



# An Omitted Cross-Border Urban Corridor on the North-Western Iberian Peninsula?

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**Abstract.** The alleged North-Western Iberian urban corridor, mainly covering Northern Portugal and Galicia, is examined. The international boundary between Portugal and Spain is assumed to have a role in the analysis of such a corridor. The theoretical section reviews the literature on urban systems and corridors and shows how they are commonly conceived under a nation-state framework. Some of the international literature on urban corridors has been criticised given that it is not based on actual inter-urban links. The results are based on the analysis of the literature about the North-Western Iberian urban corridor developed in Portugal and in Galicia. The intention is to grasp to what extent the corridor has emerged as an academic spatial category in both countries. The paper concludes by discussing the results and by providing some final remarks regarding inter-urban and inter-regional cross-border governance and the relevance of other scales rather than individual cities for the development of smart city agendas.

**Keywords:** Urban corridor · Urban system · Smart city · Cross-border · Portugal · Galicia (Spain)

## 1 Introduction

One of the most currently popular urban scholars has defined the so-called “mega-regions” as “a new, natural economic unit that results from city-regions growing upward, becoming denser, and growing outward and into one another” (Florida 2008: 42). However, most of the literature about smart cities deals with individual cities and, in practice, neglects to consider that cities do not work in isolation and can amalgamate into “mega-regions”. In this sense, when there is a discussion about smart principles applied to a particular city, quite commonly the debate is focused on this city in itself, understood as autarkical, paying limited attention to its relationships with other neighbouring cities. This, quite often, may imply that the scale for developing smart and other relevant urban policies is miscalculated.

Florida (2008: 54) included a map of Europe, where the Iberian Peninsula western coastal region appears mapped as a single “mega-region” named after its alleged main

city: Lisbon. Importantly, this “mega-region” goes beyond Portugal and includes Galicia, located on the North-Western Iberian Peninsula and politically pertaining to Spain. Beyond the fact that this map is not pertinently justified from a scientific perspective, this “mega-region” is striking, given that it extends into another country. In fact, when dealing with urban systems, scholars tend to reproduce the understanding of the “state as a container” as defined by Taylor (1994), thus working inside the bounded territories of their countries, with limited attention given to the dynamics which cross nation-state boundaries.

