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European cross-scale spatial planning and territorial frames in the Italian Median Macroregion

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ABSTRACT
This article describes the preliminary outcome of interdisciplinary research that arises from a study by the Italian Ministry of Infrastructures and Transport and the Abruzzo Region (IT) on local development processes in central Italy, and specifically in the Median Macroregion, whose results have been extended to European context. It concerns the European spatial planning, specifically the study of an original interpretative model of European space, called Territorial Frames – TFs, a particular multi-scale infrastructural mesh that connects the 'local' territories with 'global' ones and that can represent the activating element of processes and policies of spatial development of settlements, of processes of valorization of the productive, naturalistic and landscape sectors. This new model interfaces with the territorial reticular component through the concept of polycentrism, also projecting evolution, and with that of the governance of development projects, using the potential of European Macroregions. The main objective of the research is to feed the topic of spatial planning, oriented to the integration between territories through a cross-scale approach, and to the activation of new processes of sustainable territorial development, with reference to the economically disadvantaged inner areas in a context of Macroregional governance.

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Spatial planning; spatial policy; macroregions; governance; cohesion; glocalization

1. Introduction

The research presented in this article entitled 'Project of post-urban forms, the sphere of the plan' (Diceaa Department, University of L'Aquila), represents a progress of a study by the Italian Ministry of Infrastructures and Transport and the Abruzzo Region (IT) on local development processes in central Italy entitled 'Territory Project "Joint 2" Abruzzo'. It deals with the spatial development of the European context and its territories, with special reference to the proposal of an original interpretive Spatial Model oriented to equity of development, balance of resources, efficiency of settlement and mobility systems and integration of strategies and projects between different regions (coordination / co-planning) (Hall, 2016). These are issues that recall the centrality of Spatial Planning (Faludi, 2010a, p. 1) and that do not seem to be sufficiently addressed by the polycentric

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model (Hall, 2001; Rauhut, 2016; Shaw & Sykes, 2004; Van Meeteren, Poorthuis, Derudder, & Witlox, 2016; Waterhout, 2002) to which European policies refer, too much focused on cities and networks and which tend to structurally neglect the territories and in particular the weakest and most critical areas (local contexts / crisis areas) where resources struggle to reach (ACT, 2013). In fact, the model proposed in this paper has as main goal the integration between territories through a cross-scale approach (Priemus & Zonneveld, 2004), and the case study described concerns the inner areas of central Italy placed in a macroregional context being defined.

The aim is to propose an analysis and spatial development model that tries to reinterpret in a cross-scale key (of policies and territories) the conceptualization of the planning lines dictated by the EU which is based on polycentrism, on the Ten-T network and on the European corridors (EC, 2017), and also supported by numerous and suggestive models proposed by the literature on European trends in recent decades, also placed at the base of the ESDP, such as the Blue Banana (Brunet, 1989), the Bunch of grapes (Kunzmann & Wegener, 1992) or those proposed by Espon as the last 'Making Europe Open and Polycentric, Vision and Scenarios for the European Territory towards 2050' (Espon, 2013).

In order to address these issues, the research proposes reading the European space through the so-called Territorial Frames – TFs (Di Ludovico & D'Ovidio, 2017) that arrange a territorial mesh on which to base policies for a new spatial planning process based on the development Macroregional. This model of spatial interpretation has been verified from the theoretical point of view through the study 'Territory Project "Joint 2" Abruzzo' (RegAbr, 2015). It has identified the TFs in the context of the Median Macroregion (Di Ludovico & Properzi, 2015; Di Ludovico, Properzi, & Santarelli, 2014), infrastructural quadrangle consisting of multimodal infrastructure corridors in which digital flows are one of the modalities, characterized by territorial settlement fabrics variously characterized (residential, industrial, commercial, agricultural, etc.). TFs can be considered a connective mesh with an autonomous and often diversified dimension and structure, that can recompose these urban fabrics. They are conceived as parts of territory, with peculiar characteristics, delimited by mono / multimodal connective branches with different degrees of completeness. The TFs model is planned and designed to activate an economic and sustainable process of territorial development. In this vision, landscapes become economic resources able to improve territorial potentials by designing an appropriate transport and digital network to link local with global needs, avoiding territorial fragmentation. This conceptualization contributes that of the city networks (Perulli, Rugge, & Florio, 2001), of which the TFs branches often represent connections.

The research is based on the sequential articulation of three work steps:

(1) TFs model definition on a European scale:
    - Identification of the initial configuration of the TFs at European level based on the transport system, the settlement and production system and the naturalistic system.
    - TFs model verification in relation to the role of the existing European macroregions (Espon, 2005).
(2) Research focus on the national level, with a second class of TFs identification for Italy.
(3) Integration of the TFs identified in point 2 with the development model based on the concept of Macroregion and in particular with that of the Italian Median Macroregion

(Di Ludovico et al., 2014; Di Ludovico & Properzi, 2015), a national Macroregion to which TFs are asked to activate new processes of sustainable development, with particular reference to the economically disadvantaged inner areas.

This is a cross-scale approach, which integrates European Macroregions with National Macroregions, in which TFs take on a spatial role, by quadrangle shape, with meshes of different sizes, from European to regional ones, therefore increasingly dense and minute to intercept the territories and 'local' functions and to fully use the opportunities derived from the territories and the 'global' functions (see the paragraph 3 and the case study illustrated in paragraph 4).

Today the research is in the phase of the study of the mobility system for each TFs, their relationship with the great digital infrastructures, the evaluation of their configuration and performance in terms of transport (Terryn, Boelens, & Pisman, 2016), as well as an initial check of the spatial planning model proposed and described in this paper. The aim of the research is to deal with the topic of European spatial planning, which seems marginal in the EC agenda (despite the continuous activities of the Council of Europe Conference of Ministers responsible for Spatial/Regional Planning – CEMAT) proposing a new cross-scale interpretive model oriented towards territorial integration, to that process called Glocalization by Roland Robertson (Robertson, 1992) and then from Zygmunt Bauman (Bauman, 1998), to the enhancement and development of inner areas and in crisis in a global context.

2. Post-industrial Europe and European spatial planning

Since the 1960s new urban forms have emerged that are significantly different from those of modern industrial cities, also different for the model of social geographies to which they refer. The transport systems definitively break the close spatial relationship between the workplace and the residence, allowing de facto the decentralization of residential uses in the territory. The commuting of the suburban population towards the city centre for work reasons creates access and congestion problems, so much so that the main schemes used for city planning are of the 'road-building' type. The 'hub and spoke' mobility model, for which the centre of the city (hub) represents the most accessible point, is consequently transformed into a structured 'network' model where the branches represent the connection infrastructures and the nodes represent the urban centres (Carmona, Heath, Oc, & Tiesdell, 2003).

These transformations have materially modified the ways of access to the city-region, favouring widespread growth and removing the need to stay close to the centre (Dickinson, 1947). This need, as known, kept cities compact throughout the nineteenth century through concentric growth models. In Europe, this model of the post-industrial age (Carmona et al., 2003) gave back a still lively urban core, although often revitalized and reinvented, circumscribed by the suburb, with important residential expansions surrounded by a mix of other developments, such as shopping centres, leisure centres, business parks, etc. These are new forms of settlement (Carmona et al., 2003, p. 29; Choay, 1992), which have produced new urban and peri-urban morphologies, new settlements that frequently thicken along the great infrastructural corridors and around the new extra-urban polarities: commercial areas in the middle of nowhere, agglomerations and

industrial areas more or less large and partially unused, large rural productive areas, etc. (Di Ludovico, Properzi, & D'Ascanio, 2015).

These post-industrial settlement meshes, which our research considers the TFs matrix (§3), continue to develop to the detriment of the less robust systems and are essentially constituted by the main European metropolitan areas. A United Nations study calculated that from 2014 to 2050 the world population in urban areas will increase from 54% to 66% (UN-DESA, 2014, p. 11). This growth is confirmed by data from the OECD Metropolitan Explorer, but especially by Eurostat that for the EU-28 shows that the population of predominantly rural regions is expected to decline by 7.9 million inhabitants in the period 2015–2050, to represent the 20% of the EU-28 population by 2050. On the other hand, Eurostat projections predict that the total number of people living in predominantly urban regions will increase by 24.1 million and that by 2050 these regions will provide a home to almost half (45.8%) of the population EU-28 (Eurostat, 2016, p. 80). It is therefore clear that the world population, in constant growth, will continue in the future to develop cities, in particular the largest and most populous ones, the metropolitan ones, whose expansion phenomenon can not be considered concluded.

The model we propose attempt to act on this phenomenon of continual metropolization, on the one hand, and of deterritorialization on the other, tries to govern the development of settlements that can generate territorial imbalance, proposing a reticular conceptualization of the European space, the TFs, with the aim of rebalancing settlement systems in the macroregional context (§3).

