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"The French port complex of the Seine Corridor"

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The French port complex of the Seine Corridor

This case study on ‘’*the French Port Complex of the Seine Corridor*’’ is in the form of expertise (based on reliable data) that was seen in the general framework of the ESPON TIGER study. It provides an up-to-date synthesis of major trends and projects taking place in the Seine corridor, in relation with territorial aspects and governance.

Table of contents

Introduction

The French port complex of the Seine artery also called the valley of the Lower - Seine from Paris to Le Havre, as a part of the Seine Axis (Le Havre-Rouen-Paris) belongs to the Northern Europe (seaport) Range and it serves the Paris area consumption market.
Today, the Le Havre-Rouen-Paris port complex generates about 40,000 directly linked jobs and 120,000 indirectly linked jobs, has 2.5 million square meters of logistics warehouses and 14,000 ha of sites and property reserves for industrial and logistics firms, reaches 25 million consumers within a radius of 200 km and processes 128 Mt of tons of maritime and inland waterway trades (Ports de Paris, Grand Port Maritime de Rouen, Grand Port Maritime du Havre, 2010). However, this port complex located in the valley of the Lower - Seine from Paris to Le Havre, as a part of the Seine Axis, still seems to present no reality for firms. The firms ‘’*do not yet translate into business opportunities, the multiple public intitiatives at different scales that are now building the Seine Axis project*’’. (Rapport interconsulaire, 2011). This case study on ‘’*the French port complex of the Seine artery*’’ aims to present first, the adequacy of 5 several projects and program which could lead the *Le Havre-Rouen-Paris*

leading French port complex towards a Western Europe's major port complex, secondly the components of interport co-operation strategies between the 3 Seine River ports and finally, their current synergies including their different roles, specialisations and forelands.

1-From a leading French port complex open onto Europe towards a major European port complex: Several Projects

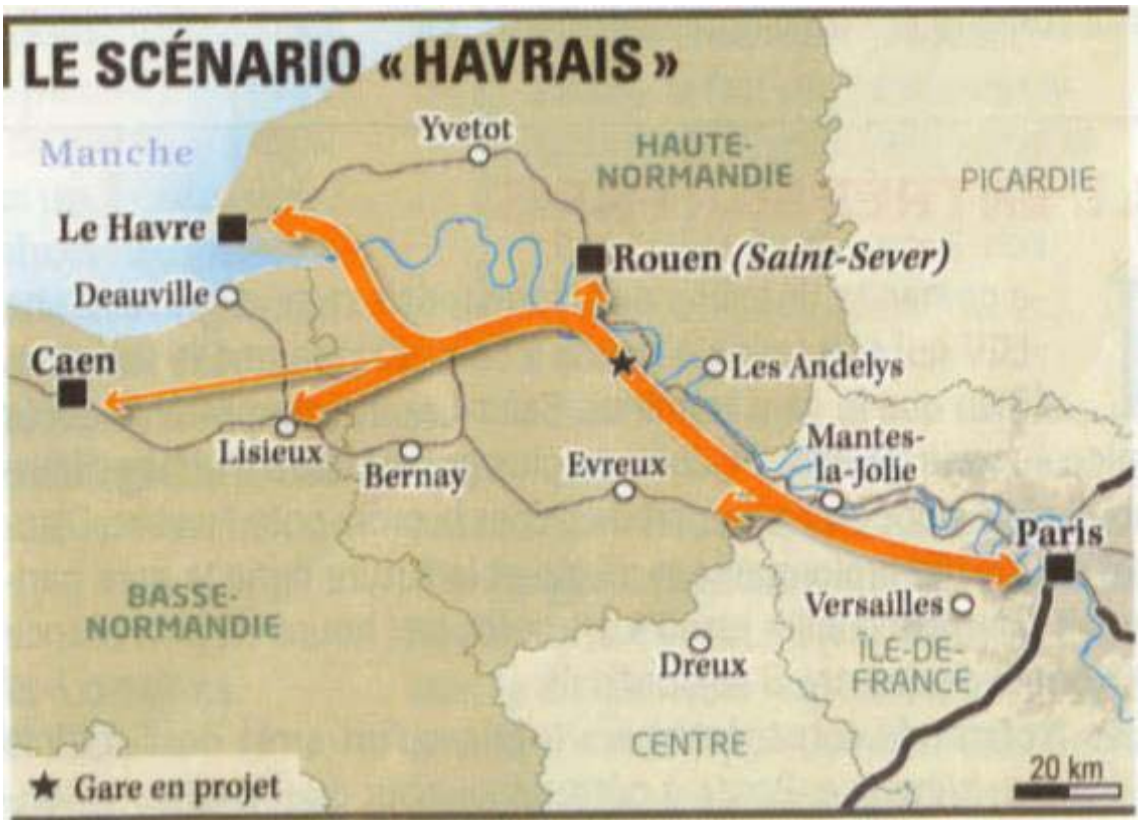
In this first part, it is useful to recall the concerted view of economic actors (mainly firms and chambers of commerce and industry located in the valley of the Lower - Seine from Paris to Le Havre) to understand the economic development strategy of the Seine Axis from Paris to the Sea, knowing that "*the Seine Axis project must provide to the French capital a seafront in order to increase its attractiveness and competitiveness* "notably in the seaport and waterways scopes to capture a large share of the *increasing world trade* (address by the President of the French Republic, April 29, 2009). Thus for these economic actors, the Seine Axis must be a potential for the development of its businesses and territories. First, *Greater Paris which became a maritime metropolis*, requires better visibility, improved attractiveness and improved international competitiveness. Secondly, there are now many new opportunities for business development and logistics industry with recent renewal port strategies on the Seine Axis. Finally, economies of Normandy and Paris region are being structured by networks of excellence in logistics and industrial (eg *Seine Production Valley*) located along the valley of the Lower – Seine (Rapport interconsulaire, 2011). In this vein, at least five major projects to contribute to overall economic development of the Axis Seine have recently begun : the *Seine métropole*, the *Ligne Nouvelle Paris Normandie*, the *Canal Seine Nord Europe*, the *Seine Gateway* and the *Weastflows* Projects.

