged and small Italian multinationals have been created. In the 1990s, Rossignol, Nike and Lange settled in the Montebelluna cluster through the acquisition of local companies.

According to Belussi & Pilotti (2000), the success of this cluster lies in the existence of an “industrial district with absorption of external knowledge and development of new global knowledge”

After the fall of the Berlin wall in 1989, “the East European countries provided a unique opportunity for the Montebelluna cluster to increase local firms’ competitiveness establishing international supply chains, through the relocation and international subcontracting of simple and labour intensive phases like shoe assembling”⁸.

Due to the relocation process, the Montebelluna cluster “has lost the more standardised tail of the manufacturing process but has kept well alive and eradicated in Montebelluna the most valuable and creative phases of the sportswear filière: product design, prototyping, research and development, specialised components production, design and fashion analysis, manufacturing low volume and high quality production, marketing and distribution” (Samarra & Belussi, 2006).

The cluster of Montebelluna is the perfect example of a *localised cluster* that is simultaneously integrated into a wider international value chain of activities, from which many lessons could be learned. Firstly, the need to access information and to take advantage of a global division of

⁶ See Mariotti, Mutinelli & Piscitello (2004)

⁷ See Belussi & Asheim (2003)

⁸ See Samarra & Belussi (2006)

production does not imply the end of the cluster formation process. Secondly, the case of Montebelluna shows that the presence of multinational corporations is not necessarily detrimental to the cluster formation. Thirdly, in the case of Montebelluna we are witness to the so-called “*diffused globalisation*” (Gradinetti & Rullani, 1992). The cluster expands via the absorption or co-optation of externally located firms, which remain based elsewhere and interact on specific aspects (design, technical capabilities, research and development) with local firms.

4.3. Re-locating to Romania

“Particularly in the Italian experience, the industrial district has often proved to be rather a stage in one of the possible different paths of industrialization” (Becattini, 1998).

Italian firms are experiencing a growing internationalisation process, through the relocation of production activities abroad. The investments have been mainly directed towards Eastern European countries in which “the number of workers in foreign affiliates by the Italian firms increased from 17.9% in 1996 to 24.3% in 2004” (Mariotti, Mutinelli & Piscitello, 2004).

Veneto’s manufacturing firms have progressively transferred the lower stages of their production processes in Romania. “Firms substituted in-house production or supply relationships with local firms with supplies from Romanian firms developing a *buyer-driven value chain*”⁹. The construction of international supply chains, mainly organised through Romanian firms, has exerted a big impact on local subcontracting and on the firm population of the cluster.

Evaluating the direct impact of the Italian de-location processes is a difficult task. Beginning with the second half of the 1990s, vast areas in the western side of Romania underwent an Italisation process. In 2005, more than 17,000 Italian Romanian firms were registered, positioning Italy at the first place among investing countries for number of firms and fifth as foreign direct investment stock. It is estimated that around 1,000 new Italian-Romanian firms are established each year. According to the Italian Institute for Foreign Trade, from these, only 4,000 are effective operating and are employing directly or indirectly around 500,000 people in Romania.

The tendency of Montebelluna firms to outsource their production activities to Timisoara in order to exploit the cost differential suggests that successful clusters can survive by expanding and shifting specific value chain activities to other countries. The globalisation of production means the end of the self-contained cluster model rather than the end of clustering *per se*. Clusters evolve from geographic self-sufficient agglomerations to a *multi-centric network* with different degrees of closeness to the central place and business core (Becattini, 1998).

In 2001 the firms in Montebelluna exported approx. EUR 430 million towards Romania (ISTAT, 2002). Between 1979 and 2000 the number of shoe producers declined from 511 to 304. Member firms are now only less than 170, but the number of local subcontracting firms is still significant.

