

## **Paradigms and Development Strategies: “Portugal Logístico”**

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### **ABSTRACT**

In May 2006 the Portuguese government launched a sketch of a plan designated by “Portugal Logístico” with the declared objective of improving the competitiveness of national Transport infrastructures; promote the Atlantic ports and the efficiency of the logistic sub-system supporting the productive chains. This initiative substantially changes the paradigm and development strategy of the support infrastructures that serve the logistic sector. However, given the dimension and territorial exposure of the logistic chains it is indispensable these strategies are thought at Iberian scale and not only at national level, considering also the development strategies of Spain. Missing this reality means taking an additional risk of promoting destructive competition between the several platforms that fight for a small hinterland.

### **1. Background**

In 1990 we have observed the establishment in Portugal of the main international logistic operators. Despite the lack of infrastructures and the high cost associated to the existing ones at the time, this period boosted the development of the logistic sector and several operators and freight forwarders started their activity. Reinforcing the difficulties in accessibility caused by infrastructure shortage we have also had serious deficiencies caused by the absence of land use plan that optimised the location of logistic platforms near the Ports and Airports.

The consequence of this has been a wide diversity of logistic areas spread across the country, mainly in the border of metropolitan areas, and a clear constrain to the efficiency and effectiveness of the Ports unable to operate effective partnerships with these logistic platforms and to enhance the fluidity of the supply chain. By the end of the decade the Portuguese logistic scenario was thus characterised by:

- Very high dispersion of productive units of small dimension in disarrayed locations driven by cost and not by the efficiency of the supply chain of the service to the Ports and Airports, with a negative contributing to road congestion;
- Contrasting with the previous and as a consequence of a lack of regulatory intervention in the sector the big international operators start building their own infrastructures and develop centres of logistic activities benefiting from their own dimension and critical mass. Some national operators also follow this example but there are an exception;

By 2000 it was already clear that the situation developed in the previous decade was seriously jeopardising the competitive potential of the national private companies in the sector but all of the large public infrastructures that were also affected by the efficiency (or lack of) of the all sector. This is especially evident in what concerns the integration in Iberian supply chains.

Confronted with this situation the national plan for social and economic development (2000-2006) establishes logistics as a priority area and determines<sup>1</sup> that a Master Plan for the National Network of Logistic Platforms should be developed, with high priority, and with the purpose of defining the primary network of platforms and ancillary areas with a strong articulation with the freight transport system and with the urban networks in order to serve the regions of the whole territory and promote the effective integration of all modes.

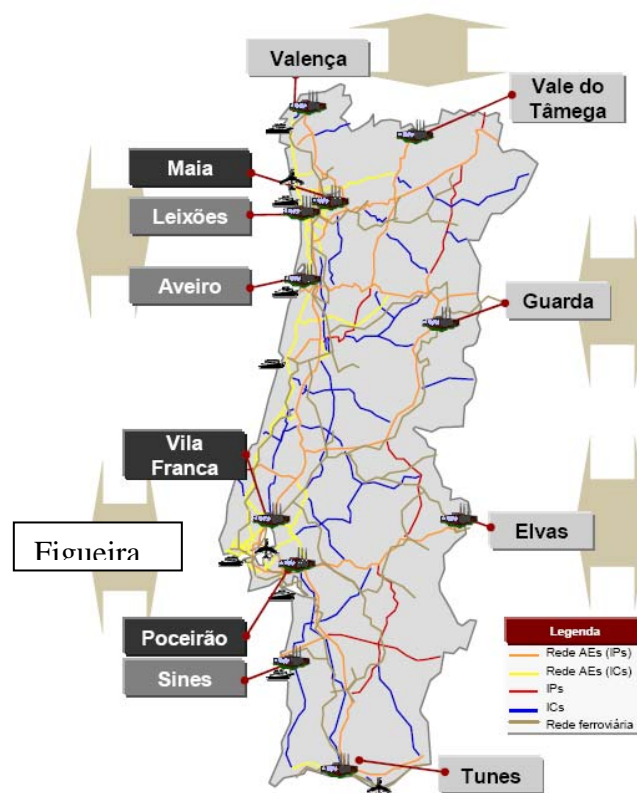
Six years after, in May 2006, the Ministry of Transport, Public Works and Communication launched a plan designated as “*Portugal Logístico*” (Logistic Portugal) with a strong mediatic emphasis and focusing on the inducement of private initiative in the sector. The plan, as publicised, comprises the integration of a planning and