1.1. The *Seine métropole* project is based on 4 objectives that aim to make the *Paris Region* "*an area of global economy with a maritime culture and a river that organizes development of the city network*":

- improve the (railway) flow of goods and people by setting Le Havre to one hour away from Paris via Rouen, developing freight to Central Europe and creating two TGV stations located in la Defense and Cergy,
- re-balance the logistics weight of the East area of Paris, creating a industrial large-scale river port to Achères serving as logistics / storage & distribution center to and from the European waterways network and by developing 2 multimodal platforms in Rouen and Le Havre,
- support the transfer of industrial activity in the valley of the downstream Seine by developing electric mobility industry and green building,
- create a Seine Digital Valley by installing a fiber optic cable at the bottom of the Seine river.

1.2. The *Ligne Nouvelle Paris Normandie* *(LNPN)* project *as a Paris Normandie High-Speed Train* project initially aims to reduce travel time between Le Havre and Paris (1 hour 15 minutes), Paris and Rouen (45 minutes) and to Paris in less than 1 hour 30 minutes from Caen. Moreover, this line would free up train paths and lines that would be dedicated to freight to strengthen the role of the ports of Le Havre and Rouen and expand their hinterlands.

The *Ligne Nouvelle Paris Normandie (LNPN)* Project (*''Le Havre scenario''*)



(Source www.lexpress.fr)

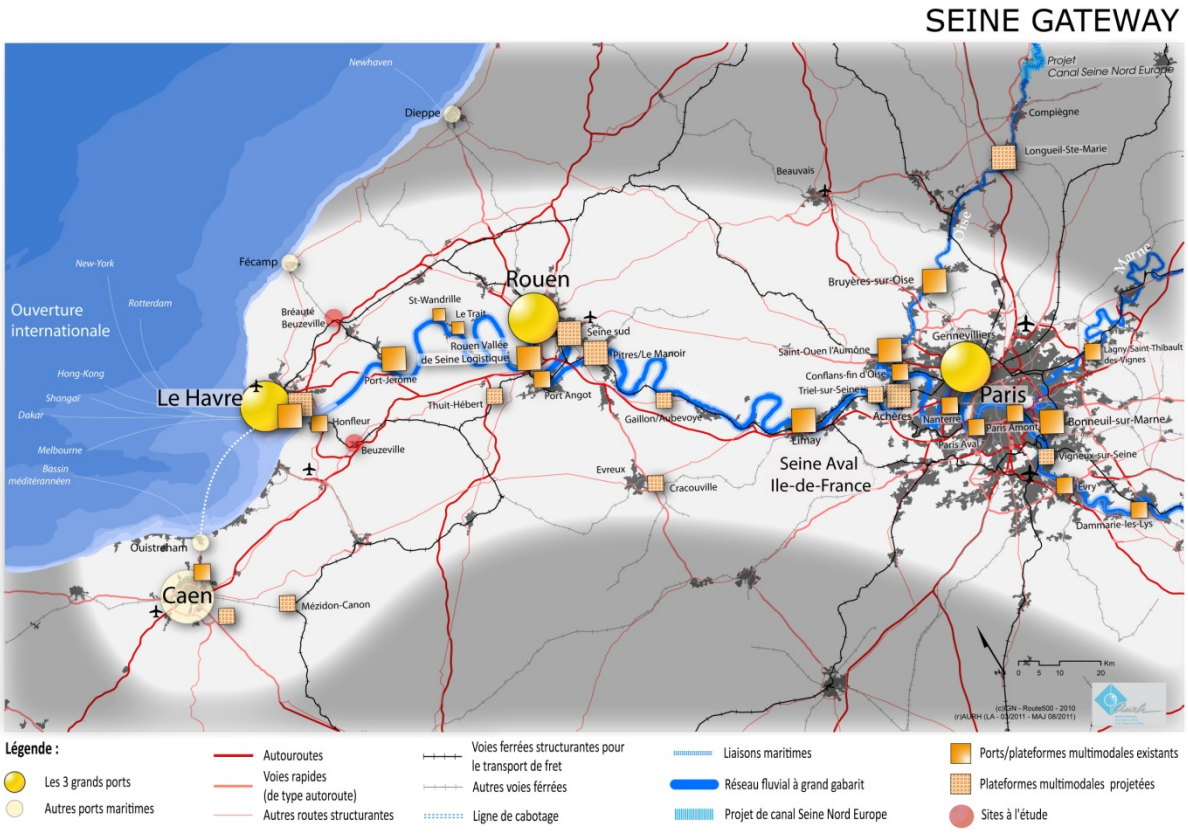
1.3. The *Canal Seine Nord Europe* or *SNE canal* aims at linking the French inland waterways network to the North European one. This will be achieved through the implementation of a waterways canal linking Compiègne to the Dunkerque-Escaut canal already existing. This project should be finished by 2015 and should represent an annual 17 million tons of freight transported by 2020 (which is quite important compared to the actual 5.3 million). The project will also allow the ports located on the Le Havre-Rotterdam axis to be linked together. This will allow an opening up of the Seine basin, and a cut of the number of trucks on the roads, which will improve the traffic's fluidity between those logistic hubs. From a certain point of view, the SNE canal is a risky project for French port complex of the Seine artery, it could give an advantage to the main competitors of the port of Le Havre, Antwerp and Rotterdam which *are better than French* regarding the inland waterways transport (IWT).

The *Canal Seine Nord Europe* Project

(Sources: www.seine-nord-europe.com)

1.4. The *Seine Gateway* project aims to compete with ports of the Northern Range (some of which are already organized in gateway) through the networking of port activities, logistics and industry by means of an integrated organization combining infrastructure, and information technology and communication (ICT) services and techniques. This "gateway" approach is a network approach which mainly targets firms, by providing the development media of an integrated and efficient supply chain able to provide for these companies a competitive advantage.

