

The Extended Gateway: a New Project for Logistics Flanders



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1 | Introduction

Due to its central location, close to all major industrial and consumption centres in the EU, Flanders has logistics advantages. Indeed, 60% of the EU purchasing power is located within a radius of approximately 550 km around Flanders. Even with the EU expansion and the increase of the buying power in the east, this will not result in a decrease of the consumption in favour of the East-European countries. Flanders will keep its proximity to the heart of the EU.

When talking about European Logistics, the Blue Banana is an important notion. The Blue Banana covers the regions from where European distribution can be performed in the best conditions. This means where the best balance between transportation costs and delivery time exists. Most consumption and industrial products require a delivery lead time of 24h to 48h throughout Europe. Most European Distribution Centres (EDC's) and European logistics platforms are located in the Blue Banana.

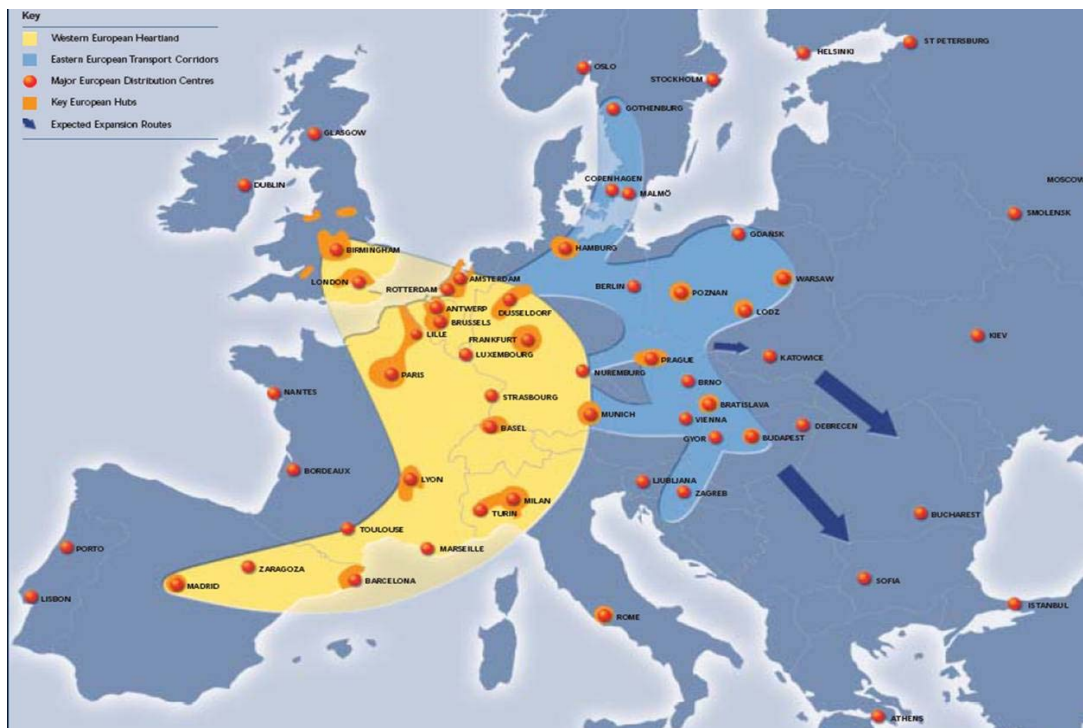
The shape of the Banana has changed substantially during the last years. First of all, the size of the Banana increased to the South and to the East. The expansion to the South is primarily due to the recent infrastructural and logistics investment in the Madrid-Barcelona area in Spain. Moreover, Italy and Spain try to position themselves with their ports as gateways to Europe. The expansion to the east is caused by the increased buying power of the East-European countries. Although the enlargement of the EU led to an increase of the buying power of only 5-7%, the growth rate for the coming years will be substantial.

The Blue Banana includes a number of regions/countries, all of which are not equally attractive for European logistics. The international real estate advisor *Cushman & Wakefield, Healey & Baker* releases its "European Distribution Report" every two year (www.cushmanwakefield.com). In this report countries are compared on 6 criteria:

- Costs: rent prices for warehousing, land prices for greenfield projects and labour cost.

- Transport Systems: considers the density of the road, rail, air and sea freight networks as well as the importance of road congestion.
- Accessibility: access to the EU expansion countries and to the core EU market, measured by the population density of a country.
- Supply: new built warehouses of at least 10.000m² and the availability of land.
- Labour: measured in terms of availability of labour force and labour productivity.
- Know-how: measured through the language knowledge and the number of logistics education courses in the regions.