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<sup>1</sup> Resolution from the Council of Ministers (RCM) nº 20/2000 de 30 de Março

regulation structure in the field of logistics and distribution of goods, implemented through a network of logistic platforms, articulated with the existing transport infrastructures and located near the most important centres for production and consumption, as well as the national borders. The declared objective was to benefit from the potential offered by the privileged geostrategic positioning of Portugal in relation with the intercontinental maritime freight routes, minimizing this way the disbenefits caused by the country's European peripheral position. The ultimate emblematic objective was thus declared as being the transformation of Portugal into a main Atlantic door for the international movements in the Iberian and European markets.

Within this plan Ports and Airports were considered the main infrastructures that should be complemented by the networks of logistic platforms and land transport. But in fact Ports do take the main role in this strategy since Portugal exports and imports are extremely dependent on maritime transport. Reported in 2006 we have 70% of exports (27 Mton) and 44% of imports (54 MTons) depending on this mode.



**Figure 1.** Network of Logistic platforms (11) considered in the plan “Logistic Portugal”

In the current government proposal, the national network of logistic platforms is composed of the following types of platforms:

1. National Urban platforms - of medium or large dimension with the objective of fostering economic activity through the creation of big distribution centres and reorganization of logistics and transport flows.
2. Port platforms - of medium and large dimension located in the neighbourhood of main ports. Their objective is to optimize port activity and expand their hinterlands, namely towards Spain, as well as promote intermodality and the use of rail transport;
3. Cross border platforms – with small and medium dimension, often dependent from a single mode, their aim is to foster regional economy and capture industrial investments and flows, and also extend hinterlands towards Spain;

4. Regional Platforms – with small or medium dimension, their main objective is logistic reorganization aiming network cohesion.

At present a total of 13 logistic units, as presented in figure 1, are encompassed in Logistic Portugal – two Air Cargo centres (Lisbon and Porto) and eleven other platforms.

In 2008, after this definition of platforms and launch of the plan “Portugal Logistic”, the government decided to develop the national sectorial plan for logistics. This paper will address the main critical issues found, in particular two aspects which do not seem to have been considered in the original plan: the competition between these platforms to consolidate partnerships with the main Ports; and the competition between the Portuguese platforms and the Spanish ones for the same Port service purpose.

## **1. National Flows and Trade**

Trading in Portugal is mostly done with European Partners (UE25). In 2006 a total of 51.850 millions of euros in goods were imported, of which around 75% came from EU countries. Exports in that year reached 33.750 millions euros, of which 77% represented also intra-European traffic. The main commercial partner was Spain with a weight of 32% in imports and 27% in exports within Europe. Besides Spain, main countries for imports were Germany, France, Italy, Benelux and United Kingdom. These countries represented 68% of imports.

Within the non-European suppliers Brazil, United States, China, Norway, Russia and Japan represented 9% of imports, from the remaining value 7% corresponds to imports from OPEP countries, mostly fuel or related products. In exports, the set of countries is similar with the addition of Belgium. To this set 70, 6% of Portuguese exports were addressed in 2006. Finally, the non-European exports were mainly towards United States and Angola, followed of Singapore, Brazil, Turkey and China, all together representing 14% of total exports.

The modal share varies substantially with the direction of the flows. For imports maritime transport is the main mode, mainly due to petroleum related products and mineral fuels. About 70% of goods imported in 2006 arrived by sea. Road transport represents a share of 26%, while the remaining 4% represent the other modes. For exports the situation is different with road being the leading mode with 54% market share, and in second place the maritime transport with 44% of exports.

