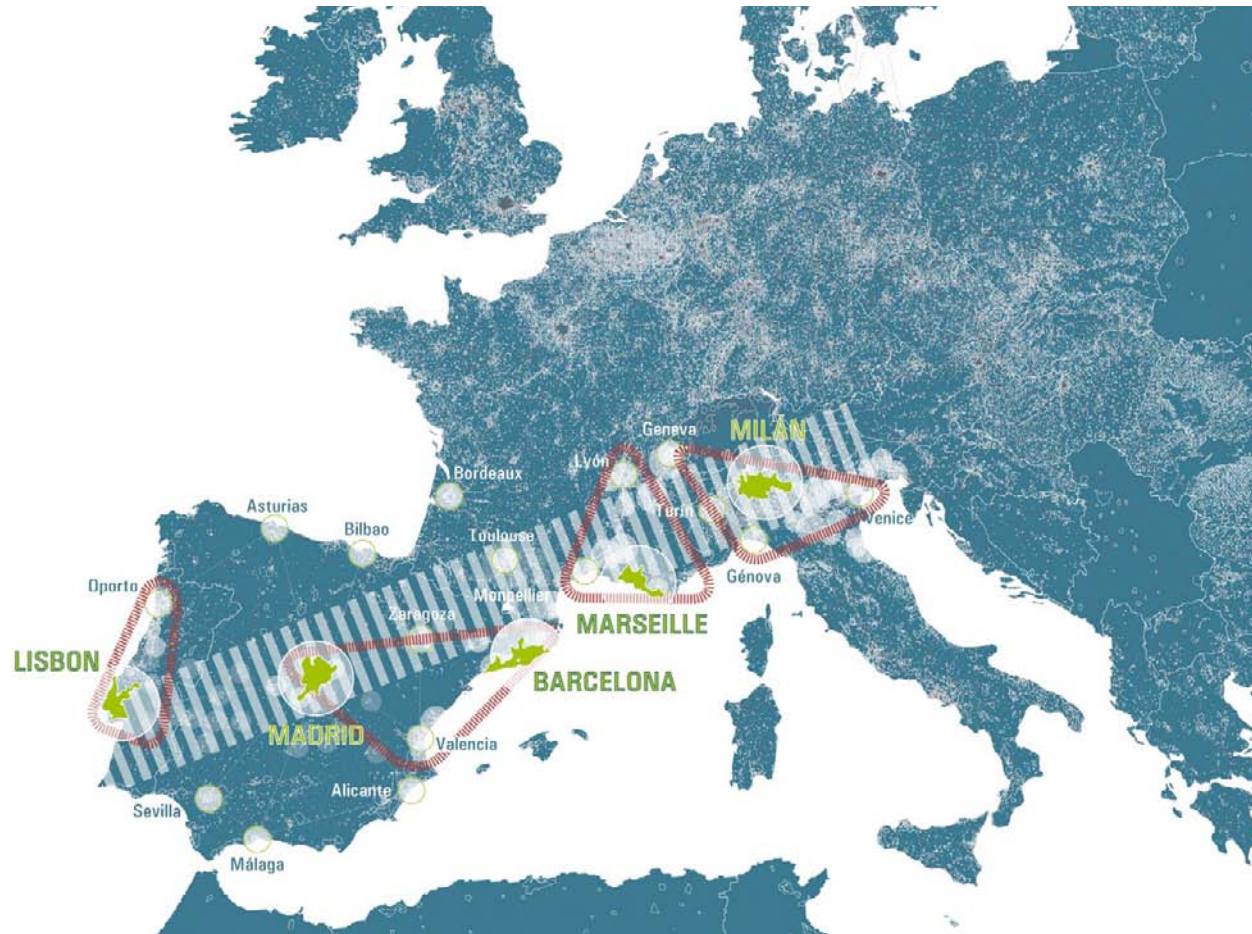


By Dr Alfonso Vegara and Mark Dwyer

# INTELLIGENT CITIES

## in the European Diagonal



When we speak about high-density cities in the context of Europe, particularly with regard to southern European cities, we must qualify “density” in terms of compact urban form and networked city-regions.