Figure 1 - Blue Banana 2006



Source: Cushman & Wakefield Healey & Baker

The closer to “1”, the better the score as can be seen from Figure 2. The ranking shows that, since 2002, Flanders ranks as the most attractive region to establish European distribution operations. However, this does not necessarily mean that Flanders hosts the most EDC’s in Europe.

In order to stay on top in logistics Flanders has to invest in intelligent logistics. This means that on the first place one should create value through logistics on the own territory. Basic logistics operations (transport, warehousing,...) have to be anchored through value added logistics. Therefore policy makers together with industrial actors should create enough space, in a literal and figurative sense.

Table 1 – Ranking of European regions for logistics

	COSTS	TRANSPOR T SYSTEM	ACCESSIBIL ITY	SUPPL Y	LABOUR	KNOW HOW	SCOR E TOTA L 100	RANKING 2006	RANKI NG 2004
WEIGHT	21,8	31,3%	31,3%	9,4%	3,1%	3,1%			
FLANDERS (B)	6,6	1,7	1,2	1,6	4,1	2,1	5,1	1	1
WALLONIA (B)	6,0	2,2	1,2	1,8	3,8	4,4	5,2	2	7
NORD - PAS-DE-CALAIS (F)	4,9	2,4	1,7	2,0	4,6	5,0	5,3	3	3
SAARLAND (G)	4,6	3,3	1,8	1,2	3,5	4,3	5,6	4	4
ILE DE FRANCE (F)	6,2	1,8	2,3	2,6	1,7	3,7	5,8	5	2
EST (F)	5,0	3,0	1,7	2,4	4,8	5,0	5,8	6	6
BRUSSELS CAPITAL (B)	8,7	1,7	1,0	2,6	1,1	3,0	5,8	7	5
NORDRHEIN-WESTFALEN (G)	8,7	2,5	0,8	2,0	4,0	3,8	6,3	8	8
SOUTH NETHERLANDS (NL)	8,9	2,2	0,7	1,9	10,2	2,7	6,5	9	9
RHEINLAND-PFALZ (G)	7,4	3,3	1,3	1,9	5,3	4,2	6,7	10	10
EAST-NETHERLANDS (NL)	7,4	3,1	1,4	1,7	9,9	3,7	6,8	11	11
PICARDIE + CHAMPAGNE- ARDENNE (F)	5,2	4,1	2,4	2,2	4,9	5,3	6,9	12	14
WEST-NETHERLANDS (NL)	10,0	2,1	1,6	2,5	8,7	2,8	7,4	13	12
NORTH-NETHERLANDS (NL)	5,9	4,2	2,5	1,7	8,9	3,6	7,4	14	13
LUXEMBOURG (GR. DUCHE)	12,7	3,3	1,7	2,4	3,5	3,3	9,0	15	15

Source: Cushman & Wakefield Healey & Baker, 2006

Literally one talks about the availability of enough attractive grounds for logistics investments. Attractive locations for logistics operations are traditionally located in the direct environment of the gateways, like sea and air ports. Because these prime locations become more and more scarce, one needs to develop grounds with similar characteristics (multimodal connections, reduced transport costs, optimal transshipment) in the hinterland. That is the idea of the *Extended Gateway*: prime locations embedded in an integrated multimodal hinterland network. In order to preserve or even increase the pace of investments in logistics, implementing the idea of the Extended Gateway is a challenge with top priority in Flanders.

Creating space for intelligent logistics has also a figurative interpretation. More than ever Flanders should facilitate in a proactive way ‘intelligent’ value adding logistics activities. These are safeguards to keep anchoring logistics operations in Flanders for the future. Therefore, three main challenges should be taken up within the Extended Gateway concept: an integrated multimodal approach of transport, more and stronger partnerships among logistics actors and a continuous search for innovation in logistics concepts and technologies. All these issues are subsequently addressed in this article.