## **2. Natural and Competing Hinterland for main Ports**

Port hinterland is mostly defined at the scale of regions. In Europe we find a wide diversity of types of decentralisation of State powers to regions, which makes it difficult to establish a valid and objective list of roles and responsibilities in dealing with bottlenecks that fits all European regions. However, we can identify some of the critical factors of the performance of ports which strength is affected by the hinterland and in turn dependent on the decision of the regions – by themselves or in cooperation with other entities or government levels.

Transport infrastructure can be effectively considered as a production factor for a region or a country and it is difficult to take into account the network properties (or the lack of) in the production function that contribute to the infrastructure accessibility. Not less important is the spatial spill-over effect caused by the infrastructure impact that always transcends the spatial boundaries of its implementation.

The improvement of transport infrastructure enables a reduction of production costs of collection of inputs as well as of distribution of outputs for the logistic system, but it has a particular effect in lowering the cost of utilization of the Port served by that infrastructure. This effect is not only relevant for direct transport costs but also benefits the capacity of reorganisation of logistic systems. In fact infrastructure provision affects agents' choices concerning route (including port choice), mode, location of distribution centres, levels in the distribution structure, and even the choice of logistical strategies. Consequently there is a direct relation between physical and economic accessibility and the capacity to develop an infrastructure and its hinterland.

Several definitions exist for accessibility (Rietveld and Bruinsma, pp 33), such as “*ease of spatial interaction*”, “*potentiality of contacts with activities or supplies*”, or “*attractiveness of a node in a network taking into account the mass of other nodes and the costs to reach those nodes via the network*”. This definition is clearly related with the delimitation of the Port Hinterland which has also been subject of deep discussions along the years and several interpretations as we have already noted.

As stated in the beginning it is not the objective of this work to elaborate on the definition of hinterland concept, instead we adopt the concept of dynamic hinterland presented by Slack (1993), according to which the influence zone of a port is not limited to the land place where goods originate and/or are dispatched but also where interaction with clients exist. In this interpretation the hinterland corresponds to a rather dynamic definition subject to competition from several infrastructures, that is the competition hinterland.

However, today this concept can not go without discussion since several authors point it as obsolete given the advent of containerization that increase the limits of this hinterland, making it dependent of intermodal transport and, consequently of accessibility. Following this rational van Klink and van den Berg (1998), in Combes and Lafourcade (2003) propose a very simple methodology for the delimitation of the hinterland based on generalised transport costs, and independent from the type of goods transported. The method considers elements which are variable with distance and dependent from the type of road (e.g. fuel, tires, maintenance, tolls, etc); elements which are variable with time and independent from the type of road (e.g. drivers wage; insurance premium, taxes and charges, etc); and elements which are considered as fixed costs, such as loading and unloading times.

Combes and Lafourcade apply the same method to a French case and report a strong correlation between generalised transport costs, real travel distance and real travel time. In addition they also conclude that real travel time is a better proxy for generalised transport costs than travel distance.

So based on the rational developed by Kling and Van der Berg (1998) the hinterland is then defined as the area served by the port at a generalised cost of transport lower than what any other port would serve. This of course assumes that final clients chose the port infrastructure that minimises the associated transport costs. Based on this Peneda<sup>2</sup> (2009) defined the spatial dimension of the hinterland as defined by the analysis of the isochrones involving each port and its intersection with the isochrones of other ports. The base reference to start the analysis was a scenario void of competition between ports, where it was assumed that the border between the natural hinterlands of two ports or platforms was defined by the set of locations where transport time to and from each infrastructure was equal. Figures 2 and 3 below illustrate this situation

In figure 2 we can observe the evidence that despite the different vocations of the Portuguese ports there is rather favourable geographical distribution and a considerable potential to the north and south for penetration in the Spanish markets. In Figure 3 the other logistic platforms contemplated in the plan are added to the analysis. The results continue to be rather favourable whenever we consider this scenario based on natural hinterlands without competition between infrastructures.

