



# UNPLUGGED CITY //////////////////////////////////////

## Escaping from global networks and flows trap?

New geographies of logistics :: Urban and regional implications

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### :: ABSTRACT

The urban and regional influence of contemporary passengers, goods and information traffic within the new global economy based on knowledge and logistics, and the physical structures that shape the networks (harbours, airports, train stations, motorways) are assumed as capitally important. Nevertheless, so far, the impact of these dynamics is much more attached to hierarchical processes of socio-spatial fragmentation-segmentation-polarization rather than balanced re-distributive systems. Global connectivity has as much strengths as threats, and the integration within the new production, consumption and distribution geographies generates as much opportunities as irreversible mutations.

*Unplugged City* is presented as an incursion on connectivity and accessibility, exploring the strengths and threats derived from the management of logistics and freight transport flows within the frame of the so-called "catch-up" economy. The Trans-European Transport Network Plan (TEN-T) will be on focus as the main policy-making framework behind the new geographical transformation in Europe.

The importance of the exponential growing freight transport and logistic sector has been exposed as a key factor to understand the bases of current globalisation. The sharp changes generated by the dropping of transport cost in patterns of production-consumption-distribution geographies have to be contrasted with deep transformations of labour market, linkages between transport and industrial location and new network models. What is close is just what is cheap. Distances nowadays are no measured in kilometres or hours but in Euros, imposing a new logic for the global geographic structure.

Regions with better access to locations of input materials and markets are assumed to be more productive, more competitive and hence more successful than more peripheral and isolated regions. But this hypothesis has to be urgently reformulated, contrasting transport policies with quantitative research and the appraisal of real socio-economic impact of the new transport geographies.

The assumed idea of *connectivity* as pure benefiting will be critically discussed as a much complex phenomena. Corridors are fostering the survival of core regional centres meanwhile a growing regional imbalance is monitored; regions that still have to deal with environmental, budgetary and indirect issues derived from the management of these flows.

## **INDEX**

### **1 :: NEW GEOGRAPHIES, WHICH ECONOMY?**

1.1 :: Computers vs Containers

1.2 :: Post-Fordism vs Neo-Fordism

1.3 :: Knowledge-based vs Catch-up economy

### **2 :: THE GEOGRAPHY OF TRADE AND LOGISTICS**

2.1 :: Definition and Evolution of Logistics

2.2 :: International Containerisation Boom. Impact and Consequences

2.3 :: New Geographies of Transport and Trade: The Box Project

2.4 :: Network Models and Externalities

2.5 :: Accessibility, Connectivity and Economic Performance

### **3 :: TRANS-EUROPEAN TRANSPORT NETWORK PLAN (TEN)**

3.1 :: Precedents, objectives and early milestones

3.2 :: TEN-T priority projects

3.3 :: A critical assessment approach

### **4 :: CONCLUSION AND FINAL NOTES**

### **5 :: FIGURES AND IMAGES**

### **6 :: REFERENCES**

6.1 :: Notes

6.2 :: Bibliography

## 1 :: NEW GEOGRAPHIES, WHICH ECONOMY?

### 1.1 :: Computers vs Containers?

On the back cover of Marc Levinson's book *"The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger"*, a striking comment from Peter L. Bernstein can be read:

*"(...) The experts who tell you that the transistor and microchips changed the world are off base. The ugly, unglamorous, little-noticed shipping container has change the world. Without it, there would be no globalisation, no Wal-Mart, maybe even no high-tech."*

We are familiar with the formulation of a new kind of *knowledge-based economy* in which both space and time are being transformed under the combined effect of the information technology paradigm (Castells, 1996;314) that explains and underlines the current increasing economic globalisation. Could this statement be considered just a provocation then? Can really this technological revolution be off base to explain our current world?

Apart from the provocative tune, it incorporates a capital and usually forgotten argument into the way we are measuring this so called new knowledge-based economy. If the technological revolution was used to change the world or our world changed due to the technological revolution is still an open debate [1.1]; however, I will argue that despite this form of world economy is related with the production and process of information as has been largely postulated (Castells, 1996), contradictory this same labelled un-material activity has triggered off the largest material production and material mobility on earth ever, hand by hand with a world wide logistic and containerisation boom that still grows exponentially (see **Figure 1** and **Figure 2**). Since 1950, world trade has grown more than twice as fast as the overall global economy (Taggart, 1999).

If globalisation is referred to a capitalist form of geographic expansion aimed to contain, absorb or manage endemic over accumulation and surplus problem, then the mechanisms and tools that enable this expansion are fundamental. As Harveys argues (1989:183): *"spatial displacement entails the absorption of excess of capital and labour in geographic expansion. This spatial fix to the over accumulation problem entails the production of new spaces within which capitalist production can proceed (through infrastructural investments, for example), the growth of trade and direct investments and the exploration of new possibilities for the exploitation of labour power"*. From the perspective offered by World System Analyses theory (Wallerstein, 2000; Taylor and Flint, 1998) the *"centre-periphery"* exploitation system -in which the interdependence of certain geographies of production, distribution and consumption are on the base of global trade- can be seen precisely as part of the same process of geographical expansionism. And as will be argued, *containerisation* [1.2] has to be observed precisely as fundamental element enabling this expansion in the flexible accumulation era.

Computers are substantially one of mechanisms and tools that permit such spatial interdependence; but international containerisation -and the subsequence logistic and freight transport boom- must be seen equally important. From Levinson: *"The container, combined with the computer, made it practical for companies like Toyota or Honda to develop just-in-time manufacturing"* (Levinson, 2006:1:13). *"When transport costs are high, manufacturers main concern is to locate near their customers, even if this requires undesirably small plant or high operating costs. As transportation costs decline relative to other costs, manufacturers can relocate first domestically, and then internationally, to reduce other*

*costs, which come to loom larger. Globalisation, the diffusion of economic activity without regard of national boundaries, is the logical end point of this process"* (Levinson, 2006:1:14). Just as the Net and deregulated telephony spelled the death of distance for telecommunications, containers spelled the death of distance for manufacturing. Before the invention of the modern containerisation by Malcolm McLean in 1955, the transport costs has dropped from about 25% to today's 1-1,5% of the final price of consumer goods, making country of origin largely an afterthought in purchasing decisions (Hesse, M.; Rodriguez, J.P.; 2004). De-localisation would not be possible without decreasing transport costs upon zero. What is close is just what is cheap. Distances nowadays are no measured in kilometres or hours but in Euros, imposing a new logic for the global geographic structure.

## 1.2 :: Post-Fordism vs Neo-Fordism?

Thus, which is the main force that explains our present flexible accumulation era? *"Given the vast changes in the world-economy over a span that saw the breakdown of the exchange-rate system, repeated oil crises, the end of colonialism, the invention of jet travel, the spread of computers, the construction of hundred of thousands of kilometres of expressways, and many other developments, no model is likely to be conclusive in distinguishing the impact of containerisation from that many other forces"* (Levinson 2006:1:14). Attributing the vast changes in the world economy to a single cause would be a great mistake, but the possibility should not be dismissed that the sharp drop in freight costs from the introduction of container shipping played a major role in increasing the integration of the global economy (Krugman, 1995; 341).

Our present economic cycle has many labels [1.3]. Under the common umbrella of *Neo-liberalism*, two main contrasted interpretations are commonly accepted. The first one is spelled *Neo-Fordism*, understood as a new systemic adjustment of the single world economy, a way forwards that expands the period of Fordism (Allen, 1992:193). On the contrary, *Post-Fordism*, is conceived as a qualitatively new economic and social direction, a step beyond Fordism (Allen, 1992:193). *"As such, post-Fordism signals a new era, in much the same way that Castells spokes about an informational age (...). Consider the example of post-industrialism, which in Bell's hands connects the shift in the balance of employment from manufacturing to services, to the shift from blue-collar to white-collar professional work, to the shift in demand from goods to services, to the shift from an economy organized around raw materials and machinery to one organized around knowledge and information technology"* (Allen, 1992:196). What is interesting here is that within the described play of opposites, in deed the dichotomy computers/containers is linked as well.