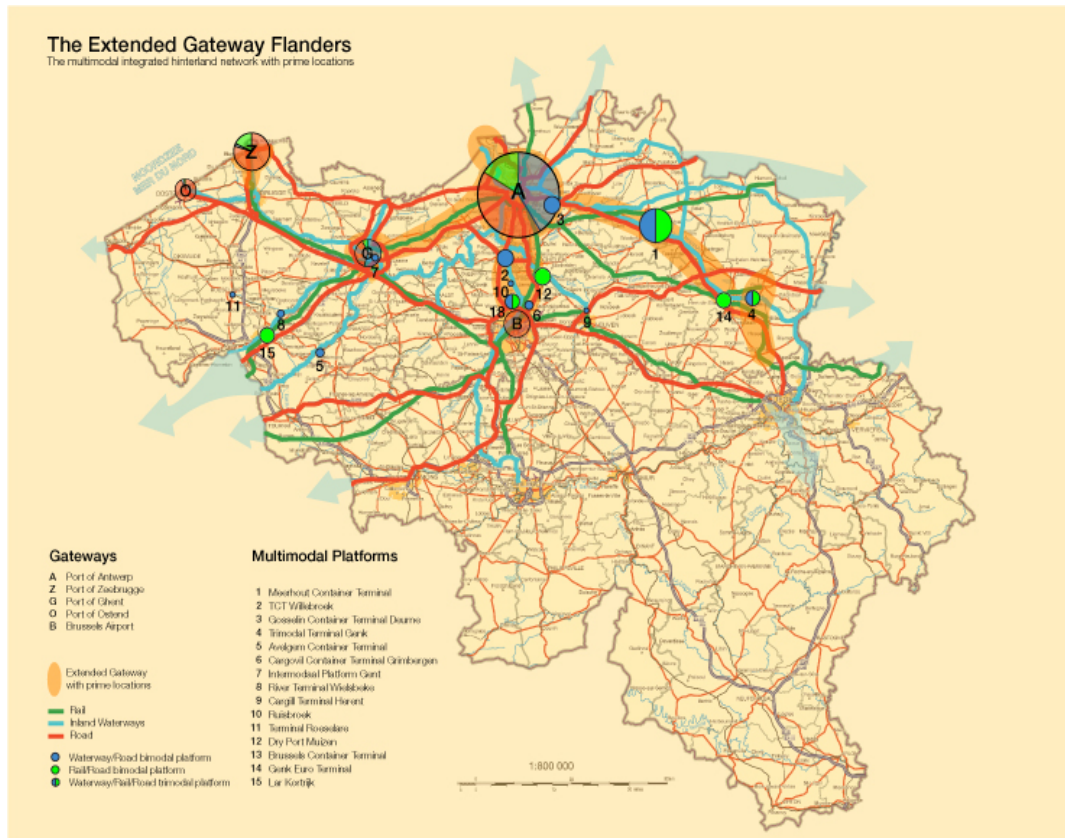
2 | The Extended Gateway Flanders

In this part the idea of the extended gateway is elaborated. First an overview of the existing gateways in Flanders is given. Further the multimodal infrastructure is described. In a next part the strategic constraints necessary to develop the full role of gateways in the social, economical and logistics context of the region of Flanders. Finally the step towards the extended gateway is taken.

2.1. Gateways in Flanders

Creating space for intelligent logistics results in an evolution from mainport (attracting and handling freight flows) towards brainports (adding value to the freight flows). Through strong hinterland connections a gateway can assure a permanent inbound and outbound flow of freight. On the other hand hinterland locations can position them as extensions of the gateway through reliable and viable hinterland connections.

Figure 2 - The Extended Gateway Flanders



Source: Flanders Institute for Logistics, 2006.

As can be noticed on the map of figure 2 there are several gateways, either sea or air ports, in Flanders. They are described below in a concise way.

Port of Antwerp

The port of Antwerp is a sea-port, but with an inland location. Compared to Rotterdam (neighbouring port in the Netherlands), approaching the port of Antwerp via the river Scheldt requires considerably more time, which is unfavourable for delivery time but it has a favourable impact on the total transportation cost. Indeed, the port of Antwerp is near by the final customer. The port of Antwerp treats conventional as well as container and bulk traffic, in total over 160 million tons in 2005. Almost all recent and future expansions, however are container-related. Today between 5 and 6 million TEU

(Twenty feet equivalent units) containers per year are handled. When the Deurganck dock becomes full operational, this figure will probably exceed 10 million TEU. For logistics purposes, the port of Antwerp hosts more than 5 million m² of warehouse capacity. Moreover, the second largest cluster of (petro-)chemical companies in the world is located in the port of Antwerp.

Port of Ghent

The port of Ghent is another inland port. The port hosts a variety of industries, ranging from automotive to paper and steel. A lot of activities in the port include logistics services for those industries. All those activities add up to the highest added value per employee of all ports in Belgium. The Kluizendok project is currently the major expansion project for Ghent.