European cities cannot compare to the high-density standards of Shanghai or Singapore and, therefore, we must redefine this connotation within a European context. We can describe European density less in terms of population or built density, but more in reference to cities that offer a high-density of urban infrastructure, services, creativity and innovation within a compact urban footprint. Therefore, the question of what makes a city more attractive and liveable must rest on the returns it offers to its inhabitants, and not

simply by total population or a concentration of tall buildings.

The terms “attractive” and “liveable” are both subjective in nature, and are endlessly debatable metrics by which to measure modern cities. For this essay’s purposes, we will consider “attractive” as it relates to the ability of cities to attract global talent, tourism and trade – characteristics which are ultimately interconnected with and influenced by the other term, “liveability”.

INDICATORS AS BASIS FOR CONNECTIVITY MODELLING OF FIVE DIAGONAL CITIES AND DIAGONAL AS A WHOLE. CRITERIA: POPULATION LOCATED IN TRANSPORT CATCHMENT AREA; CATCHMENT AREA; AV. GROSS DOMESTIC PRODUCT PER CAPITA OF POPULATION REACHED BY TRANSPORTATION IN 4 HOURS

CITIES	Train	High speed Train	Airplane
<b>Lisbon</b>			
Potential passengers	4,271,348	16,367,286	11,711,766
Area (km <sup>2</sup> )	31,691	154,935	110,815
GDP/Potential passenger (euro)	14,102	14,982	16,578
<b>Madrid</b>			
Potential passengers	19,950,671	31,552,731	22,322,048
Area (km <sup>2</sup> )	245,418	357,391	186,206
GDP/Potential passenger (euro)	16,895	16,246	17,410
<b>Barcelona</b>			
Potential passengers	14,716,315	28,695,170	17,991,600
Area (km <sup>2</sup> )	120,655	267,137	132,120
GDP/Potential passenger (euro)	19,692	19,717	21,581
<b>Marseille</b>			
Potential passengers	25,179,399	53,415,202	19,663,438
Area (km <sup>2</sup> )	155,732	291,885	107,945
GDP/Potential passenger (euro)	29,087	26,782	24,432
<b>Milan</b>			
Potential passengers	30,434,217	80,335,526	34,126,385
Area (km <sup>2</sup> )	151,905	426,950	146,844
GDP/Potential passenger (euro)	25,469	25,802	28,601
<b>DIAGONAL</b>			
Potential passengers	85,921,646	134,842,204	67,268,398
Area (km <sup>2</sup> )	692,222	1,030,576	370,306
GDP/Potential passenger (euro)	23,497	23,587	23,955

Source: Fabio Casiroli based on GFK Macan database and Milan Politechnic

Less than 15 years ago, individuals overwhelmingly selected a company or job before determining the city they would live. Yet, more recent surveys have revealed a completely new paradigm, particularly with regard to the more highly educated creative class, who now commonly determine the city before the job. This paradigm shift has mandated that global cities cannot compete in attracting or retaining talented individuals by providing attractive companies alone. They must also provide highly liveable environments, supportive of innovation and creativity, together with a safe, equitable and competitive urban venue that is well connected by transportation infrastructure.

In discussing the high-density environments of Europe, we will utilise the concept of

city-regions. The term “city-region” refers to urban agglomerations, often historic or compact urban cores, and their surrounding territories. Together, these operate as a single, integrated urban model, sharing a population, major infrastructures, as well as economic and political arrangements.

With rapid urbanisation, some city-regions are developing sophisticated transportation, economic and environmental protection strategies, together with other metropolitan areas, thus creating a new type of extensive urban region or mega-region. High-speed rail networks that are integrated with airports and regional transit systems can improve mobility and strengthen economic links between individual cities within their polycentric networks. Parallel investments

1 pg 44: Map of the European Diagonal – an emerging mega-region connecting the cities of Lisbon, Madrid, Barcelona, Marseille and Milan.

Image courtesy of Fundación Metròpoli.

2 pg 45: Indicators showing potential transportation demand, which provides a basis for planning the connections between the cities in the European Diagonal.

