

# Productive ecologies: Redefining the centrality and marginality of the city-territory

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Expected thesis defence: February, 2018

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With the aim of identifying different perspectives for the future of territory – starting from the dimension of production in the context of urban sprawl – this PhD research intends opening a critical reflections on the dynamics of territorial polarization, specialization and marginalization underway in Europe. According to the last European Competitiveness Report drawn up by the European Commission, production is still to be considered as an engine of prosperity linked to the real economy and to the development of the territory; thus the need for a new re-industrialization program for Europe. In recent decades production has been one of the territorial elements exposed to more extensive changes in Europe, while at the same time it has become one of the elements least subject to reflection in terms of spatial construction and rationalisation of the territory. Production is today becoming incompatible with the common idea of European traditional city. In order to avoid the risk of a dualistic model of development, that opposes urban areas to productive and secondary territories, this article claims the need to include production in the debate on the structural specificity and potentialities of the European city-territory as one of its constituent elements.

## The role of production in constructing the city

Over time production has abandoned the city. There are many spatial reasons why this has occurred: for instance because of the transport congestion due to an incompatibility between goods traffic and urban traffic, the given dangers and drawbacks underlying particular production processes (pollution, cooling systems, noise etc.), or due to economic logic tied to land value. Hence, we have witnessed the conversion of factory buildings into lofts, museums, and universities or more simply into office blocks and new residential plots subsequent to demolition. These seem the only economic operations in which policy-makers are able to deal with the cumbersome physical legacy of areas of production and factory districts. One of the issues of the change in strategy is raised by great scale of the plots, the presence of heavy constructive materials or of dedicated infrastructure like rail and technical networks, or indeed the possible pollution of the soil. Recycling projects destined for public use, or programs of *mixité* between residence and production, remain exemplary and not everywhere feasible. At any rate, it is clear today that productive and manufacturing activity is seen to be incompatible with the traditional idea of the compact city.

If we look back through history, the relationship between production and construction of the city has always been fundamental and constitutes one of the primary reasons behind the organisation of human settlements. Some authors have described the relationship between production and development of territory down through history. First Geddes and then Mumford proposed to divide human civilization into three distinct epochs: the eotechnic, the paleotechnic and the neotechnic, respectively characterized by the dominance of different energy sources: water - wind, coal and electricity<sup>1</sup>. Each of these macro technological periods had different influences on the productive systems and consequently in shaping the spatial organization of human settlements. In the eotechnic age (AD 1000 to 1800) production and manufacturing sites were initially located along rivers or where wind allowed mills to convert wind power into mechanical power. During the paleotechnic age (approximately running from 1700 to 1900) the localisation of production was freed from geographical restrictions associated with energy production, and industrial concerns began to be set up near ports, mines, and infrastructural junctions, enabling the efficient provision of raw materials and coal. Indeed though this began the sacrifice of parts of territory in the name of progress: “an up-thrust into barbarism, aided by the very forces and interests which originally had been directed toward the conquest of the environment and the perfection of human nature” (Mumford 1934). The neotechnic age (from about 1900 to Mumford's present, 1930) provides an additional degree of freedom in terms of the territorialisation of production and human settlements thanks to the possibility of the transportation of energy.

According to these different phases of progress, European countries responded in different way and in different time overlaps (Samonà 1959). As is known the setting up of production and manufacturing facilities in the outskirts of existing cities or within the limits of new industrial cities drew workers from the countryside, leading to the consequent abandonment of marginal territories. On the other hand, the decentralisation of production in peripheral, outlying places - due to the cheap offer of labour - led to different phenomena of urbanization. Today, in a Post-Fordist economy, comprehending the construction of

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<sup>1</sup> Mumford inside his book “Technics and Civilization” wrote in 1934 took the definition of prof. Patrick Geddes to divide the industrial process of civilisation into two different phases (the paleotechnic and the neotechnic), adding a third precedent phase (the eotechnic) that helps us to understand the state of preparation to industrialization, describing the differences between different geographical contexts, showing the resistance to change and their impact on the speed of urban development in different areas.

city in relation to production is more difficult than in the past. One of the major reasons is precisely the loss of relevance of the real economy within society (Harvey 2002). Both, urban growth and production, have become evermore hostage of financial and fiscal rules tending towards a marked detachment from the physicality of territory<sup>2</sup>.