Port of Zeebrugge

The port of Zeebrugge is a seaport focusing on a limited number of large (value added) activities. Zeebrugge is well-known as the European hub port for automotive and roll-on roll-off traffic. Also, a lot of value added activities for cars are deployed in the port. The installations for the handling and storage of natural gas are quite exceptional. Gas is transported and stored as liquid. The port of Zeebrugge also hosts some distribution centres, such as one for the preparation and packaging of fruit juices.

Port of Ostend

The port of Ostend is a small seaport providing a variety of services, ranging from general cargo up to Ferry and roll-on roll-off services. Its strength lies primarily in its role as a multimodal platform for logistics with road access and a cargo airport in the neighbourhood.

Airports

As compared to its ports, the regional airports in Flanders only play a minor role. The Brussels Airport is the 8th European airport for passengers and the 5th for cargo. Passenger traffic is also important for cargo: the belly capacity of passenger aircrafts can be used for cargo. Consequently, passenger airports always attract cargo. When the Belgian “home carrier” Sabena disappeared in 2002, the belly capacity and thus the cargo transported via regular airplanes dropped significantly. The new Belgian airline, SN Brussels airlines, operates a fleet of airplanes with limited or no belly capacity.

The second cargo airport of Flanders is Ostend. Due to its limited size, this airport is obliged to focus on specific niches and activities. Currently, the Flemish Government is conducting a strategic study to determine the role of Ostend Airport.

2.2. The multimodal infrastructure in Flanders

With respect to the density of transport infrastructure, the region of Flanders is leading in Europe: having the most dense railway network and the second most dense road and inland waterways infrastructure (table 2).

Table 2 – Road, rail and waterway network per country/region

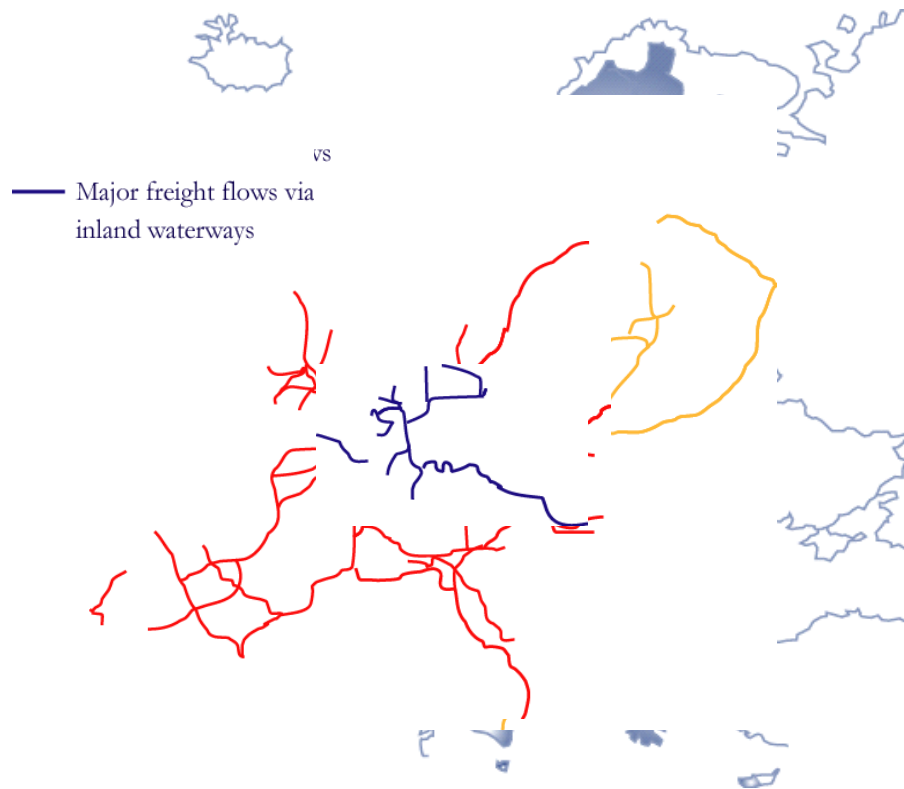
Density transport network in km/1000 km ²	Motorways in 2000	Railways in 2000	Inland waterways in 1999
EU-15	16.2	49	9.2
Belgium	55.8	113.7	50.5
Denmark	21.4	47.5	0
Germany	32.8	102.7	20.6
Finland	1.8	19.2	20.5
France	18	59.8	11.1
Greece	5.4	17.5	0
Ireland	1.5	27.3	0
Italy	21.5	54.8	4.9
Luxembourg	44.5	105.9	14.3
Netherlands	67.6	82.7	148.9
Austria	19.5	74.9	4.2
Portugal	16.1	30.6	1.3
Spain	17.5	28.3	0.1
United Kingdom	14.5	70	4.7
Region of Flanders	62.8	126.8	79.6
Sweden	3.7	28.1	0.9

Source: EC DG TREN and Eurostat, 2003.