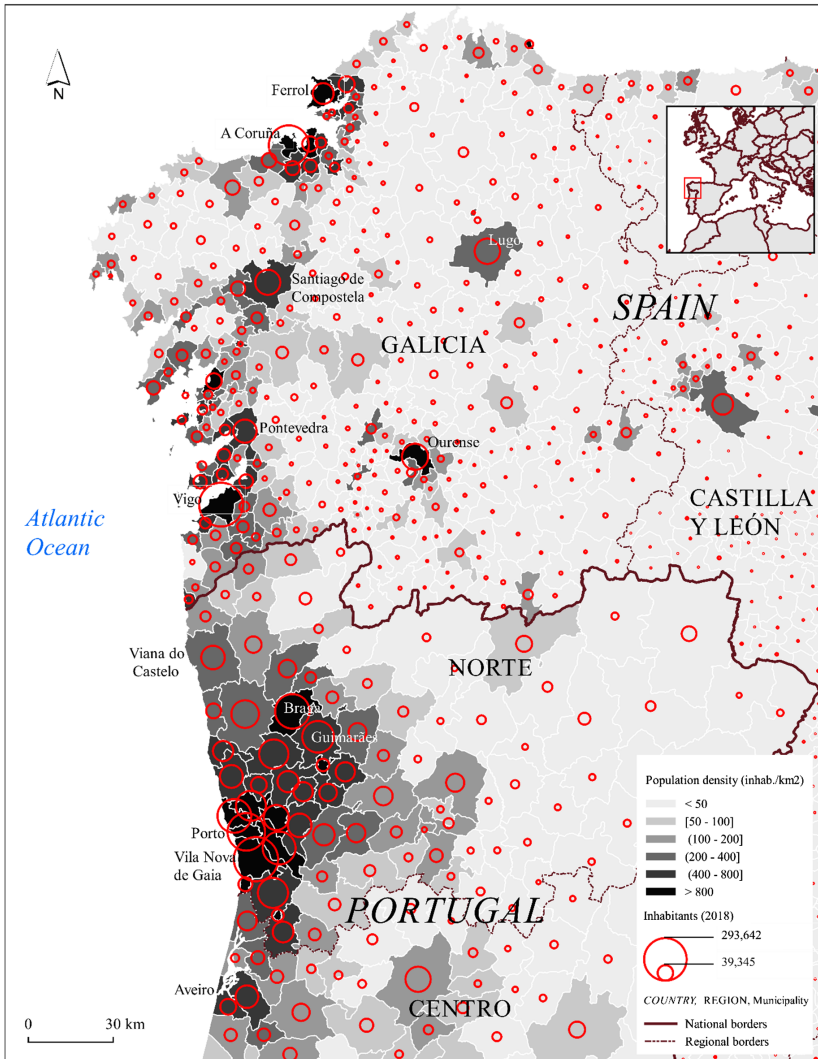
In this context, this chapter tries to examine the literature on the urban system of the North-Western Iberian Peninsula—namely Northern Portugal and Galicia—, by discussing its main urban corridor (usually called “Atlantic axis” in Galicia)<sup>1</sup>, trying to elucidate to what extent the existence of the international boundary between Portugal and Spain has motivated it being disregarded. According to Marques (2004) and other relevant Portuguese urban scientists who will be mentioned below, Lisbon and Porto are quite detached as they do not work in an integrated manner. For this reason, Florida’s (2008: 54) proposal of considering an urban corridor from Lisbon to the north as a single “mega-region” is not followed here. In fact, his methodology, based on employing “the satellite images of the world at night [...] to identify mega-regions as contiguous lighted areas” (Florida 2008: 47) seems inaccurate; indeed, subsequent studies, such as Nel-lo et al. (2017), have methodologically improved the use of this data source.

Accordingly, the hypothesis here stands that Porto is the main metropolitan area of the North-Western Iberian urban corridor, including cities outside Portugal. There is evidence that this is the case. Firstly, Porto airport (Sá Carneiro) is self-promoted as “the airport of all Galicians”<sup>2</sup>; in fact, the available statistics show that more than 12% of the total users come from Galicia, accounting for more than one million Galician passengers, roughly the same figure that Vigo or A Coruña airports achieve all year round, including passengers of all nationalities (Suau 2020). Secondly, a map of densities and volumes at municipal level of the North-Western Iberian Peninsula makes an urban corridor apparent, from Aveiro to Ferrol, approximately accounting for 4.9 million inhabitants, with 2.5 million residents in the—broadly understood—Porto metropolitan region (see Fig. 1). Thirdly, when comparing the average daily traffic (ADT) of all the cross-border roads between Spain and Portugal, 38% was recorded in 2016 at the bridges crossing the Minho River (where the international boundary is set just in the middle of the studied urban corridor). The most intense cross-border pass between both countries is the highway which is the axis of the urban corridor (AP9 in Galicia/A3 in Portugal), with an ADT of 15,015 vehicles per day (2016) crossing the border (OTEP 2018).

<sup>1</sup> “Atlantic Axis” is a common concept in the urban studies literature developed in Galicia since the 1990s. It refers to the urban corridor extending from Ferrol, in the north-west of Galicia, to the border with Portugal, in the south-west of Galicia (Fig. 1). However, the same name is used by a voluntary inter-municipal association currently consisting of 35 municipalities in Galicia and Northern Portugal (<https://www.eixoatlantico.com/>), not all of them in the urban corridor studied here and some of them are not even strictly urban. All this leads to a vagueness in the use of “Atlantic Axis”, so we prefer to use North-Western Iberian urban corridor.

<sup>2</sup> Advertisement placed in the airport premises.

This clearly shows that mobility is higher at this point—where the corridor crosses the boundary—than anywhere else along a boundary of more than 1,200 km in length.



**Fig. 1.** Population per municipality on the North-Western Iberian Peninsula (2018). Sources: <https://www.ine.pt/>, <https://www.pordata.pt/> and <https://ine.es/> (last accessed 2020/02/25).

