The performances of the national logistic systems: what strategies to reduce the Italian gap?

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Abstract

The Italian logistics suffer a strong competitive gap in comparison with the other European countries. This performance deficit generates 7.5 billion euro additional congestion costs for the Italian system: the reduction of the logistic costs would have a remarkable impact on the competitiveness of the Italian undertakings. Consequently, it is absolutely necessary to start effective policies in order to mind the gap with the competitors and to remove the infrastructural bottlenecks. In order to take up these challenges, two main knots must be untied: the infrastructure financing and the impact of the structure of the logistic sector on the overall system performance. As regards the former issue, the situation is very critical for those Member States (Italy) reporting infrastructure gap: the evolution of EU scenario pushes towards a more and more intense pressure on the public spending containment. With regard to the latter, Italy suffers from a low average dimension of the logistic operators. This paper suggests feasible solutions to solve the above mentioned problems.

1. Introduction

It is well known that an efficient system of transport is a necessary prerequisite for the development of a national economic system. Transport networks endowed with capillarity and absence of congestion problems permit to achieve both the economic development and the improvement of the social cohesion between central and peripheral areas of a Country and an increase of the competitiveness of the productive and entrepreneurial tissue.

Among the other factors for the attainment of good performance of the transport system, the logistics represent one of the most important variables. The aim of the paper is to understand the reasons of the competitiveness issues of the Italian logistic system in order to work out industrial policy interventions directed to mind the gap in comparison with the other European Countries systems.

To achieve this aim, the first step is represented by the need to provide a synthetic representation of the main characteristics of the Italian system (§ 2). In this way, it will be possible to underline its main criticality and the knots that should be solved for its revitalization. In this perspective, the analysis of other EU Member States experiences, as far as the logistic policies are concerned, will be useful to understand the directions taken by the competitors and, thus, to identify best practices (§ 3 and § 4). The policy implications deriving from the complex scenario described and the consequent positive intervention proposals will conclude the paper (§ 5).

2. A synthetic picture of the Italian transport and logistic system: the dimensions of the infrastructure gap

The Italian transport and logistic system is characterized by a strong modal imbalance; the data on the distribution of the goods traffic witnesses a strong predominance of the road (65.6%) in comparison with the other modes (waterways: 17.6%; air: 0.5%; fixed plants: 16.3%). Furthermore, a considerable percentage of the transport is concentrated on the highway infrastructure: although the highway network represents only 1.2% of the total road extension, it holds yearly a remarkable percentage of the freight (42%) and passenger (11%) volumes.

The problem is that, in the last fifteen years, the traffic volumes on the highway infrastructure in concession – representing 86% of the whole Italian network – have increased at extremely high rates with an overall variation in the period 1990-2008 of 52.9%. This evolution is ascribable both to the light and the heavy vehicles, even if the latter have had a stronger role than the former ones. On the contrary, in the same period, the highway network has not increased substantially in terms of length (the total extent passed from 6,185 km of 1990 to 6,532 of 2008).

A stronger increase, above all in the first part of the 1990s', may be observed with regard to the network capacity in terms of number of lanes for each carriageway. The total amount of network kilometers in concession with three lanes passed from 1,106 of 1990 to the present 1,460 representing about the 25% of the network. This percentage decreases to 22% if the part of network managed by ANAS is considered.

The different trend characterizing mobility demand and infrastructures supply in the highways segment suggests that the Italian network is now facing a remarkable infrastructural deficit contributing to reduce the competitiveness of the Country-system in comparison with the other European Member States.

The result of this process is very clear observing the data contained in table n. 1: for each kilometer of highways, 5,737 vehicles circulates on the Italian network. This value is almost twice higher than the ones recorded in France and Germany and three times the Spanish one. On the contrary, the density of the highway network on the total population shows data far lower than the other EU large member States.

Table 1 – Indicators of infrastructural equipment in the main European Countries (2008)

Countries	Circulation density (vehicles/ km)		Density on the population (km/ mil. inhabitants)	
	Highways	Main road network	Highways	Main road network
France	3,348	665	175.4	**883.3**
Germany	3,805	1,243	151.6	**464.1**
Italy	5,737	1,255	113.6	**519.4**
UK	8,080	660	61.1	**748.0**
Spain	2,221	842	251.3	**662.8**
EU-15	3,816	826	147.6	**682.0**
EU-25	**4,047**	**821**	**131.4**	**647.5**

Source: Autostrade per l'Italia

The above quoted modal imbalance is favoured by the particular structure of the Italian transport demand, which is characterized by the predominance of the short range journeys. The percentage distribution of the heavy freight transport on the Italian highways managed by *Autostrade per l'Italia* shows the following values[1]:

- 25.8% of the traffic concerns journeys that are shorter than 25 km;
- 22.4% is originated in the 26-50 km range;
- 21.1% in the 51-100 km range;
- 24.9% in the 101-300 km range;

[1] Autostrade per l'Italia (2008).

- 3.6% in the 301-500 km range;
- 2,2% concerns journeys that are longer than 501 km.

The imbalance is even stronger as far as the passenger transport on the Italian highways is concerned. The data are the following ones:

- 0-25 km: 34.5%
- 26-50 km: 26.0%
- 51-100 km: 18.4%
- 01-300 km: 17.5%
- 301-500 km: 2.4%
- > 501 km: 1.3%.