### **The question of the location of production and manufacturing**

The need to solve – in a hygienist way – the large imbalances produced by the cities of the industrial revolution, led to the devising of urbanism based on zoning (CIAM), leading to the recognition and separation of the different materials that compose the city. In 1918, between Lyon and St Etienne, Tony Garnier devised his idea of the “*ville industrielle*”, where he shows” how different functions (including manufacturing and production), “[...] give rise to different principles of settlement and different relations with the topography and the main infrastructures. Thus zoning became a design tool of urban planning, not only an attempt to separate and adequately distance the different functions according to their degree of compatibility or incompatibility” (Secchi 2005). Despite the ambitions of spatial continuity and balance, zoning quickly became a planning instrument for fragmenting the territory and isolating those activities that are incompatible with residential dwelling (such as the industrial zones), in actual fact depriving production and manufacture from the key role it had hitherto played in constructing the city up until that moment in time.

Production has the capacity to bind itself to the territory, drawing strength from it, at the same time ensuring its economic development. The relationship between city and production – that today appears to have lost its spatial aspect – is on the contrary still present and indeed essential in terms of economic and social issues. The concept of a new form of growth driven also by the concept of wellness, has introduced new standards regarding the territorialisation of enterprises and the capacity of a site to attract certain forms of investment. As an introduction to the debate to be developed later on, two examples are proposed here regarding the localization of production processes, which reverse the perspective, offering examples of the ways in which a productive manufacturing activity could bind to the territory today.

#### *The territorialisation of production and manufacture*

“The territorialisation of the investment now depends both on the (economic) relational context of the enterprise and on the (social) relational context of individuals working for that company” (Calafati 2009).

This means that for a territory, in order to increase its capacity to attract businesses the provision of modern services and efficient technological infrastructure, or provide tax incentives and deregulation on production processes no longer suffices. On top of this there is an important social aspect related to the quality of workers' life. According to Calafati, enterprises and workers, moving more freely within the area we define as Europe, are more stimulated in seeking efficient cities and territories in order to set up and start their economic activity. Calafati named this phenomenon as “economies in search of cities”<sup>3</sup>.

#### *The vertical dis-integration of production processes*

The vertical disintegration of production process has offered the possibility of new strategies for locating enterprises. There is no reason to assume that the entire production chain of a product should be established and located in the same place. At the same time we must distinguish whether an industry produces parts of its product abroad (outsourcing) in countries for example where labour costs are lower, or whether, in respect of ‘territorial loyalty’ it delegates part of its production process to specialized enterprises within Europe, triggering other positive business cycles. An industrial policy of solidarity within the EU could for example encourage interplay between similar stages of the production process, associating them more efficiently to specific territories within the area of the European Union.

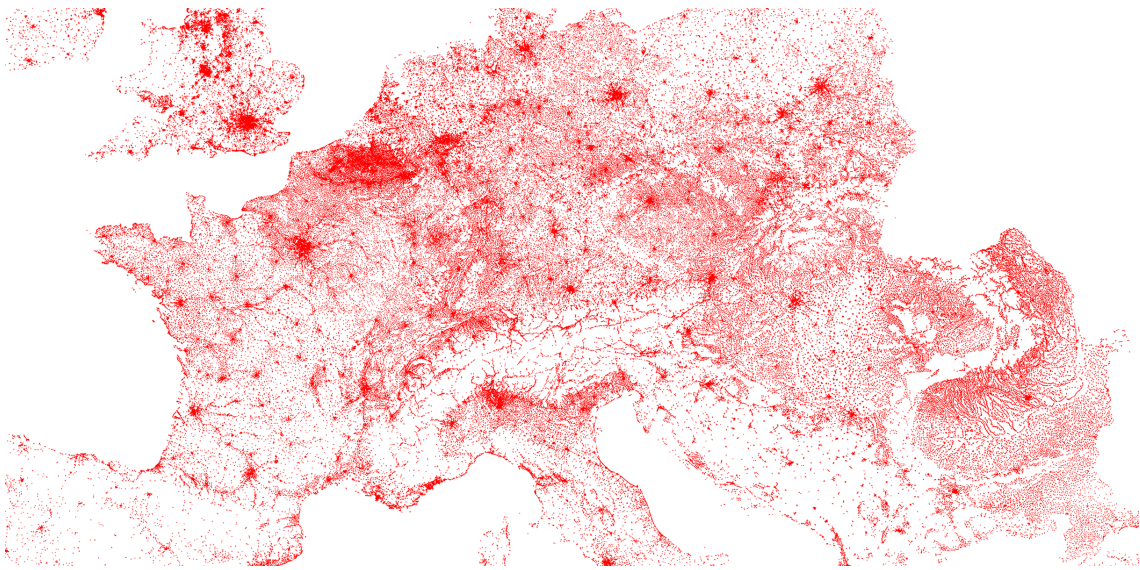
### **Production and manufacture within the European city-territory**

