

ISSUE 2 OF 6

European Industrial & Logistics: Growing Global Linkages

Key Takeaways:

- › Over two thirds of Europe's external trade by value passes through its ports.
- › Dry bulk and liquid bulk are still dominant, but the share of containerised goods is growing – up from 14.5% in 2003 to 18.8% in 2010.
- › Container shipping growth is forecast to outstrip overall economic growth for some time to come.
- › Activity remains concentrated within the Hamburg-Le Havre port range. However, the development of new ports in the Eastern Mediterranean and the Baltic Sea will allow goods and commodities to flow more directly to locations in Eastern Europe and Russia.
- › Rail is a small part of the transcontinental freight story at the moment. But with governments keen for it to grow, and a large quantity of investment on the cards in China, Russia and Turkey, it will start to take market share – albeit slowly.
- › By value, Europe's airports carry around 30% of goods in and out of the EU-27, with the focus on low weight, high value items.
- › Europe's largest freight airports are characterised by a severe lack of capacity, and high land prices, making them an expensive proposition for logistics operators.



In our previous paper, 'European Industrial & Logistics: A long-term view', we took a broad look at the key trends likely to effect Europe's logistics markets over the next decade and beyond. In this report we analyse in more depth Europe's existing external distribution networks, focusing on infrastructure developments in air, rail and sea transport and the future prospects for each.

Notably, we present more detail on specific infrastructure developments across the continent which will prove key in serving the growth of existing trade routes and the development of new ones.

It is very clear that Europe's traditional ports (notably those in the Hamburg-Le Havre range) are key in the efficient transport of large goods between Europe and the other continents. We look at specific port infrastructure developments, whilst assessing the impacts of the development of larger container vessels and shifting trade routes.

Rail routes currently play a limited role, but are hampered by a lack of investment and variable track infrastructure between countries. This report considers the key issues and the prospects for increased growth in rail transport.

Finally, air routes are well established for the transport of high-value sensitive goods, but are coming under increasing pressure. The drive to improve the attribution of environmental costs to the sector is set to have a large impact. Whilst at the same time the continent's largest airports are operating at full capacity and are having problems expanding against a fairly negative legislative environment.

Key Port Facts:

- > Around 68% of the European Union's trade in goods (based on monetary value) with other regions passes through European ports.
- > On a weight basis, the share of European ports increases to around 87%, with some 1.7 billion tonnes of freight loaded and unloaded annually from non-EU sources.
- > Liquid bulk goods account for 41% of gross weight of unloaded and loaded sea freight. Rotterdam is overwhelmingly the dominant player, with strong access to a large refinery cluster.
- > Dry bulk goods (i.e. grain) account for 23%. Rotterdam is again the largest but less dominant, with Amsterdam and Hamburg also major players.
- > Containerised goods make up 19% of the total, up from 15% in 2003. Their share of the market is expected to continue to grow significantly driven by:
 - Increased global trade
 - Falling costs of container shipping
 - Increasing global commodity prices
 - Growing demand for flexibility and speed within supply chains.