The *Seine Gateway* project



(Sources: AURH)

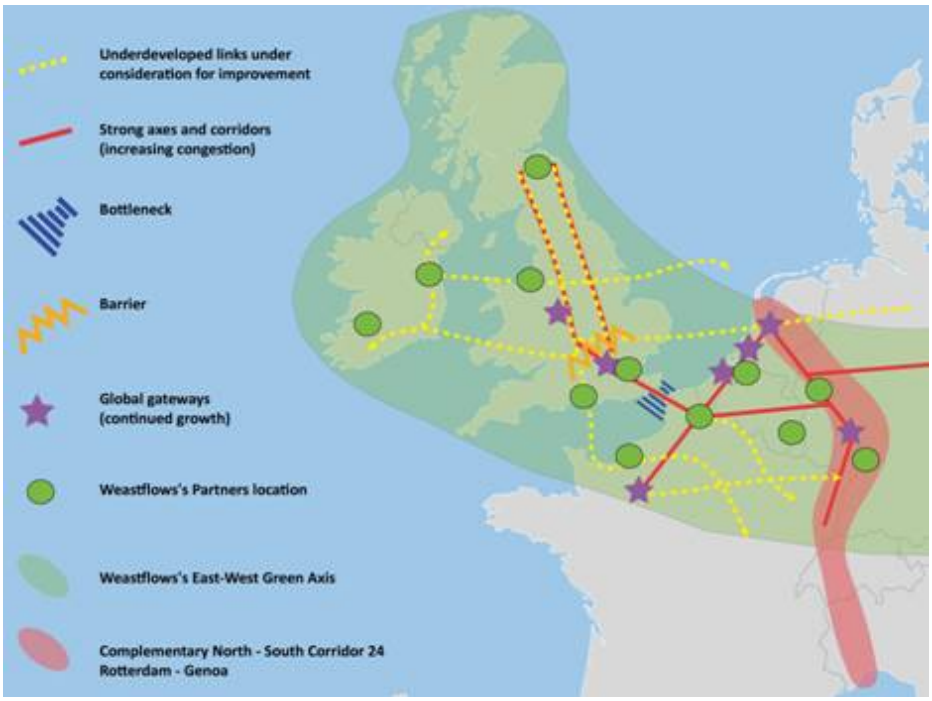
1.5. The *WEASTflows* project is a 48 month project under the Interreg IVB North West Europe Programme with participation from 21 partners from Ireland, UK, France, Denmark, Luxembourg, the Netherlands and Germany. Lead partnership is a joint initiative from France and UK. It aims at the development of improved freight transport logistics systems and chains, in the context of North West Europe transnational transport corridors and regional/city distribution systems, in particular **with the support of ICT innovative solutions**, especially in the context of intermodal transport chains (water, air, road, rail) and also aims to increase sustainable freight transport, relieve congestion at key bottlenecks, remove technical barriers to modal shift. For the Upper Normandy Region seaports of Dieppe, Le Havre and Rouen, and private companies in the region (logistics providers, shippers), this WEASTFLOWS project will identify new feeds as part of an extended vision of the Seine axis to a European scale that already ranks first in foreign trade of the Upper Normandy Region (2009 value data): up to56% of exports and 38% of imports (Sources: http://www.critt-tl.fr).

This project is an opportunity for the Seine Axis because it includes the goal of:

- help to place the Upper Normandy Region and the Seine Axis as a major logistics hub in the main European freight corridors and as a powerful element of the European economy,
- Enhance the ‘’ *Upper Normandy Port Complex’’* (Le Havre–Rouen-Dieppe) as a place with a European reference, relative to the institutional actors (eg the European Commission) and relative to private firms and companies (such as shipper manufacturers, distributors, logistics service providers cargo owners, investors),

- Support the development of the European hinterland by the Upper Normandy ports to Germany, to Central and East Europe countries, interconnection networks freight north / south in Europe (eg Luxembourg / Perpignan, Rotterdam / Genoa via Mannheim and Duisburg), short sea connections with the ports of southern England and Ireland and river links within Europe from the Seine Valley and the future Seine North Europe Canal (*SNE Canal*).

The *WEASTflows* Project



(Sources : http://www.critt-tl.fr)

To conclude this first section on the case study on ‘’*the French port complex of the Seine artery*’’, it is useful to clarify the existence of **two ongoing projects**:

- EU is studying the transport of CO2 in the industrial - port areas of Le Havre (and Rotterdam) led by ‘’l’Institut Français du Pétrole’’(*IFP*) (the *French Petroleum Institute*), the European research project on the transport of CO2 from industrial to storage facilities has been launched in January 2010. This project focuses on the capture, transport and storage of CO2 (CTSC). The ports of Le Havre and Rotterdam were selected as "*testing ground" for* the project called ***COCATE*.** 8 European partners including the local Le Havre Devlopment Agency‘’ (*Le Havre Développement*),
- The Le Havre Port Community is (very) interested and involved in **the offshore wind farm project located in Normandy**, initiated by the French Government to the extent that it can serve a logistics base for the construction of parks (assembly of wind turbines) and for maintenance. There is locally strong support from local authorities. As such, the ‘’*Greater Le Havre’’* has already signed in December 2010 a cooperation agreement on the establishment of a dedicated industrial cluster.

2-The coordination between the 3 *Seine River ports* (components of interport coordination/ co-operation strategies)

Developing strategic partnerships and/or making direct investments

The current objectives of the Seine River Interport Coordination Council created in 2009

In this second part of the case study that addresses issues related to cooperation between the ports of the Seine Axis and coordination put in place (and incoming coordination), it makes sense to provide an approach based on *economic and institutional actors* who play the role of located operators in charge of the import process (the *export process* could be also relevant). The import process is traditionally structured in 3 links:
- From the (overseas) production sites to the European gateways,
- From the European maritime gateway to the warehouses
- And from the warehouse at the site of final distribution.

Thus, the question is to identify who are the main current logistics and port players in ports and logistics supply chains that serve the corridor axis Seine?

2.1. Developing strategic partnerships and/or making direct investments

Major economic operators and *institutional actors* present and involved in strategic partnerships on the Seine axis, which play a role in the supply chain (packaged goods in *intermodal transport units* (ITU), eg containers) are presented first in this section. In a second step, the four major public investments in large-scale port on the *Sequanian corridor* as part of spatial development to serve a high French maritime economy are reviewed.

2.1.1. The presence of leading operators on the Axis Seine (2008)

According to Frémont, the "*major container shipping lines have played a key role in the development of inland container traffic because they had an interest:*

- *to ensure the flow of containers between Le Havre and the Paris area - the richest and the nearest to seaport hinterland,*
- *to fulfill their very big vessels,*
- *to shoot land rates down, playing the massification flow in the hinterland to increase their market share, which creates a virtuous competition, each imitating the other*" (Frémont, 2005).