Actually, if *computer revolution* is constituting the main actor behind the *Post-Fordist* approach and subsequently behind the formation of the *knowledge-based* economy in the *"core"* (using Wallerstein's three tier geographic structure), *containerisation* and *logistic revolution* has to be identified as the main force behind the extension of *Neo-Fordism* and subsequently behind the formation of the *Neo-colonial Fordist* economy in the *"periphery"* [1.4], clarified extensively by the new geographies of transport and trade (see **Figure 3**).

This is exactly how Bernstein's statement proposed in the introduction of this chapter has to be taken. Containers are fundamental to explain the coexistence of these two connoted derivations in a geographical hierarchy. *"Even as it helped destroy the old economy, the container helped to build a new one"* (Levinson 2006:1:2).

However, the complexity of the current management of logistics made computers capital for containerisation as well as mechanism that enables the mass synchronicity of Wallerstein's three tier structure globally. *"A parallel issue, of course, that would be an appropriate*

*subject for yet another extensive analysis is the degree to which the growth of the container-ship industry over the past fifty years would have been impossible without the parallel development of powerful computer systems to keep track of containers, develop stowage plans for their placement aboard ship, and ensure that when a 7,500 TEU vessel puts out to sea, all of its containers are properly positioned to ensure the vessel's stability –and not incidentally, keep customers informed about when their container of men's socks, or pots and pans, or automobile parts will be delivered” (Cudahy, 2006:248).*

### **1.3 :: Knowledge-based vs Catch-up economy?**

The creation, distribution, diffusion, use, integration and manipulation of information have been largely identified as the main force that explains the economic activity of our era, extensively conceptualised as Knowledge-based economy (Bell, 1993; Castells, 1996) and reported as explanatory argument of the huge socio-economic and geo-politic transformation worldwide coming hand by hand with the neo-liberal turn. This informational, global economy is organized around command and control centres able to coordinate, innovate and manage the intertwined activities of network of firms (Castells, 1996), expanded all over the world *“except the black holes of marginality”*. Furthermore, *“there has been a spatial concentration of the upper tier of such activities in a few nodal centres of a few countries”* (Daniels, 1993). This concentration follows a hierarchy between tiers of urban centres with the high-level functions, in terms of both power and skill, being concentrated in some major metropolitan areas (Castells, 1996) that have been marked as *global cities* or *world cities* (see Soja, 1983; Friedmann, 1986; Sassen 1991; Castells 1996; Taylor, 2001).

Economic geographers and regionalists have been lately very busy focused on the urban and regional implications of the phenomena, trying to articulate competitive strategies for the growth and development of certain geographies on these bases. The investment in R&D centres, creative industries, technologic campuses, high-tech poles and intelligent clusters is the current trend in order to participate actively in the so-called knowledge economy (Storper, 1997; Boschma, 1999; Short, 2006).

But as it was argued in previous chapters, this new form of world economy, which is related with the production and process of information, contradictory has triggered off the largest material production and material mobility on earth ever, hand by hand with a world wide logistic and containerisation boom. This fact just reveals another form of regional economy derived from the management of this huge “space of flows” generated (Castells, 1996), whatever talking about flows of passengers, capital, goods or information, in which the main actor is most likely the container and not only the computer.

This “catch-up economy” (Vickerman, 1996) is not based on production but on distribution; it is not happening in the commanding centres but fundamentally conforming intermediate episodes within the net; it is not about investing in R&D centres but preferable in motorways, airports and harbours, established as nodal points in which cities and regions can “catch” the flows.

There is a crescent research on how accessibility, connectivity and economic growth are related within the field of transport geography, and how the investment in infrastructure and socio-economic returns via “catch-up” are correspondent (Straszheim, 1972; Gwilliam, 1979; Botham, 1982; Hall, 1993; Thomsom, 1995; Vickerman, 1996; Preston, 2001; Ricci and Black, 2004; Albrechts and Coppens, 2005; Spiekermann, 2006). *“One of the key unresolved questions in transport geography is the link between transport investment and economic development. Rostow (1971) believed that the development of transport networks was an essential precondition for economic development, a view supported by the seminal work of Trace (1963). The contrary position is associated with Fogel (1964) whose work suggests that economic*

*development in 19th century in America was due more to technological innovations in manufacturing and agriculture and socio-cultural change rather than railroads” (Preston 2001:3).*

Precisely the exploration of these ingredients, focused on the social and economic repercussion of logistics flows, will follow the coming chapters.

## 2 :: THE GEOGRAPHY OF TRADE AND LOGISTICS

### 2.1 :: Definition and Evolution of Logistics

The exchange of goods is a constant feature of human economic activity. It was once essential for the rise of the mercantile economy in medieval Europe (Braudel, 1982) and became a large-scale activity during the industrial revolution. This massive circulation of matter certainly allowed the transition from use-value to exchange-value, and thus made possible the large-scale capitalization of commodities (Hesse and Rodriguez, 2004). In addition, the new political framework, namely policies of deregulation and liberalization that were effective for the US in the late 1970s and early 1980s, and for Europe since the introduction of the Single European Market in 1992, enabled extensively the global circulation of goods that ultimately experienced exponential rates of growth under the umbrella of globalisation.

Nevertheless, logistics as geography reminds rather unexplored. From Preston (2001:22): *“We need a new transport research agenda for a new millennium. Geographers should be proactive in ensuring this research does materialise and in the process help develop a new transport geography. Areas that are particularly likely to be neglected include transport’s contribution to old and new growth theories, trade theories and location theories.”*

Logistics can be defined as the wide set of activities dedicated to the transformation and circulation of goods, such as the material supply of production, the core distribution and transport function, wholesale and retail and also the provision of households with consumer goods as well as the related information flows (Handfield and Nichols, 1999). Especially since the 60’s, the sector has been largely transformed. *“Today, while the workforce of longshoremen is a small fraction of what it was in the days of break-bulk cargo operations, the skill levels that workers must possess and master are substantially different from those that were needed a half-century ago”* (Cudahy, 2006:247). The film *On the Waterfront* (1954), starring by Marlon Brando, offers a clear idea of how things used to be.

In deed the brief time-line of logistics and freight transport revolution during the XXc. can be summarized according to three milestones: the introduction of the commercial container in 1956, fundamental for the dropping of transport costs and timing, that will be deeply analysed in the next chapter; intermodalism, which allowed containers to be shifted more easily between trucks and trains, further integrating land and sea networks; and finally since the 1990’s, the convergence of logistics and information technologies –electronic data interchange and web based offspring- that marked a third era enabling the huge synchronism between different systems and geographies on the bases of current globalisation.

Another issue that marked rapid changes in the entire distribution system was the invention of the concept of lean management, primarily in manufacturing (Harrison, 1997 [2.1]). The key concept in *lean management* is the elimination of inventories and organizing materials supply based on demand, replacing the former storage and stock keeping of inventory.

The result of these milestones is manifest in a constant evolution on the direction of eliminating, integrating and substituting processes and mechanisms in order to gain efficiency

and productivity, triggering off a sharp transformation in all fields like labour force, devices, costs and timing, infrastructure and networks. These processes are described by Hesse and Rodriguez (2004) as a shift from derived to integrated demand, labelled nowadays "Supply Chain Management".

### Supply Chain Management

Before the 60's, logistic activities were still organized in totally independent boxes, being every activity quite autonomous and often segregated. Functions like demand forecasting, purchasing, requirements planning, production planning, manufacturing inventory, warehousing, materials handling, packaging, inventory, distribution planning, order processing, transportation or customer service, were managed by different and frequently not coordinated actors. It is during the 80' when these activities are first grouped. The progressive integration of physical distribution and materials management started blurring the classical induced/derived demand distinction, which implies that distribution is derived from materials management activities (namely production), but also, that these activities are coordinated within distribution capabilities, forming the *integrated transport demand of logistics*: production, distribution and consumption are thus difficult to separate. This paradigm shift leaning on supply chain management, materials flow management and freight transportation requires the elaboration of its own transport geography (Hesse and Rodriguez, 2004:173).