The average length of a journey on the Italian highways is equal to 80 kilometers and 61% of the transits in the tollbooths located near the metropolitan areas originate within these areas themselves. In other words the large towns represent the real bottlenecks of the network.

As far as the railroad is concerned, the Italian system suffers from a strong infrastructural deficit in comparison with the other large EU Countries.

Table 2 – Indicators of railway equipment in the main European Countries

Countries	Total extent (km)	Totale extent on the territory (Germany = 100)
France	**31,385**	**70.5**
Germany	**35,040**	**100.0**
Italy	**16,356**	**49.4**
UK	**16,397**	**55.0**
Spain	**13,869**	**32.3**
EU-15	**153,398**	**-**

Source: Ance

The Italian transport and logistic system shows values that are twice lower as much its main competitors (France and Germany). Framing the issue in the wider scenario of the Common Transport Policy, it must be underlined that the main EU idea to transfer traffic volumes of passenger and freight transport from roads to railways (i.e.: from a polluting to an environmental friendly mode) is so far failed. As admitted by the European Commission in the *Mid-term Review of the European Commission's 2001 Transport White Paper*

(European Commission 2006), in the last decade the European road transport has grown 35% and 19% in freight and passenger[2] transports respectively while the rail showed an increase of 6% and 9% in the same segments. In terms of market share, the road freight transport covers 44% (showing an increasing trend) of the market as against 10% of the rail transport (with a decreasing trend); the situation is even more unbalanced in the passenger segment where the road transport market share is equal to 84% against 7% of the rail one. Furthermore in the same period the Italian highway network increased by 4.7%, the EU-15 one by 37.7%, the Spanish one by 111.2%, the German one by 11.4% and the French one by 49.8%. Reasoning in perspective terms, in the period 2000-2020 the estimated European freight road transport growth is 55%; the rate for the rail freight transport is equal to 13%. The evident conclusion is that the Italian roads and highways are going to be more and more "under pressure".

A last mention is for the Italian most important ports, which show a worrying situation in terms of infrastructures since they are used in the percentage of 90% of the total available capacity. A further proof of this difficult condition comes from the analysis of the data of the largest Italian ports – Genoa, Trieste and Taranto – which reported small increases in the freight transport in comparison with the better performances of several Northern range ports. A critical point for the Italian port system is the absence of high capacity railway terminals, which are the ideal infrastructures for the receipt of the containers[3].

The high fragmentation of the Italian port system makes the possibility to improve the efficiency of the maritime transport very difficult: the total amount of goods loaded/unloaded in the three largest Italian ports represents less than 40% of the Rotterdam one.

All these elements considered, it is quite evident that the Italian logistic system suffers an infrastructural gap in comparison with the ones of the other European large Countries: this element may be considered one of the main reasons of the competitiveness deficit of the Italian productive system. As an example, it can be remembered that the cost of one hour wasted in a highway queue amounts to 30 euro for the cars and 50 euro for the trucks. The additional costs deriving by the congestion of the transport and logistic system are equal to 1.4% of the Italian GNP. A 1% saving in terms of logistic costs would imply a 2.5 billion euro reduction of the total productive costs (Confindustria, 2008).

[2] The data refer to the transport by passenger private cars.

[3] This factor is critical in those ports that are specialized in the handling of containers such as Gioia Tauro. It must be considered that the total surface covered by Gioia Tauro port amounts to 6 square kilometers, the one by Rotterdam to 105 and the one by Shangai to 3.600.

Table 3 – Main European Ports (2009) on the basis of gross weight of goods handled

Ranking	Port	Million TONS
1	Rotterdam (NL)	346.7
2	Antwerpen (BE)	142.1
3	Hamburg (DE)	94.8
4	Marseille (FR)	79.8
5	Amsterdam (NL)	73.5
6	Le Havre (FR)	69.2
7	Bergen (NO)	56.0
8	Algeciras (ES)	55.8
9	Immingham (UK)	54.7
10	Valencia (ES)	48.3
11	London (UK)	45.4
12	Genova (IT)	42.7
13	Bremerhaven (DE)	42.7
14	Trieste (IT)	41.0
15	Milford Haven (UK)	39.3
16	Tees & Hartlepool (UK)	39.2
17	Göteborg (SE)	38.9
18	Taranto (IT)	38.1
19	Dunkerque (FR)	37.9
20	Southampton (UK)	37.2

Source: Eurostat

The potential benefits in terms of increase of the productive system competitiveness due to the solution of the infrastructural problems of the Italian logistic system are quite evident taking into account the data according to which the overall costs of transport and logistics represent 20% of the total national value of the industrial production and 11% of the Gross National Product (Autostrade, 2006). The Italian national association of manufacturing firms (Confindustria 2006) estimated the additional costs deriving from the inefficiencies of the national logistic system at 7,5 billion euro.

In brief, the challenges for the Italian logistic system in the future decades are very clear. It is absolutely necessary to start effective policies in order to mind the gap with the other competitors and to remove the main bottlenecks of the network. In order to take up these ambitious challenges, two main knots must be untied, namely the problem of infrastructure financing and the impact of the structure of the logistic sector on the overall performance of the system.