This chapter begins by reviewing the literature on urban systems and corridors, usually conceived under a nation-state framework. Then, the analyses already carried out on the Northern Portugal-Galicia coastal corridor are expounded. This consists of a systematic attempt to examine the Portuguese and Galician scientific literature available on this corridor. Finally, this research is discussed and some final remarks are made.

## 2 Conceptualising Urban Systems and Corridors

Geddes (1915) is recognised as one of the first authors to give a scientific interpretation of cities' coalescence into the so-called "conurbations". To define them, this author made use of the urban physical development process by means of the increasing mobility linked to the improvement of transport infrastructure. Afterwards, Gottmann (1962) laid the foundations of studies on urban corridors, by combining analyses on morphology and inter-urban functional relationships in a large US north-eastern urbanised region—the BosWash corridor, extending from Boston to Washington—, which he labelled as "megalopolis". This research has been replicated in other large metropolitan regions across the world.

Both authors are recognised as the founders of the studies on polycentric urban systems. In general terms, these studies apply two main approaches: the morphological and the functional. The former focuses on the extension and the shape of urban built-up areas. The latter pays attention to the interactions between cities. Be that as it may, an urban system refers to a recognisable group of urban settlements of different sizes, commonly understood as inter-acting nodes and creating a particular hierarchy of levels (Zoido et al. 2013). Berry (1964) and Bourne and Simmons (1978) were some of the first authors to apply the systems theory to analyse city interaction. Interestingly, the concepts *system* and *network* have sometimes been interchangeably used, in a profound discussion that is out of remit in the context of this chapter. In this sense, we prefer to employ *system* for our purposes here.

It is worth mentioning that urban systems research is commonly carried out at a nation-state scale, trying to confer a coordinating and organising role to each city in its national context from a planning and political perspective (Zoido et al. 2013). However, there is research in this respect at a global level. For instance, different authors have proposed international comparisons, various contiguous nation-states have been studied together and there have been continental and/or macro-regional investigations, in particular in Europe and in North America (Cattan 1999; Taylor 2004; Simmons and Kamikihara 2006; Rozenblat et al. et al. 2018; Vives-Miró and Paül 2019).

Lastly, a key concept related to urban systems is urban corridors. An urban corridor refers to a particular spatial pattern of cities conforming the urban system, which holds a linear configuration, typically following a transport infrastructure corridor. Urban corridors have been commonly described within nation-states (for instance, in the case of Spain, the Mediterranean corridor) but can also be international if they cross boundaries. In Europe, Brunet (1989) made an early attempt at drawing continental urban corridors, such as the subsequently so-called "blue banana", from London to Milan, and the Mediterranean corridor from Madrid to Rome, which to some extent extended the traditional Spanish Mediterranean corridor, embracing France and Italy. All of them have received considerable criticism. Indeed, Williams (1996) and Cattan (2007) have labelled these urban corridors (sic) as "spatial metaphors", stating they are images that do not necessarily reflect actual inter-urban links. As mentioned above, the same might be applicable to the urban corridors (sic) drawn by Florida (2008).

### 3 Reviewing the North-Western Iberian Urban Corridor

#### 3.1 Portuguese Perspectives

The Portuguese urban system has been analysed following functionalist approaches since the 1980s. Salgueiro (1992) and Guichard (1995) referred to the primacy of the Lisbon metropolitan region, followed by the metropolitan region led by Porto, and describing a south-north corridor between them. Ferrão and Marques (2003) concurred, pointing out that beyond Lisbon and Porto there are only several small-sized cities in Portugal, thus causing an imbalanced and uneven urban system that lacks a layer of cities positioned at an intermediate level.

This chapter deals, obviously, with the Porto metropolitan region, which the available literature describes as polycentric, especially when compared to Lisbon, which is clearly monocentric. However, there is a widespread discussion about its extension: while some research considers the region limited to the contiguous built-up area of Porto and some neighbouring municipalities, other authors point out that the functional metropolitan region may include Braga, Guimarães, Aveiro and/or other urban nodes of Northern Portugal (Salgueiro 1992; Ferrão 2002; Ferrão and Marques 2003; Fernandes 2014).