2.1. The ESDP and the theme of Policentrism

The processes that transformed the post-second war European space described in the previous paragraph are the basis of the European Spatial Development Perspective – ESDP, which was reached through a series of activities starting in the 1960s with the documents of the Council Europe 'Regional Planning an European Problem' (COE, 1968; Faludi, 2010a) and the 'European regional/spatial planning Charter' (Torremolinos Charter) (COE, 1983). The first spatial planning document, related to the EU12, was 'Europa 2000' (CEC, 1991), more oriented towards spatial policies rather than planning, followed by 'Europa 2000+' (CEC, 1994) which carried the Dutch and French experience (for example, of the *Délégation interministérielle à l'aménagement du territoire et à l'attractivité régionale* – Datar) of spatial planning developed in previous decades. The Germans, however, inside the debate, continued to frame the issue in terms of land use control, considered a sovereign right of the States (Faludi, 2010a, p. 13; Faludi & Waterhout, 2002, p. XI). In response to this position, which may represent a limit to the take-off of European spatial planning (but also of cohesion and cooperation between States), Faludi and Waterhout have specified that ESDP is not a 'Masterplan', it does not imply 'a pattern of land-use imposed by the EU', but which nevertheless has the merit of building an identity Vision of the EU and of triggering a focus on spatial development processes at the European level (Faludi & Waterhout, 2002).

In 1999, the European Spatial Development Perspective – ESDP was promoted by the Informal Council of Ministers responsible for Spatial Planning in Potsdam (an example of open method of coordination), which strongly argued the spatial planning approach, articulating some basic principles: the research of polycentric development in Europe;

the urban-rural partnership; equal access to infrastructure and knowledge throughout Europe; the prudent management of the natural and cultural environment (CMSP, 1999; Faludi, 2010a, p. 15; Faludi, 2010b).

The polycentric model (Espon, 2005, p. 3, 4; Shaw & Sykes, 2004) is used as an analytical tool to explain the urban growth models of geographers and urban planners since the 1960s (Rauhut, 2016), and is introduced in the ESDP with the aim of pursuing a 'development of a balanced urban polycentric system and a new urban-rural relationship' (CMSP, 1999, p. 11). It is also included in the next EC documents, such as the 'Territorial Agenda of the European Union 2020' (EU, 2011) which promotes a 'polycentric development at the macro-regional, cross-border and also on national and regional level in relevant cases', or from the Espon programme with 'Making Europe Open and Polycentric, Vision and Scenarios for the European Territory towards 2050', which for the future of Europe envisages a polycentric territorial organization based on different configurations of the networks of European cities and differentiated growth zones (Espon, 2013).

The concept of polycentrism is one of the most complex among those used in ESDP. This complexity is probably the result of intergovernmental compromises, negotiations and consensus research through which the document was produced (Davoudi, 2003, p. 988), but also derives from the lack of a univocal definition. In fact it can represent a normative objective (Waterhout, 2002) that can change with the scale (Hall, 2001, p. 12), morphology, function, etc., and is declined in a different way, or not declined at all, by the States (Rauhut, 2016; Van Meeteren et al., 2016). Corroborating these aspects, there is difficulty in finding empirical evidence to support the positive effects of polycentricity. In fact, there are empirical results that suggest that the polycentric countries show higher regional disparities than the monocentric countries (polycentrism should eliminate such disparities); there is evidence that relatively more monocentric regions have higher GDP *per capita* than more polycentric regions, and in general, polycentric countries do not get higher scores on the regional competitiveness index than single-centre countries (Rauhut, 2016). And yet, territorial tendencies other than polycentric ones continue to prevail, characterized by the concentration of highly efficient global functions in the heart of Europe, such as the Megaregions identified by the studies of Richard Florida (Florida, Gulden, & Mellander, 2008).

Obviously, wanting to save the analytical and comparative aspect by all means, one would risk making it trivial and not very useful; while wanting to apply the normative aspiration in a fertile way, we would encounter a series of problems related to the variety of territorial situations (Shaw & Sykes, 2004), the differences in settlement models, the role of decision makers and the relationships between them. But the main problem is probably the indifference to the territorial scales. In the current versions, polycentrism tends to credit the idea that local problems and those of the territory of the Union can be tackled coherently and corresponding at all scales. On the other hand, the often celebrated 'return of the city', the metropolisation, alludes to other phenomena, in particular emphasizes a renewed political and economic centrality of the cities precisely because these, as collective actors, should operate through geographical scales and variable decision levels. This depends on the planning and governance models adopted by the Member States, models that do not always refer to the perspective of European polycentrism but to the national one, thus unbalancing the polycentric territorial adjustments.

Alongside these criticisms of the polycentric model, the reformulation of the concept of territorial cohesion occurred in recent years, especially after the decision about ESDP, as well as the rise of inequalities, the renationalization phenomenon and neo-sovereignism (Fabbrini, 2015; Faludi, 2010a, p. 16; HCSS, 2017; OECD-COPE, 2017; Raines, Goodwin, & Cutts, 2017), are marginalizing, and will marginalize more, the debate on European spatial planning, despite the Espon and Interreg experiences that have contributed to consolidating the role of scientific community around this topic (Waterhout, 2008). The reasons that weaken an effective institutionalization of the territorial dimension of the European policies are to be found also in the lack of formal competences of the EU in this field, not being included in any EU treaty explicit reference to the Government of the Territory (Williams, 1996). However, there are some experiences of Europeanisation of Spatial planning, such as the one in the Netherlands, France, UK, but also in the Macroregions, which are the result of various EU sector policies that influence Spatial Planning, as well as internal political choices. For example, almost the whole Dutch territory is covered by one or more EU policies and Spatial Planning is considered to be the most effective instrument for resolving the conflicts of these policies (Evers & Tennekes, 2016). Studies in the context of Southern Europe also suggest that European spatial planning 'takes shape by passing through the prism of progressive and complex changes in planning practices' (Janin Rivolin & Faludi, 2005, p. 211) through an eminently local and diversified process generated from the experience of EU policies, a process that states that the 'European spatial planning has a life beyond the ESDP' (Janin Rivolin, 2003, p. 72). This topic is also discussed by Andreas Faludi, who underlines how today the Spatial Planning Europeanisation, strong in the 60s and 70s, has now come to a standstill and hopes for the recovery, recalling the potential of 'business as usual' and 'deep change' scenarios that rethink the basic categories of space and territory and reconfigure the concept of European integration (Faludi, 2014).

Our research supports the central role of Spatial planning in a cross-scale logic, in the definition given by Andreas Faludi who considers it as the 'formulation of integrated strategic spatial frameworks to guide public, as well as, private action. This puts spatial planning more in the context of governance than government, where mutual understanding and commitment are as important as statutory powers'. With regard to governance it is important to underline that today we are facing evolutionary forms that seek to favour competitiveness through new forms of partnership and networks. It is a sort of Spatial Rescaling that is changing the geographic reference dimensions of the planning, the domain, calling for new 'regional' aggregations for the realization of strategies and policies, at various scales, aggregations that are detached from the rigidities associated with the formal scales of the statutory plan (for example, think of the season of the *Contrats de milieu* in France).

> The emergence of these 'soft spaces' is an important trend, which alongside the tactical use of 'fuzzy boundaries' is related to a policy impetus to break away from the shackles of preexisting working patterns which might be variously held to be slow, bureaucratic, or not reflecting the real geographies of problems and opportunities.

This category includes the Macroregions, a geographical domain that is considered effective for spatial planning practices (Allmendinger & Haughton, 2009, p. 619). In fact, our research considers the Macroregion (the European type), an example of territorial

governance that comes from below, an optimal context in which it is possible to experiment planning actions that address the dualisms of space/territory and territory/policies (of territorial cohesion) in a changing and pan-European context. In parallel, we will see in the next paragraphs that the TFs represent at the same time the interpretative model adopted for spatial planning, the multi-scale mesh that on one hand connects the Macroregions holding them together and on the other tries to rebalance the development processes within the same Macroregions.

This approach should overcome the debate within the EU about a possible competence of Europe in spatial planning, which sees the territorial control topic as a distinctive feature just of the national state and that this right withdrawal would undermine its sovereignty. This is because the spatial planning to which it refers is closer to the Strategic one than to land-use, conforming only the territory, but mostly because in the Macroregion context it also becomes a bottom-up action promoted by the Member States themselves.