In addition and according to Franc, from Le Havre port of call, the competitive environment of the lower valley of the Seine is unique in northern Europe because it is the only time the 3 major *global containerisation giants* clash on the same axis (Franc, 2009).

The presence of the major maritime and port logistics operators on the Seine Axis can be approached from the existing and different strategies and operational partnerships set up by the 3 + 1 major global liner container shipping companies serving the *Sequanian corridor* (Franc, 2009).
The major maritime and port logistics operators on the Seine Axis are:

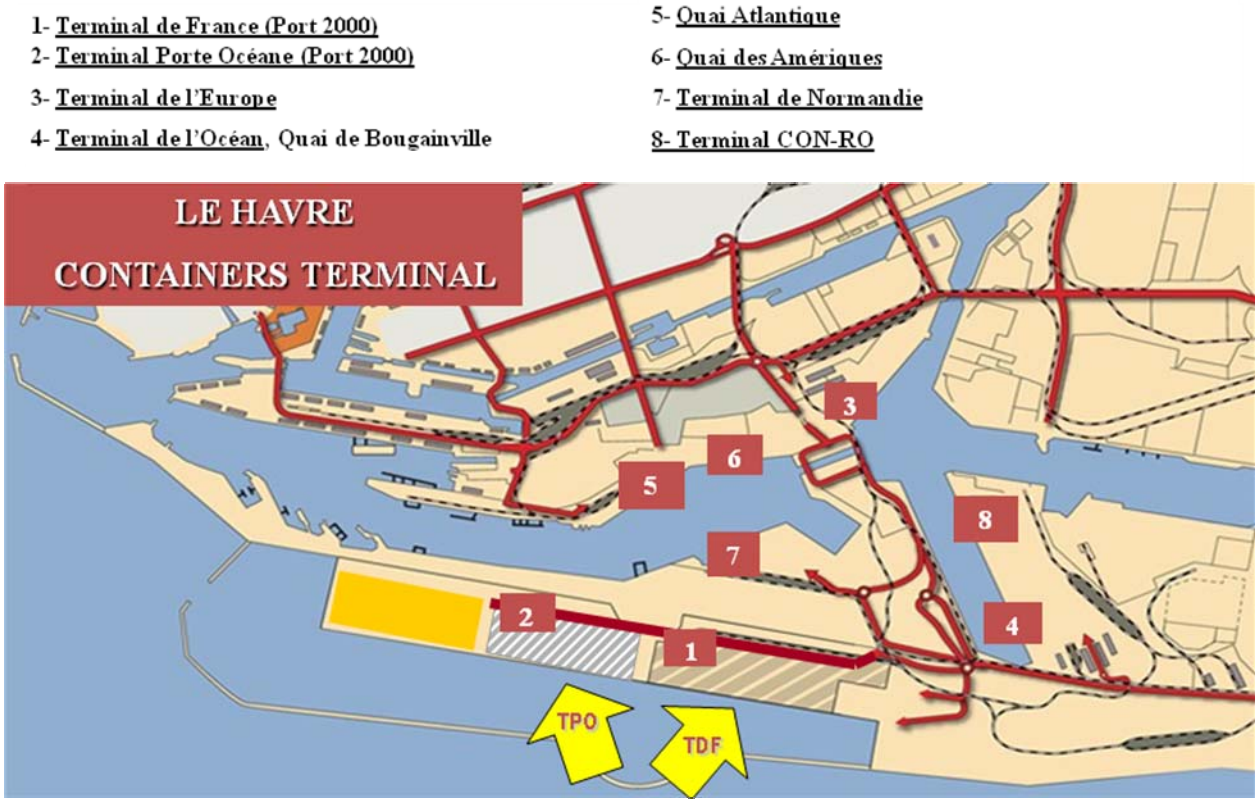
- Shipping companies (global container carriers),
- Seaport terminal operators,
- Fowarding agents, freight fowarders,
- Road hauliers, Rail transport operators and Waterways carriers,
- River port terminal operators,

- Seaport Authorities,
- River Port Authority,
- And the shippers.

Differentiation between global container carriers is possible with functions of their two main strategies of *regionalisation*: (local) *port regionalisation* and *land regionalisation*, knowing that the port hinterland seems to become increasingly important in the organization of containerised trade in Europe. Even today, 4 of the top 20 global container carriers calling in the Northern Europe Range ports have adopted "*a location behaviour tracking and allocating handling services and existing pre/post land transport services*", or have implemented "*a regionalisation process by building personalized services: own port terminals, own inland transport services, own inland terminals* "(Franc, 2009).

For instance, in Le Havre, 2 local container terminals operators (eg *TN:Terminaux de Normandie* and *GMP: Générale de Manutention Portuaire*) have preserved their positions - by setting up joint - ventures with a liner shipping company. "*As a result, global container carriers have invested heavily Le Havre terminals so today Maersk, MSC and CMA-CGM have dedicated terminals in the port, single scenario within the Northern range Europe*" (Franc, 2009).

Le Havre Container terminal



(Sources: RSC, 2011)

In the table below are summarized the main features that help to understand the main developing strategic partnerships and/or making direct investments of 4 top 20 global container carriers calling at Havre and serving the *Sequanian Axis* knowing that:

- *GIE LogiSeine* provides door to door logistics services including from or to Le Havre and Rouen, a course on the river Seine to Paris-platform Terminal Bonneuil and Gennevilliers and the pre and post transport by road in Ile-de-France. *GIE Logiseine* consists of *Terminal de Normandie* (*TN*), Waterway Transport Company (*CFT*) and *Paris Terminal SA*. It runs weekly lines of river containers transport of between platforms Bonneuil-sur-Marne and Gennevilliers and ports of Rouen and Le Havre. Note that *French GIE* is relative to an *Economic Interest Group* as a legal entity with legal personality and legal capacity, consisting of contract between 2 or more persons or entities to implement all necessary means to facilitate or develop the economic activity of its members, to improve or increase the results of this activity.
- *RSC*: The French shipowner *CMA - CGM* has launched through its subsidiary *RSC (River Shuttle Containers)* in early 2005 a new four-weekly service Waterways line between Le Havre and Gennevilliers.
- *Maersk*: The Danish shipping company *Maersk Line*, a subsidiary of *AP Moller - Maersk* and world's largest container shipping, has developed in July 2006 as a regular river transport on the Seine Waterways operating dedicated barges in partnership with the GIE *LogiSeine*.