During the 90', the proper denomination of *logistics* is born to name the integration of product distribution and material management, that will subsequently incorporate a bit later the boxes of information technology, marketing and strategic planning to generate, finally, the general umbrella by which the sector operates nowadays: *supply chain management* (see Figure 4).

### Intermodality

Intermodal freight transport is defined as "*the movement of goods in one loading unit, which uses successively several modes of transport without handling of the goods themselves in transshipment between the modes*" (Ricci and Black, 2005). Also from Lowe (2005): "*is the concept of utilizing two or more 'suitable' modes, in combination, to form an integrated transport chain aimed at achieving operationally efficient and cost-effective delivery of goods in an environmentally sustainable manner from their point of origin to their final destination.*"

Thus, intermodal freight transport is just the integrated transport system that allows to carry a precise cargo using different means of transport –rail, shipping and road– without altering the content neither the continent. This concept, based on normalized devices and measures (containers) allows to drive everyday the cargo from any Asian port in a Vessel, which could be transferred by a huge crane to a smaller ship that would get upstream a certain inland harbour where, transferred again by the same kind of crane to a rail wagon, would travel until the selected freight station to be placed once again on a truck, finalizing the long trip by road anywhere else.

The benefits of unit-load intermodalism are quite conclusive. According to Lowe, (2005): lower transit costs over long journeys; potentially faster delivery times in certain circumstance; reduction in road congestion; gain in sustainability; reduced consumption of fossil fuels; and safer transit for dangerous products. This is a wide set of reasons that explains why intermodalism, rather a new concept, is being fostered insistently nowadays –in Europe by means of the Trans-European Transport Plan, analysed in chapter 3) as core of policy-making in transport affairs.

Intermodalism can be also interpreted as the physical translation of the *integrated transport demand* mentioned before, with the pre-requisite of the container as fundamental piece of the system. The implementation of intermodalism is a capital fact that, as will be later analysed,

has an important role in the alteration of transport networks. The container and the international containerisation boom, intimately related with intermodalism, will be exposed extensively due to its capital importance in the next chapter. Nonetheless, I consider appropriate at this point to make a brief sketch of what has been transformed in the logistic sector and its consequences for the socio-economic system of cities and regions.

### **What has been transformed**

The proper functioning of the *supply chain management* will not be treated for not consisting the core of the present thesis, although some comments concerning the consequences of this gradual reduction, compactation and optimisation of processes are obliged to be addressed. The diagnosis is clear: less space needed, less workforce required and more segregation from urban and regional environments. Let's draw why.

Containers rapidly contributed to minimize the size of ports and spatial management through eliminating warehouses –the container is itself the warehouse–, disconnecting the harbour and freight areas from its hinterland. Intermodality will just considerably increase this same tendency synchronizing a perfect just-in-time loading, eliminating intermediate way of transports and consolidating a “hub to hub” network that obviates and neglects an increasing number of territories (as intermodality is only profitable in large distance exchanges; Ricci and Black, 2005). The focus on *transport corridors* would weaken the capacity of “catching-up”, meanwhile the operations needed across different territories will decrease as well.

Hence, the impact on the labour is becoming as high as to “*make nineteen in every twenty men redundant*” (Broeze; 2002:236). The new semi-automatic terminals governed by potent softwares that act like a kind of Tetris game (in Europe, first inaugurated in Algeciras Port, Spain, just in May 2010) will continuous cutting off the labour force required around 50% [2.2]. In short: maximizing benefits –by means of reducing labour cost and transport time– thanks to the progressive integration of freight transport into another *knowledge-base* economic activity else.

## **2.2 :: International Containerisation Boom. Impact and Consequences.**

In precedent chapters the role played by containerisation in current globalisation and advanced form of capitalist organization, has been widely exposed. In Slack (2004:25) some additional references to this issue can be found: “*Globalisation and container enjoy a reciprocal relationship. There is little doubt that the expansion of international commerce and the expansion of global manufacturing systems would have been impossible without the efficiencies and economies that containerisation has brought. Container shipping is a facilitator of globalisation*”. Globalisation has resulted in shifting of employment among cities, regions and countries. It has also lowered costs to consumers and enabled delivery of a much wider varieties of goods to many markets, affecting not only economies but the environment, politics, and culture. The container, a simple technology intended to speed the loading/unloading of goods, has played an active role in those changes.

The main evidence the extension of containerisation has brought is simple but fundamental: the radical lowering of prices. This is the central argument used to attribute to this factor the capacity of enabling geographical dislocation and hence increasing integration of the global economy (Krugman, 1995, Taggart, 1999; Hesse and Rodriguez, 2004; Levinson, 2006; Cudahy, 2006). It is estimated that before the commercial container, prices were up to 10-15% of total product selling price (Martin and Thomas, 2001; Levinson, 2006), although some sources rise this share up to 25% for certain commodities (MacMillan and Westfall, cited by Levinson, 2006). Assuming the historic evolution of freight transport prices is not an easy task (due to difficulties to access and compare precise database before the global market integration, much segregated by geographies and means of transport), the key message is that nowadays the



share is quite stick to 1-1,5% of total product selling price, making geographies of origin largely an afterthought in purchasing decisions: *"The cost to transport a bicycle from Thailand to the UK in a container is about US\$10. The typical cost for shipping a DVD/CD player from Asia to Europe or the U.S. is roughly US\$1.50; a kilogram of coffee just fifteen cents, and a can of beer a penny"* [2.3]. What is close is what is cheap.

The container is just a metal box used for the intermodal transport of 90% non-bulk cargo [2.4]. The size is regulated by the ISO 6346, and among many standards, the most common ones are fixed in 20-ft/6.10 m (20\*8\*8,6 ft) and 40-ft/12.19 m (20\*8\*8,6 ft). The capacity of cargo loaded/unloaded is measured in TEU, precisely the equivalent unit of the 20ft container volume [2.5]. If all the containers from an 11,000 TEU ship were loaded onto a train, it would need to be 77 kilometres long. Nowadays, 82% of container are *made in China* and the total number in circulation is estimated over 150 millions (source: Containerisation International).

The invention of the container have been attributed to Malcom Mclean and his Sea-Land Company when in 1956 first shipped 56 containers on board of the *Ideal-X* sailing from Newark to Houston [2.6], although its former military functions has to be stressed [2.7]. However, since the 60's the world traffic have been growing exponentially on annual rates that in certain periods exceeded 12%, positioning the freight traffic over other indicators like passenger traffic, GDP or population (see **Figure 2**). It is forecasted to increase 5% per year during the period 2003-2025 according to UNTAC (United Nations for Trade and Development, 2003). Usually when talking about containerisation, the linkage with shipping lines appears almost monopolistic; this is in deed due to the fact that certainly 95% of goods are carried by sea (Taggart, 1999), fundamentally because of the comparative prices of shipping ahead other transport means.

### 2.3 :: New Geographies of Transport and Trade: The Box Project

There is certainly no better exercise for overlooking the global picture of the interlinked geographies of freight transport than having a look at "The Box Project". It is just a masterpiece of journalism launched by BBC News in September 2008, aimed to follow and monitor a shipping container for a year-donated by the shipping company NYK- to tell stories of globalisation and the world economy. *"It is a project which plans to deliver content for television, radio and online audiences - telling the individual stories behind what makes the global economy tick. We have painted and branded a BBC container and bolted on a GPS transmitter so you can follow its progress all year round as it criss-crosses the globe. The Box will hopefully reach the US, Asia, the Middle East, Europe and Africa and when it does BBC correspondents will be there to report on who's producing goods and who's consuming them"* (Jeremy Hillman, Editor, BBC Business and Economics Centre).