⁹ See Mariotti, Mutinelli & Piscitello (2004)

Nowadays, no more than 52.6% of the shoe-manufacturing firms have de-localised their production activities (21.0% of the total number of firms). Although many of the local subcontracting firms lost their “outsourced orders”, they have suddenly adapted and have opened new production facilities in Romania or work in the cluster as supercontrollers of the quality of Romanian subcontractors¹⁰.

“The cluster is still rich in manufacturing activities, specialised suppliers, designers and other activities connected with the filière of the sport-system, and has not become a hollow district, which only governs externally delocalised production activities” (Becattini, 1998).

Figure 5. Percentage of de-localising firms by class of employees

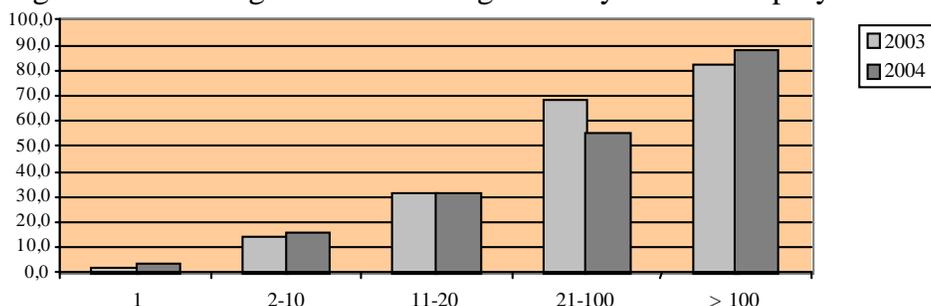


Figure 6. Percentage of de-localised production

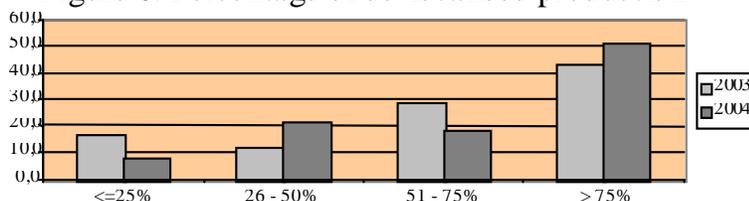
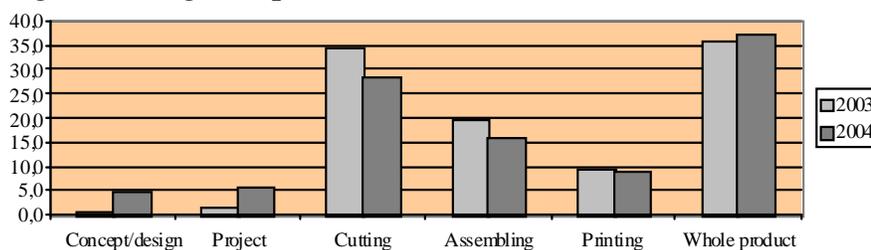
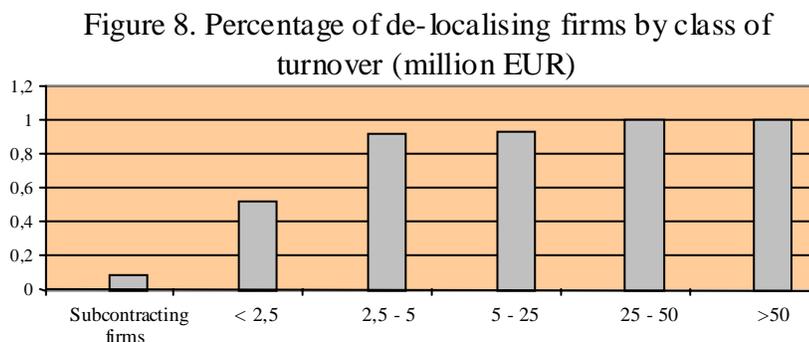


Figure 7. Stages of production that have been de-localised (%)



¹⁰ See Majocchi (2000)



5. The Romanian case – the cluster of Timisoara

5.1. Romania as a case

The South-East Europe is amongst the most attractive regions as regards foreign investment, by virtue of its geographic location, its infrastructure, its labour market specificities and the economic strength of the area. Research has shown that clustering has different effects on an economy depending on the structure of that economy. Also, in the case of developing economies it is an important part of a wider restructuring of the economy.