The phenomenon of urban dispersion was condemned in Europe as immoral because different from the traditional idea of the compact city. As it is known, in the urban debate, the phenomena of urban sprawl has been severely attacked from the point of view of social, spatial, ecologic and economic sustainability (the greatest criticism has concerned the morphological dissolution of the city, the increase of individualism within society, land use and the waste of resources). These criticisms have contributed to the refusal – this also institutional – to seriously deal with the phenomenon of dispersion (Indovina 2014). The result is that in most of European states the diffuse city has grown in the absence of any explicit plan or policy. At the same time – as it is clear by observing the map of [fig.1] – the extensive shape of the European city-territory has gone beyond the stages of constituting a mere phenomenon and now demands full recognition in terms of urban policy.

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<sup>2</sup> “In the Era of globalization, companies are no longer ingrained but anchored in a territory” (P. Veltz).

<sup>3</sup> Calafati A. G. (2009) *Economie in cerca di città, La questione urbana in Italia*. Roma: Donzelli Editore.



[fig.1] Urban Areas in Europe.  
 The red shows the residential dwellings.  
 Elaborated by the author. Data: Corine Land Cover 2006, EEA.

If today it seems that production is no longer part of the traditional cityscape, it is on the contrary one of the constituent elements of the European city-territory. Looking at the map, it is evident that most of European productive or manufacturing sites are located in the outskirts of cities or in urbanized territories between the same. Production can be both active element in constructing urban dispersion (Indovina 2014) or a passive element when, over time, it has found itself surrounded by urban sprawl.

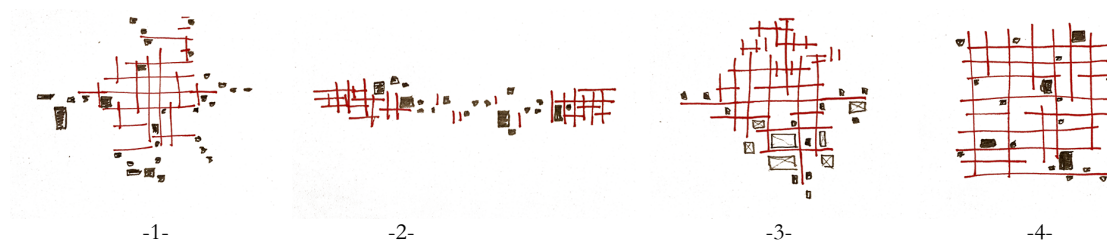
This chapter tackles the different productive territorialisation processes in Europe – offering conceptualised examples of the same. The outcome has been an initial catalogue of the spatial consequences of the various different industrial policies. It might help to show the consequences today between a centralized as opposed to a decentralized system of production and manufacture. The aim of the research is to offer an atlas of the heterogeneity of European productive-manufacturing territories described in relation to: the ‘spatial dimensions’ of production, the different ‘stages of development’ and the ‘temporal generation of economic development’. The construction of this atlas will lead to the identification of some specific European territories that will be taken as case studies in the later stages of this PhD research study.



[fig.2] Industry in Europe.  
 The productive activities are marked in black.  
 Elaborated by the author. Data: Corine Land Cover 2006, EEA.

The effort made up to now is the isolation of the layer of production at a European scale [fig.2]. By analysing closely this map the first attempt was to recognize different type of territorialisation of production readable at regional scale: four prime categories can be identified that are followingly observed and detailed [fig.3].

- 1- Industrial suburbs serving city-centres
- 2- Industrial corridors between city-centres
- 3- One-factory cities
- 4- Productive diffuse territories



[fig.3] Territorialisation of production in Europe. Drawn up by the author.