The moment the programme was launched was coincident with the very beginning of the financial storm from which the present economic crisis and global recession emerged, hence it resulted to be a surprising document in which the signs of different happenings where sharply recorded.

The voyage of the NYKU8210506 (logistic label of the container) started on the 8th September in Southampton, England. There, over 15.120 Chivas Regal whisky bottles arrived by truck from a distillery in Paisley, Scotland. Final Destination: China. After 18.500 km of journey crossing the straight of Gibraltar and the Suez Channel, being once transferred in Singapur, the box arrived at Yangshan Port, Shanghai, on the 22nd of October. The whisky bottles where downloaded and the container was subsequently loaded again with several staff *made in china* ordered by *Big Lots* in USA, 4.320 bathroom scales produced in Ningbo, a city 3 hours far from Beijing with more than twenty factories dedicated to this business.

The next stop will be Los Angeles, from where the container crossed the States by train till New Jersey, loaded then in a truck in order to reach the Big Lots distribution center located in Tremont, Pennsylvania. The cargo made a new journey by road to one store of the company located in Long Island. While, the NYKU8210506 left New Jersey to get Santos (Brazil) on the 10<sup>th</sup> of February, containing this time with chemical composites including pen ink, mint aroma, and polyester fiber. From Brazil with destination Japan, food products were sent. Crossing the Good Hope Cape and sailing the Indic Ocean, one stop was made in Hong Kong to be transferred again into another ship, that finally drove the box to Yokohama. In Japan, the NYKU8210506 had an unexpected forced inactivity for four months. The container was waiting in the dry-port due to legal problems and the cancel of the new cargo that was compromised just because of the crisis. Finally, on the 15<sup>th</sup> of August 2009, the box left Japan with destination Southampton loaded with 95.900 tins of cat food. The port of Laem Chabang, in Thailand, served a transfer place for two days.

On the 22<sup>nd</sup> of October, the Box was downloaded by the L Crane Southampton Port, managed by Lee Harfield, the same worker that loaded the NYKU8210506 just 421 days before. In numbers, it toured more than 83.000 Km (75.760 km on ship, 5.196 km in train and 2.170 km driven by truck), which means 2.08 laps around the entire world. After the experiment, the container was donated to ONG activities in Africa designed as nomad kitchen.

The Box Project reported indirectly the transformation that the logistic shipping industry experienced, evidencing rapid processes of adaptation to the new needs coming from global recession in 2009. Within this context, we have to remind that the exports were globally reduced 23% meanwhile the imports were over 19%, twice bad as the *Great Depression* in words of the BBC. The industry, that had been growing with annual rates of 20% since 2002 and optimistically had forecasted this tendency for the coming years, immediately found dramatic problems of overcapacity due to this overspectation scheduled –logistic version of industrial overproduction.

Approximately 10% of the total number of world shipping containers, estimated in 150 millions, were not in circulation, meaning that 15 millions on *boxes* were laying somewhere stopped. Sending one full filled container from Asia to Europe used to be about 2.500 dollars; when the box project ended, this amount was not more than 1.000 dollars. Obligated to lower the prices to be attractive, the shipping companies had no other solution than reducing direct costs by means of stopping the activity of lots of ships (waiting in ports and bays all over the world), reducing the sailing speed (hence enlarging the routing time), optimizing the cargo loaded and, more fundamentally, cutting thousands of working places in harbors and head offices. Only in NYK Line about 8.000 jobs were lost, according to BBC News, preceded by red numbers of 300 million dollars.

As commented by Luis Martínez from Maerks, “the logistic sector can become the next bubble to exploit. We had already an oil crisis, a “.com” crisis, and a financial crisis. The logistic crisis could be the next one. This is a sector that moves nowadays an enormous activity globally. If the core of the logistic sector is damaged, the whole globalisation as such can be compromised”.

## 2.4 :: Trade Network Models

The interest for analysing inter-city relations and networks of cities behind economic and trade forces have been on focus in many research (Gottmann, 1961; Dollinger, 1970; Gottmann, 1989; Abu-Lughod, 1989; Braudel, 1984), as well as in those more recently related to world/global city phenomena (Soja, 1983; Friedmann, 1986; Sassen 1991; Castells 1996; Taylor, 2001). Nevertheless, I have to remark that my interest is not based on the study of the mayor

cities commanding the global economy; on the contrary, it is put on a larger set of medium and small cities spread out along the net, in order to reveal the both opportunities and dangers derived from serving/being served by those transnational commanders according to its relative position within the network, freight and trade network specifically.

Since ancient times, trade routes were established in order to connect poles of production and consumption of goods and raw materials. Although these routes were primarily set according to a hub-to-hub line between core cities, the net was conceived as a quite diversified system in which former cities, and new cities founded precisely all along the path, benefited from the economic, social and cultural flows. All these intermediate urban enclaves were contributing at the same time to consolidate its linkages and traceability. If we just focus our attention on the Silk Route established between Rome and Chang'an, we will find a big bunch of cities founded along the route due to certain process of magnetism. Trade cities were serving and being served by the network in a symbiosis relation.

Nowadays cities are hardly founded along a trade route. More on the contrary, the random and constantly mutating current flows are activating (and des-activating with the same celerity) precise nodes and locations. Routes and networks are far from being stable, selecting certain cities and territories due to complex and variable economic and politic decision-making bodies. Flows are not anymore attracting cities; cities compete for attracting the flows to become exchange nodes within the network. *"Dependence on a network rather than on the servicing of an enviroing region, or a wider hinterland, existed for a few exceptional cities in the past, but now it has become the general rule for the majority of substantial cities anywhere"* (Gottmann 1989:62). Just put on the table that, in the case of sea freight, 40% of total activity is concentrated in only 10 ports (source: Containerisation International), meanwhile the competitive criteria for operating in a fix port are: 38.12% port costs; 35.12% geographic location; 16.38 % physical and technical infrastructure; 10.38 % management and administration facilities. In other categories, proximity to sailing routes was only valued by 15.12%, proximity to feeder ports 10.26% and proximity to import/export areas about 9.75% [2.8].

Today, particularly large-scale goods flows are directed through major gateways and hubs, mainly large ports and major airports, and at highway intersections with access to a market area. The changing geography of manufacturing and industrial production has been accompanied by a changing geography of freight distribution. The contemporary location of distribution centres is an outcome of high pressure on supply chains, caused by accelerated information transfers, changing consumer preferences and rising competition. *"Trade-offs between inventory and transport costs are also highly supportive for suburban locations, since mobilities -freight transport- and immobilities -land use- are closely intertwined"* (Hesse and Rodrigue, 2004:178).

The spatial structure of contemporary transportation networks is the expression of the spatial structure of distribution. If we analyse the different networks strategies proposed by Woxenius (2002) [2.9] according to **Figure 5**, three main groups of routes can be distinguished. The first establishes the network basically negating most of the points located in a certain spatial zone of influence (*point-to-point and corridor*). The second still present a strong predominance of certain basic nodes, the rest included as subsidiaries (hub-and-spoke). The third group in fact links all nodes (fixed routing) although having different hierarchical position (flexible routing).

Considering the arguments given in previous sections, the tendency that characterizes the freight transport seems to be much closer to the concentration of activity in less and bigger hubs by means of *corridors*. This tendency, fostered in Europe extensively by means of the Trans-European Transport Networks (later exposed) and Recordit [2.10], has a triple intention according to Albrechts and Coppens (2003:217-218). Firstly, *"The rise of the network economy, in which production processes are increasingly organized through a network of highly*

*specialized firms, and in which just-in-time delivery has replaced expensive warehousing, constitutes a growing challenge for international infrastructures(...) Safeguarding the internal and external accessibility of the European economic core areas is at the top of the agenda in European policy". Second, "the production of new corridors is also related to the idea of balanced polycentric development", although as will be proved, new transport axes just promoted to safeguard internal social coherence and overcome socio-economic polarization between core regions and peripheral areas is resulting as the opposite. And finally, "the construction of new, large infrastructures is not only a mean to facilitate the growing international flows and transactions; the massive investment in infrastructure is also an instrument to revitalize the economy".*

The possibilities that trade networks offered to ancient cities do not apply in the same scope for contemporary times. The focus on corridors does not simply validate for cities today that "plugging-in" and "catch-up" processes would generate any benefit at any location. The assumed idea of connectivity as pure intrinsic success have been criticized and expressed as a much complex phenomena. Networks planned under a hub-to-hub model connect core regional centres obviating great "shadow zones". This is also true for inter-states and cross-border flows. A growing regional imbalance is monitored due to the concentration of freight and transport activity in few hubs; some regions, that get very little from these flows, still have to deal with environmental, budgetary and indirect problems derived from the management of these flows. Serving without being served. Unplugged cities trapped by global networks.