In figure 4 a map of Europe with the freight flows for road, rail and inland waterways is given. It is remarkable that Flanders performs as focal point from which European arterial transport flows originate and arrive.

So, Flanders has a well-developed multimodal infrastructure with an extensive capacity, which is also well-used (high intensity). On one hand this creates advantages, the infrastructure is used in a cost-efficient and optimal way. This attracts new flows and new logistics players. On the other hand, another consequence of the high intensity on the infrastructure network is that Flanders needs to deal with increasing congestion problems. These problems generate new challenges (see further).

Figure 4 - Important freight flows in Europe



2.3. Strategic constraints for gateways

A gateway has to be more than only attracting and handling freight flows. Extra services beside infrastructure need to be offered. In order to elaborate the full opportunities as economical, social and logistics hub, a gateway should meet certain strategic constraints. Six such constraints for gateways are described below.

Integration in logistics chains

Access ports should create the right service to become a real, value adding link in the supply chain of industrial actors. In the pharmaceutical industry e.g. an airport can create a distinct profile for itself as a valuable step in the logistics process. Speed, conditioning and safety seem to be the main issues for logistics of pharmaceutical products. The airport needs to set up the right service in order to be able to meet these criteria and in this way the airport can integrate itself in the supply chains of its 'key accounts'. One can e.g. provide conditioned and secured warehouses somewhere in the direct environment of the airport.

Multimodal logistics platform

Efficient hinterland connections are essential to make a gateway promising. The integration of deepsea, shortsea, inland navigation, road and rail transport means to port authorities a real challenge. One has to search for synergies between the different transport modes in a so-called multimodal approach. At the end the gateway should be

able to offer to its customer a wide variety of transport solutions. In the Antwerp port e.g. one needs to provide feasible hinterland connections with the new Deurganckdok container terminals. Users of these Deurganckdok terminals should be offered a multimodal transport infrastructure towards the hinterland.

Added value creation

Gateways have a substantial part in value and employment creation in a region. Tables 3 and 4 indicate the economic impact of gateways on Flanders. Both direct and indirect effects are incorporated.

Table 3 – Added value and employment (direct and indirect), Gateways Flanders 2003

	Added value (direct + indirect) in mio Euro	Employment (direct + indirect)
Port Antwerp	14,105	145,090
Port Ghent	6,020	65,658
Port Zeebrugge	1,261	19,264
Port Ostend	603	8,864
Airport Brussels	3,884	60,511

Source: Annual Report 2003, Flemish Port Commission, National Bank of Belgium, 2005

Table 4 – Added value and employment (direct and indirect), Gateways Flanders 2003

	Added value (direct) in mio Euro	Employment (direct)
Port Antwerp	7,443	62,276
Port Ghent	2,952	28,330
Port Zeebrugge	714	10,386
Port Ostend	341	4,426
Airport Brussels	1,383	19.905 (6.096) ²

² Only freight transport.

Source: Annual Report 2003, Flemish Port Commission, National Bank of Belgium, 2005

The five most important gateways in Flanders stand for about 300.000 employees and an added value of more than 25 billion euros, i.e. more than 15% of Flanders' GDP.

A gateway should maximize its economic impact. That is why the activity of a port is far more than simply handling volumes. It is crucial that these volumes are also treated in a certain way in the gateway area or in the near hinterland. Such a treatment, e.g. in a postponed manufacturing philosophy, adds often the most value and creates a lot of jobs.

Focus on strategic sectors

Gateways need to focus on certain sectors which are of strategic importance for a certain region. In Flanders e.g. the pharmaceutical, the biotechnology, the petrochemical and the automotive industry are crucial. Flanders' gateways should facilitate these sectors through offering an indispensable link in their supply chains.

Strategic cooperation

In cooperation projects it is essential to select the right partners. Gateways need to find them both on sea/air and on land side. On one hand access ports have already for years built up strategic alliances with sea and air line companies. On the other hand also the land side should not be neglected. Moreover, we expect this to be the competitive edge for the European ports in the years to come. Potential partners for the gateway are here logistics actors like transport and terminal operators, logistics providers, real estate companies, forwarders and stevedores. Through collaboration with inland container terminals and logistics platforms a port can anchor inbound and outbound flows in its own gateway.