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<sup>2</sup> On going MSc in Civil Engineering dissertation, under the supervision of the author. The analysis was developed in ArcGIS software





**Figure 2.** Natural hinterlands of Ports in the plan “Logistic Portugal” (Peneda, 2009)



**Figure 3.** Natural hinterlands of ports and platforms in the plan “Logistic Portugal” (Peneda, 2009)

### 3. Challenges from competition and co-option with Spain

It is now worth analysing the network of logistic platforms developed in Spain in order to understand possible interactions between this network and the Portuguese logistic plan. Figure 4 below gives an illustration of the Spanish network and reveals the existence of important logistic activity in the border areas between Portugal and Spain, namely in the areas of Vigo, Zamora-Salamanca, Cáceres and Huelva.

With special importance we refer the most ambitious Spanish Project in Galicia, the PLISAN Platform near Vigo, in the region of Salvaterra-as-Neves. It will be located at a distance of 35 km from the city of Vigo with an estimated area of 220 ha, and an expansion area of 200 ha, envisaged for 2011, in a total investment of 2.000 millions euro. The PLISAN platform aims to have the double role of dry port from Vigo and also of main logistic infrastructure in the regions of Galicia and North of Portugal.



**Figure 4.** Network of Main Logistic Platforms in Spain (fonte: ATKearney)

In Zamora there is an important logistic pole gathering the communities of Leão e Castela, Valladolid and Salamanca. This region has very intense private initiative in the development of logistic areas, mostly monofunctional. There is a strategic option of this region to collaborate with the Portuguese Ports of Leixões, Aveiro, and Figueira da Foz (the closest Ports to Zamora region), which can represent an important logistic axle in

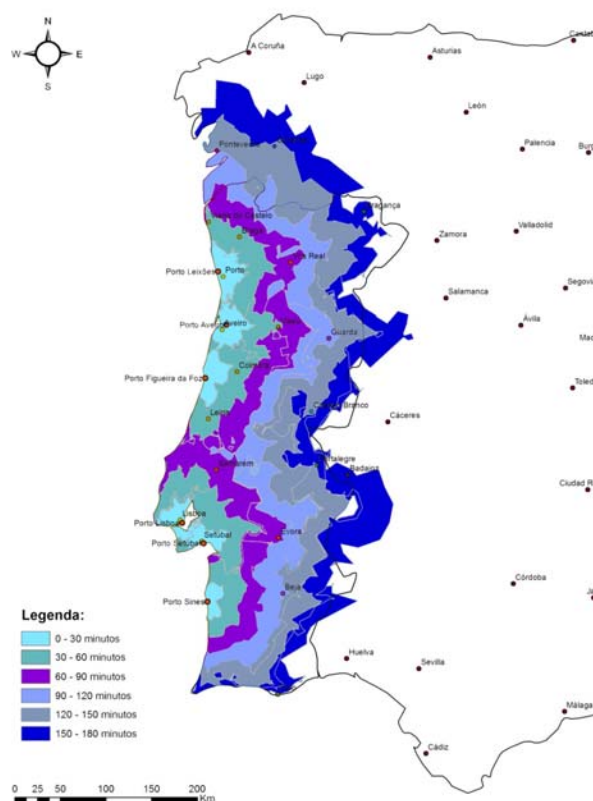
the Iberian Peninsula. In the region of Extremadura there is a strong concentration of small and medium logistic areas (104 in total). Finally, the south of Spain offers an important concentration of logistic activities and also very good accessibility.

The next step of the analysis is to understand the effect of the natural hinterland of these Spanish platforms over the natural hinterland of the Portuguese platforms.