## **2.5 :: Accessibility, Connectivity and Economic Performance**

The important role of transport infrastructure for regional development is one of the fundamental principles of regional socio-economics. Regions with better access to locations of input materials and markets are assumed to be more productive, more competitive and hence more successful than more peripheral and isolated regions. It is undisputed that the massive investment in infrastructures like highways, harbours, airports or train station may stimulate economic growth and employment.

This hypothesis has to be urgently reformulated. The recent changes experienced in the sector and its consequences on the labour market, the linkages between transport and industrial location and new network models highlight the necessity of contrasting transport policies with quantitative research an the appraisal of real socio-economic impact of the new transport geographies. *"However, this masks the complex effects of supply chain changes in recent years. McKinnon (1998) notes that the key drivers in tonne/km growth have been logistical restructuring which has led to a concentration of production and warehouse capacity and changing patterns of trading. The latter has involved expansions of market areas, the emergence of retailer controlled distribution centres and the vertical disintegration of manufacturing"* (Preston, 2001:14).

Vickerman (1996) precisely estates that *"It has often proved difficult to identify the precise nature of the link between transport infrastructure and regional development (...). These produce a rather inconclusive set of results in which there are no clear grounds for accepting or rejecting the idea that the driving force behind the regional growth process is catch-up"*. The contribution of transport infrastructure to the process of regional development has been traditionally a controversial issue (Straszheim 1972; Gwilliam 1979; Botham 1982; Krugman, 1991; Schürmann, Spiekermann and Wegener, 2002). There are a good bunch of cities and regions that holding huge transport infrastructures benefit quite little from them, generating global nodes locally disconnected, locally 'unplugged', serving a polarized core-periphery relationship. Studies like Nelson's (1994; included in Preston, 2001), conclude that the impacts of transport investments on local economic development are quite limited, based on the case-study of new motorways network implemented in UK. Some others concerning the regional

impact of the Channel Tunnel (Vickerman, 1994) stress the little impact for the regions implicated –Nord-Pas-de-Calais and Kent– ahead the overspectation caused. The same can be derived from different papers analysing new logistic centres (case of Lyon; Thompson, 1995) or recent high-speed train stations (Albrechts and Coppens, 2003, about Brussels Midi; Olmos and Torres, 2010, concerning the Spanish high-speed train network).

The ESPON Atlas 2006 [2.10] dedicates a whole chapter to explore these questions. The result of the research about how far good accessibility correlates with economic success, pointed out as crucial question for policymakers, reveals a rather devastating set of conclusions:

- 1) *“Good accessibility does contribute to potential competitive advantage, but does not by itself guarantee that the potential is realized”* (2006:37).
- 2) *“Accessibility is not the main factor that determines economic strength and competitiveness”* (2006:37).

The core-periphery model shows that, generically, regions in the periphery are economically weaker than those in the core. Nevertheless, this picture cannot be oversimplified. The coexistence of complementary opposed situations highlights a broader vision. There are certainly regions in the core area of the European territory that qualify for Objective 1 support under Structural Funds, with GDP per capita below 75% of the threshold of European average; meanwhile, most Nordic regions, and especially their capitals –also valid for the Swiss case– have very high GDP compared to their accessibility indexes: ‘rich’ regions on the periphery with GDP per capita over 125 % of EU average (see **Figure 6**).

While the causes of the problem may be less evident, there are also some low-accessibility regions in central and eastern Germany and eastern France with high economic performance. On the contrary, in capital cities and main economic centres of eastern countries, GDP per capita is very low compared to rankings in terms of accessibility. It has been also monitored how in central parts of the pentagon (Belgium, Netherlands and Germany) where potential multimodal accessibility is high, the only regions that perform even better economically than might be expected from their advantages in accessibility are some economically strong urban regions.

The interconnection of urban agglomerations and cities are expressed certainly as cohesive policy goal, but it is reported that such centres must be as well accessible from their own hinterland for which they serve as an access point to further destinations. Evidently, regions that enjoy a combination of important airports together with deeply embedded and strongly inter-connected railway and road networks are attributed to have the highest multimodal potential accessibility, primarily localized around Frankfurt and Dusseldorf and regions near the airports of Brussels, London, Paris and Amsterdam. But that not all regions participate in the advantages of the location can be monitored, for instance, in some German regions in the Frankfurt area that account values of GDP per capita in PPS around 78% of the EU 25 average.

Thus, can we model the effects of the linkage between transport and economy? What came first, transport investment or economic development? How this hypothetical economic advance is translated into cohesive social systems? According to Preston (2001:25), *“areas that are particularly likely to be neglected include transport’s contribution to old and new growth theories, trade theories and location theories”*. Also from Hesse and Rodriguez (2004:181): *“since distribution is closely related with the entire value chain, logistics interdependencies with production systems and networks, with wholesale and retail markets are relevant subjects of research”*.

## 3 :: TRANS-EUROPEAN TRANSPORT NETWORK PLAN (TEN)

### 3.1 :: Precedents, objectives and early milestones

The Trans-European Transport Network Plan offers a unique platform for approaching the subject presented within the European Framework. It is the main decision-making forum in terms of transport strategies and mobility affecting transnational, national and regional spheres of EU member states. The result is a planning document in which a new geographical interdependence in Europe, affecting freight and logistic flows, is addressed.

The TEN-T project has to be presented as one of the most ambitious initiatives of the EU since its creation (Lowe, 2005:134). The integrative re-structuring of those new geographies of production, distribution and consumption joined by the Maastricht Treaty had to be scheduled for the correct functioning of such new integrated market. In words of the commission, *"the establishment and development of trans-European networks contribute to the attainment of major Community objectives, such as the smooth functioning of the internal market and the strengthening of economic and social cohesion"* [3.1]. In addition, it is set on the bases of positive synergies that would be established between cities, regions and market: the interconnection of regional and urban entities would enhance the expansion of the market, meanwhile the provision of an appropriate access to such market would facilitate regional cohesion and balance, reduce bottlenecks and, more recently, incorporating the obliged sustainable agenda.

Consequently, the preferential objectives of the TEN-T project, extracted from the different reports with special attention to the 2008', can be summarized as follows. The general accepted idea was simple: more networks for better accessibility for more GDP [3.2]:

- Ensure the sustainable mobility of persons and goods without internal frontiers under the best possible social and safety conditions, while helping to achieve the Community's objectives in regard to the environment and competition, strengthening economic and social cohesion, and job creation.
- Link the networks of the EFTA States, the countries of Central and Eastern Europe and the Mediterranean ones, assuring the smooth functioning of the internal market.
- Encourage multimodality and freight railway in order to avoid traffic congestion and promote sustainability. The promotion and fostering of shipping routes under is a priority goal. Interconnection points including seaports, inland ports and intermodal terminals are a precondition for the integration of the different transport modes in a multimodal network.
- Cover the whole territory of the Member States to facilitate access in general, link islands, landlocked and peripheral regions to the central regions, interlinking without bottlenecks the major conurbations and regions of the Community.