Hub or home base

If a gateway can position itself as home base or hub for a carrier, it has an excellent vehicle to anchor freight flows. The gateways in Flanders should rather focus on medium-sized integrators. The main players in this market, like UPS, TNT, DHL and FedEx, have already chosen their home base. The port of Zeebrugge e.g. has a hub position for international Roll-On&Roll-Off transport of cars. The cars arrive from different continents in Zeebrugge, where after a treatment (e.g. the installation of a radio, pre-delivery inspection) they are distributed towards a large number of international destinations by sea barge, inland navigation, rail or road transport.

2.4. From gateway to extended gateway

Shippers and logistics providers who want to invest in Flanders for their distribution activities are continuously searching for prime locations. These locations are mostly considered as locations in the area of a gateway. As a consequence one can reduce transport and handling costs. Moreover such a gateway has often efficient multimodal hinterland connections. In this way distribution towards the hinterland is assured.

Nevertheless there are also disadvantages linked to gateway locations for distribution and logistics activities. Port authorities are looking for these activities with the highest added value. Companies in the petrochemical sector are examples of creators of high added value and jobs. Logistics companies are often bypassed for port concession for that reason. Port locations are scarce. As a consequence logistics activities are pushed towards the hinterland. A second disadvantage of port locations is that labour there is far more expensive (in the Flemish harbours this is regulated by the Major Law). A third disadvantage is the congestion in the port area.

Because of these drawbacks logistics actors are looking for locations in the hinterland with similar characteristics and functionalities as that of the gateway itself. Authorities should create such areas. In this way an Extended Gateway appears. The gateway is extended with prime locations embedded in its integrated and multimodal hinterland network. With fast, frequent, reliable and efficient multimodal connections with the

gateway these hinterland locations have the same opportunities for logistics activities as the original prime locations in the gateway.

The initiatives and real investments of the port authorities of Antwerp to set up partnerships with areas along the Albertkanaal are strong examples of the development of an Extended Gateway. This strategy must result in a sustainable anchoring of freight flows through the Antwerp harbour (see figure 2 above).

3 | Challenges to implement the Extended Gateway

As already mentioned in the introduction, developing a multimodal strategy, improving partnerships among logistics providers and searching for innovation in logistics are the challenges in order to implement and realise the extended gateway concept. Flanders has a dense transport network, which is an abundantly clear advantage. Nevertheless capacity on that network is always restricted to a certain level. More and more Flanders has to deal with the congestion problem. Challenges should also be assessed in this context.

3.1. A multimodal approach

Intermodality, multimodality and combined transport are often used in a confusing way. A multimodal transport context is one in which the decision maker is able to consider the different alternative transport modes and to choose the most appropriate one. That means that the decision maker has enough knowledge and experience about transport services in order to make that choice. The most appropriate transport mode might be a unimodal solution (road, rail, inland navigation, air, SSS, pipelines,...) or a combination of modes in one trip (=intermodal transport).

A multimodal network is considered as a combination of the unimodal networks. Transshipment terminals function as multimodal nodes connecting the different modes. Interconnectivity (infrastructure) should be supported by interoperability (organisation).

Table 5 – Modal split and evolution of freight flows in ton-km

	Road	Rail	Inland navigation	Pipelines	Total
Modal Split EU 2000	75%	13%	7%	5%	100%
Modal Split Belgium 2000	70%	13%	14%	3%	100%
Evolution EU 1990-2000	+34%	+6%	+18%	+8%	+29%
Evolution Belgium 1990-2000	+23%	-6%	+21%	+45%	+19%

Source: Eurostat (EU - 15 countries), 2003

In table 5 the modal split in the E.U. countries is given for the year 2000 (in ton-km). Shortsea (intra-E.U.) is initially not mentioned because only the flows within a country are considered. At the bottom of the table the evolution in mode transport flows is given.

Road haulage, rail transport and inland waterway transport are the most common transport modes for flows on the continent. That is why these transport modes are focussed on in the further story. Short sea shipping between different sites in countries in one continent (e.g. Europe) is a transport mode, which becomes more and more important. This mode is heavily supported by the European Commission (European Commission White Paper, 2001). Pipelines and air transport are only viable in specific freight niches. Intercontinental transport by deep-sea shipping has specific characteristics.

As one can see in table 5 road haulage has by far the largest market share. Almost 75% of all ton-km in the E.U. are going by road. The market share of rail transport was 13% in the EU15 in the year 2000. The new member states in the central and eastern part of Europe have in general a larger rail part. At the bottom of the table one can notice that all transport modes have been growing during the last decade of the previous century, road and SSS the fastest. The alternative transport modes, rail transport and inland navigation, have increased less in ton-km. In Belgium rail transport has even decreased in absolute terms during this term.