3. Issue n. 1 – Infrastructure financing

In the complex scenario above described, it must be considered that the present EU member State policies for the transport and logistic system are deeply changed in comparison with the ones of several decades ago: these sectors, characterized by the strong presence of the public hand, represented the ideal target of Keynesian kinds of policy which, by means of remarkable and continuous fund injections, pursued both objectives of full occupation and social welfare ones.

The unwelcome effects of this policy such as the public debt explosion, the numerous inflation tensions and the considerable increase of tax pressure aimed at maintaining unchanged the citizens' social privileges have been interpreted as clear signals of its failure and provided for the rationale to start a *Copernican revolution* according to which the *State* was – more ore less quickly – substituted by the *market*.

Besides the increasing disfavour towards the public oriented political economy approach, since mid-80s', a more and more intense *erosion action* promoted by the community Institutions must be remembered. This process culminated – during the nineties – in the fixation of parameters to be respected in order not to be excluded by the European Union project.

This sensibility towards the public spending control has translated in the imposition of exogenous constraints to the State freedom in the choice of their political economies. This new deal implied that the specific Commission *watch dog* competences were eventually made operative. The final result is a continuous reduction of the public resources available to finance the construction of new infrastructures. The statistical data according to which the EU Member States are spending less than 1% of their GDP for the funding of the transport infrastructures compared to the 1.5% of 1980 (European Commission, 2003) contribute to justify the urgency for a deep analysis of the matter.

This issue appears very critical for those Member States, which – as Italy – report infrastructure gap since there is the serious risk to witness a widening of the network development deficit because of the limited availability of resources and that this situation could become permanent. In other words, given these conditions, the start of a *catching up* process between the most and the less advanced Countries could be unfeasible.

As far as this point is concerned, the Italian situation presents a strong divide with the rest of the European Countries. In the period 1995-2002, the total fixed capitals expenses for the EU-15 decreased from 2.6% to 2.2% of the GNP. The same data in Italy passed from 2.1% to 1.8% (Confindustria, 2006).

In general, the expectable solution of the shortage of public resource issue has been identified in the increasing involvement of the private operators in the financing of the infrastructure development. But the analysis of several practical experiences shows that the contribution of the private hand in the financing of transport and logistics infrastructures met several problems. A good example in this perspective is represented by the projects

envisaged by the Common Transport Policy and selected within the works of the *Christophersen Group* (1993) whose specific task was the support of the European Council to identify the infrastructures of national interest: following this activity, 14 projects of Community interest were identified. They would have received financial support from the Community. What appears quite clearly analyzing this process is that the results have been utterly below the expectations: in the first place, only 8 out of the 14 original projects will be completed before 2011[4] but, most importantly, a reduced involvement of the private sector in the approved projects may be observed.

3.1 The Public Private Partnership (PPP) as a possible solution

The issue about the difficulties to involve the private operators suggests it is very useful to outline the different natures of the fund raising sources, namely public, private or mixed (*partnership*). The basic case is represented by the direct financing deriving from public funds, according to which all risks coming from the various activities – from the design to the infrastructure management – are borne by the State.

However, it is a strategic decision to find a good balance between the above quoted growing commitments of all Member States to rationalize the financial resources due to the deficit and debt parameters decided at the EU level and the needs of upgrading the infrastructures in order to enhance the competitiveness of the Country. Consequently, it is a mandatory choice to adopt innovative forms of fund raising providing for a mix between public and private hands trying to involve more and more the private sector.

This choice seems consistent with the evolution characterizing the public intervention procedures in the economy within the Member States, according to which there is a change of the role of the public sector from producer of goods/services to regulator (producer/controller of rules: La Spina Majone, 2000).

Besides the reduction of X-inefficiency, the involvement of the private operators could allow the achievement of positive effects in the selection of the infrastructure intervention: in fact, the activation of the demand at this stage assures a better comprehension of the infrastructure deficit and the possibility to identify the best pattern under the territory development point of view.

An additional good reason for the private hand involvement instead of the public centralized management of the top priority projects procedures of identification is the fact that the former may assure a better performance in the evaluation of the potential beneficial effects on the territory due to the construction of a transport infrastructure (*positive externalities*).

[4] Three projects have already been completed (Cork-Dublin-Belfast-Stranraer railway line, Malpensa airport, Öresund), 5 should be done by 2011 (Betuwe line, Paris-Bruxelles-Cologne-Amsterdam-London high speed train, Greek motorways, UK/Eire/Benelux road link, main railway line along the UK West coast) while only some parts of the remaining 6 will be completed by 2010 (Berlin-Verona, South TGV line, East TGV line, Lion-Turin-Trieste, Portugal/Spain/Rest of Europe multimodal belt, Nordic triangle).

The operational solution, which is gradually spreading is the intermediate one, namely the *public private partnership* (PPP): a strong support for this choice arises from the persistent activity by the European Commission. However, even if EC often expressed its favor for this approach, it admitted that *the public/private partnership formula has still not been able to attract private investors, just as in other cases the inflexibility shown by some States has not encouraged the development of public/private partnerships* (European Commission 2001, p. 59).