The starting point of the TEN-T is usually linked with the year 1990, when the Portuguese presidency came out with a proposal to establish a European Infrastructure Agency to coordinate the national plans and make the network of infrastructures interoperable. The European Commission elaborated a report entitled "Towards Trans-European Networks" which included a concept for a European high-speed rail network provided by the UIC (*Union Internationale des Chemins de Fer*) [3.3]. The EU Commission's 1992 report "The Future Development of the Common Transport Policy" pointed out again the necessity of implementing common investments policies due to the exponential growth of the transport sector. It identified the fact that while transport demand had grown, investment in inland infrastructure in Europe expressed as a percentage of GDP actually declined between 1975 and 1980 from 1.5 per cent to 1.2 per cent (Lowe, 2005:134).

This report will be ratified with the Maastricht Treaty in 1992 when the Council of European Communities, Decision 93/628/EEC of 29 October finally agreed on the creation of a Trans-European Combined Transport Network and Common Transport Policy (CTP), creating the figure of the TEN-T (Trans-European Transport Network Plan). After this foundational milestone, the Essen European Council studied in 1994 the first list of priority projects (up to 14), drawn up by a group chaired by Henning Christophersen that followed the Pan-European Transport Conference held in Helsinki and Crete during the same year, in which 10 traffic corridors were proposed (Goddard, 2006). In 1995 some financial bodies are stated (Regulation EC 2236/95 of 18 September 1995 laying down general rules for the granting of Community financial aid in the field of Trans-European Networks) namely by means of European Community Funds (European Regional Development Fund, Cohesion Funds, TEN-T budget), the European Investment Bank (EIB) and the ISPA-Fund (*Financial Instrument for Structural Policy Assistance for Accession*, derived from the *Transport Infrastructure Needs Assessment*, TINA, as initiative for analysing the needs of future transport infrastructure in eastern Europe). Nonetheless, the funding system is left to lay, to a major extent, on national governments.

### 3.2 :: TEN-T priority projects

After these initial steps, the common guidelines for the development of TEN-T and the list of first **14 TEN-T priority projects** are completely set in July of 1996 [3.4]. The proposal for rail, motorway and waterway links were chosen according to a range of selection criteria which includes economic importance for the region, employment creation, benefit for industry and viability, potential for private investment and financing, community interest like cross-border links, interconnection of networks and environmental impact (Lowe, 2005:135). These new goals would replace the precedent planning system, based on purely national objectives, which had suffered from weaknesses of insufficient development of international corridors, bottlenecks and missing infrastructure links in border regions, missing compatibility and interoperability, and lack of effective financial bodies (Lowe, 2005:135).

The 14 original projects will be extended in a second phase. The White Paper *“European Transport Policy for 2010: Time to Decide”* (European Commission, 2001) will set up the bases for the list of **20 TEN-T priority projects** in 2002, scheduling six new interventions and the extension of two previously planned. Approximately only 20% of the former agenda was completed at that moment, meanwhile the prognosis of rapid increase of freight traffic around 38% during the decade urged to act. *“This growth and the delays in building the TEN-T, demand a new transport policy covering improved regulation of competition, the promotion of intermodal transport and the shift of traffic from the roads, and better targeting of investment”*, as commented by Loyola de Palacio, EU’s transport commissioner at that time in the 2002’s report [3.5].

Later, the east extension obliged to reconsider the strategy and in April 2004 the commission will adopt the guidelines for the **30 TEN-T priority projects**, enlarging the net with new 10 projects. Following a report in 2003 chaired by Mr. Karel Van Miert –called *Group Van Miert Report* [3.6], the enlargement of the Union and the need to integrate the networks of the 10 new Member States is on focus (Lowe, 2005:137). It was stated that the investments (total cost of €225 billion by 2020, year stated as new horizon) would reduce congestion on roads by 14 per cent, generating a monetary value of timesavings to international traffic approximately €8 billion per year. These benefits would stimulate the economy of the enlarged Europe and increase the GDP up to 0.3 % according to some research (TIPMAC and IASON projects, funded under the *5th Framework Transport Research Programme* [3.7]). This would be optimistically translated into half a million to 1 million new jobs according to these papers.

Focusing on logistics, a new mechanism is implemented, the *Motorways of the Sea*, aimed to concentrate freight flows on sea corridors reducing road traffic. This issue will be further analysed in the coming chapters for constituting a key concept for this thesis.

The final list of **30 TEN-T priority projects** will be again improved in 2008 –with guidelines focus on financial resources, primarily aimed to facilitate the involvement of the private sector– and in May 2010 with the report *Progress on Priority Axes*, this time reformulated as TEN-T EA (Tran-European Network Plan Executive Agency) **[3.8]**.

### 3.3 :: A Critical Assessment Approach

The “*ESPON Project 1.2.1 – Transport services and networks: territorial trends and basic supply of infrastructure for territorial cohesion*” **[3.9]** and “*ESPON 2.1.1 – Territorial Impact of EU Transport and TEN Policies*” **[3.10]** can be taken as a compendium of different papers and scientific studies aimed to verify and monitor the real effects and synergies derived from the TEN-T’s: how may the transport network constitute a key factor of a more balanced, more polycentric, more sustainable spatial development; how to develop the accessibility to basic services and to knowledge in order to increase the territorial cohesion; and which will be the consequences of enlargement on the preceding TEN-T objectives.

Some general conclusion can be sharply visualized. The diagnosis is relatively obvious: Europe is described as centre-periphery structure, a pentagon so-called blue banana and peripheral spaces less inhabited and less served by networks (ESPON Project 1.2.1:42). But the impact of TEN-T’s policies on that scheme is reported differing quite a lot from what could be expected. As commented in the reports:

- In absolute terms, all member states derive benefits from the construction of the TEN at the national level; but the accessibility ranking of states remains unaltered: high income regions are facing higher gains than low income regions in per capita terms **[3.11]**.
- The balance between the central and peripheral parts of Europe is extremely difficult to assess due to the emphasis on *corridors*. They connect core cities of peripheral regions but neglect the intra-regional balance creating ‘shadow areas’ outside them (Vickerman, 1996). The “motorways of the sea” system will handicap areas with no sea connection **[3.12]**.
- Many of the new connections do not link peripheral countries to the core but strengthen the ties between central countries and so reinforce their accessibility gap advantage, not succeeding in reducing regional disparities [idem **3.12]**.
- The overall effects of transport infrastructure investments and other transport policies are small compared with those of socio-economic macro trends, such as globalisation, increasing competition, ageing of the population, labour force and productivity. The analysis results in a rather low correlation between accessibility and GDP per capita: even large increases in regional accessibility translate into only very small increases in regional economic activity (ESPON 2.1.1:16) (see **Figure 6**).
- For the core, additional gains in accessibility through even larger airports or even more motorways or high-speed rail lines may bring only little additional incentives for economic growth (ESPON 2.1.1:16).



- For the periphery, a gain in accessibility bring significant progress in economic development; but also the opposite may happen if the new connection opens a formerly isolated region to the competition of more efficient or cheaper suppliers (ESPON 2.1.1:16).

- The three-tier goal give rise to three conflicts as well; between economic efficiency and spatial equity; spatial equity and sustainability; economic efficiency and Sustainability (ESPON 2.1.1:268).

Some precise comments can be found in relation with the EU 27 extension and Eastern countries [3.13]. The interest of studying this area is enormous precisely because offers the possibility of observing the effects from a total “unplugged” scenario. Some points can be summarized as follows:

- The effect of corridors will be more intense in East countries. Large increases in regional accessibility translate into only very small increases in regional economic activity. It contributes to the growth of core economic nodes, centralizing resources and generating a clear intra-regional imbalance.

- The loss of internal cohesion in the accession countries has to be solved by developing secondary networks allowing their peripheries to gain as well.

- Generally, a gain in accessibility in the periphery may bring significant progress in economic development. But also the opposite may happen if the new connection opens a formerly isolated region to the competition of more efficient or cheaper suppliers (Vickerman, 1996).