The analysis of the German, Austrian, Dutch and Italian presence in the region plays a decisive role in the economic development of the region. Besides foreign direct investment, these countries run numerous development programmes, whether bilateral and multilateral, for instance in the framework of the EU pre-accession programmes. The foreign direct investment tends to concentrate in large firms operating in high value added activities, namely: electronics, automotive and software industries. By outsourcing some of their activities, European firms have contributed to the development of a dense network of local SMEs, which benefit from the transfer of technology and know-how.

After the fall of communism, Romania has suffered social, economic and political changes and created unique opportunities for the foreign firms to develop international supply chains, mainly based on *intensive-labour* manufacturing processes. The changes, which are spreading on various spatial scales, affected the whole country, thus leading to the reorientation of movements and the emergence of new territorial dynamics.

According to official data, over 17,000 Italian companies were registered by the beginning of 2005, most of which were small and medium-sized enterprises. The investment mainly focused on so-called “*labour intensive*” projects, developing the forward-processing system with raw materials brought from Italy. The traditional sectors, which received much of these investments, are textiles, furniture, footwear, construction, services and agriculture.

“Recently there has been more Italian presence in energy, banking and financial services, industrial joint-ventures - especially for machine assembly - and luxury goods commerce” (Rompress, 2005). The Italian presence in Romania is generally spread across the entire country, but during the past years, there has been a tendency of concentrating in certain regions. Western part of Romania and especially the city of Timisoara host the largest amount of Italian investors.

5.2. Timisoara – “the eight province of Veneto”

Timisoara is situated in Western part of Romania and has around 300,000 inhabitants. The city has an excellent accessibility, being connected with the rest of the country through a large network of streets, railways and an international airport. Timisoara also hosts a large number of Italian entrepreneurs, mainly de-locating their production activities from the Veneto region. In fact, during the 1990s, a massive de-location process began, mainly in the western side of Romania, who received a large number of so-called “*vertical investments*”, i.e. cross-border relocation of the value chain, driven mainly by factor costs motives (Majocchi, 2000).

The Italian presence here is mainly made up by small and medium-sized enterprises, which brought new capital and technologies in this area, making it one of the most dynamic economic regions in the country. Italy is the largest investor and has the largest number of enterprises in the region. This is the reason why Timisoara is currently called “*the eight province of Veneto*”. The largest network of Italian banks in Romania serves the investors: SanPaolo IMI, Banca Italo-Romena, Unicredito, Banca Intesa, Monte dei Paschi di Siena, Banca Popolare di Vicenza and Banca di Roma.

The choice for Romania is mainly rooted in lower wages compared to other neighbouring countries and in a cultural affinity, especially a linguistic one, that facilitates the establishment of new investments and creates a home environment.

“The geographic proximity, costs reduction and high skills are variables that have a remarkably importance in the enterprises localisation choices” (Krugman, 1991). According to official data, in Timisoara the cost of hourly labour (2001) in industry and services is around 1.5 EUR/hour, compared to Italy - 19.8 EUR/hour, Spain - 16.3 EUR/hour and the EU average - 15 EUR/hour.

There are also other factors that increased the interest for investing in Romania, such as: the existence of know-how, the market enlargement and the existence of large state run companies, especially in the shoe-manufacturing sector (see figure 9). According to other studies, the main motivations that induce Italian companies to invest in Romania must be mainly found in market enlargement and less due to the low wages.