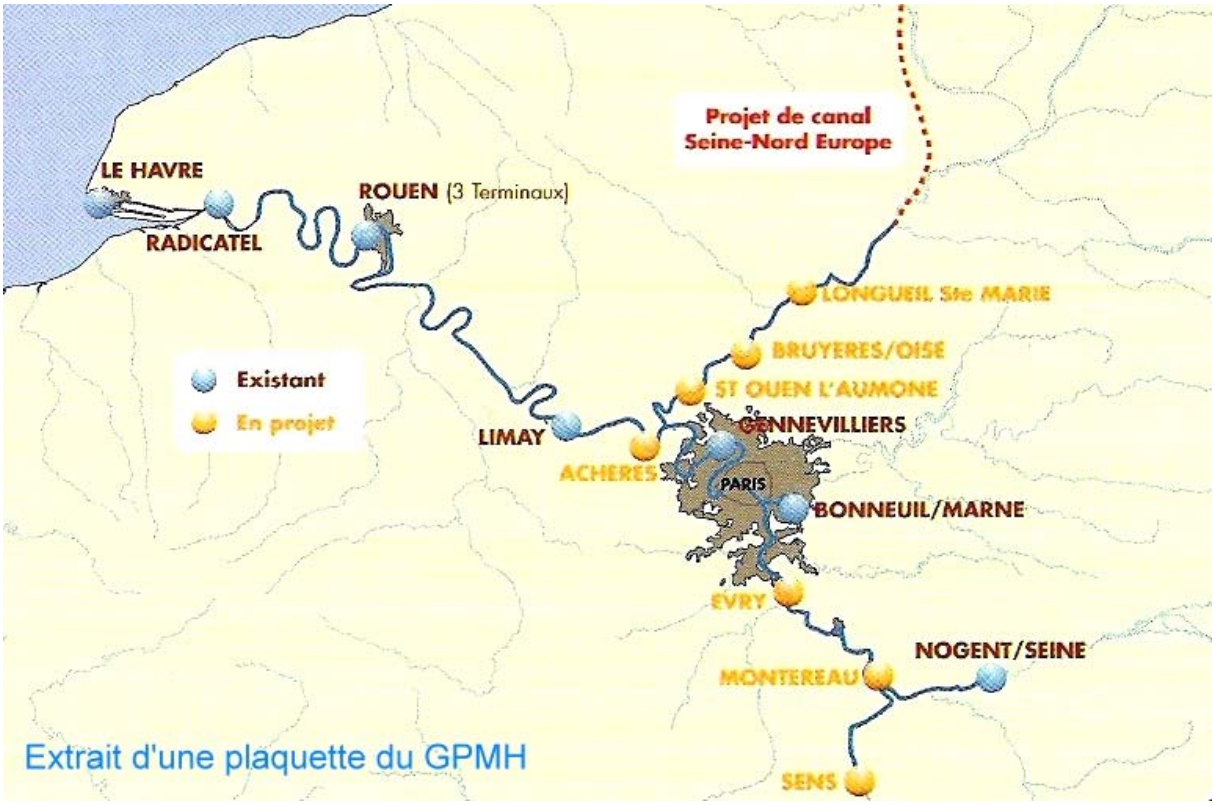
Main features of *4 top of the world 20 container carriers* calling at Havre and serving the Sequanian Axis

Global container carriers	**Sea Port Terminals partnerships**	**Waterways Transport activity**	**Rail Transport activity**	**Road haulage activity**	**Inland River Terminal (2008)**
Maersk calling Le Havre	Dedicated terminal : Joint venture with local terminal operator: Terminal de la Porte Océane (TPO)	Dedicated barges in partnership with the GIE *LogiSeine* with Chartering of fixed quantities of slots per barge	No dedicated railways service	Mainly Carrier haulage with various forms of partnerships with road hauliers with commitments of the shipping company on the number of delivered daily to transport road hauliers partners	Maersk supplies only 2 inland terminals (Bonneuil and Gennevilliers)
MSC calling Le Havre	Dedicated terminal: Joint venture with local terminal operator: Terminal de l'Océan: - **being moved to Port 2000**	Dedicated barges in partnership with the GIE *LogiSeine* with Chartering of fixed quantities of slots per barge	No dedicated railways service	Mainly Carrier haulage with various forms of partnerships with road hauliers with commitments of the shipping company on the number of delivered daily to transport road hauliers partners	MSC supplies only 2 inland terminals (Rouen and Gennevilliers) with an timed offer and of sufficient size
CMA-CGM calling Le Havre	Dedicated terminal: Joint venture with local terminal operator: Terminal de France (TDF)	Dedicated barges *RSC* (River Shuttle Container) waterways transport	*Rail Link* Rail shuttle service *Rail Link* Railways-Road transport	*LTI France* Road Haulage subsidiary - Enlargement of the notorious CMA-CGM	CMA-CGM supplies only 4 inland terminals (Rouen (including Radicatel),

		subsidiary	subsidiary supplying (2008) Clermond-Ferrand, Dourges, Manheim, Lyon et Marseilles	range of services to serve the paris Region and more broadly Le Havre hinterland	Limay and Gennevilliers)
NYK calling Le Havre	No dedicated terminal in Le Havre – No partnerships with local operators…	Casual slot charter on *LogiSeine* or *Marfet* (Seine *historic* Waterways operators)	No dedicated railways service	Mainly Carrier haulage with various forms of partnerships with road hauliers with commitments of the shipping company on the number of delivered daily to transport road hauliers partners	

Otherwise, customs and forwarding agents highly represented on the Seine corridor are, because of the range of their services supply as organizers of transport for hire and reward, are a particularly heterogeneous group. However, a distinction exists in two main families within the Seine logistics corridor:
- the port forwarding agents / stevedores and
- the inland freight forwarders (specialized and dominant for the routing of containers LCL).