#### *Industrial suburbs serving city-centres*

The localization of production complies with the traditional model of land value. Activities tend to locate where land costs are lower, or devalued by the presence of heavy infrastructures or by the proximity to low quality urban material. Depending on the growth of the city, production activities tend to be located in peripheral areas increasingly far away from the city-centre, occupying agricultural areas. For logistical reasons these are located close to efficient motorway junctions, thus allowing them to be less affected by urban traffic congestion. Their relationship with the city is sometimes conflicting, anonymous but at the same time indispensable.

Examples of this category are the large and medium-sized cities isolated in the territory and having a precise, concentric shape (Ile de France).

#### *Industrial corridors between city-centres*

Production grows along the main interlinking routes between existing cities. It is one of the constituent elements of a particular pattern of settlement. Its structure is linked to the presence of a strong linear road infrastructure (seen as pipes). It may also be tied to a particular morphology (for instance the presence of valleys, canals or rivers). Production and manufacture takes advantage of the visibility deriving from its location along the infrastructural corridor to advertise its business. It is in fact essential for the economy of the territory where it is located. It is often subject to tax and legislative concessions by the local government to ensure his presence.

Examples of this category are the territories of: Valais, Via Emilia, the territory along the Rhone river between Lyon and Avignon.

#### *One-factory cities*

Cities reached a crisis together with their factories. Cities forced to transform their economies following the crisis in the economic groundbase. The massive closure of production and manufacture has left important traces in the structure of these cities. Infrastructures, buildings and whole parts of the city have been redesigned and rationalized following the drop in production and manufacturing facilities. There are experiments of 'functional *mixité*' and 're-cycling' projects made possible by a strong political will for urban renewal.

Examples of this category are the cities of: Barcelona, Bilbao, Manchester, Lyon, Karlsruhe, and Turin<sup>4</sup>.

#### *Productive diffuse territories*

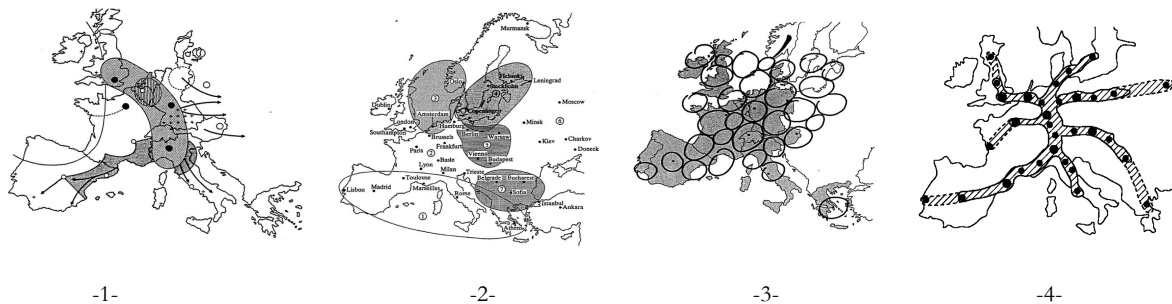
This category refers to diffusely urbanized territories. Where production and manufacturing facilities are present alongside other materials that comprise the territory. This is accompanied by considerable road network and by the presence of a high level of access to services. In some Italian cases, production even became the reason for the urban sprawl in the first place. In these spaces, each act of territorialisation of production at the same time leads to the redesign of the self same city, constituting a step towards the construction of a territorial figure denoted as city-territory.

Examples of this category are the territories of: Veneto, the area around Milan, Flanders.

<sup>4</sup> This category "One -factory cities" and cities listed as examples are drawn from Calafati, from his book "Economie in cerca di città".

### Polarisation and polycentrism: different visions for the European city-territory

The purpose of the various economic and geographical studies carried out over these last decades has been to capture both urban growth and economic development on a single European map [fig.4]. Two of them designate a precise set of largescale metropolises comprising Europe's economic heartland: notably the case of the "Blue Banana" (maps -1-) a continuous and intensive urban pattern reaching from London to Milan (which corresponds to the economic and financial axis of Central Europe), and "Red Octopus" (maps -4-) a linear metropolis that combines, in a physically continuous way, the most important European centres. Both visions give an image of a polarised European territory, drawing a rigid and hierarchical structure over the same. However, nothing is said about the blank space of the map, which actually becomes marginal territory. Other studies have attempted to give broader dimension for growth in the European urban space: this is the case of the "House with seven apartments" (maps -2-) focused on the productivity dynamics of each European area, and the "Green Grape" (maps -3-) a polycentric vision which aims at an open and broader growth of all European areas and wherever specific areas may potentially operate competitively with other areas (Metaxas, Tsavdaridou 2013).