Although the European documents emphasize the medium-long term benefits of the investments for the Member States, it cannot be ignored that the EU Institutions reduced drastically the rooms for manoeuvre of the national Governments by means of the already quoted insertion of strict caps to the public resources expenditures.

In this perspective, the *Green Paper on public-private partnerships and Community law on public contracts and concessions* (European Commission 2004) must be remembered: its main objective consisted in giving an impulse to a debate inspired to provide for a complete framework of rules favoring the development of the initiatives financed by PPP. The EC main effort must be framed in the wider attempt to offer a landscape of full legal regulatory certainty in order to incentive the participation of private operators in financing high priority infrastructure projects.

The *acquis communautaire* has been enriched thanks to the issue of Directive 18/2004 *on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts*, which envisages an accurate and precise discipline of all different options feasible in financing the infrastructures and the release of the *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Public-Private Partnerships and Community Law on Public Procurement and Concessions* (15 November 2005: European Commission 2005), in which the requirement of producing an *ad hoc* framework of rules for the public private partnership is confirmed. In the same direction, the activity of sponsorship for PPP carried by the World Bank must be framed. This Institution recently issued a *toolkit*[5](Fayard 2005) whose main purpose is suggesting to the national Governments wishing to put in practice this choice the basic scenario conditions to be respected in order to foster its development.

A very remarkable experience of the adoption of PPP for the financing of infrastructure is the UK one[6]: according to the reform launched in 1992 – *Autumn Statement* – named *Private Finance Initiative* (PFI), the great public works should have been *designed*, *built*, *financed* and *operated* by private undertakings and afterwards redeemed by the Government after a predetermined period (in general 30 years: Sawyer 2005).

[5] Fayard (2005) identifies the advantages of PPP in: the higher efficiency assured by the private sector involvement in terms of projects implementation, the possibility of adopting strategies of earmarking consisting in binding the resources obtained by means of the projects financed and, consequently, creating a precise commitment for the network manager, the establishment of incentive mechanisms of rewards/punishments and transfer of a large part of the risks from the public to the private operator.

[6] Even if the experience is nowadays the butt of several criticisms.

According to this model (DBFO), the users do not pay any charge for the use of the infrastructure and the payments for the above quoted activities are transferred by means of a yearly fee by the Government to the private undertakings (shadow toll). As occurred for all main reforms related to the public intervention in the United Kingdom, also this one has been favored by a remarkable institutional project founded on the creation of an organization having the task to simplify the development of forms of cooperation between public and private organizations (*Partnership UK*) both creating contacts between these two worlds and sharing the ownership of the companies established for the implementation of the PPP projects. Furthermore, a governmental Agency (*Public Private Partnership Programme Support*) identifying the best PPP opportunities for the public sector in the whole British territory was set-up.

3.2 The different options available to involve private sector

A second profile of interest about the involvement of the private hand in the infrastructure financing is represented by the nature of the private operators involved: although the debate about the privatization is rather advanced, an element that has not been analyzed carefully enough is represented just by the influence that the different kind of undertakings involved may have on the achievement of the infrastructure development objectives.

The private intervention is in fact often considered as a homogeneous set in order to distinguish it by the public one and the recourse to it is justified, as already said, by means of arguments related to its structural capacity to reduce the inefficiency that is characteristic of the public undertaking and by the necessity to find new sources of financing.

In this way, it is generally ignored that the label *private hand* presupposes in reality a wide and variegated spectrum of solutions: each of the different options operates according to different rationales and may lead to different outcomes with regard to the specific issues of the infrastructures.

As an example, the issue of the Italian highways sector may be remembered since it provides for explicit restrictions to the presence of specific categories of undertakings among the shareholders of the concessions-holder companies. As known, in the Italian case, a rigorous prohibition for the construction companies to hold shares in the concession-holder companies has been introduced in order to avoid the generation of conflicts of interest in the auction procedures of contracts for the execution of the network maintenance and enlargement.

On the contrary, an opposite kind of decision characterizes other systems, such as the Spanish and the British ones, where the participation of the construction companies is not only allowed but also considered the linchpin on which the development of the highway road system is focused.

In general, a first possible pattern of private intervention is represented by those companies choosing the Stock Exchange Market quotation and, consequently, the recourse to a wide shareholder group in order to find enough resources for the financing of their activities.

This option has often been adopted after the processes of privatization of previously State-owned companies. The Stock Exchange listing generates for the company the consequent issue to be evaluated by the market: this represents for the undertaking an incentive to adopt decisions aimed at solving the problem of X-inefficiency.

The economic theory states that the behavior of a listed company management is subjected to numerous factors such as the presence of incentivizing payment system and the risks connected to the possibility of failure and take-over. On the contrary, the undesired effect of the Stock Exchange listing consists in overestimating a short-period perspective because of the pressure exerted by the shareholders in terms of trend of the stock price and dividend distribution: it is evident that this factor represents a critical point in the infrastructural industries, characterized by investments whose economic returns are placed on very long time horizons.

A second possibility that is gradually establishing itself in these last years exploits the possibility to raise the necessary capitals for the infrastructure financing by means of the participation of large international investors (instead of the Stock Exchange listing), namely not-listed pension and investment funds.