3. Territorial Frames and Macroregions for a new season of European spatial planning: methodology and applications

The Spatial Planning lines suggested by the EU are substantiated on the one hand by the polycentric model supported by the Ten-T network and then by the European corridors (EC, 2017), on the other by the different models proposed by the literature on European trends in recent decades (Figure 2), such as the Blue Banana (Brunet, 1989) and its more famous counterpart the Bunch of grapes or Green Grape (Kunzmann & Wegener, 1992), both based on the same philosophy that pursues the achievement of a polycentric structure of the European space system and urban area (BBSR, 2011, p. 15). In the European space development perspective, other models have been proposed that prove the growing importance of metropolitan nodes in a European network economy and the growing importance of the corridors of the international network (Nijkamp, 1993). The 'European Pentagon' is among the best known (Schön, 2000), as well as the 'Europe of 7 apartments' (Lutzky, 1990), the 'Red Octopus' (Van Der Meer, 1998) and the 'Blue Star' of Europe (Dommergues, 1992), to which is joined by the twenty-year scientific experience of the Espon programmes, starting from the studies on polycentrism of 2005, already mentioned in this article (ESPON, 2005).

These are very suggestive models from the interpretative point of view, which have certainly contributed to the maturation of the debate on the model of European spatial development, to the promotion of the European network structure, but which, as seen in §2, are not managed to achieve an effective integration of territories and cohesion, to reach the target of a Europeanisation of Spatial planning (Faludi, 2014), as demonstrated also by the non-reproposal of the ESDP, the only experience that dates back to the late 90s (see §2).

The interpretative model of the European space proposed in this article is an attempt to intervene on these issues, as argued in §2, to reinterpret the conceptualization of the planning lines dictated by the EU in a cross-scale key (of policies and territories). It is a model composed of two components, the first are the 'Territorial Frames – TFs', spatial meshes through which the settlement and natural space are interpreted, the second are the 'Macroregions' which represent the areas of governance of the processes of development

planned on the meshes of the TFs. In particular, our model is based on the following methodological principles:

- The European polycentrism recognition as the starting point of a new integrated way of understanding the cities networks that does not refer to the gravitational or hierarchical (polycentric) model but rather to that of an integrated network (Camagni, 2017; Solís Trapero & Troitiño Vinuesa, 2012).
- The recognition of the catalytic role of the transport and communication network (Nijkamp, 1993, p. 14) and especially of the multimodal European corridors and Ten-T networks (EC, 2008).
- The definition of a 'European spatial mesh' of reference that becomes the interface with the settlement / production, environmental / natural and landscape, in the pursuit of a strategy of spatial integration of development processes.
- The integration with the main digital networks and related local facilities such as large data centres or data mirroring (topic not yet explored).
- The chance of applying the TFs model both at the European / global level and at the local level (Bauman, 1998; Kidd & Shaw, 2013; Robertson, 1992), pursuing the strategy of the variable geometry of the 'space meshes'.
- The reference to a cohesive governance system, such as the Macroregion (EU, 2009; McMaster & Van der Zwet, 2016), which is also cross-scale and can be applied both at the transnational level and at the national level with the same basic principles (European Macroregions / National Macroregions).

In the next paragraphs the methodology through which the TFs have been identified and their relationship with the macroregional governance system will be briefly described.

3.1. The Territorial Frames – TFs

The TFs are infrastructural quadrangles whose sides are constituted by the main European mono/multimodal transport corridors, characterized by their completeness / incompleteness and on which flows of goods and people move, but also digital. Along the branches of these quadrilaterals and at their vertices are generally the main urban and productive agglomerations and the most important European cities (D'Ovidio, Di Ludovico, & La Rocca, 2016). In our model the TFs, with their autonomous and often diversified size and structure, constitute the main spatial mesh that recomposes the settlement systems and their post-industrial forms, that Spatial planning has not managed to govern, as well as the main ones spatial development models conceived in the last decades or the European polycentrism, and whose constitutive rules must be reinterpreted with new categories. Straddling the quadrangles there are spatial tiles consisting of large and small urban areas, from more or less important production areas, from reservoirs of naturalness or large agricultural production areas.

Figure 1 represents an ideal scheme of cross-scale TFs in which in addition to being represented the above-mentioned territorial components in relation to the branches of the same TFs, it occurs as there are branches with differentiated completeness and the relationship of the same with the Macroregions, areas of government of spatial projects based on the same TFs. The completeness of the branches of the TFs is an essential

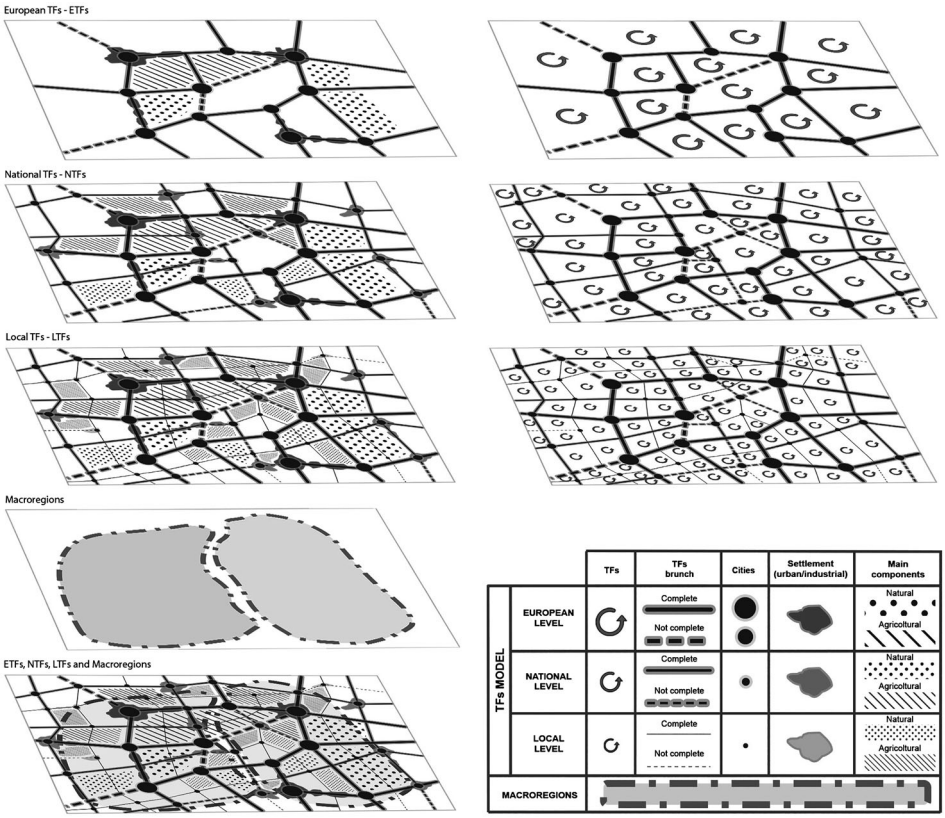

Figure 1. Ideogram of the cross-scale TFs meshes, in relation with the Macroregions.

factor of the model as it corresponds to the efficiency of the connected settlement and production systems but also the efficiency of the connections to the environmental and landscape systems inside the Frames. The model shown in the figure provides for different levels of TFs depending on the scale of observation: European – ETFs, National – NTFs, Local – LTFs, whose spatial development is governed by macroregional strategies. These are overlapping, integrated networks that we can refer to the concept of 'Horizontal (non-hierarchical) networks' (Boix, 2003) rather than to that of polycentrism. We refer, above all, to the concept of integrated network elaborated by Roberto Camagni (Camagni, 2017; Solís Trapero & Troitiño Vinuesa, 2012), in which different logics overlap on the territory, both because of a temporal succession and because they refer to aspects different or different types of activities, giving rise to a complex scheme of overlapping spatial structures. In the scheme proposed by Camagni it is the 'Complementarity networks', composed of specialized and complementary centres, from the 'Synergy networks', formed by cooperating centres, and the 'Innovation networks', consisting of centres that cooperate on specific projects in order to reach a sufficient critical mass (Camagni, 2017, p. 191). These three networks we think can be re-read with respect to our TF levels and the relative spatial components of the territory, to obtain a fine plot of TFs + City networks (Di Ludovico & Properzi, 2012) able to connect the local to the global (Bauman, 1998; Brenner, 1999; Robertson, 1992).

On the topic of reference spatial units for the development of transformation processes and territorial governance, the scientific literature, in response to the 're-scaling' and 're-territorialization' processes in Europe, has already introduced similar models to the TFs, as for example the 'Interdependent Territorial Systems' (ITS), 'spatial units overcoming the administrative partitions of the area and, therefore, the structural and operational dimensions usually adopted for planning policies and practices'. However, the approach is different than the TFs. In fact the ITS are born from the Italian experience of the 2007–2013 National Strategic Framework that has identified the so-called 'Strategic territorial platforms', and are conceived 'as geometrically variable spatial units (without fixed boundaries), not conditioned by administrative partitions', 'an organized ambit of local identity units, requiring primarily the reinforcement of internal polycentrism according to the performing capacities of respective competitiveness potentialities' (Janin Rivolin, 2010, p. 300, 311). Therefore, while the TFs refer to a concept of horizontal network, to fixed spatial units (quadrangles) and to the concept of integration and relationship, ITS refer to the concept of polycentrism, to spatial units with variable geometry and to the concept of interdependence. What connects them is that both are not conditioned by the administrative partitions and that both refer, as a field of governance, to the Macroregion, although our research uses the European model for this last one (§3.2).