In Timisoara there are 5,323 international firms and 1,638 firms are owned by Italian entrepreneurs, mainly engaged in footwear production (2005). It worth mentioning that Timisoara has a long tradition in shoe-manufacturing production. It is estimated that before 1989, more than 10,000 people were employed in the local footwear industry.

An analysis of the statistical data reveals that in the Timisoara's shoe agglomeration there are more Italian enterprises than native firms, where these are born from the privatization of former public enterprises¹¹.

The internationalization process, via de-localisation or via international decentralisation of production, has not yet reproduced the footwear's *filiere*, but only a part of it, in particular the most labour intensive phases. Many companies that are leader at the international level are present here: Geox, Alto Gradimento, Cesare Paciotti, Alpine Stars and smaller companies that work for Prada, Gucci, Ferragamo, Salomon, Bagatt, etc.

The cluster of Timisoara faces the same challenges as compared to the Montebelluna cluster. They differ in terms of birth model, in the sense that both have been generated by different triggering events.

In Italy, clusters followed (although not exclusively) a *spread model*: from a big population of artisans emerged slightly bigger and more innovative firms progressively networking each other. In Romania, clusters exhibit a more concentrated pattern of delivery: the small nucleated from few large conglomerates, which acted as "*trigger firms*".

Figure 9. Incentives and obstacles affecting the decision process about de-location

	Incentives	Obstacles
<i>In general</i>	<ul style="list-style-type: none"> ✓ Availability of specialised and skilled labour force ✓ Lower labour costs ✓ Low transportation costs ✓ Availability of infrastructure 	<ul style="list-style-type: none"> ✓ Transaction costs ✓ Lack of information ✓ Low level of quality ✓ Technical assistance ✓ Territorial loyalty (the desire of social actors to express and fulfil their development projects in their own community)
Microeconomic level		
<i>Romanian case</i>	<ul style="list-style-type: none"> ✓ Presence of know-how (legacy of the planned-economy system) ✓ Presence of input and equipment suppliers 	<ul style="list-style-type: none"> ✓ Lack of trust in the partner ✓ Moral hazard associated with quality control

¹¹ See Montagnana (2005)

In general

- ✓ Political and social instability
- ✓ Institutional uncertainty

**Macroeconomic
and Institutional
level**

Romanian case

- ✓ Less restrictive legislation regarding trade union and mandatory costs
- ✓ Less strict custom control
- ✓ Cultural affinity (especially linguistic affinity)

Source: Cutrini, 2003

5.3. The “imitation effect”

The literature has many examples of firms inside the cluster that moved abroad and got better results, so other firms followed it. This is the so-called “*monkey see, monkey do behaviour*”, which also applied to the de-location process in Timisoara. Adding to this imitation effect there is also a “*district effect*” for the small firms that follow the leader company abroad in order to maintain their links and relations and also to exploit the reduction in uncertainty that comes from being part of a network. As highlighted by Majocchi (2000) some of these smaller companies, once settled in Romania, find the way of expanding their production and become leader companies themselves.

Most of the firms from Veneto de-located in Timisoara without an explicit co-ordination. These activities have proven to be more “*spontaneous*” or “*bottom-up*” rather than specifically planned strategies. In a short time production activities have been set up here and firms inside the cluster tried to recreate the conditions that characterised the development of an Italian district. The imperative to “*go international*” raises the question of whether a system based on local values and tradition, combined with innovation, competition and cooperation, can be exported in Timisoara. As its competitive advantage lies to a great extends in the ability to innovate, many of the auxiliary sectors were recreated, such as banks, transport or mechanics (Majocchi, 2000).

“Firms that relocate abroad are likely to move their relatively inefficient production phases to another country, where costs are lower, thus becoming more efficient and expanding

production and employment along other stages for which they have comparative advantage”
(Graziani, 1998).