These kinds of private investors are endowed with huge abundance of cash and are interested in long-term investments, as the ones in the network industries, which may grant a steady and durable – even not very high – level of profitability.

In order to allow this, it is of course necessary that the risk of sudden changes of the regulatory framework, which may influence the return of the investment, is very low.

Under the operating profile, these players may follow, as a general rule, a twofold pattern in order to enter these markets. The straight way is represented by the ownership of shares of concession-holder companies/construction companies (very often not listed in the Stock Exchange market).

Moreover, it must be considered that, in practice, the establishment of joint ventures (in general not listed in the Stock Exchange market) or the conclusion of partnership agreements in which the distinctive competences of each participating operator are enhanced. Against these factors of strength related to the institutional investor intervention, a reduced ability to interpret the local needs and a remarkable risk aversion should be considered.

Besides the typology of the operator and the company shareholder group, there are other factors influencing the choice of the channels the necessary resources for the infrastructural investment may be drawn from. For instance, also the economic organization of a company may have a relevant role in this sense, generating opportunities and constraints.

On the one hand, it is in fact rather frequent that the operators interested in the infrastructural activities are inclined towards vertical integrated configurations. Under the theoretical point of view, the rationale of this kind of choice may be traced back to the fact that the construction activity represents the essential pillar for the infrastructural sectors and, consequently, the maintaining of the control on this stage of the production chain may

consent the achievement of remarkable economies and reduce the criticality arising from the coordination of construction operators.

However, the differentiation in sectors that are economically or geographically contiguous may offer several interesting perspectives, too. In more detail, the companies adopting these kinds of strategies could – in principle – be able to accept lower profits thanks to the possibility to exploit cross subsidies from the businesses characterized by higher levels of margin towards the ones where the profitability is lower.

The acquisition (control of shares) by constructing company of undertakings providing for accessory services for the infrastructure could be interpreted in this sense. However, it must be remembered that the infrastructure constructing company – either vertically integrated or horizontally differentiated – may obtain from the infrastructural investment indirect benefits for its ancillary activities, which may improve radically its economic/financial feasibility.

This description of the different shades the private intervention could assume makes evident that the choice could have important implications with regard to the issue of the infrastructural investment: this observation calls for the necessity to analyze – though very briefly – the function a *good regulation* should carry out in order to select the investor profile that is fittest for the purpose.

The reference is to the previous rows for the analysis of the drawbacks in terms of the investment propensity and the orientation towards the short-term of the quoted companies. A central element to be carefully considered in order to provide for suggestions about the most appropriate operator is identifiable in the kind of infrastructure intervention involved.

In the abstract and considering the obvious simplifications any attempts to generalize imply, it may be stated that the construction of a totally new infrastructure proves to be not interesting in terms of profit potentialities for those operators assuming their decisions on a short/medium-term perspective.

On the contrary, the same argumentation does not hold for the intervention of development of an existing infrastructure, which needs targeted interventions of an incremental kind aimed at expanding the present capacity. The framework tends to change in the case of institutional investors, investment funds and pension funds, which, as already observed, operate according to a very long-term perspective and, moreover, are inclined to prefer investments characterized by certain returns – even if low – and uniform in the years.

It is self-evident that this observation goes against the traditional approach, which excludes aprioristically any possibility of private intervention in networks at embryonic stage: in reality, reasoning in terms of incentives, the above quoted typology of investors seems to be consistent in contexts where the infrastructure has not been built and needs huge capitals to be invested.

Once more, the reference to international experiences provides for useful hints; in the British system, where these solutions have been tested very frequently[7], the typical case

[7] Using the Private Finance Initiative (PFI) system the construction and the management of high capacity

provides that the agreements are concluded between one or more investment banks, whose specific function is the fund raising activity, one or more construction companies and one or more infrastructure manager companies (hard & soft facility management: maintenance and ancillary services).

Attempting a terminological twist, such an articulation seems to resemble a rationale that is consistent with a sort of small Japanese *keiretsus*: the financial institution is the catalyst of the whole vertical chain of all necessary companies from the upstream stages (design and project) to the downstream ones (maintenance).

With regard to the vertical integration strategy, the case of the giant Spanish group ACS, whose original core business was the construction of large infrastructures must be remembered; however, since mid nineties', it started a deep process of *forward integration* aimed at entering the sector of infrastructure management by means of the acquisition of operators already active at different stages of the chain (e.g.: Abertis and Sanef).

Finally, as far as the patterns on the horizontal dimension are concerned, the strategy undertaken by the already quoted ACS group, which completed numerous acquisitions in the port handling service and logistic sectors (Dragados), waste recovery and disposal (Urbaser), production of electricity (Union Fenosa) and freight transport (Continental Auto), expanding its activity to the water, telecommunication and railway sectors, must be remembered.

Equally, it may be noticed very often that the construction and the management of infrastructure become the main target of huge groups coming from different areas of business. A good example in this perspective is Halliburton, one of the world leaders in the production of products and services related to the oil drilling, extraction and refining and gas transport, which has been very active in the competitive tenders for the contract work assignment of transport infrastructures in the United Kingdom.