The Seine Waterways Axis Multimodal Terminal



(Sources: RSC, 2011)

2.1.2. The 3 main terminals of the Seine river (and the Marne river) outside of Le Havre and Rouen for the Waterways and multimodal service of the Greater Paris

First, Limay: "*Limay-terminal, the logistics hub of the west of Paris*" is a multimodal platform located West of Paris, the port area is directly connected by the A13 motorway to Paris (50 km), Rouen (85 km) and Havre (150 km). Its container terminal covers 5,000 square meters, surface which will be paid to 25,000 square meters in 2012. Commissioned in 2007, 1,096 TEUs have already passed through the terminal.
The company *Limay Terminal subsidiary* of

- *SHGT* a Le Havre local terminal handling operator and
- *SCAT* a Waterways Transport company providing 35% of container traffic on the Seine river, has been operating since October 2007, the new Limay waterway container terminal container.

***Paris Terminal SA* operates in the port of Bonneuil-sur-Marne and the Gennevilliers terminal**

(Sources : www.paris-terminal.com)

Second, Bonneuil-sur-Marne: *Paris Terminal SA* operates in the port of Bonneuil-sur-Marne a platform of 11, 350 square meters fitted with ports to accommodate containers in Paris southeast area. A river shuttle service between Le Havre and *the port of Bonneuil-sur-Marne* is based on the existing line Gennevilliers - Le Havre. It offers a frequency of 3departures per week and allows firms located in the South East of the Paris region to reap the

benefits of inland combined transport ie: security, regularity, responsiveness, administrative facilities (particularly at the level of customs procedures) and storage facility.

2 Transport companies : *Naviland Cargo* and *CFT* are the two shareholders of *Paris Terminal SA*. Bolstered up by the trust shipping lines and combined transport operators put into the company, *Paris Terminal SA* is investing in the main Gennevilliers and the Bonneuil-sur- Marne sites (Sources: *Paris Terminal SA).*

Third, Gennevilliers: *Paris Terminal SA* operates and manages the *Gennevilliers Terminal,* as a single platform that combines 5 modes of container transport (waterways, *fluvio-maritime* rail and road) in Ile-de-France with 401 hectares (272 acres for business location, 51 acres of lakes, 78 acres of landscaped public open spaces), 510 000 square meters of buildings (warehouses, industries, offices and various that one/ third is *port-owned*) and a trimodal center for combined transport over 14 hectares.
In 2008, 269,130 TEUs movements have been achieved (268,098 in 2007).
Paris Terminal SA operates the *Gennevilliers Terminal* more than 20 million tons of total traffic, 275 major companies, more than 8,000 direct jobs in building activity, Metallurgy, Food, Environment and recyclable products, energy products, automotive, logistics and container.
This center is the first *Greater Paris Regional Container Platform* which is in the process of doubling its area of activity: it ensures the handling of more than 290,000 TEUs (over 100,000 by the river), capacity will soon be increased to 450,000 TEUs.

***Paris Terminal SA* current regular weekly shuttles**

Round Trip Shuttles	**River**	**Rail**
Gennevilliers / Rouen-Le Havre	10	-
Gennevilliers / Bonneuil sur Marne	2	-
Gennevilliers / Novara	-	3

(Sources : www.paris-terminal.com)

2.1.3. The 4 major public investments in large-scale port on the *Sequanian corridor*

The 4 major public investments in large-scale ports on the *Sequanian corridor* are located in Le Havre, involving GPMH and in Rouen, involving GPMR (Sources: Revet, 2011 & *GPMH and GPMR media*).

1- **GPMH Port 2000 – "*The 2nd phase*"**
Date of commissioning: 2011.
Port 2000 will ultimately feature 12 berths with a total length of more than 4 km. The first phase of Port 2000 consisted of the completion of 4 berths in operation since April 2006, at a cost of € 760 million of which € 91.5 million from the French State.

The second phase of Port 2000 is to realize of 2,100 meters of quay wall (positions 5 to 10).This phase is a cost of € 315 million. The participation of the French State amounted to € 62M.
The final quay berths (positions 9 and 10) of the 2nd phase were delivered in early July 2010.
The third phase (positions 11 and 12) will allow the first container port in France (2.2 million TEUs handled in 2009) to increase its quay length of 4.2 km. This last phase is estimated at € 180 million, **no key funding has been set. It is dependent on the development of container traffic in GPMH**.

2- GPMH "***Multimodal Platform Project*"**
Date of commissioning forecast: Mid 2014 for the first phase.
This project aims to expand within the port site with a total area of nearly of 103 hectares, 14 hectares embanked with rubble and waste building materials of the terminal and 54 hectares built with the following facilities:
- An access road;
- A platform for the transfer of containers;
- Railways;
- Traffic lanes;- parking areas and buildings, including the temporary filing of containers.

According to the assumptions of traffic taken into account, this project will, after barrowing containers on the site, process by river, rail or road.
Traffic in mid-2014 (end of 1st phase of construction) is estimated at 125 000 ITU. Its estimated cost is around € 139.5 M,
with participation of the French State of 50.5 M €,
the port for 42 M €,
the Regional Council of Haute Normandie for € 10 M.

3- GPMH "***EmerHode Extension Project of the Grand Canal du Havre*"**
Date of commissioning forecast: originally planned mid-2013, the commissioning will be shifted in light of studies following further *public debate*.
This project involves the creation of a river channel, to fluidify both road and rail circulations in the port of Le Havre.
This project is included in the *2007-2013 French State-Region Project Contract* for an amount of € 200 million (ie € 96 million from *GMPH*, € 20 Upper Normandy Regional Council, € 34 million of the General Council of Seine Maritime and € 50 M from other funders).
There is no French State funding on this projet.
Following the public debate that ended Feb. 7, 2010, the GPMH decided to continue the *EmerHode Extension Project of the "Grand Canal du Havre* and its study, based on 2 main spatial development options to provide additional targets.

4- GPMR "Improvement of maritime access and associated infrastructure"
Estimated date of completion: 2014-2015.
In order to accommodate larger vessels, the"*Handymax*" (up to 60,000 dwt) and ''*Panamax*'' (up to 80 000 dwt), whose draft is superior to the current characteristics of the Seine river and estuary nautical channel access to the port of Rouen, the GPMR is imperative to improve the ability its nautical channel access.
The project has 2 aspects:
- The leveling of the high points of the navigation channel by dredging,

- Development of port infrastructure (quays and piers).
The challenge for the GPMR is to assert its role as a major port of bulk (solid and liquid) and the 1st European port for grain and agro-bulks (cereals).
This project is registered in *2007-2013 French State-Region Project Contract* for an amount of € 185M at (ie GPMR: 53 M €, French State: 51 M €; Region: € 35 M; Department: 31 M € *ERDF*: € 15 million).