From 2000 on inland navigation in Flanders has increased its growth: +20% ton-km in five years. Rail transport still has difficulties to keep its market share. Road haulage is still growing, although growth in Flanders is a bit decreasing.

In table 6 the common transport modes used on the European continent are characterised. A summary of a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis carried out among logistics actors is given. It is evident that this table only contains the most marked characteristics.

There is no single transport mode dominating all others on all relevant criteria. The decision maker has to choose e.g. between a fast, but expensive and a cheap, but slow transport. A trade-off between different choice criteria should be made.

The challenge lies in adding up the strong elements through combining different transport modes. Intermodal transport has already been a European Commission priority for years (cfr. The European Commission White Paper 'Time to decide', 2001). Creating a level playing field (a fair market) among the different transport modes is the ultimate objective.

Several bottlenecks prevent a seamless and efficient multimodality. These bottlenecks have an infrastructural, organisational or social nature. In table 7 some mode specific bottlenecks are given.

Table 6 – SWOT analysis for different transport modes

	Road	Rail	Inland Navigation	Short Sea Shipping	Air	Pipelines
Strength	Flexibility - Accessibility	Infrastructure	"Cheap and clean"	"Cheap and clean"	Fast	Environmental friendly
Weakness	Congestion	Inflexibility	Slowliness	Compatibility	Expensive	Limited applications
Opportunity	New logistics	Liberalisation TENs	Political support	Political support	Liberalisation	New product niches
Threat	Re-regulation	Business culture	Accessibility	Slowliness	Congestion	Terrorism
EU-Objective	Creating a fair European transport market with inter-compatibility and inter-operability among the different transport modes. Stimulating intermodality, combining the strengths of the different singular transport modes.					
Intermodal	Flexibility - Accessibility	Infrastructure	"Cheap and clean"	"Cheap and clean"	Fast	Environmental friendly

Source: Vannieuwenhuysse (2002)

Table 7 – Mode specific bottlenecks

Mode	Definition bottleneck
Road	Increasing congestion reduces the reliability of logistics services Delay at the container terminals in harbours Uncertainty about 'reregulation'
Inland navigation	No specific infrastructure for inland navigation in harbours No homogeneous inland navigation network in Europe No single point of contact Limited opening hours for locks and terminals Fragmentation in the inland navigation market
Rail	Low operational speed Interaction passenger transport - freight transport difficult Low flexibility, shunting is complex and expensive Slow harmonisation of the rail network in Europe Slow liberalisation of the rail market in Europe

Source: Vannieuwenhuysse, Misschaert, VIL, 2005

In order to encourage multimodality a distinction can be made between different opportunities, varying from organising information campaigns up to developing and distributing decision support tools.

The creation of a neutral, multimodal information centre forms the first opportunity. Such an information centre offers information to logistics actors in order to give them the opportunity to choose the most appropriate logistics decision. It is obvious that they have not enough information and know-how to take that decision. There is a lack of such neutral, multimodal advice, resulting from a quick modal scan.

A better utilization of the available capacity is another opportunity. Optimising the opening hours of locks and terminals might help in this. The critical success factor here appears to be an integrated supply chain approach, in which all the actors from the terminal to the customer's doorstep are involved.

The concept of total logistics cost is another tool to support multimodal decisions. The Flanders Institute for Logistics (VIL) has developed a manual to support logistics decision makers to determine the most appropriate modal split. Several powerful tools, like e.g. the total logistics cost, are incorporated in that manual.

A decisive gateway needs an efficient and effective multimodal network. The integration of the different transport modes is essential. As can be observed from figure 3, well-located transshipment points or multimodal platforms in which a shift from one mode to another can be organised become crucial nodes in the network. Operations there should be cost-efficient, reliable, flexible and safe.

As described above a multimodal network is essential for the development of a competitive Extended Gateway. Beside the infrastructure (the hardware), there is also an organisational dimension (the org- or software). Logistics actors have to collaborate in order to utilize the available infrastructure in an optimal way.

3.2. Collaboration

Encouraging collaboration is a second challenge in order to elaborate the Extended Gateway. Beside the infrastructure and the organisation on a macro-economic scale, developing an Extended Gateway requires also efforts on micro-economic or company level. As already mentioned above one should improve the utilization of the multimodal system. Through better collaboration among companies in the different links in the supply chain, cost reductions and more important flows of goods can be obtained. Vertical collaboration among partners in the chain, e.g. through intensive information sharing, is more and more common practise.