Figure 2 on the left shows an overlap of the main European spatial development models (Blue Banana (Brunet, 1989), Bunch of grapes (Kunzmann & Wegener, 1992), European Pentagon (Schön, 2000), Europe of 7 apartments (Lutzky, 1990), Red Octopus (Van Der Meer, 1998), Blue Star of Europe (Dommergues, 1992). In the background is represented the mesh of the European TFs (ETFs) in a first approximation. We can see how the models are innervated by some branches of ETFs, the most important and efficient (central Europe), but we also can notice that most of the mesh remains uncovered. On the right, the same network of ETFs is represented with a different thickness based on the

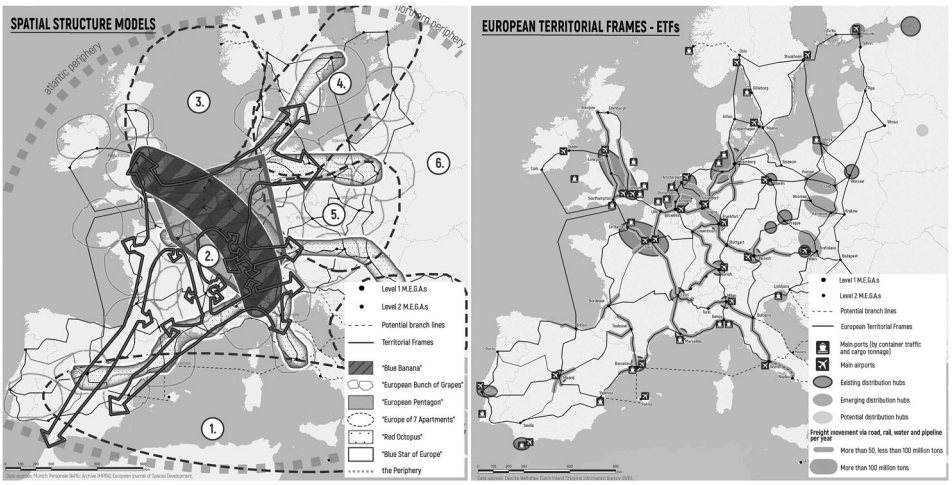

Figure 2. On the left are the classical interpretative models of the European space (European Appartments: 1. Mediterranean Sunbelt, 2. Technology Network West, 3. North-Sea Partners, 4. Baltic Hanse, 5. Middle-European Capitals, 6. East-Slavian Federation, 7. Balcan Take-off), on the right the European Territorial Frames (ETFs) with the main European hubs (source: BVB).

flows of goods affecting their branches (BVB, 2016). In the background are the major existing, emerging and potential 'distribution hubs' as well as the main European ports. It is clear how ETFs innervate the main European hubs and ports and how the longitudinal central area is the strongest from the logistics and the movement of goods point of view.

The ETFs, in the form of quadrangles and represented in Figure 2, have been identified by crossing the following territorial elements:

(1) The Trans European Network – Transport (TEN-T), Core and Comprehensive, and the nine European Corridors that constitute its backbone (EC, 2008), used to identify the most important branches of the ETF quadrangles. Since they were not sufficient to determine closed quadrangles, the other branches were identified through the minor corridors extrapolated from the TENtec Interactive Map Viewer. Already at this stage, the information available allowed to classify the branches based on the level of completeness.
(2) Transport flows, both in terms of goods and in terms of people (BVB, 2016), used to characterize the configuration and completeness of the branches of the ETFs quadrangles identified in the previous.
(3) The Metropolitan European Growth Areas (MEGAs), one of the components of European polycentrism (Espon, 2005), which become the nodes of the quadrangles ETFs (this does not always happen, in some cases in the nodes there are cities of lower rank).
(4) The main settlement and production systems identified in terms of shape and population (elaboration based on Eurostat, Corine Land Cover, Copernicus). In Figure 2, to be clear, only the main production hubs are represented which qualify some branches of the most competitive (and therefore complete) ETFs compared to others.

So a first configuration of the ETFs was obtained. The quadrangles (spatial tiles) have therefore been characterized by a series of density indicators (component surface / tiles area), on the basis of the following internal components or straddling the same quadrangles that concerning the environmental system, the settlement system and the agricultural and industrial production system also with reference to accessibility, transport and work (Figure 3): (1) distribution of Protected Areas (source: European Environmental Agency – EEA), (2) distribution of Natural and Semi-Natural Areas (source: Corine Land Cover – CLC), (3) distribution of the Areas of Agricultural production (source: Corine Land Cover – CLC), (4) population distribution (source: Eurostat), (5) distribution of the Gross Domestic Product (Source: Eurostat), (6) Road, rail and air accessibility (Source: Espon), (7) job market (Performance typology, Source: Espon), (8) Industrial production (Source: Eurostat, Espon, BVB). The subjects related to the cultural and landscape heritage are instead under development.

These elementary indicators were finally summarized in two synthetic indicators that characterize the ETFs. The first, on the left in Figure 4, represents the synthetic Indicator of the physical components, in which the ETFs with a darker colour are those that have a predominant naturalistic or agricultural component. On the other hand, the lighter coloured ones have low indicators both for natural and semi-natural surfaces, both for protected areas and for productive agricultural areas. The figure shows the preponderance of the Baltic-Adriatic axis, the Franco-UK axis, and the Mediterranean area. On the right is

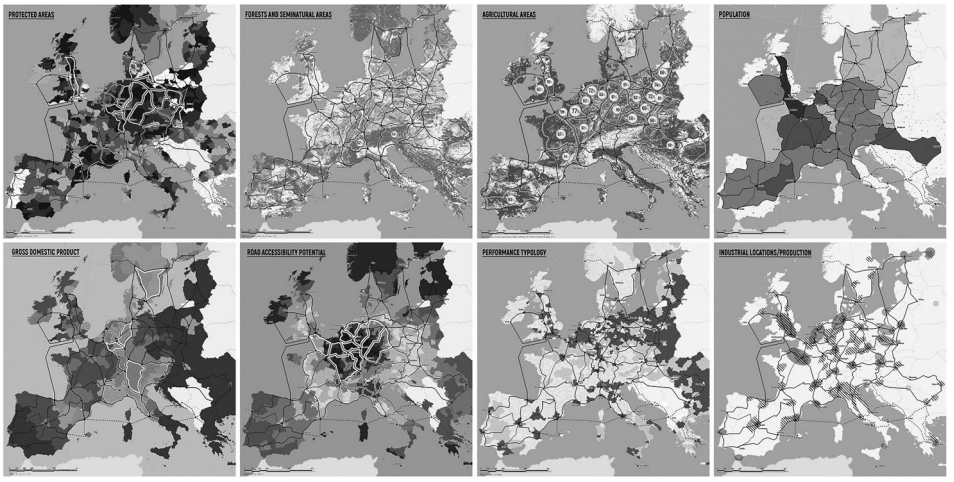

Figure 3. Some of the characterizing territorial components, used for the identification of ETFs: Protected Areas, Natural and Semi-Natural Areas, Agricultural Production Areas, Population, Gross Domestic Product, Road Accessibility, Job market (Performance typology), Industrial production (Source: EEA, CLC, Eurostat, Espon, BVB).

the synthetic Indicator of the socio-economic components, with the same logic as the previous Indicator. Where the colour is darker, the indices related to population, GDP, production, accessibility, are higher; where the colour is lighter are lower. As can easily be

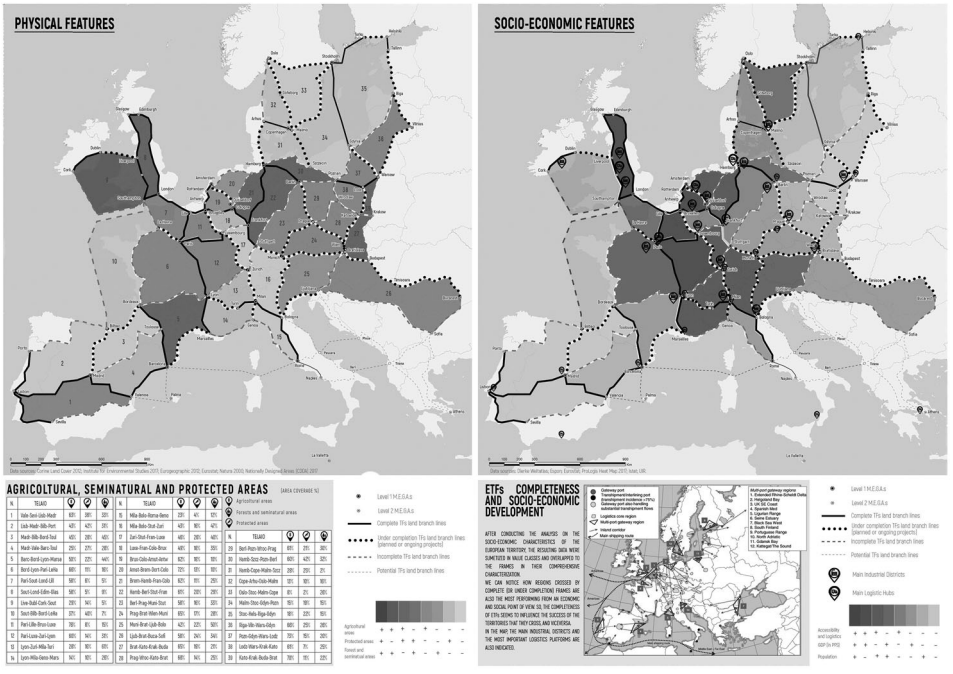

Figure 4. The synthetic Indicators characterizing the ETFs. On the left the Indicator of the physical components on the right the Indicator of the socio-economic components (Source: EEA, CLC, Eurostat, Espon, BVB).

deduced, the strongest ETFs are those of the central European area, coinciding with the engine of Europe (Florida et al., 2008).