4. Issue n. 2 – The logistic sector structure

The second critical point to analyze in order to understand the negative impact of the logistics on the level of global competitiveness of the Italian entrepreneurial tissue is represented by the structural characteristics of this sector. At this proposal, a brief preliminary digression about the impact of the recent changes in the organization of the manufacturing process in logistic terms is necessary.

In the first place, it is well known that the globalization and the productive delocalization influenced drastically the organization of the productive chain, above all making the activities of transport and logistics activities very important for the final supply of the goods. Furthermore, the logistic services are more and more often outsourced because of the increasing level of specialization of the manufacturing firms: this element generates a strong re-organization of the supply chain, according to which each step of the process

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roads and motorways for an overall amount of about 3 billion pounds (4,5 billion euros) has been financed: all projects has been completed by means of the establishment of *partnerships* and *joint ventures*.

(including logistics) is carried out by specialized operators. This factor causes an increase in the complexity of the overall manufacturing process and the need to obtain excellent performances in order to reduce the costs, improve the quality of the service[8] and minimize the level of stock[9].

The sources of competitive advantage are thus represented by: the capability to concentrate the transports on few journeys, the rationalization of the number of rides and the points of deliveries, the possibility to increase the average dimension of the lots[10] and the provision of integrated packages of services.

4.1 Thousands of dwarfs in a world of giants

The first characteristic element of the Italian system that is useful to underline is the reduced inclination of the manufacturing firms to outsource the transport and logistic activities; in general, these tasks are carried out in house by the manufacturing firms for the following reasons:

- because of the lower costs of the road transport, the Italian manufacturing undertakings are not incentivized to have recourse to different operators for the logistic activities. The standard strategies for these small medium enterprises are the purchase of transit vans or, at most, the exploitation of "global logistics services";
- the Italian firms, due to their low average dimension, are still not endowed with enough culture to outsource the stages of the productive process.

The result is that the overall percentage of the outsourced logistic services by the Italian manufacturing firms is equal to 13% while the figures in UK, France and Germany are 35%, 27% and 23% respectively. Besides this peculiarity on the demand side, several features of the Italian logistic supply must be remembered. The landscape of the national entrepreneurial tissue is very complex since a wide variety of operators providing logistic services exists. Trying to sum up the main typologies, the first category is represented by those undertakings performing only services of postage and transport. This class is constituted by a very high number of low dimension haulers and several express couriers able to perform international deliveries.

The other large class is represented by the so-called integrated logistic operators, which can offer the whole cycle of the logistic services from the management of the stock to the final delivery. In addition to these two categories – that are similar to the ones retraceable in all national logistic systems – the Italian reality is characterized by the presence of several experiences of logistic districts, according to which a number of firms operating on a single

[8] One may think about the *door-to-door* deliveries.
[9] This factor is vital in a system more and more oriented towards a *just-in-time* manufacturing process.
[10] In other words: achieving economies of scale.

logistic platform offers the services of the logistic chain concluding agreements for the performance of the different steps of the process[11].

As far as the structure of the sector is concerned, the landscape is dominated by the presence of a huge number of low dimension operators: to give an idea the total amount of Italian transport firms exceeds 100.000 with an average turnover of 0.4 million Euro. The values for the other EU large Countries are very different: about 43,000 and 0.8 for France, about 33,000 for UK and Germany with 0.85 and 0.7 respectively (Eurostat, 2008).

The obvious conclusions of this particular situation are that: the critical mass of the Italian logistic system is very low and the national logistic operators must face a level of competitive pressure they are not trained for. In particular, the huge average dimension of the other Countries logistic firms suggests that, short of radical changes in the Italian system, the latter is a candidate for a hard crisis.

Table 4 – Main world logistic operators (2010)

Rank	Operator	TEU	Market share
1	**APM-Maersk**	**2,514,097**	**15.9**
2	**Mediterranean Shg Co**	**2,050,971**	**13.0**
3	**CMA CGM Group**	**1,358,987**	**8.6**
4	**COSCO Container L.**	**641,678**	**4.1**
5	**Hapag-Lloyd**	**631,022**	**4.0**
6	**Evergreen Line**	**615,688**	**3.9**
7	**APL**	**607,031**	**3.8**
8	**CSCL**	**524,582**	**3.3**
9	**Hanjin Shipping**	**482,151**	**3.1**
10	**MOL**	**432,180**	**2.7**

Moreover, the European (and world) logistic system is the object of a deep process of restructuring according to which a real merging wave may be observed: the critical issue for the national system is that the flow of acquisitions is directed in a single sense from abroad to Italy. In the period 1992-2005, 43 out of 56 mergers concerned acquisition of Italian logistic operators from foreign ones.

The final effects on the market share are unequivocal: in the last decade, the market share of the Italian transport firms as far as the flows of road transport at the borders passed from 50% to 35.1% and the same data for the air mode decreased from 61% to 23.6% (!); meanwhile, the balance of payments deficit for the freight transport passed from 1.3 to 3.2 billion euro.

In other words, the land of Italian logistic dwarfs became in the last years a proper ground for conquest by foreign (and experienced) giants, which adopted (and will adopt) strategies of selective acquisitions to control the most critical infrastructures and operators with the

[11] The main examples are Distriparks and logistic hubs.

aim of expanding their influence on a very interesting market. The danger for the national system is that Italy could play the role of a transit territory, while other European areas benefit from the added value of the logistic activities. The above described reorganization of the European logistic chain suggests that the foreign (and huge) operators are the only ones that, because of their dimension and competences, are able to provide the services for the most profitable segments, thus cream skimming the market and leaving the low margin areas to the national operators.