On the other hand, horizontal collaboration between companies at the same level in the supply chain seems often more difficult to realise. Anyway, such collaboration results for example in a bundling of freight flows with an increased utilisation of the transport network and the used equipment as consequences.

Two types of horizontal collaboration can be distinguished: collaboration among shippers and that among logistics providers.

Shippers collaboration

Consolidation here can be obtained on several levels. Shippers can cooperate in purchasing. Together shippers can strengthen their bargaining power towards the supplier. This might result in lower prices or higher service levels. Moreover, even the supplier can win, because the latter can also benefit from the economies of scale. It is indeed clear that it is easier to communicate with a limited number of clients. Another type of collaboration is the one in inventory control. Through holding a common stock, companies are able to reduce substantially their buffer and safety stocks. In this way one

can reduce inventory costs. A third type of collaboration is in transport. Through that type of collaboration one can increase the utilisation rate of trucks and decrease the number of vehicle moves. A next collaboration opportunity is the one on the level of services or facilities. Warehouses, manpower, and even value adding activities like reception, quality control and pre-assembling can be shared among different shippers.

Collaboration among logistics providers

Even more challenging are the horizontal collaboration projects among direct competitors in the highly competitive logistics market. However there seems to be several drivers to collaborate in this field. These are drivers, varying from covering together a larger geographic region, elaborating complementarity of services, developing a common procurement department up to common investments in innovative concepts. Mandatory for these kind of collaborations are the confidence and clear agreements among the parties, and that with respect to costs and benefits.

Given the multimodal infrastructure, one can create new opportunities for the Extended Gateway through collaboration. The consolidation of freight volumes by the start of the transportation process results in higher volume freight flows between gateways and hinterland. Consequently, efficient and frequent connections can be built out on these trajectories. From the inland terminals or platforms which are connected with the gateway by means of these high volume flows the collection of products or the fine distribution might be organised and even controlled. These inland terminals or platforms are then incorporated as crucial nodes in the Extended Gateway.

3.3. Innovation

The concept of the Extended Gateway strongly depends on an efficient multimodal transport system. Beside an integrated infrastructure network providing enough capacity and an optimal organisation and utilization of that capacity e.g. through collaboration, there is still a third challenge to develop a competitive extended gateway: innovation. The transshipment from one mode to another remains an important bottleneck in combining transport modes within a trip. Transshipment creates extra costs, losses of time and often causes damage. It is for sure that improvements in transshipment techniques can further create chances for inter- or multimodal transport and as a consequence create more opportunities for the extended gateway.

Beside new or improved transshipment techniques on the terminals, other innovations which are studied today could contribute to the Extended Gateways, e.g.

- vessels having a crane on board which makes transshipment at quays without superstructure possible. In this way inland vessels can be treated at more locations, e.g. direct at shippers' sites, along waterway lines..
- supertrucks or road trains, 60 tons/25 m truck combinations increasing the utilization of road capacity
- TGV Freight, using the high-speed rail network not only for passengers, but also for freight transport.

Through these innovations the threshold towards a multimodal approach is decreased, and as a consequence chances to develop a competitive Extended Gateway are increased.

It is evident that innovation in logistics is essential to stay competitive with the low wages countries. The concept of the extended gateway provides the framework in which one can validate these innovations in an optimal way.

4 | Conclusions

The Extended Gateways is a new powerful concept for regions with natural advantages for European distribution. The idea and the challenge behind the concept is the creation of additional logistics prime locations for added value logistics along the vertices of the integrated multimodal hinterland network.

The Extended Gateway for Flanders, is the result of an integration of traditional gateways and prime locations in their hinterland. These prime locations are situated both around multimodal nodes and along the multimodal corridors as network arcs. In this way the major, traditional gateways, like the ports of Antwerp, Ghent, Zeebrugge and Ostend and the airport of Brussels, are extended towards the hinterland and generate one integrated gateway. On the other hand locations in the hinterland get new opportunities through efficient connections with the traditional gateways. These hinterland locations can position themselves in an integrated logistics project for Flanders.

In order to expand these prime locations, collaboration among all relevant stakeholders should be realized. This is the second challenge. Therefore, industrial companies, logistics providers, infrastructure operators and authorities should be encouraged to work together in a more intensive and structural way.

A last challenge lies in innovation. Through the introduction of new techniques and new concepts the logistics sector in Flanders can be strengthened and kept competitive in Europe. The Extended Gateway is the ideal framework in which this ambition can be made true.

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