There are scant mentions of Galicia and of the North-Western Iberian urban corridor by Portuguese urban scientists. One of the early scholars to show a Galician connection in this respect was Guichard (2000), who mapped western coastal Galicia as part of the area influenced by Porto. Moreover, as a cartographic representation, Portas et al. (2011) mapped the continuity between Porto and the western Galician coastal cities, using a morphological method.

However, Ferrão and Marques (2003: 17) highlighted that “[t]here is still relatively little cross-border interaction by comparison [with] existing growth potential, even in [...] Northern Portugal/Galicia”. Indeed, these authors forecast four scenarios for the future of the Portuguese urban system, one of them expressively labelled as “fragmentation”: “Portugal’s urban system most at risk of being subject to outside influence, particularly from Spain. Portugal would lose out both from a hierarchical point of view [...] and from a proximity point of view (the increased influence of Spanish cities located along the border)” (p. 48). Interestingly, it can be interpreted that these scholars are concerned about a potential breakdown between Lisbon and Porto, which might be associated with strengthening the links of the latter with Galicia.

In a similar direction, Marques (2019) has recently demonstrated that the functional relations, measured by the number of commuters according to the 2011 Census, between Lisbon and Porto is higher than between Porto and Galician cities. In short, Portuguese researchers have not evidenced the North-Western Iberian urban corridor from a functional perspective.

#### 3.2 Galician Perspectives

A systemic approach has been used to analyse Galician cities since the 1970s. The Galician urban system is usually considered an autonomous sub-system of the Spanish urban system. In this regard, Precedo (1974) identified two main metropolitan areas—Vigo and A Coruña—, working quite autonomously. He also pointed out that a future

scenario might imply the structuration of an urban “development axis” between Ferrol (located north of A Coruña) and Vigo, connecting both metropolitan areas. The notion of “axis” was imported from regional economic analysis theories that established a direct connection between infrastructure development and the emergence of economic and population growth corridors.

However, this scenario became a self-fulfilling prophecy: Pérez Vilariño (1990), Precedo (1990) and Alonso and Lois (1997), among others, described the emergence of the “Atlantic urban axis” associated with the final work on the AP9 motorway structuring the corridor (initiated in the late 1970s, it was finished in 2000, when it reached Ferrol). Beyond the obvious increase of inter-city traffic flow that was experienced in the 1990s, the development of manufacturing activities operating at this urban system scale was also noticed.

Since the 1990s, this urban corridor has been studied under different lenses, combining both functional and morphological approaches as well as from other perspectives (sociological, imageries, planning, etc.). The increasing integration between cities has been extensively reported, including the inauguration of the high-speed train between A Coruña and Vigo in 2015. In addition, several researchers have shown how urban sprawl has affected the corridor area, evidencing a low-density pattern of suburban development, mostly contiguous along the highway structuring the corridor and its main perpendicular extensions towards the coast. A recent synthesis of most of the research carried out is provided by Lois and Pino (2015).

Lois (2004a) was possibly the first scholar to refer to the alleged Portuguese counterpart of this Galician urban corridor. He characterised the North-Western Iberian urban corridor as follows: (i) consisting of several urban areas with significant population, relevant at both the Iberian and European contexts; (ii) noticing its economic relevance, especially in terms of the concentration of manufacturing companies; and (iii) showing increasing economic exchanges and mobility. Lois (2004a) described this urban corridor extending to Aveiro (located 50 km south of Porto). However, Lois (2004b) also added that, due to the already described urban system in Portugal, the corridor should be seen as reaching Setúbal, located south of Lisbon, which is geographically coincident with Florida (2008).

## 4 Discussion and Conclusion

The North-Western Iberian urban corridor has been researched in several studies in the last three decades. It seems that Galician scholars (e.g. Lois, 2004a, b) have been more attentive to its configuration, with more enthusiasm about a possible integration of western Galician cities into the dynamics of Northern Portugal, especially those exercised by the metropolitan area of Porto. In contrast, we have found in Ferrão and Marques (2003) a Portuguese narrative assuming that if the linkage between Portuguese and Galician cities gains momentum, there is a potential risk for the integrity of the Portuguese urban system. We interpret this as a prevalence of methodological nationalism as described by Schiller and Glick (2002).