Visiting Dunaújváros, Hungary, I was once energetically said by Prof. Lajos Veres, Head of Institute of Economic Sciences - College of Dunaújváros: “*the city has a new bridge funded by the EU that will make it more accessible and economically attractive*”; then I just thought the opposite: *the single market has a new bridge. The blue banana can now contact Romania much more efficiently.*

This is the dual relationship, the both opportunities and threats coming hand by hand with the new transport and freight geographies that anticipates a rather uncertain future in a mutating networking.

## 4 :: CONCLUSION

The importance of the exponentially growing freight transport and logistic sector has been exposed as a key factor to understand the bases of current globalisation. The sharp changes produced by the transport cost decrease in the patterns of production-consumption-distribution geographies have to be analysed hand by hand with deep transformations of labour market, the linkages between transport and industrial location and the new network models. What is close is just what is cheap. Distances nowadays are no measured in kilometers or hours but in Euros, imposing a new logic for the global geographic structure.

The important role of transport infrastructure for regional development is one of the fundamental principles of regional socio-economics. Regions with better access to locations of input materials and markets are assumed to be more productive, more competitive and hence more successful than more peripheral and isolated regions. But this hypothesis has to be urgently reformulated, contrasting transport policies with quantitative research and the appraisal of real socio-economic impact of the new transport geographies.

Analysing the Trans-European Transport Network Plan, the assumed idea of *connectivity* as pure benefiting have been criticized and expressed as a much complex phenomena. Networks are planned under a *hub-to-hub* or *corridor* model that connects core regional centres

obviating great “shadow zones”. This is also true for inter-states and cross-border flows. The result of connectivity is contradictory, especially for Eastern countries. A growing regional imbalance is monitored due to the concentration of freight activity and transport in few hubs, although some regions that benefit very little from these flows still have to deal with environmental, budgetary and indirect problems derived from the management of these flows.

5 :: LIST OF FIGURES AND IMAGES

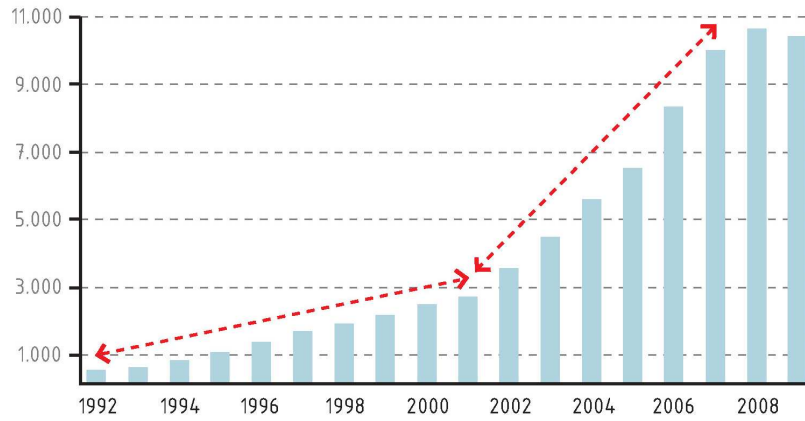


FIGURE 1: Evolution of TEU Carried by Mediterranean Shipping Company 1992-2009. Adapted from [www.msccgva.ch](http://www.msccgva.ch).

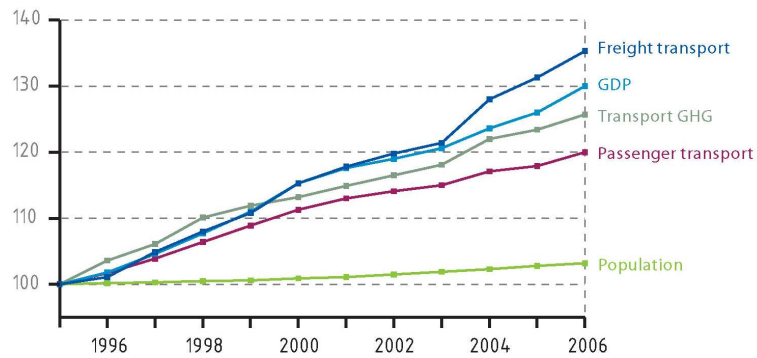


FIGURE 2: Evolution of GDP, population and GHG emissions from transport as well as freight and passenger transport demand in EU-27 since 1995 (1995=100). Source: "A Sustainable Future for Transport", 2009. EU Commission. Directorate General For Energy And Transport.



FIGURE 3: Maersk shipping regular lines, adapted from [www.maersk.com](http://www.maersk.com).

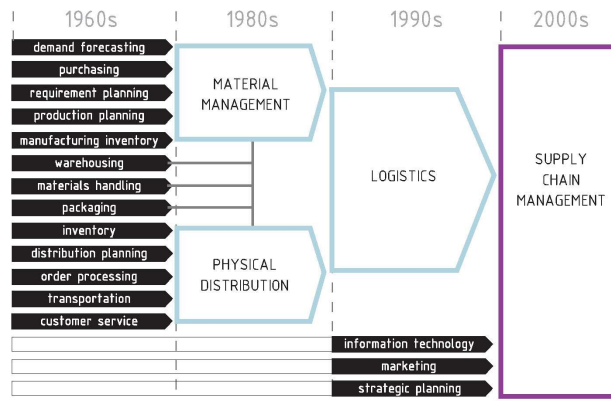


FIGURE 4: Evolution of logistical integration 1960–2000. Adapted from Hesse and Rodriguez, 2004.

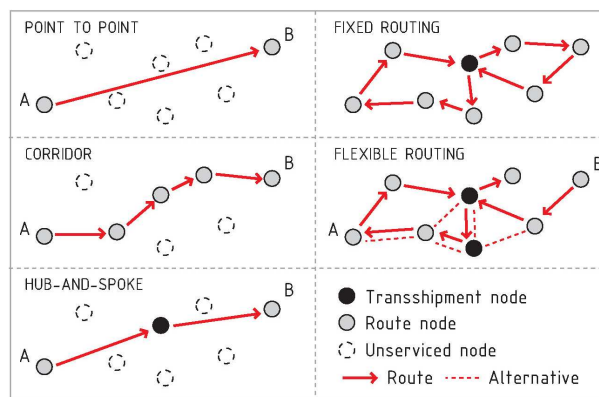


FIGURE 5: Freight distribution and network strategies. Adapted from Hesse and Rodriguez, 2004 –Woxenius, 2002.

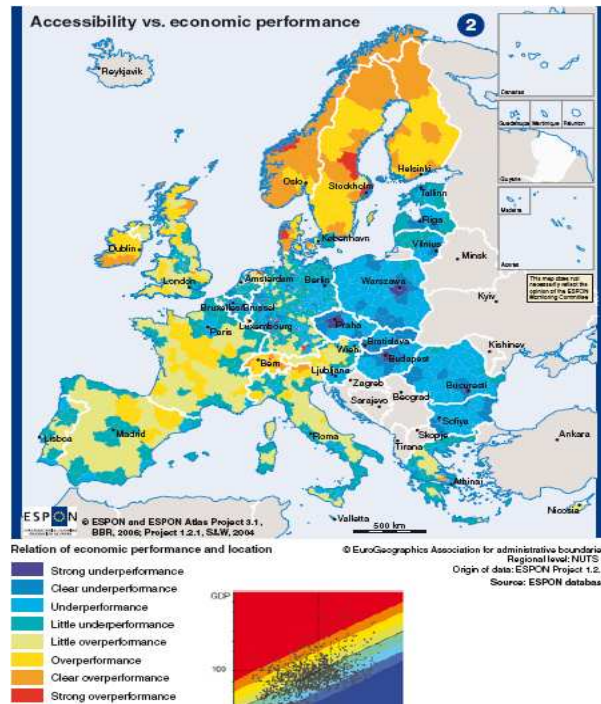


FIGURE 6: Accessibility vs economic performance in Europe. Source: ESPON atlas project 2006.