Timisoara has emerged as an industrial cluster, which functions as an *offspring* of the Italian cluster focused on the production of low and medium value range products. The cluster is specialised in the textile and leather goods sectors. Most of the Italian firms moved to Timisoara for outsourcing rather than to find a potential market. The cluster development policies encouraged the co-operation and networking between companies in order to strengthen individual and joint abilities to develop partnerships in different business fields. As a strategy to attract foreign direct investments in the region, many companies that de-located got tax-free for the first three years of economic activity (Montagnana, 2005).

The cultural and linguistical affinities played a significant role in the de-location process of the Veneto firms in Timisoara. They have found here the perfect conditions for establishing new businesses. The collaboration between them and the City Hall made possible the good use of the industrial and residential land.

All these, combined with the more increasing problems for the Italian industrial clusters like lack of manpower, saturation of building construction areas has caused the outsourcing of the production, meant that Timisoara was the perfect area for de-location.

6. Conclusions

“Today’s economic map of the world is dominated by [...] clusters: critical masses – in one place – of unusual competitive success in particular field” (Porter, 1998).

Industrial clusters represent a “*hot issue*” in all the socio-economic areas in Europe. While it is still debated how a cluster evolves over time and how it influences the urban and regional development, its relevance for future studies is widely shared.

Industry clusters bring benefits for cities, regions and investors alike. If the state will create the right policies, the domestic economy will benefit enormously and will put the economy on a higher economic growth path. A key characteristic of post-Fordism is the dominant role of flexible organizations of production, able to respond quickly to market and technological changes. Industrial clusters offer a superior flexibility to that of Fordism firms geared to mass production. That is why, following an appropriate economic development pattern in the medium and long term, becomes an important issue and efforts to form new industrial clusters are now under way in various European regions.

It is also necessary for these countries to design policies in order to stimulate entrepreneurship and SME creation at local and regional level. This means that local authorities should endeavour to embed existing FDI, while improving access to finance for SMEs and start-ups on the other hand. The development of clusters and tailored policies favouring cluster building may accelerate

firms' development and retain foreign direct investments. Another important issue is to foster innovation and the development of innovative production activities, through networks of enterprises and research centres.

Both the clusters of Montebelluna and Timisoara are similar under many respects. Their formation was mainly driven by low cost advantages. The difference is mainly in terms of the distribution of firm size (much higher in Romania) and of geographical size (much higher in Romania). The comparison of the two clusters offers some interesting insights, especially for the evaluation of their evolutionary potential. In the Montebelluna case, relocation helped the district to maintain and reinforce local competitiveness with respect to foreign competitors. Furthermore, most of the Timisoara's economic success is the result of the industrial cluster's building and growth.

Also, the paper suggests that the growth of industrial clusters have an increasing relevance on cities. Cities are now operating as "*industrial incubators*", that offers the support of economies of agglomeration and urbanization to the firms inside the cluster. Thus, even though "*greenfield locations*" are likely to remain the dominant feature of industrial location, the city's role in fostering the development of industrial districts will increase.

Endnotes

1. We have decided not to distinguish between industrial clusters and industrial districts. Therefore, we will use indifferently the terms "cluster" and "district".
2. A **regional cluster** is an industry cluster in which member firms are in close geographic proximity to each other (Enright, 1993). It subsumes the spatial manifestations of the "*production channels*" of Doeringer and Terkla (1995), the "*flexible production complexes*" of Scott and Storper (1989) and the "*innovative milieu*" of Maillat (1991).
3. **Industrial districts** (Brusco, 1982; Piore & Sabel, 1984; Goodman & Bamford, 1990; Pyke & Sengenberger, 1992; Becattini, 1998) are concentrations of firms involved in interdependent production processes, often in the same industry or industry segment, that are embedded in the local community. Every industrial district is a regional cluster, whilst a regional cluster is not necessarily an industrial district.
4. A **business network** (Staber, Schaefer & Sharma, 1996) consists of several firms that have ongoing communication and interaction, but that need not operate in related industries or be geographically concentrated in space.

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