When dealing with this corridor, the dominant perspective exploring its scope has been morphological, while the functional approach has been widely critical of its presence. A case in point is Marques (2019), who states that the North-Western Iberian

urban corridor is not proved by commuting data, while recognising that “a more complex analysis might involve a wider variety of indicators” (p. 27–28; own translation). In this sense, they could make use of the available series from Eures (2002–2019). This source shows that factual transboundary employees between Galicia and Northern Portugal exceeds 13,000 annually, a figure that is recovering from the post-2008 GFC years (before the GFC the figure was more than 20,000 commuters). This type of indicator should be considered when trying to elucidate to what extent there is a functional urban corridor on the North-Western Iberian Peninsula. As explained by Taylor (1994), the existence of a nation-state boundary is a powerful mental barrier, mostly unconscious, that leads to disregarding particular spatial processes.

The widespread use of “Atlantic Axis” does not equal the North-Western Iberian urban corridor, because the former sometimes refers to an association of municipalities, but on many occasions, especially in Galicia, it equals the latter. Interestingly, this association has funded academic publications (e.g. Souto 1999; Souto et al. 2005) where the affiliate cities are described as an actual or potential single urban system, on the basis that the persisting boundary made its articulation impossible until the consolidation of the four EU “free freedoms” of the single market, including the free movement of persons, in the early 1990s. This “Atlantic Axis urban system” might embrace the North-Western Iberian urban corridor and other municipalities in inland areas. In this sense, and contrary to the analysed works in this chapter, Souto (1999) and Souto et al. (2005) seem to respond to the need to integrate all the municipalities gathered in the association rather than to accurately characterise an urban system.

That is possibly a local manifestation of the common confusion between images and actual functional links reported in the theoretical section. Nevertheless, the image of a corridor (or axis) has had a powerful effect, impelled by the Atlantic Axis association itself. Urban cross-border integration is quite often aspirational and prospective rather than a matter of fact. Indeed, when Williams (1996: 96) analysed the “blue banana” corridor as proposed by Brunet (1989) he indicated that “this metaphor creates a memorable image which simplifies and structures people’s thinking about the spatial structure”. This is consistent with other notions which emerged when dealing with planning devices such as “anticipatory geographies” (Sparke 2000: 187), “imagined geographies” (Häkli 2004: 62) and “aspirational spaces” (Deas and Lord 2006: 1863).

Beyond the Atlantic Axis Association, other governance structures have been created between Galicia and Northern Portugal. A case in point is the intergovernmental Galicia-Northern Portugal (G-NP) EGTC<sup>3</sup>. Ironically, the G-NP EGTC region can also create a confusing “container” in the sense given by Taylor (1994) when analysing the urban corridor: Aveiro does not administratively belong to the Portuguese Northern Region, and that has led to understand this city to be more connected to the Portuguese Central Region, thus disconnected from Porto.

The G-NP EGTC covers a wider region beyond the North-Western Iberian urban corridor. However, in 2018 an EGTC was created for the strictly cross-border region of this corridor: the Rio Minho. This EGTC has an odd spatial extension as it covers the

<sup>3</sup> Since 2008, the European Grouping of Territorial Cooperation (EGTC) is the EU legal device created to propel inter-administrative cooperation, mainly among local and regional levels.

Southern-most municipalities of the metropolitan area of Vigo—without Vigo itself—and the urban area of Viana do Castelo—very dependent on Porto. However, the Rio Minho EGTC has designed an intense smart urban agenda that deals, amongst other issues, with setting shared services for the citizens of both sides of the boundary and the development of sustainable cross-border local mobility (Paül et al. 2019). To sum up, smart strategies are applicable beyond the edges of a particular city, its scope being apparently pertinent in complex urban systems as well. The discussion carried out here about a cross-border urban corridor is a particularly challenging arena in this respect.

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