## 6 :: REFERENCES

### 6.1 :: Notes

#### NEW GEOGRAPHIES, WHICH ECONOMY?

[1.1] "Was the new technological paradigm a response of the capitalist system to overpass its internal contradictions? Or was it a way to ensure the military superiority ahead the soviet enemy, replying the challenger by means of the space race and nuclear weapons?" (Castells, 2001:92)

[1.2] The *container* is in fact the angular piece of the logistic sector, that revolutioned the capacity of moving good and provoked the lowering of transport pricing. More in Levison, 2006.

[1.3] We are discussing here the general umbrella that have been traditionally identify to report the shift from a Keynesian or Fordist form of economic organization to a Neoliberal or Post-Fordist one during the 70`. For different interpretations, see Swyngedow (1986), Harvey (1989), Allen (1992) and Castells (1996).

[1.4] "As long as imperialism exists it will, by definition, exert its domination over other countries. Today that domination is called neo-colonialism" (Che Guevara, Second Economic Seminar of Afro-Asian Solidarity in Algiers, Algeria on February 24, 1965). The term neocolonialism combines a critique of current colonialism (where some states continue administrating and organizing foreign territories and their resources) and the involvement of modern capitalist in former colonies. In broader usage, neocolonialism may simply refer to the involvement of powerful countries in the affairs of less powerful or developing countries, which is totally in consonance with Wallerstein`s centre/periphery/semi-periphery exploitation system. See Bennett, E. (2002): Colonialism and Neocolonialism. See also Wallerstein, 2000; Taylor and Flint, 1998.

#### THE GEOGRAPHY OF TRADE AND LOGISTICS

[2.1] mentioned in Hesse and Rodriguez, 2004.

[2.2] source: AMP Terminal, Algeciras Port.

[2.3] source: World Shipping Council (<http://www.worldshipping.org/benefits-of-liner-shipping/efficiency>)

[2.4] Bulk cargo is defined as the commodity transported un-packaged in large quantities like coal, grain, minerals, cement (dry-bulk cargo) or petroleum, chemicals, liquefield natural gas liquid bulk cargo)

[2.5] One TEU (Twenty-feet Equivalent Unit) equals the volume of one 20ft container, which counts 38m<sup>3</sup> exterior and 33m<sup>3</sup> interior.

[2.6] Although the invention of the container is attributed to Malcom McLean (trucking entrepreneur since the 1930`s), his contribution is just related with the adaptation of former systems on transferable intermodal operations among trucks, ships and rails. The use of "boxes" for shipping transportation is a much longer history since the XVIIIc. The Seatrain Lines already operated in 1929 between New York and Cuba carrying railroad boxcars on sea vessels (as well as for freight trains, like the RCH container from 1920`s Railway Clearing House in UK, later implemented by the "flatcars"). McLean in deed just transformer the U.S. Military metal container of 8'6"x6'3"x6'10", performed during the II World War and later improved during the Korean war in 1952 for handling sensitive military equipment (called Conex), popularized thanks to a tremendous contract with the US Army for the Vietnam War signed by his company (Pan-Atlantic Steamship Corporation, later Sealand). See more in Cudahy (2006) and Levinson (2006).

[2.7] Interesting to remark that the container, as a majority of XXc. great inventions are the result of War and Cold War *creative industries*. Internet, the paradigm of our present society, was born as part of ARPA-US military program for dislocating information in case of soviet nuclear attack. The same can be argued for the Japanese government MITI program. Even the strong technologic bases of India and China are as well in direct relation with their military industry, financed and directed by the state. "*The State, and not the innovative entrepreneur in a garage, was in fact the principal agent of the informational technologic revolution in the US as in the rest of the world*" (Castells, 1996).

[2.8] Port selection criteria elaborated by Lirn (2004) according to a survey distributed among twenty shipping companies; mentioned in Coronado Guerrero (2005).

[2.9] Cited and adapted in Hesse and Rodriguez, 2004.[2.10] Recordit (Real Cost Reduction of Door-to-door Intermodal Transport) is a organization founded by the EU Commission aimed to "improve the competitiveness of intermodal freight transport in Europe through the reduction of cost and price barriers which currently hinder its development, while respecting the principle of sustainable mobility". See more at [www.recordit.org](http://www.recordit.org).

[2.10] ESPON Project 3.1 – ESPON Atlas (European Spatial Planning Observation Network), Mapping the structure of the European territory. Editor: Bundesamt für Bauwesen und Raumordnung, 2006. Chapter 4, Accessing the Territory – European Accessibility Context.

#### TRANS-EUROPEAN TRANSPORT NETWORK PLAN (TEN)

[3.1] European Communities (1996): Decision No. 1692/96/CE of the European Parliament and of the Council of 23 July 1996 on the Community guidelines for the development of the Trans-European Transport Networks. Official Journal of the European Communities 39, September 1996.

[3.2] "ESPO Project 1.2.1: Transport services and networks. Territorial trends and basic supply of infrastructure for territorial cohesion". Project Report, September 2004. Page 44.

- [3.3]** Lobbies have played a capital role in the decision making processes of the TEN-T's due to its extreme importance for many strategic sectors. Just focusing on the freight rail network we can point out different schemes promoted by the Trans-European Rail Freight Network (TERFN) established in 2000, that fosters East-West connections like the *Glasgow-Sopron* line, and the Ferrmed, private initiative lobbying the *Freight Rail Great Axis Scandinavia-Rhine-Rhone-Western Mediterranean* (north-south extension of the blue banana).
- [3.4]** Decision 1692/96/EC of the European Parliament of 23 July on *Community guidelines for the development of the Trans-European Transport Network*.
- [3.5]** European Commission (2002): "Trans-European Transport Network. TEN-T Priority Projects". Luxembourg: Office for Official Publications of the European Communities.
- [3.6]** "High-level group on the trans-European transport network". Report. Brussels, 2003.
- [3.7]** TIPMAC and IASON projects, funded under the *5th Framework Transport Research Programme*.
- [3.8]** May 2010 *Progress on Priority Axes*, TEN-T EA (Trans-European Network Plan Executive Agency).
- [3.9]** "ESPON Project 1.2.1: Transport services and networks. Territorial trends and basic supply of infrastructure for territorial cohesion". Project Report, September 2004. It integrates some papers and research signed by University of Tours (France), INRETS (Lille, France), MCRIT (Barcelona, Spain), NESTEAR (Gentilly, France), Politecnico di Milano (Milano, Italy) and Spiekermann & Wegener (Dortmund, Germany).
- [3.10]** "ESPON 2.1.1: Territorial impact of EU transport and TEN policies". Project Report, August 2004. It integrates papers and research signed by Institut für Regional Forschung (Christian-Albrechts-Universität Kiel, Germany); Spiekermann & Wegener (Dortmund, Germany); Politecnico di Milano (Milan, Italy); Vrije Universiteit (Amsterdam, Netherlands); Kungl Techniska Högskolan (Stockholm, Sweden); Centre for European, Regional and Transport Economics (Kent, UK); Bundesamt für Bauwesen und Raumordnung (Bonn, Germany).
- [3.11]** Extracted from "Trans-European Transport Networks and Regional Economic Development" (Schürmann, C.; Spiekermann, K.; Wegener, M.; page 8). Paper presented at the 42nd Congress of the European Regional Science Association (ERSA, Dortmund, 27-31 August 2002) and included in ESPON Project 1.2.1.
- [3.12]** Extracted from "Trans-European Transport Networks and Regional Economic Development" (Schürmann, C.; Spiekermann, K.; Wegener, M.; page 2). Paper presented at the 42nd Congress of the European Regional Science Association (ERSA, Dortmund, 27-31 August 2002) and included in ESPON Project 1.2.1.
- [3.13]** "Spatial Impacts of the Trans-European Networks for the New EU Member States" (Michael Wegener, M.; Komornicki, T.; Korcelli, P.; Spiekermann, K.; Wegener, M.). Paper presented at the Warsaw Regional Forum 2004, Published in EUROPA XXI 13, 27-43.

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