Moreover, it must be considered that the large dimensions of the foreign operators make the entry in their national markets very difficult and these global players are pursuing strategies of further dimensional growth by means of internal acquisitions.

4.2 The case of Germany

Perhaps the best illustration of this policy of enlargement – in both national and international perspective – is represented by Germany, whose clear choice has been the specialization of several operators in the different areas of logistic activities.

The direct consequence of such a choice has been a growing dynamism of the German port system in the last years, which gained market share and improved the overall performances of the logistic services; in this perspective, the port of Hamburg may be quoted: in order to better satisfy the new and advanced needs of the customers, at the beginning of the century, a program of infrastructural investments was started aimed at improving the intermodal linkages between maritime and rail transports. Nowadays, the port of Hamburg is endowed with a very efficient system of high capacity rail terminals, whose main function is to streamline the changes of transport modes and adopts more and more advanced loading systems.

This is a clear example of the importance to thinking in systemic terms as far as the policies to support the logistic systems are concerned. Besides the infrastructure issue, a second hinge of the German logistic policy consisted in a strong State support of two specialized operators characterized by a very high critical mass.

The State owned railway undertaking – Deutsche Bahn (DB) – is one of the most important global player in the field of the *heavy logistics* and operates by means of three companies, each specialized in a different field. In particular, DB Logistics controls Stinnes (industrial logistics), Railion (freight rail transport), Schenker (international integrated logistics) and Duss (planning, realization and management of intermodal terminals).

In perfect consistency with the above quoted strategy of foreign market penetration DB Logistics acquired English Welsh and Scottish Railway – that is the most important operator of rail freight transport with a national market share of 75% and Transportes Ferroviarios Especiales (Transfesa) – a Spanish undertaking operating in the rail transport of cars. Furthermore, it concluded a Joint Venture with the Russian Railways RZD aimed at performing the service of container transport from Europe to Eastern European Countries.

In order to give an idea of the dimension of this operator, it must be remembered that the overall turnover of the group in 2005 amounted to 12 billion euro and the number of employees is equal to 64,000. In strategic terms, DUSS manages 26 intermodal terminals placed homogeneously in the German territory and, as far as Italy is concerned, is going to open a new rail terminal in Verona.

The second specialized operator is Deutsche Post World Net, which is the world leader in the area of *light logistcs*. The rationale of the conduct adopted by the company is more or less the same: since 1999, Deutsche Post has realized a proper *pacman strategy* as witnessed by the 15 acquisitions in the express and logistic segments throughout the world.

Of course, the most important operation is represented by DHL (2002), which operates in two segments, namely Express (turnover of 18 billion euro and more than 130,000 employees) and Logistics (turnover: 8 billion euro and more than 148.000 employees).

The group covers more than 200 Countries performing 1.5 billion deliveries by means of a capillary network made up of 450 hubs, terminals and stores, 240 gateways, 420 airplanes and 76,000 vehicles.

Figure 1 – Intermodal terminals managed by Duss

The consequences as far as the general logistic sector is concerned are very interesting: according to a research edited by P. Klaus (2003), the value of the whole logistic sector amounts to 150 billion euro, the per capita volume of transport in Germany amounts to 45 tons (the European average is 31.5) and – more importantly – the first ten companies control more than 70% of the total German turnover. Furthermore, in the period 1999-2003, more than 100 mergers and acquisitions were concluded in Germany.

Finally, the institutional dimension of the German system must be remembered since it is characterized by a well-developed and advanced culture of logistic territorial marketing thanks to the presence of several national projects and promotion Agencies aimed at creating an ideal scenario for the attraction of investments. In concrete terms, the idea is to represent a territory as a potential area of establishment of logistic activities: under this point of view, the institutional tasks of an Agency should be the identification of the infrastructural needs (in terms of physical facility, information and communication technologies, connections with the main transport nodes), the arrangement of the critical relationships with the local firms and operators and the set-up of an efficient and simple institutional, bureaucratic and administrative context.

A remarkable case is constituted by the Kompetenzzentrum Logistik Kornwestheim (KLOK), which is a complex network of private and institutional operators of the logistic sector aimed – among the other things – at: solving the main infrastructural issues and training the human resources in this perspective, identifying the best practices about the local approaches deducible from other experiences, creating a European network of competence centres facilitating synergies and the conclusion of agreements among operators and establishing a computer-based platform about European logistic and transport activities.

5. Concluding remarks

The paper described the main causes of the Italian logistic system competitiveness gap: starting from a general condition of infrastructure deficit, the shortage of financial resources and the low average dimension of the logistic operators worsened the situation thus making the possibility to plug the gap in a short time very difficult.

In this awkward scenario, the transition toward a market-oriented economy – that is the EU choice – according to which the financial burden of the member States must be reduced and the investments should be financed by means of a more and more intense involvement of private operators, favours the strong systems thus widening the distance with the less developed ones. In other words, the decision to let the market free to self-regulate the allocation of resources would be a suicidal option for the Italian system: accordingly, in order to reverse the situation, several drastic changes are necessary, among which the most important is the absolute need to work out effective industrial policy interventions.