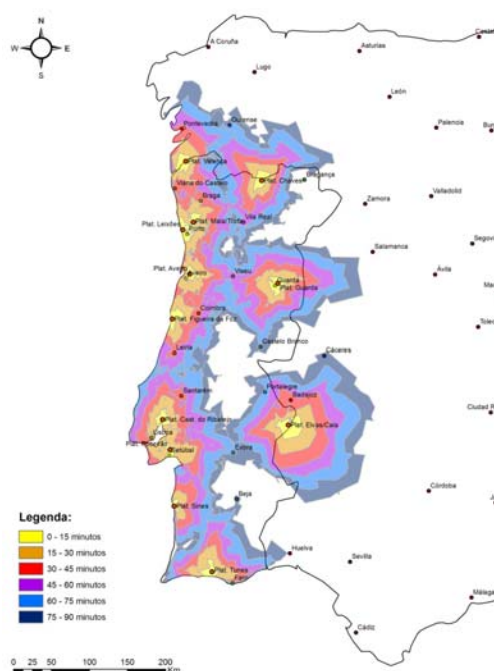


**Figure 5.** Natural hinterlands of ports and platforms in the plan “Logistic Portugal” and also from Spanish network (Peneda, 2009)

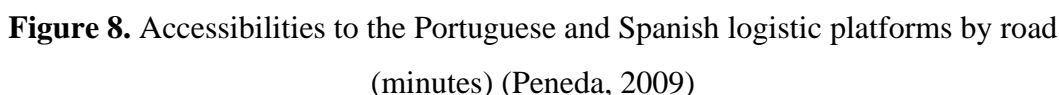
The analysis presented in figure 5 provides a very clear evidence on the overlap between hinterlands of the PLISAN platform (220 Ha) and the one of Valença (48 Ha), the same situation results between the regional platform of Tunes and the logistic pole of Huelva, as well as between the cross border platform of Elvas / Caia and the logistic pole Mérida / Cáceres. Through the analysis of the competition hinterland we are able to understand whether these are competition or co-option relations



**Figure 6.** Accessibilities to Portuguese ports by road (minutes) (Peneda, 2009)



**Figure 7.** Accessibilities to logistic platforms of the Portuguese plan in road mode (minutes) (Peneda, 2009)



However, there are also some drawbacks when we observe the overlap between isochrones of Portuguese and Spanish platforms (figure 8). Zamora, Guarda and Chaves offer good conditions for complementarity, since they only compete for markets at a distance of more than 75 minutes from any of them. A similar favourable situation can be observed for Huelva and Elvas/Caia and Tunes with the overlapping line at 45-60 minutes.

The situation of Mérida / Cáceres versus Elvas / Caia is less favourable with the overlapping threshold at 30-45 minutes. Finally, the PLISAN platform is in a rather narrow overlap with both Valença (15-30 minutes) and Maia-Trofa (30-45 minutes). In addition the PLISAN platform is expected enter into operation four years in advance of the others. It seems that there is room to exploit a possible agreement for the common management of these infrastructures, to avoid the risk of cannibalization, and start a network dynamics applied to the logistic platforms in the North of the country.

#### 4. Conclusions

It seems that the Portuguese logistic system is in a competitive disadvantage when compared with its Spanish counterpart. The lack of regulation allowed for the fragmentation of the system and locations of low cost and also low accessibility conditioning the efficiency of the system. The later decision of the government to leave to the private initiative all the investments within a deregulated framework put at risk the any Portuguese potential capacity of effective penetration in the Spanish logistic system, and constitute a barrier to the development of intermodal solutions. This situation will of course have negative impacts in the hinterland expansion of the Portuguese Ports.

Some of the identified risks of this situation are:

- Lack of opportunities to obtain competitive gains;
  - Lack of opportunities to obtain environmental gains and reduction of energy consumption;
  - Difficulties in the international maturation of national logistic operators;
  - Maintenance of modal unbalance;
  - Underutilization of Port and Rail network capacity
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- In order to succeed the National Logistic Plan requires intervention in other components than the physical infrastructures. These are:



- Clear and transparent division of responsibilities between private and public parties with accountable policies and actions;
- Territorial insertion of logistic activities;
- Continuous assessment (bottom up) of industrial needs for a better match with logistic offer;
- Adequate incentives;
- Setting of technical standards
- Capacitating of authorities and operators for a competitive management of the logistic system.

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