3.2. The European Macroregions

The long-standing and increasingly strong territorial divisions in Europe are changing the model itself of Europe. We are in a particularly intense experimentation period that is reflected in the emergence of new assemblages of territory, authority and rights (Sassen, 2008) or on policy initiatives related to specific areas and addressed to face up to particular problems (Kidd & Shaw, 2013, p. 183, 184). Processes of reterritorialization, that is reconfiguration and re-scalability of territorial organization forms such as cities and states, have been underway for some time. (Brenner, 1999). The European Macroregions formation (EU, 2009) can be traced back to this phenomenon. These in fact, represent instruments oriented to a new governance of European development and are made by aggregations of Regions born from the bottom and that pursue common challenges. The sense of macroregional strategies is to capture those aggregates of an economic-productive and social nature that can be together, without necessarily having to create a new institutional subject that is added to the existing one. These strategies mean coordinated policies on assets and in some key sectors of the economy that make the territories in homogeneous question (EU, 2009).

The concept that pursues our research considers TFs a territorial mesh designed for a new Spatial planning process based on Macroregional development. The new European Macroregions with their innovative characteristics are considered from our research an examples of territorial governance in which it is possible to experiment Spatial planning actions (McMaster & Van der Zwet, 2016), which are also born from bottom-up (thus overcoming the problem of renationalisation), that address the dualisms of space / territory and territory / policies, geographical domains that are considered effective for the application of spatial development policies.

Figure 5 represents an overlap between the ETFs and the four European Macroregions currently active (Baltic Sea, Danube, Adriatic-Ionian, Alpine). ETFs are represented based on the completeness degree of their branches (see the model in Figure 1). It can be easily deduced that in all four cases it is verified that the ETFs involved by the Macroregions are generally incomplete, a criticality that determines a structural weakness, in connective terms, of the Macroregions since the main settlement, production and environmental systems are connected to a network by the low efficiency linkage (the branches of ETFs, which we consider the most important in absolute). Furthermore, by overlapping the same Macroregions to the two synthetic indicators of Figure 4 we would find a very strong Alpina Macroregion from a socio-economic point of view and an Adriatic-Ionian Macroregion (which overlaps the Alpine one) weak in which there is also a lack of ETFs on the Adriatic area. The Danube Macroregion has a strong environmental and agricultural propensity, and for the Baltic one these aspects are even more nuanced. These preliminary reflections, which our research is deepening, essentially demonstrate that we are dealing with a macroregionalism without a spatial reference framework that can instead be implemented, albeit from bottom-up, using ETFs as the basic spatial mesh for spatial policies. These are the reference that can allow the implementation of sustainable macroregional and local (multi-scalar) development projects, adapted to the

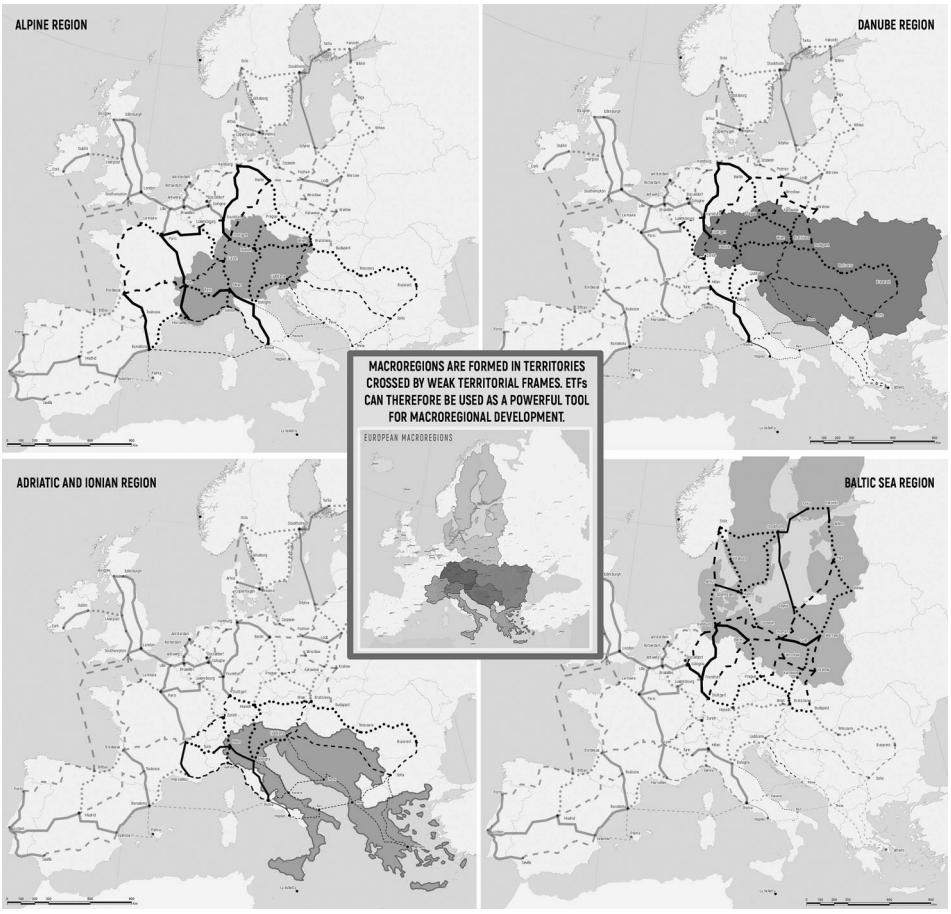

Figure 5. European territorial frames and the four Macroregions activated (Source: EC, Eurostat).

territorial capacities described by the indicators, oriented towards performance and therefore to efficiency (Terryn et al., 2016).

The TFs and the Macroregions, through Spatial Planning, allow to reach with less conflicts (the Macroregions are based on agreements), the equity, the balance and the balancing of resources, the efficiency of settlement systems and mobility, the integration of strategies and projects between different regions. In the next section we will describe an application of Spatial Planning based on TFs and Macroregions at national level and in particular the experience is related to the so-called Median Macroregion of Central Italy.

4. Italian Median Macroregion's application

It has been repeatedly stated in this article that the methodology proposed by the research includes among the principles the one of multi-scale which means that what can be applied at European level can also be applied at national and local level (Priemus & Zonneveld, 2004). In this section we report an application of our model to an experience called 'Territory Project "Joint 2" Abruzzo', a study by the Italian Ministry of Infrastructures and

Transport – MIT and the Abruzzo Region (It) (RegAbr, 2015) oriented towards the construction of a Public/Private – P/P partnership located in the so-called Median Italy (Central Italy) for the realization of common development projects with particular attention to the most in-crisis inner areas (Act, 2013). In this case, the opportunity to construct a national Macroregion (the P/P partnership), the Median Macroregion (Di Ludovico & Properzi, 2015), and the opportunity to set up territorial spatial development projects was positively tested on TFs at the national level – NTFs (Di Ludovico et al., 2015; Di Ludovico & Properzi, 2015).

From a structural point of view, at the nodes (hubs) of the Italian NTFs there are often important historical settlements and medium-sized cities (those identified by the Report from Territory 2016 (INU), that is the provincial capitals and their Local Labor Systems (Properzi, 2016)) or metropolitan (which are then the urban poles in which the higher and rare services are concentrated and which include the MEGAs and those provided for by Italian Law No. 56/2014). Along the NTFs branches in some cases a post-industrial settlement develops through linear or nuclear diffusion, with an essentially productive characterization (industrial areas and nucleuses) and commercial (in particular on coastal branches). On the other hand, in the inner areas of the NTFs there are often agricultural activities, scattered settlements and also naturalistic areas and landscapes of considerable value.