[fig.4] Visions of urban and economic development in Europe.

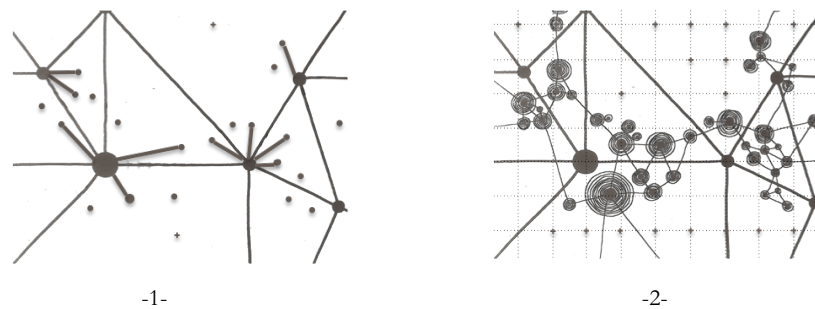
- 1- "Blue Banana". Source: Reclus-Datar (1989);
- 2- "Europe of 7 apartments". Source: Lutzky (1990);
- 3- "Green Grape". Source: Kunzmann and Wegener (1991);
- 4- "Red Octopus". Source: Van den Meer (1998).

At a national level the state – by its very nature – promotes and pushes the development of capital cities before investing in medium-sized cities or in territory between cities. Normally a dualistic policy of development increases spatial injustice and contributes to exacerbating the contraposition between marginal territory and urban developed area rather than resolving it. The idea of a more horizontal European territory, offering a solution to spatial injustice, and where local stakeholders might organise themselves by valorising the specificity of territory, lies at the basis of the intentions of different programs of cohesion proposed by the European Union. With the aim of achieving territorial cohesion, European policy-makers have replaced the hierarchical core-periphery model with the concept of polycentrism. "[...] The concept of polycentric development has to be pursued, to ensure regionally balanced development, because the EU is becoming fully integrated in the global economy. Pursuit of this concept will help to avoid further excessive economic and demographic concentration in the core area of the EU. The economic potential of all regions of the EU can only be utilized through the further development of a more polycentric European settlement structure. The greater competitiveness of the EU on a global scale demands a stronger integration of the European regions into the global economy" (Committee on Spatial Development 1999). The aim of the policy of polycentrism is therefore to spread the benefits of good social and economic performance across the continent, while at the same time strengthening Europe's global competitive position as a whole. The concept of polycentrism marks a shift in thinking on Europe's spatial and economic structure (Falletti 2011). For this reason, the image of the "Green Grape" was chosen in 2013 by EPSON as the concept for the "Vision for the European territory towards 2050"<sup>5</sup>. The vision presents an "open and polycentric" development, however, beyond the purpose of territorial cohesion, the conclusive maps still present a rigid and hierarchical structure, not representing – in the different scales of project – the specificities and roles of the territories between the cities.

A territory is considered polycentric when it features the presence of many urban centres, autonomous though interconnected at the same time. A polycentric territory has to be uniform, equally accessible and non polarised. The structure of European city-territory, if preserved by polarization phenomena, begin to

<sup>5</sup> Studio EPSON: "Making Europe Open and Polycentric: Vision and Scenarios for the European Territory towards 2050"

resemble a polycentric model of organization. The city-territory is not today as accessible and as well-served as the compact city, but it could become so [fig.5]. A project of territorial cohesion for the European city-territory should head in the direction of filling the policy gap between the diffuse city and urban areas. The questions now are: How to reach the same standard of urbanity without debasing the quality and heterogeneity of territories? Does an alternative way to the banal strategy of densification of marginal territories, that will turn them into traditional compact metropolises, actually exist? Could production and manufacture play a key role in the construction of a new idea of competitive and functional city-territory? If the purpose is to maintain and encourage the presence of manufacturing in Europe, the relationship between production and a new condition of urbanity should be studied and designed. Otherwise the risk will be that, as has occurred in the compact city, the traditional growth model will gradually exclude production and manufacture from European territory too.