Image courtesy of Fundación Metròpoli.

3 pg 46: Figure ground and aerial view of each of the five cities in the European Diagonal. 1) Lisbon; 2) Madrid; 3) Barcelona; 4) Marseille; 5) Milan.

Image courtesy of Fundación Metròpoli.

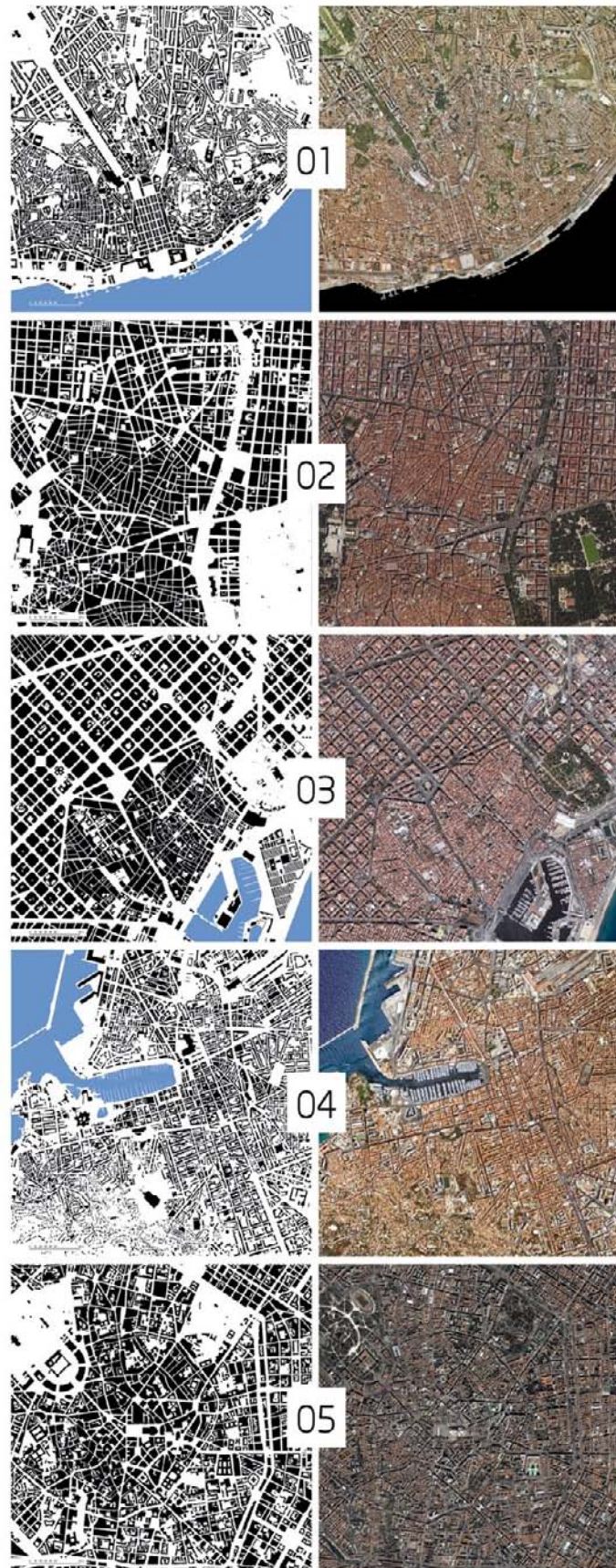
4 pg 47: Map of the four strategic ‘diamonds’ in the European Diagonal.

Image courtesy of Fundación Metròpoli.

5 pg 48: The spatial distribution of a city’s knowledge and research institutions can be construed as a proxy indicator of its capacity for innovation. Here, this mapping of innovation indicators is done for the city of Lisboa.

Image courtesy of Fundación Metròpoli.





into urban regeneration, local economic development and environmental improvements are also made within the constituent cities themselves. These are made in order to ensure that every urban centre participates fully in the competitiveness of these mega-regions.

### The European Diagonal

To illustrate the networked city-region approach, we can reference the emerging European Diagonal - a dynamic mega-region in the south of Europe linking the cities of Lisbon, Madrid, Barcelona, Marseille and Milan.