Figure 6 identifies these components on the structure of Italian NTFs, and represents the relative synthetic Indicators of the physical components (left) and socio-economic

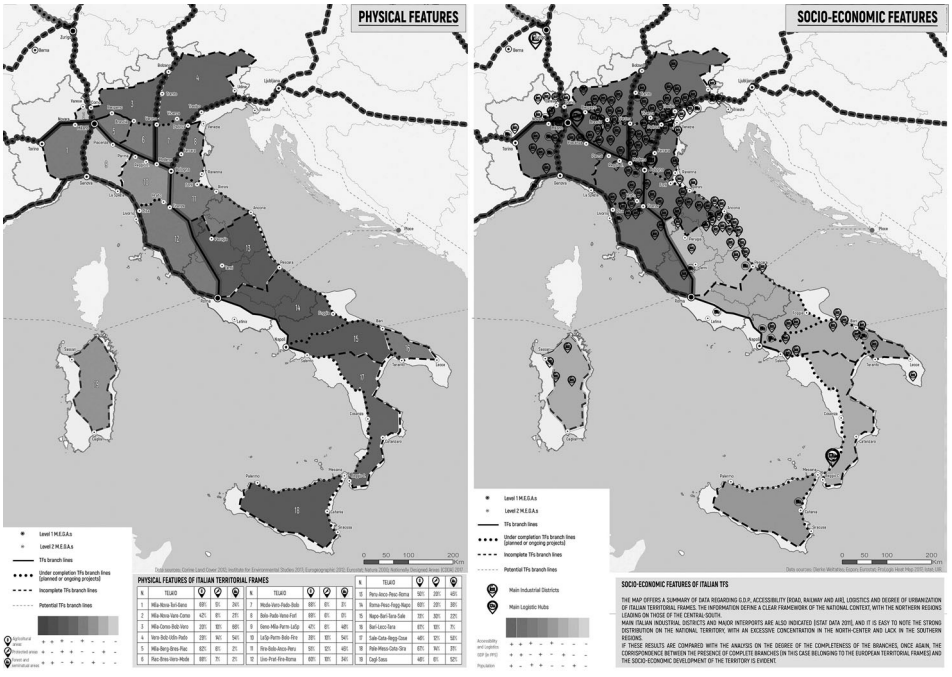

Figure 6. The synthetic Indicators characterizing the Italian NTFs. On the left the Indicator of the physical components on the right the Indicator of the socio-economic components (Source: EEA, CLC, Eurostat, Istat – Italian statistical institute, Espon).

(right), as already identified for the European case (§3.1, Figure 4). The division of northern Italy, with a strong industrial connotation (NTFs dark gray in the map on the right, the points represent the industrial districts), and southern Italy (the 'mezzogiorno'), with a strong naturalistic-environmental connotation, is evident (NTFs in dark gray in the map on the left).

The result of the analysis highlighted NTFs often incomplete, particularly in the south, deriving from infrastructural deficits that isolated and marginalized the most decentralized and weak territories, which consequently were excluded from the development processes that were concentrated around to big cities, metropolitan ones and global ones (Taylor, 2004) and in the most accessible and competitive territories in terms of the generalized cost of transport (this also happens for digital networks).

Figure 7 represents the transition from the national level down to the Median Macroregion, with the aim of using the results of the analyzes and the national structural components to articulate a macroregional development project based on the implementation of the LTFs matrix (to whom the meshes of ETFs with the NTFs ones). The figure, at the

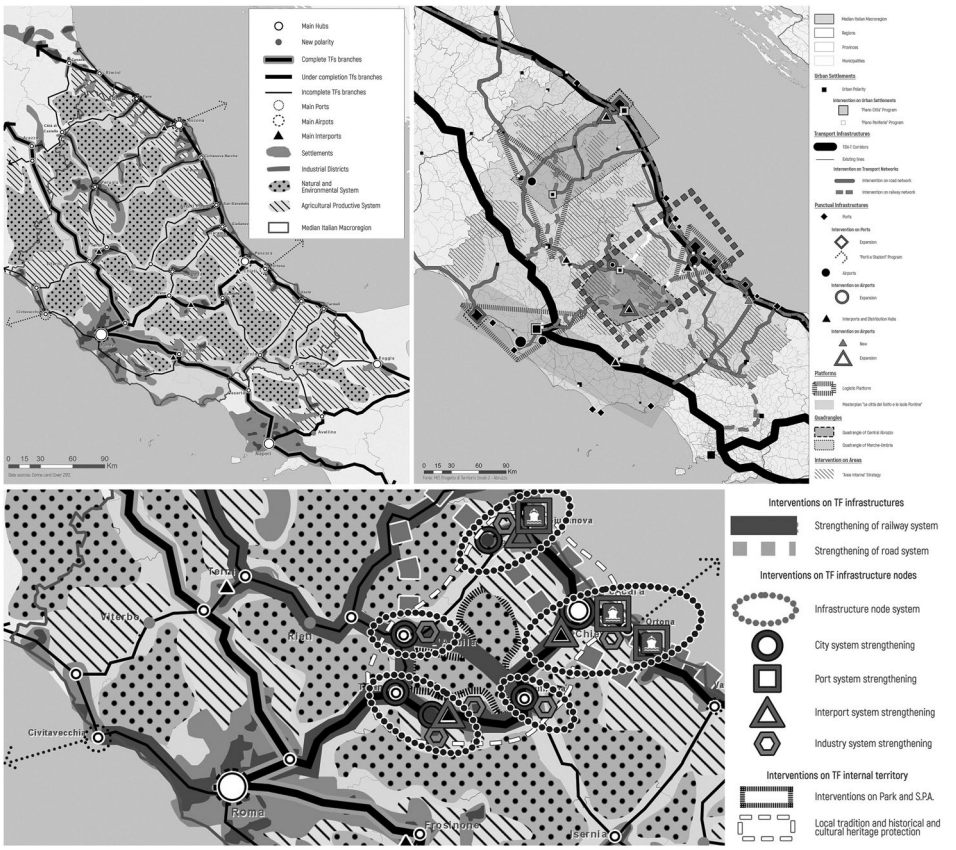

Figure 7. Top-left, schematic representation of the spatial components (settlements, natural elements, agricultural elements) in relation to NTFs; on the right, the macroregional spatial / territorial development projects and the NTFs differentiated according to their completeness; below an example of a Local spatial / territorial development Project based on TFs and the development of its components (Source: EEA, CLC, Eurostat, Istat, Espon, Mit).

top-left side, shows a schematic representation of the spatial components (settlements, natural elements, agricultural elements), in the Median Macroregion, related to the LTFs and with the main connections of the NTFs with the ETFs. On the top-right side are the available Macroregional Spatial / Territorial development projects identified by the MIT study, and the NTFs differentiated according to their completeness and belonging to the European corridors (the most populated NTFs are on the Tyrrhenian coast – Rome/ Naples –, with a maximum of 3.000.000 inhabitants).

The macroregional development project translates into practice in the Spatial development projects of the individual LTFs and their spatial and socio-economic components (Albrechts, 2006) as identified in Figures 6 and 7 (on top), integrated with each other and with those of NTFs and ETFs (not dealt with in this research) according to a horizontal mesh pattern (see Figure 1). Figure 7, on below, is just one of these, the one related to the quadrangle that affects the Adriatic coast and the Gran Sasso (Pescara-Teramo-L'Aquila-Avezzano-Sulmona), an Abruzzo area with high fragility, in part classified as a crisis area.

The Spatial development project of the LTF 'Pescara-Teramo-L'Aquila-Avezzano-Sulmona', a piece of the development project of the Median Macroregion and which requires first of all the formation of a Partneship P/P, is structured through 3 strategic axes aimed at strengthening the TF and its components:

(1) The Territorial Frames: completeness, strengthening, connection (with Europe and the interior of the TFS).
(2) Settlement development, local identity, research and innovation (with a focus on the 2009 and 2016 earthquake area).
(3) Valorization of natural, cultural, landscape and tourism resources.

The development of this LTF contributes to that of the ETF and the NFT, to which it belongs. This is one of the model great potentialities, considering the different levels of TFs as horizontal networks capable of contributing to spatial and socio-economic development all at the same time, avoiding a hierarchical approach typical of polycentrism. The cross-scalability of the TFs, bring the 'local' territories (like those of inner areas (ACT 2103)) in touch with the 'global' ones. Thus all the territories of the TFs involved are put in competition, highlighting their differences (Di Ludovico et al., 2014) that the TFs model uses as development processes's activator. In fact, in the first instance, it is the difference between the territories that moves men, goods, capital, informations (Ascher, 2013). Furthermore, this model can have a significant impact on the environmental sustainability of development, since it is at the same time performance oriented (control of Indicators, Figure 6) and strengthening and enhancement of existing territorial capital (this means for example pursuing the aim to achieve no net land take (SEP, 2016)).