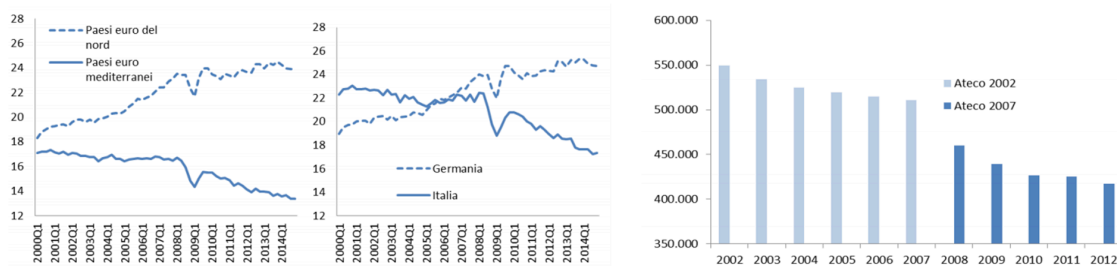


[fig.5] Different concept of polycentric relationship inside city-territory.

In the diagram on the left, centres interact with each other, but peripheral areas and territory between poles still depend on the 'city-pole', to which they refer in order to access a larger scale of relations. Secondary territories are isolated and suffer from a social and economic marginalization. In the diagram on the right, a lower hierarchy between elements is ensured by a complex pattern of overlapping relationships. The heterogeneous elements work in balance and spatial continuity without internal contradictions.

### The on-going polarization of European manufacturing

With the aim of drawing up an atlas of production inside the European city-territory, one need first understand the current economic situation and the more extensive changes in production and manufacturing involving different European nations. If we look at manufacturing trends over the last fifteen years – under the last two major recessions – it becomes clear that the on-going economic imbalances between the different states are persisting. The graph in [Fig.6] illustrates the results of a study drawn up by Nomisma<sup>6</sup>, basically shows the broadening structural economic gap between the states of northern and southern Europe (expressed in terms of potential production per person).



[fig.6] Polarization in manufacturing.

The two graphs on the left: Manufacturing potential per capita (million euros in 2010 per 1,000 inhabitants)

North European countries: Germany, Netherlands, Austria, Belgium, and Finland;

Mediterranean European countries: Italy, France, Spain, Portugal, Greece.

Source: Nomisma, elaboration from EUROSTAT data.

On the right: the number of manufacturing companies in Italy

Source: Nomisma, elaboration from ISTAT data.

<sup>6</sup> The quoted document "potential manufacturing" is dated February 2015. Its author, Nomisma, is an independent Italian company that carries out economic research and consulting for businesses, associations and public administrations at national and international levels.

According to the Nomisma report, not all countries are reacting to the crisis in the same way: the deindustrialisation of the southern part of Europe corresponds in fact to the re-industrialization of the northern part. Indeed strong interdependencies associated with national economic growth are clearly evident. And political egoisms of certain nations have a heavy responsibility in the ongoing industrial desertification of the southern part of Europe. For example, the graph on the right shows at one point how Italy was more industrialised than Germany (Italy had a higher manufacturing capacity per inhabitant than Germany in 2001). Now the opposite is the case. This has come about because over the last fifteen years Italy has decreased its manufacturing potential by as many as 18 percentage points: this has entailed a drop in both productivity and the number of industrial concerns, France on the other hand has only reduced its productivity, without closing down factories. Spain has actually increased productivity, but has closed down a sizeable number of enterprises. Germany for its part, (the example among northern European nations), has increased both its productivity and number of industrial concerns.

These figures give a brief idea how spatially European production and manufacture has changed during the last crises, showing how, in the absence of structural measures, or a policy of solidarity between European national economies, Europe is moving towards polarized growth. The widening gap between the different states is also relevant because this gives the measure of how different the potential economic recovery between the northern and southern parts of Europe might finally be.

How might Europe take action to avoid the drawing of a new map of an EU split in two by two markedly different growthrates?