2.2. The current objectives (early 2012) of the Seine River Interport Coordination Council created in 2009

Since 2009, the 3 Port Authorities located along the Seine artery : *Grand Port Maritime du Havre* (GPMH) and Grand *Port Maritime de Rouen* (GPMR) and *Ports of Paris* met in a *Council of Interport Coordination* between them. This first s French port set generates, as seen before, nearly 130 million tons of sea and river traffic, has 14 000 hectares of land and land reserves and generates 40 000 direct jobs and 120,000 indirect jobs. These 3 Sequanian ports have recently (January 2012) established the GIE *HAROPA, Ports of Paris Seine Normandy* to position itself as "*a sustainable and competitive integrated logistics supply chain from end to end with an efficient and environmentally friendly service of hinterland*" and to best meet "*the needs of responsiveness, flexibility, coordination required by the project around 4 strategic objectives:*
- Increase market share of the ports of Normandy Seine Paris in Europe,

- Promote the development of their own logistics,

- Contributing to sustainable regional development,

- Establishing the port identity of HAROPA. "

Note that *French GIE* is relative to an *''Economic Interest Group''* as a legal entity with legal personality and legal capacity, consisting of contract between 2 or more persons or entities to implement all necessary means to facilitate or develop the economic activity of its members, to improve or increase the results of this activity.

3- The synergy between the ports in the Seine Axis

Different roles (International distribution, Logistics hub, Multipurpose port)
Different specialisations
Different Forelands for the Sequanian seaports linked to the supply of the Paris Metropolitan Area (Greater Paris)

According to the 2011 OECD Regional Development Working Papers dealing with "*The Competitiveness of Global Port-Cities: the Case of the Seine Axis (Le Havre, Rouen, Paris, Caen) - France*", "*the potential for synergies between the ports in the Seine Axis is thus to some extent determined by the extent of the differences between the ports in the following areas: i) their roles; ii) their specialisations; and iii) their forelands and hinterlands."* (Merk, 2011).

3.1. Different roles

As seen before, most global shipping lines (including global container carriers and the 3 major *global containerisation giants*) call directly at the port of **Le Havre**, which is not the case for the other Seine Axis and the *GPMH* is still the first maritime gateway of the Northern Range Europe in the import process to the EU and *Greater Paris* markets. Le Havre still remains the leading port for French external trade and for sea container traffic with 63% of the overall traffic and tries to take into account the imperatives of "sustainable development" in its main development goals and projects (eg the current *EmerHode Project* involves the creation of a river channel, to fluidify, lighten and postpone both road and rail circulations within the port of Le Havre aera).

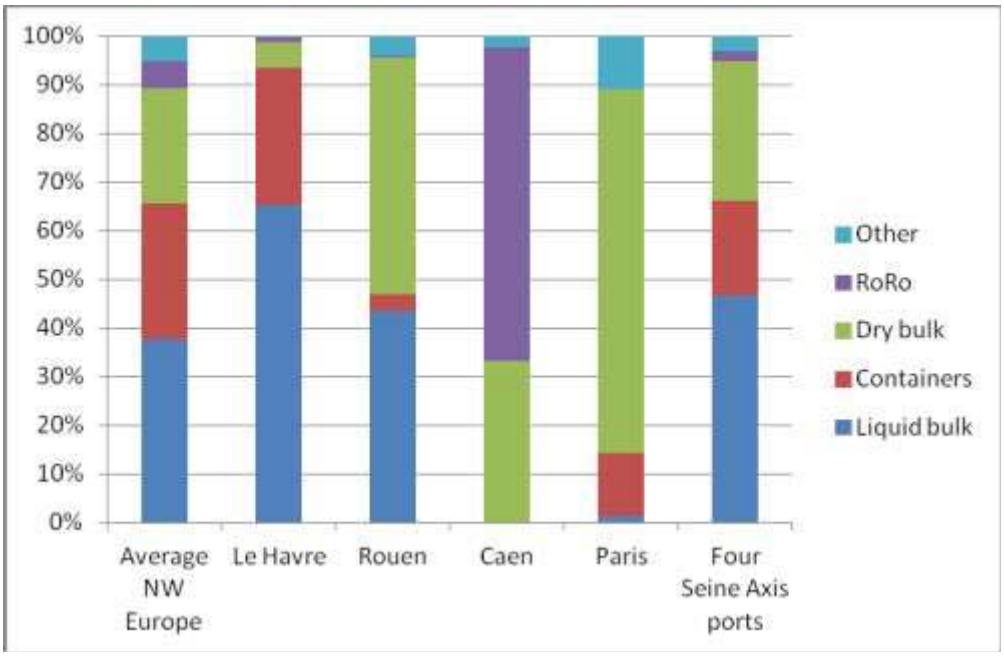
Rouen is a also a seaport of the Seine artery located halfway from Le Havre and Paris, its geographical position both as a genuine seaport closest to Paris, that as a port of the bottom of the estuary allows the sea-land interface to shift inland, reducing inland transport distances. As previously mentioned, GPMR will soon upgrading its maritime access ways for the reception of deep-draught vessels (the estimated date of completion of the *improvement of maritime access and associated infrastructure of GPMR project* should be 2014-2015).

Ports de Paris as a "*termination of the Seine Axis*" and leading French waterway port and 2nd largest in Europe and leading French container terminal serves the capital market. *Ports de Paris is* currently seeking to deploy its trade policy through better knowledge of its customers and giving priority to strategic sectors holding the highest use of inland waterways (Rapport interconsulaire, 2011). "*Situated at the juncture of the Seine Axis and other more north-south orientedflows of goods, the port of Paris can play an important role in structuring the hinterland of the ports in Normandy*"(Merk, 2011).