5. Conclusions

The research presented in this article is an evolution and deepening of the themes and methodologies used in the study of the Italian Ministry of Infrastructures and Transport – MIT and the Abruzzo Region (It) heading 'Territory Project "Joint 2" Abruzzo' (RegAbr,

2015), which investigated the potential of the National Macroregions (on the model of the European ones), identifying the Median Macroregion as a reference for the Spatial development projects and laid the foundations for the design of the TFs model. This study was therefore the starting point to propose a model of analysis and spatial development that attempts to reinterpret the conceptualization of the planning lines indicated by the EU in a cross-scale key. The TFs – Territorial frames multilevel (ETFs, NTFs and LTFs) were identified, a connective territorial meshes that was conceived to activate sustainable processes of spatial development referring to new bottom-up systems of governance as the European Macroregions, in a performative logic and with the goal of integration between European territories. Applying analytically this TFs-Macroregioni model, a very strong Alpine Macroregion from the socio-economic point of view was found, a Danube Macroregion with a strong environmental and agricultural propensity, but a weak Adriatic-Ionian Macroregion where there are no ETFs on the Adriatic area, characteristics who shows us at the preliminary level that we are facing a macroregionalism without coordination and with different levels of integration for which TFs can play a reconnective role. The model application at local level, on a specific LTFs, then demonstrated the model's potential to connect the 'local' territories (identified by the LTFs) to the 'global' ones (identified by the NTFs and in particular by the ETFs), and to link the fragile territories to national and global networks. However, the research has paid the lack of a general European framework for spatial policies whereby to introduce the concept of TFs (more specific than the Territorial Agenda of the European Union 2020 or the Common Strategic Framework 2014–2020), and the lack of some data at European level, such as those on transport, landscape and cultural heritage, typical of spatial planning.

The work presented in this article has been very complex and for some parts it is still developing. Specifically, three themes are currently under development and detail. The first one concerns a more detailed characterization of the transport system connected to ETFs, which will also be used to verify their spatial configuration. The second concerns the implications that arise in referring to a 'Horizontal (non-hierarchical) networks' rather than to polycentric hierarchical networks, as an adaptation of the integrated network model (Camagni, 2017). The third theme, completely new compared to the other two, is connected to the concept of smart grids and smart territories, ie we are studying the integration of the TFs meshes with the virtual meshes of European and national digital corridors and related facilities (for example the big data hub), extending the 'smart' principles, today very concentrated on the city, to support territorial development.

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No potential conflict of interest was reported by the authors.

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References

ACT. (2013). Strategia nazionale per le Aree interne: definizione, obiettivi, strumenti e governance, Agenzia per la Coesione Territoriale. Retrieved from http://www.agenziacoesione.gov.it/opencms/export/sites/dps/it/documentazione/Aree_interne/Strategia_nazionale_per_le_Aree_interne_definizione_obiettivi_strumenti_e_governance_2014.pdf

Albrechts, L. (2006). Bridge the gap: From spatial planning to strategic projects. *European Planning Studies*, *14*(10), 1487–1500. doi:10.1080/09654310600852464

Allmendinger, P., & Haughton, G. (2009). Soft spaces, fuzzy boundaries, and metagovernance: The new spatial planning in the Thames Gateway. *Environment and Planning A: Economy and Space*, *41*, 617–633. doi:10.1068/a40208

Ascher, F. (2013). The new principles of town planning (in french), Editions de l'Aube, La Tour d'Aigues, pp. 69–96.

Bauman, Z. (1998). On glocalization: Or globalization for some, localization for some others. *Thesis Eleven*, *54*(1), 37–49. doi:10.1177/0725513698054000004

BBSR. (2011). Metropolitan areas in Europe, Federal Institute for Research on Building, Urban Affairs and Spatial Development, Bonn. Retrieved from http://www.espon-usespon.eu/dane/web_usespon_library_files/1200/de_metroareaeu_2011.pdf

Boix, R. (2003). Networks of cities and growth: Theory, network identification and measurement of the network externality. *European Business Module*. Retrieved from http://urban.uab.es/references/2003/03008.pdf

Brenner, N. (1999). Globalisation as reterritorialisation: The re-scaling of urban governance in the European Union. *Urban Studies*, *36*(3), 431–451. doi:10.1080/0042098993466

Brunet, R. (1989). Les villes européennes. Rapport pour la DATAR, Délégation à l'Aménagement du Territoire et à l'Action Régionale, Paris.

BVB. (2016). The power of inland navigation. The future of freight transport and inland navigation in Europe 2016–2017, The Blue Road, Dutch Inland Navigation Information Agency (BVB). Retrieved from https://www.bureauvoorlichtingbinnenvaart.nl/assets/files/WaardeTransport_spreads-UK.pdf

Camagni, R. (2017). From city hierarchy to city network: Reflections about an emerging paradigm. In R. Capello (Ed.), *Seminal studies in regional and urban economics*. Cham: Springer. Retrieved from https://doi.org/10.1007/978-3-319-57807-1_10

Carmona, M., Heath, T., Oc, T., & Tiesdell, S. (2003). *Public places – urban spaces: The dimensions of urban design*. Oxford: Architectural Press. p. 22, 28, 29.

CEC. (1991). *Europe 2000: Outlook for the development of the community's territory*. Luxembourg: Commission of the European Communities, Office for Official Publications of the European Communities.

CEC. (1994). *Europe 2000+: Cooperation for European territorial development*. Luxembourg: Commission of the European Communities, Office for Official Publications of the European Communities.

Choay, F. (1992). *L'Orizzonte del posturbano, a cura di: D'Alfonso E*. Roma: Officina Edizioni.

CMSP. (1999). *ESDP European spatial development perspective, towards balanced and sustainable development of the territory of the European Union, informal council of ministers responsible for spatial planning in Potsdam*. Luxembourg: Office for Official Publications of the European Communities.

COE. (1968). Regional planning a European problem. Report of a working party set up under resolution 289 (1964), Council of Europe, Strasbourg.

COE. (1983). *European regional/spatial planning Charter, Torremolinos Charter*. Strasbourg: Council of Europe.

Davoudi, S. (2003). EUROPEAN BRIEFING: Polycentricity in European spatial planning: from an analytical tool to a normative agenda. *European Planning Studies*, *11*(8), 979–999. doi:10.1080/0965431032000146169

Di Ludovico, D., & D'Ovidio, G. (2017). Transportation Network Role for Central Italy Macroregion Development in a Territorial Frames Model Based. *Materials Science and Engineering*, *245*. doi:10.1088/1757-899X/245/4/042039

Di Ludovico, D., & Properzi, P. (2012). Evolution of the network of cities in the central Macroregion between reconstruction and underuse. In Vergano, A., & Caruana, A., IX Biennal of European towns and town planners - Genoa 14th-17th September 2011, Gateways - smart planning for Europe's Gateway Cities. Connecting peoples, economies and places, p. 1–9, INU Publisher, Roma (IT).

Di Ludovico, D., & Properzi, P. (Eds.). (2015). *Italia mediana. Una macroregione, strategie, piani e paesaggi*. Teramo, Italy: Verdone Publisher, Castelli.

Di Ludovico, D., Properzi, P., & D'Ascanio, F. (2015). Il completamento dei telai infrastrutturali per lo sviluppo dell'Italia Mediana, in: Italia 45-45, Radici, condizioni, prospettive, Planum publisher, Rome-Milan.

Di Ludovico, D., Properzi, P., & Santarelli, A. (2014). Median Italy: Territorial diversity as the cornerstone of regional development. *Advanced Engineering Forum*, *11*, 20–26.

Dickinson, R. E. (1947). *City region and regionalism. A geographical contribution to human ecology*. London: Routledge & Kegan Paul.

Dommergues, P. (1992). The strategies for international and interregional cooperation. *Ekistics*, *352-353*, 7–12.