### **Re-manufacturing Europe: a project for the Horizontal Metropolis**

“The city after the economic crisis will be radically different from the city as we know it today” (Secchi).

Today, Jeremy Rifkin introduces the advent of the “Third Industrial Revolution”: a democratization of manufacturing, based on renewable energy resources, characterized by the presence of new ways to use, exchange and store energy. The possibility of storing energy and exchange it, using it at different times of day and year would in fact have a considerable spatial impact on the organisation of territory. Without trying to rely on technical solutions to solve all our problems, it becomes central to reflect on new scenarios of production in areas of diffuse urbanisation, using the energy crisis and climate change as stressors for interpreting new trends in production, transport infrastructure, and from the possibility offered by a delocalized energy production.

In a moment in time when technological progress is ushering in changes in manufacturing and production processes, all those involved in planning the city-territory, in order to recover the spatial role of production in constructing city, need to go back to closely looking at the spatial relations between production and other urban materials nearby.

#### *Towards a productive mesh of the European city-territory*

The relationship between production and others materials that make up the city-territory is, quite often, the result of coincidences and necessity rather than deliberate planning. The hypothesis, corresponding to the question posed by this research study, is that production affects, or may affect, the functioning of a city-territory. Hence, planning and designing its relation with the urban areas and the territory in general could be a way of intervening on the specific structure of each single city-territory. In a period where latching onto the economic recovery becomes essential, an opportune growth strategy, capable of enhancing the endogenous potential of the territory through the design of a European ‘productive mesh’, would be desirable, rather than that the indiscriminate increase of the density in rural and suburban areas. We are referring here to a new physical support of development that allows inhabitants of the European city-territory to enjoy all the heterogeneous elements comprised in the same, without suffering the differences of not living in a compact traditional city. In this scenario the condition of marginality of the city-territory would hence no longer be superseded via logics of polarisation and densification, but thanks to the implementation of a productive support capable of resolving – by way of ‘prototypes of complementarity’ between urban elements and production – the ‘functional incoherencies’ that the project of the compact city has failed to solve. A point which in actual fact has caused and led to the exclusion of productive and manufacturing activities from the landscape of the traditional compact city.

### **Conclusions**

The paper initially gives a description of how the role of production in constructing the city has changed over time, and how the question of the localization of production and manufacturing has had – and may still have – consequences on the structuring of human settlements. Secondly, the document introduces as a case study the European territory and in particular the research object of the ‘European city-territory’, of which production and manufacturing are recognized as key constituent elements. The European city-territory, as an example of “horizontal metropolis”, is constituted by “[...] closely interlinked, compenetrating rural/urban

realms, communication, transport and economic systems. It is a layered territorial construction where agricultural and non-agricultural economic activities create an original mix” (Secchi, Viganò 2013).

The purpose of re-conceptualizing the relationship between urban elements and production, in order to redefine the centrality and marginality of the city-territory, obliges us to examine the different visions of European development proposed in the past, and to understand the current dynamics of production and workings of the economies of the different nations in the light of the changes introduced consequent to the economic crisis.

A strategy of spatial reorganization can thus be identified: a ‘productive mesh’, interpreting – in spatial terms – the policies of cohesion and re-industrialization, which Europe has taken upon itself. This physical territorial support cannot be dissociated from the idea of a ‘productive society’ that has an active role in structuring the city-territory. “The company is not only a place of production, it is also the main driver of economic and social development and as such it has a responsibility towards the community and the territory” (Olivetti).

The article has been entitled ‘productive ecologies’ in order to emphasize the strong interactions between manufacturing and its environment, given its supporting functions towards the other elements that make up the city territory. Production and manufacturing depend on rational-functional logic: they have the capacity to bind themselves to the territory, drawing strength from or even changing the same, adapting the territory to their function. Reading and describing the different elements that interact, or that could interact with those activities of production and manufacturing, allows planners to propose original hypotheses of new possible complementarities that might enhance the quality and the functioning of the future city-territory. A possible project for the city-territory is here bound to the will – primarily civic before being economic – to re-manufacturing Europe. In this hypothesis the transformations of the city territory follow a particular model of industrialization, close to the “NEC model” described by Fuà in the 80s, characterized by a diffusion over the territory corresponding to a logic of development that exalts the pre-existent and minimizes growth fractures.

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