At this proposal, a preliminary element to be underlined is the need to change the culture of the intervention: the policy measures should be designed following a systemic perspective. For this reason, a sort of *control room* for the logistic sector should be created in order to identify the most pressing needs for the national system[12] and coordinate the actions of the various local institutions having competences about the implementation of logistic policies.

As far as the philosophy of the interventions is concerned, several factors must be considered: firstly, most of the congestion problems arise on the urban networks and these ones may worsen the overall performance and the punctuality of the long-range transport (the main bottlenecks concern the metropolitan areas); secondly, the road transport maintains a sort of *last-mile advantage* because of its higher flexibility permitting to carry-out door-to-door deliveries.

In this sense, the concept of *intermodal competition*, according to which the key-idea is to create a *level the playing field* among all the modes aimed at stimulating a market share shift towards the clean ones, seems indefensible. Consequently, the decision to address resources to the construction of huge projects is capable of producing unsatisfying effects.

More seriously, this approach diverts the funds on expensive but not very useful interventions – which may give *political visibility* – rather than devoting them to the real priorities. Several scholars state this *top-down* philosophy of the intervention may be considered a sort of *pork-barrel policy*. As correctly underlined by sir Rod Eddington in his report dated December 2006, *"build it and they will come" is a dangerous approach to transport projects* (HM Treasury 2006, p. 17).

As regards Italy, a very lively debate about the capacity of the new high-speed rail has developed: in particular, it has been pointed out that the overall capacity of the AV/AC[13] network could be oversized. This observation generates serious concerns about the

[12] A first attempt in this sense is the *Consulta per l'autostrasporto* (*Council for road haulage*), which drew up the first Pact for logistics (Patto per la logistica).
[13] Alta Velocità/Alta Capacità: High Speed/High Capacity.

economic viability of this huge investment – the total costs have been valued at 32 billion Euro – and, if the traffic volumes are not in line with the expectations, the payback period will be very long.

In this overall scenario, it is clear that the decision about the construction of the new highspeed connection Turin-Lyon implying costs to the amount of about 20 billion Euro is very ticklish above all considering the limited available resources allocated by the European Union. In this regards and considering the overall framework of resource shortage, the *philosophy of the great EU corridors* providing for large investments, the involvement of huge capitals and the construction of new infrastructure should be replaced with an incremental strategy founded on targeted measures directed to solve the congestion in the metropolitan areas (city logistics) and to remove the bottlenecks for the last mile interconnections.

With regard to the financing of infrastructure, two main important changes should be taken into account: first of all, there is the absolute need to create an overall scenario of legal and regulatory certainty and ideal operative conditions for the attraction of private operators and, secondly, following the example of the German system, a strong State support of the main logistic operators should be preserved.

As far as the first issue is concerned, the deepening about the different options of private involvement should suggest there is room for different kinds of intervention: accordingly, the interest of the public operator should be the arrangement of favourable conditions in this sense. What can be called the "Italian disease" – i.e. the bad habit to make sudden U-turns in the issuing of the rules – implies the private operators are frightened to invest resources in the infrastructure development. An institution that is typical of the UK system, namely the regulatory contract, could be very useful: in concrete terms, the State (or regulatory Agency) undertakes to apply a certain regulatory regime (tariffs, control of quality etc.) against the commitment of the operators to build and manage the infrastructure. The final objective is to minimize the so-called regulatory risk: unfortunately, several good examples of the unintentional effects of the sudden changes of regulatory regimes in terms of private operator involvement may be traceable analyzing the Italian transport and logistic sectors.

The characteristics of the infrastructure investments – high payback period and riskiness – suggest that certain kinds of operators fit better than others: for instance, the pension and investment funds are endowed with the liquidity and the profitability profile necessary for these kinds of operations, the diversified undertakings may exploit the returns deriving from contiguous segments in order to receive enough compensation for the infrastructure investments and the vertical integrated company may benefit from the achievement of economies of scale in the different stages of the chain. Accordingly, such interventions as the removal of all prohibitions for the participation to the infrastructure sector to certain companies or the conclusion of agreements with the private operators according to which the State guarantees the possibility to exploit commercially the area concerned by the infrastructure investment by means of other business in change of the realization of the work are necessary.

At last, in the light of the approach developed in the most competitive EU logistic systems and considering the weak structure of the Italian industry, a remarkable effort should be put in practice aimed at stimulating the growth of one (or two) national champions of the logistics with enough critical mass to face the foreign competition. In this perspective, the huge and valuable estate assets owned by the Italian rail company (Ferrovie dello Stato) could be exploited; but this measure would be not efficient if not accompanied by an activity of preliminary identification of the strategic logistic platforms and terminals on the Italian territory on which the flows of goods should be concentrated.

This ticklish planning activity entails – once more – the need to develop a systemic philosophy as regards the Italian logistic sector. Such an approach has become more and more urgent: this deep change of approach may no longer be postponed if the Italian system wishes to play an active role in a globalized economy where the importance of logistic activities has dizzily grown.

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