D'Ovidio, G., Di Ludovico, D., & La Rocca, G. L. (2016). Urban planning and mobility critical issues in post-earthquake configuration: L'Aquila city case study. *Procedia Engineering*, *161*, 1815–1819. doi:10.1016/j.proeng.2016.08.670

EC. (2008). TEN-T, Trans-European Transport Network, European Commission – Directorate General for Energy and Transport. Retrieved from https://ec.europa.eu/transport/sites/transport/files/media/publications/doc/2008_brochure_tent_t_implementation_priority_projects_progress_report.pdf

EC. (2017). Transport infrastructure: Second generation of the work plans of the 11 European coordinators. *European Commission*. Retrieved from https://ec.europa.eu/transport/node/4876

ESPON. (2005). ESPON 111 potentials for polycentric development in Europe. *Espon-Nordregio*. Retrieved from https://www.espon.eu/sites/default/files/attachments/fr-1.1.1_revised-full_0.pdf

ESPON. (2013). Making Europe open and polycentric, vision and scenarios for the European territory towards 2050, European Union. Retrieved from https://www.espon.eu/export/sites/default/Documents/Publications/TerritorialVision/ESPON_Vision-Scenarios_2050.pdf

EU. (2009). Macro-regional strategies in the European Union, European Union. Retrieved from http://ec.europa.eu/regional_policy/sources/cooperate/baltic/pdf/macroregional_strategies_2009.pdf

EU. (2011). Territorial Agenda of the European Union 2020. Towards an inclusive, smart and sustainable Europe of diverse regions, informal ministerial meeting of ministers responsible for spatial planning and territorial development on 19th May 2011 Gödöllő, Hungary. Retrieved from http://ec.europa.eu/regional_policy/sources/policy/what/territorial-cohesion/territorial_agenda_2020.pdf

Eurostat. (2016). *Urban Europe. Statistics on cities, towns and suburbs*. Luxembourg: Publications office of the European Union. Retrieved from https://ec.europa.eu/eurostat/documents/3217494/7596823/KS-01-16-691-EN-N.pdf/0abf140c-ccc7-4a7f-b236-682effcde10f

Evers, D., & Tennekes, J. (2016). *The Europeanisation of spatial planning in the Netherlands*. The Hague: PBL Netherlands Environmental Assessment Agency.

Fabbrini, S. (2015). *Which European Union? Europe after the euro crisis*. Cambridge: Cambridge University Press.

Faludi, A. (2010a). Centenary paper: *European spatial planning: Past, present and future*. *Town Planning Review*, *81*(1), 1–22. doi:10.3828/tpr.2009.21

Faludi, A. (2010b). *Cohesion, coherence, cooperation: European spatial planning coming of age?* London and New York: Routledge.

Faludi, A. (2014). EUropeanisation or Europeanisation of spatial planning? *Planning Theory & Practice*, *15*(2), 155–169. doi:10.1080/14649357.2014.902095

Faludi, A., & Waterhout, B. (2002). *The making of the European spatial development perspective: No masterplan*. London and New York: Routledge.

Florida, R., Gulden, T., & Mellander, C. (2008). The rise of the mega-region. *Cambridge Journal of Regions, Economy and Society*, *1*(3), 459–476. doi:10.1093/cjres/rsn018

Hall, P. (2001). Urban development and research needs in Europe, Cerum, Report n. 8, Umeå, Sweden.

Hall, R. (2016). The development of regional policy in the process of European integration: An overview. In G. Bischof (Ed.), *Regional economic development compared: Eu-Europe and the American south* (pp. 13–33). Innsbruck: Innsbruck University Press.

HCSS. (2017). The rise of populist sovereignism: What it is, where it comes from, and what it means for international security and defense, The Hague Centre for Strategic Studies (HCSS). Retrieved from https://www.government.nl/binaries/government/documents/reports/2017/09/20/the-rise-of-populist-sovereignism-%E2%80%93-what-is-it-where-it-comes-from-and-what-is-means-for-international-security-and-defense/The+rise+of+Popular+Sovereignism-what+it+is-where+it+comes+from-and+what+it+means+for + international+security+and+defense.pdf

Janin Rivolin, U. (2003). Shaping European spatial planning. How Italy's experience can contribute. In: Faludi A. (Ed.) The application of the European spatial development perspective, special issue. *Town Planning Review*, *74*(1), 51–76. doi:10.3828/tpr.74.1.4

Janin Rivolin, U. (2010). Spatial units for EU territorial governance: Findings from a study on North-Western Italy. *European Planning Studies*, *18*(2), 299–316. doi:10.1080/09654310903491598

Janin Rivolin, U., & Faludi, A. (2005). The hidden face of European spatial planning: Innovations in governance. *European Planning Studies*, *13*(2), 195–215. doi:10.1080/0965431042000321785

Kidd, S., & Shaw, D. (2013). Reconceptualising territoriality and spatial planning: Insights from the sea. *Planning Theory & Practice*, *14*(2), 180–197. doi:10.1080/14649357.2013.784348

Kunzmann, K. R., & Wegener, M. (1992). The pattern of urbanisation in Western Europe. *Ekistics*, *58*(350/351), 282–291.

Lutzky, N. (1990). Vor neuen Dimensionen im europäischen Verkehr. In PROGNOS (Ed.), *Verkehr bnneuen Europa, Mehr Mobilität—mehr Wohlstand?* (pp. 1–16). Basel: PROGNOS.

McMaster, I., & Van der Zwet, A. (2016). Macro-regions and the European Union: The role of cohesion policy. In S. Gänzle, & K. Kern (Eds.), *A 'Macro-regional' Europe in the making. Palgrave studies in European Union politics* (pp. 47–71). London: Palgrave Macmillan.

Nijkamp, P. (1993). Towards a network of regions: The United States of Europe. *European Planning Studies*, *1*(2), 149–168. doi:10.1080/09654319308720206

OECD-COPE. (2017). Understanding the socio-economic divide in Europe, background report. *OECD Centre for Opportunity and Equality*. Retrieved from https://www.oecd.org/els/soc/cope-divide-europe-2017-background-report.pdf

Perulli, P., Rugge, F., & Florio, R. (2001). Reti di città: una forma emergente di governance Europea, Foedus, n. 4, p. 53–69.

Priemus, H., & Zonneveld, W. (2004). Regional and transnational spatial planning: Problems today, perspectives for the future. *European Planning Studies*, *12*(3), 283–297. doi:10.1080/0965431042000195065

Properzi, P. (Ed.). (2016). *Report from the territory 2016 (in Italian)*. Roma: INU Publisher.

Raines, T., Goodwin, M., & Cutts, D. (2017). The future of Europe, comparing public and elite attitudes, research paper. The Royal Institute of International Affairs, London. Retrieved from

https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/2017-06-20-future-europe-attitudes-raines-goodwin-cutts-final.pdf

Rauhut, D. (2016). Polycentricity: A critical discussion, draft paper prepared for the 56th Congress of the European regional science association, 23–26 August 2016 in Vienna, Austria.

RegAbr. (2015). Il Telaio dell'Abruzzo Centrale nella Macroregione Mediana. Il Progetto di Territorio Snodo 2 Abruzzo, Volturnia Publisher, Cerro al Volturno (Isernia, IT).

Robertson, R. (1992). *Globalization: Social theory and global culture*. London-Thousand Oaks-New Dehli: Sage publications.

Sassen, S. (2008). *Territory, authority, rights: From medieval to global assemblages*. Princetown: Princetown University Press.

Schön, K. P. (2000). Das Europäische Raumentwicklungskonzept und die Raumordnung in Deutschland. Einführung, in: Informationen zur Raumentwicklung, H 3/4, p. I–VII.

SEP. (2016). No net land take by 2050?, Future Brief, no. 14, European Commission, DG Environment by the Science Communication Unit, UWE, Bristol. Retrieved from http://ec.europa.eu/environment/integration/research/newsalert/pdf/no_net_land_take_by_2050_FB14_en.pdf

Shaw, D., & Sykes, O. (2004). The concept of polycentricity in European spatial planning: Reflections on its interpretation and application in the practice of spatial planning. *International Planning Studies*, *9*(4), 283–306. doi:10.1080/13563470500050437

Solís Trapero, E., & Troitiño Vinuesa, M. A. (2012). The network paradigm: Foundations towards a reconceptualization of territory and re-scaling of forms of territorial organization, Boletín de la Asociación de Geógrafos Españoles N.° 60-2012, p. 457–462.

Taylor, P. J. (2004). *World city network: A global urban analysis*. London: Routledge. p. 23.

Terryn, E., Boelens, L., & Pisman, A. (2016). Beyond the divide: Evaluation in co-evolutionary spatial planning. *European Planning Studies*, *24*(6), 1079–1097. doi:10.1080/09654313.2016.1154019

UN-DESA. (2014). World urbanization prospects, revision 2014. Retrieved from http://www.un.org/en/development/desa/publications/2014–revision–world–urbanization–prospects.html

Van Der Meer, L. (1998). Red octopus. In W. Blaas (Ed.), *A new perspective for European spatial development policies* (pp. 9–19). Aldershot: Avebury.

Van Meeteren, M., Poorthuis, A., Derudder, B., & Witlox, F. (2016). Pacifying Babel's tower: A scientometric analysis of polycentricity in urban research. *Urban Studies*, *53*(6), 1278–1298. doi:10.1177/0042098015573455

Waterhout, B. (2002). Polycentric development: What is behind it? In A. Faludi (Ed.), *European spatial planning* (pp. 83–103). Cambridge, MA: Lincoln Institute of Land Policy.

Waterhout, B. (2008). *The institutionalization of European spatial planning*. Delft: IOS Press.

Williams, R. H. (1996). *European Union spatial policy and planning*. London: Paul Chapman Publishing.