3.2. Different specialisations

In 2010, the total traffic of **the port of Le Havre** (*GPMH*) was 70 million tonnes (MT), 52 MT in imports and 18 MT for export. The liquid bulk represent 42.3 MT, dry bulk 3.4 MT and containers 23 MT. *GPMH* is the main French gateway for containers bound for mainland France with 2.4 million TEUs processed. Since 2000, thanks to the rise of Port 2000, the capacity of container port has tripled and is one of priority areas for development of the port. *GPMH* would have the ambition to double its traffic to increase its market share in Northern Range Europe up to 9% (Rapport interconsulaire, 2011). Thus, "*The port of Le Havre is specialised in liquid bulk, in particular crude oil. Liquid bulk represented 65% of its traffic in 2010; and 43% of total throughput in tonnes was crude oil, which represented only 15% of throughput in northwest European ports on average. The secondary specialisation of Le Havre is container traffic, although the specialisation rate is in line with the average of northwest European ports (28%). Le Havre has a low specialisation rate in dry bulk, such as coal and ores. In Europe, Le Havre s port specialisation pattern is similar to Southampton, which is also heavily oriented towards liquid bulk and includes a substantial share of container traffic*"(Merk, 2011).

Traffic categories (as share of total tonnage) in Seine Axis ports (2010)
In this 2011OECD Working papers Table: Sources are OECD on the basis of Eurostat data. Note that *the Seine Axis ports* are in this instance considered to be Le Havre, Rouen, Caen and Paris.



(Sources : Merk, O., et al. (2011), "The Competitiveness of Global Port-Cities: the Case of the Seine Axis (Le Havre, Rouen, Paris, Caen) - France", *OECD Regional Development Working Papers*, 2011/07, OECD Publishing.)

GPMR is as a multipurpose port with:

- The largest maritime logistics zone alongside the quay walls,
- The biggest European grain exporter,
- The biggest French port for agri-bulk goods and paper products,
- 2nd biggest French port for refined oil products and timber.

Rouen grain traffic attract close to the port activities such as laboratories, inspection and service companies related to food. The port is seeking to diversify its activities to offset the hzard of the grain market. The traffic of liquid bulk and general cargo are steadily increasing. The industrial liquid and solid bulk are associated with industries dealing refined petroleum products, chemicals, cement and aggregates. *GPMR* could take advantage of dry bulk traffic from the north of France, through the future SNE canal (Rapport interconsulaire, 2011). "*Le Havre s low rate of traffic in dry bulk is compensated for by the seaport of Rouen, which specialise in it. In 2010, dry bulk represented 49% of port throughput in Rouen, with agricultural products accounting for 40% in Rouen. As in Le Havre, liquid bulk represents a substantial share of traffic in Rouen, but this is mostly in refined oil (29% of total tonnage)*'' (Merk, 2011). Finally, por de Rouen offers High-performance facilities with:

- 300,000 square meters of warehouses for general cargo,
- 170,000 square meters of warehouse for dry bulks,
- 1.2 MT of grain storage capacity,
- 1 million cubic meters of storage facilitiesfor liquid bulks.

In accordance with what was presented in the previous sections, growing trades of **Ports de Paris** are:

- +3.2% in 2010and +13.4% for container traffic,
- Traditional trades: 70%of trades related to the Public Buildings and Works sector,
- Trades under high growth: containers and products whose value can be increased,
- Emerging trades: urban logistics...

In fact, "*the use of the Seine river as an instrument of sustainable development of the Greater Paris is a process in the making. For these players both metropolitan and global, the Seine artery is already as capable of providing the best continuity between the mass of the global maritime traffic and metropolitan distribution. A barge can be loaded at a port tens of Hundreds of pallets (or containers) for one or more urban markets, while each box until now monopolizes a truck in a long distance "tunnel".It is this level of compatibility between the global and the Metropolitan which isgradually reveal the waterways as essential in the new intermodal processes*" (Baudouin, 2009).

3.3. Different Forelands for the sequanian seaports linked to the supply of the Paris Metropolitan Area (Greater Paris)

It is clear that **"***the ports of Le Havre and Rouen do not have the same relations with other ports. These can be measured through vessel movements in and out of these ports. The port of Le Havre has strong linkages with the ports of Antwerp and Rotterdam in Europe, as well as Asian ports such as Hong Kong and Port Klang. The port of Rouen has more frequent links with another set of ports, in particular Dunkirk. The correlation between the port links of Le Havre and Rouen is very small, which indicates that they form part of different port networks with relatively limited overlaps; their maritime forelands and hinterlands are complementary"* (Merk, 2011).

According to the relevant analysis Baudoin et al., the concentration of such supplies coming from Asia in the case of mass distribution has the consequence, when they reach Le Havre, now return (profitable) shipment to *Greater Paris* by barge, in terms of economy of scale. Road problems thus begin to encourage mass distribution firms to explore new modes of delivery. The integration of inland waterways in the mass distribution logistics is therefore growing container traffic of the Seine. Especially as the new *marketing communications in terms of sustainability* also works in favor of the waterway. The attitudes of shippers and customers thus promote the river as a tool for strategies both comprehensive and lasting.

The global carriers prefer to invest the sea-river traffic by land barges: Ahead of the final major distributors of trade areas, the global carriers also play a role in the revival of inland waterways in Paris. In a Northern Europe served by many waterways cooridor, much of the imported goods has long been thus distributed within the continent via waterways axis. The commercial supremacy of Rotterdam, Antwerp and Hamburg is precisely their ability to make use of rivers and canals to distribute nearly 40% of their containers via waterways axis. The road more congested becomes structurally unsuited to serving continental global flows not only because of the sheer size of them but also their chronic imbalance (Baudouin, 2009).

Open conclusion

As we have seen throughout this case study relative to the *French port complex of the Seine Corridor*, controlling the flow of goods is a major strategic issue for the country state and a fortiori for the territories of *Lower Seine Valley*. The impact of academic research conducted on the subject could benefit maritime, port and logistics economic actors. They also benefit the authorities in charge of the animation clustering and implementation of port facilities and the spatial development in the following of the maritime industry, including the corridors. In France, there is already a French multidisciplinary research on these issues but **it still lacks visibility to be recognized by major international networks**. The aim of the *Transmar GIS Project* (*Scientific Interest Group Transmar* for "*shipping*") is to provide answers to questions from the professional world of logistics and transport market knowledge as port companies, the regulatory watch in the environment field and the development of tools for the development of port areas and logistics corridors. To achieve this, *Transmar* aims at bringing together leading researchers from various disciplinary backgrounds (geography, planning, law, economics, computer science, history, sociology ...).

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