As a counterbalance to traditional European models in the industrialised north, the European Diagonal gives new coherence to emerging city-regions. It aims to connect economic and creative potential through a sophisticated system of airports, ports, highways and high-speed rail networks in Portugal, Spain, France and Italy, respectively. Recognising that cities can no longer compete in isolation, the European Diagonal assumes that cities are protagonists of new economic development, drivers of a knowledge-based economy, and cradles of innovation, creativity and culture.

The role of cities in a knowledge economy offers an alternative to high-density cities in the traditional sense, and concentrates on network density that ties compact cities together. The European Diagonal demonstrates the potential for interconnected city-regions to develop singularities that increase competitive advantages, while improving or maintaining a high level of liveability.

The European Diagonal explores how city-regions in Southern Europe can cooperate with each other to their mutual advantage by pooling their physical transportation networks. In a knowledge-based society, these physical networks are, in essence, means by which to generate and share knowledge. Soft networks, such as digital communication and information flows, are equally important to harness synergy between the specificities and competitive advantages of cities in such networks.

In the European Union (EU), the most prosperous cities and polycentric mega-city-regions are located in the European "Pentagon" - the historic core of the European Union. Together, these polycentric city-regions are able to compete with world cities and city-regions globally. In particular, the advanced producer services are concentrated among the largest and richest European city-regions, including London, Paris, Brussels, Hamburg, Frankfurt, Amsterdam, Zurich and Milan.

Since its inception, EU membership has fostered growth in more peripheral regions, including Ireland and cities in Southern Europe, which are now showing twice the growth rate in population terms than those of cities in the north of Europe, albeit from a lower starting

point. While the global economic crisis has greatly impeded recent growth, the future potential of the European Diagonal to connect intelligent city-regions will remain supported by an advanced system of connectivity and innovation.

Instrumental to the success of the European Diagonal is the contribution of city mayors at different levels and, in particular, in the five major cities of the Diagonal. The mayors share both an intimate knowledge of their cities and constituencies, as well as the capacity and willingness to connect across municipal and national borders to strengthen relationships, and create new opportunities. Mayors also have the agility - and often a greater urgency - to innovate, which can be more difficult to achieve working only at the level of national government in more bureaucratic structures.

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**The new connecting links with Lisbon and Barcelona open up options of cooperation and economic complementarity for Madrid, which were unthinkable only a decade ago. Madrid holds a key position in the strategies of interaction and cooperation between Europe and Latin America, which, in turn, is a fundamental asset for the cities within the Diagonal.**  
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**Alberto Ruiz-Gallardón,  
 Mayor of Madrid**

### Spatial Development Strategies and Global Competitiveness

In order to position the European Diagonal's potential in the global or European context, it is important to understand the spatial policies that structure and guide the EU member states, part of an ongoing effort to compensate for disparities at different levels of development.

The European Spatial Development Perspective (ESDP) is a policy framework that was adopted by the Ministers for Spatial Planning and the European Commission at the Informal Council of Ministers of Spatial Planning in Potsdam over a decade ago. It was the first initiative of its kind. Its principal objective involved the establishment of a structure of spatial strategy for Europe's member states, along with their cities and regions to ensure environmental and cultural sustainability, territorial competitiveness, and socioeconomic cohesion. Thus, the ESDP's strategy is based on an integrated view that builds on the notion that all sectors of activity influence each other in a community of countries and regions.

The ESDP's policies were structured around the following three goals. The first was to build a polycentric urban system and establish a new, stronger city-region relationship. The second guideline was to develop equal accessibility to information and infrastructure by means of improving integrated communication and transport systems. Finally, the policies were to ensure adequate management and protection of natural and cultural heritage, while promoting sustainable development. These guidelines were intended to preserve and reinforce a high density of urban services within a compact urban form.

The ESDP differs from the traditional physical planning approach in that it does not take on the spatial dimension in a reactive and regulatory manner by focusing explicitly on the physical and technical elements. Rather, it approaches the spatial dimension in a proactive and inclusive manner, breaking through territorial barriers and sectors. In this way, the ESDP pursues its goals simultaneously, and places a special focus on their interaction, as the combination of these goals can produce a balanced and effective territorial development. Furthermore, the ESDP is intended to serve as a reference for cross-boundary cooperation within the European territory.

### Diamonds in The European Diagonal

Building the European Diagonal focuses on four strategic 'diamonds'; the Portuguese diamond, Mediterranean diamond (Spain), Cote d'Azur diamond (southern France) and the Alps diamond (northern Italy). The Diagonal development strategy aims at both strengthening polycentric links between cities within the identified diamonds, as well as generating new links between these 'diamonds' to establish coherence and common purpose across the





Diagonal and beyond, through its gateways to eastern Europe as well as North Africa and Latin America.

While the cities within the diamonds constitute the driving forces behind innovative development initiatives nationally, their dynamic energy is able to reach outwards into less populated countryside, dispersed and small settlements, and their rural activities. The purpose of the Diagonal is to further harness

this energy by establishing links between each of the diamonds, and thereby developing the weaker areas between them.

Establishing both hard infrastructure and softer people-to-people and organisational links between the diamonds is the most effective way to achieve this goal. It should be possible to obtain national assistance through direct financial aid, large scale infrastructure projects or new national policies, as generating

greater synergies among the cities within the diamonds is in a nation's interest, and likely to attract support. Creating links between all diamonds demands an innovative approach and must obtain supranational support.

At the diamond level, the diversity between the cities and their hinterlands provides potential for greater interaction and reinforcement of complimentary factors. Transportation links between diamonds could improve

their critical mass and generate activities in weaker areas at the same time. Bringing the diamonds closer together could also give rise to new symbiotic activities in their shared hinterlands.

The European Diagonal aims to establish a common understanding of the role of participating cities within their own diamonds in a sustainable development process. It also seeks joint interests that could be developed between diamonds across national boundaries. All participating cities have their own interests to consider, and a need to identify worthwhile objectives to join forces at the city cluster, super-city, diamond, regional, cross-border or Diagonal scale. Different issues, projects, or policies warrant varying scales of cooperation.

Projects at different levels, including those undertaken by individuals and small businesses, can benefit from greater connectivity and access to other cities and regions. Without these networks many actors must operate in isolation, which limits innovation and access to creative partners, investors or consumers. A better knowledge base of cities and their development potential at city, city-region and especially at diamond and Diagonal levels is considered essential to achieve a consensus on development projects within a common spatial strategy.

### The Malacca Straits Diagonal

The model of density for networked city-regions is not exclusive to the European continent. One of the strongest concepts to emerge from the ASEAN region in recent history is that of the Malacca Strait Diagonal.

The Malacca Straits Diagonal connects more than 16 million urban inhabitants by land, primarily along the Malaysian

Peninsula. This is done through a system of national highway and rail corridors, sharing a strategic coastal orientation with the Malacca Straits opposite Sumatra in Indonesia. This concentration of interconnected high-density urban centres, economies, cultures and people will establish the Malacca Straits Diagonal as a driving force in the ASEAN economy for decades to come.

In the future, this vibrant economic corridor could be driven by high-speed rail connectivity spanning from Penang in the north to Iskandar and Singapore in the south - a rare opportunity in an otherwise geographically fragmented region.

### Innovation and Connectivity

At the heart of the European Diagonal is its ability to combine innovation with transportation infrastructure to result in greater connectivity of knowledge and access to resources throughout the Diagonal.

Innovation is an abstract concept; nevertheless, identifying places of learning, technological and scientific development can be construed as a proxy indicator of a city's contribution to the knowledge base. The spatial distribution of these places shows their degree of integration into the city's socioeconomic fabric, which can provide a basis for strategies to develop, nurture and retain indigenous human capital.

Various models have been devised to increase the efficiency of such spaces for the creative economy. Clusters have become an orthodox approach, but merits are also seen in networked spaces interspersed throughout the urban fabric. Regardless of the economic models, information on the spatial location, relation and distribution of places for creative activities and knowledge on their synergistic interaction together provide important input into urban strategies.



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