SEA ROUTES FOCUSED ON THE NOTHERN PORT RANGE

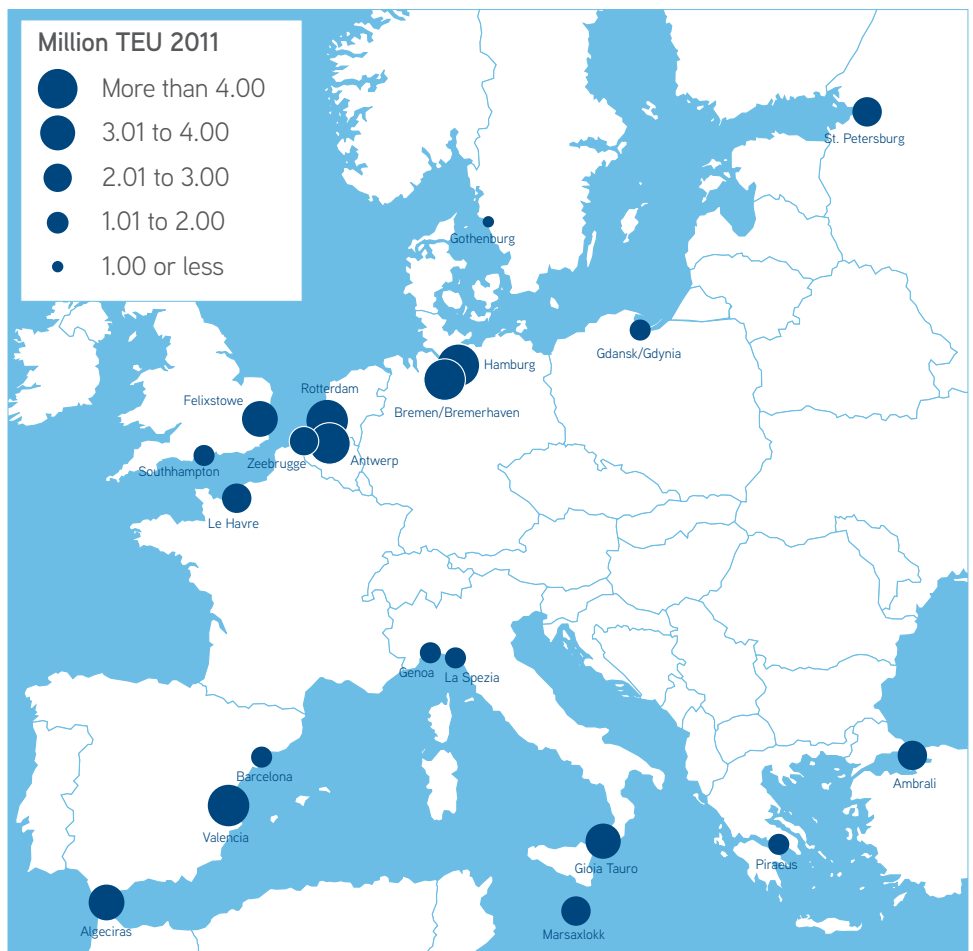
Nearly 60% of European container tonnage passes through just four ports: Rotterdam, Antwerp, Bremerhaven and Hamburg. The lion's share of Hamburg's container traffic goes to and from East Asia, with China its biggest trading partner by far.

The prominence of these ports is a result of centuries of historic trading between Europe, Asia and the Americas. 'Atlantic European' locations (the North Sea to be more precise) became the best entry and exit points for goods traffic.

In turn this led to growth in manufacturing and production, with the highest concentrations of population and GDP in Europe centred around Belgium, France, Germany, The Netherlands and the UK. No surprise therefore that these locations dominate logistics activity.

In contrast ports in Eastern Europe and the Mediterranean are considerably smaller and predominantly focus on localised trade. Excepting, for example, Gioia Tauro which functions as a transshipment base for Mediterranean shipping.

FIGURE 1 – EUROPE'S TOP 20 CONTAINER PORTS 2011



Source: Eurostat

Port Infrastructure Development Summary:

- > In 2013 the new port of Candarli, near Izmir in Turkey, will be completed. By 2020 Candarli as well as the other Aegean Sea port, Piraeus, are expected to reach total capacity of over 4 million TEU each.
- > Rotterdam – the Maasvlakte 2 deep water port extension will increase the capacity of the port to circa 20 million TEU by 2020.
- > Jade Westport, Wilhelmshaven – the development of this deep-water port, set for completion in late 2012, will add 2.7 million TEU of container handling capacity.
- > The London Gateway Port being developed by DP World will be operational at the end of 2013. Again this is a deep-water port and will have container handling capacity of 3.5 million TEU.
- > The north Adriatic ports of Rijeka, Koper, Ravenna, Venice and Trieste are an emerging alternative to North European ports, especially for container ships making for Europe via the Suez Canal. The total estimated container capacity of these ports is set to reach 6 million TEU by 2020.
- > Gdansk and Gdynia – with the completion of the deep-water container terminal in 2007 and the possibility of further expansion up to 4 million TEU, the port of Gdansk is becoming a major transport hub in this part of Europe. The nearby port of Gdynia which has two container terminals is capable of doubling its current capacity of 1 million TEU.

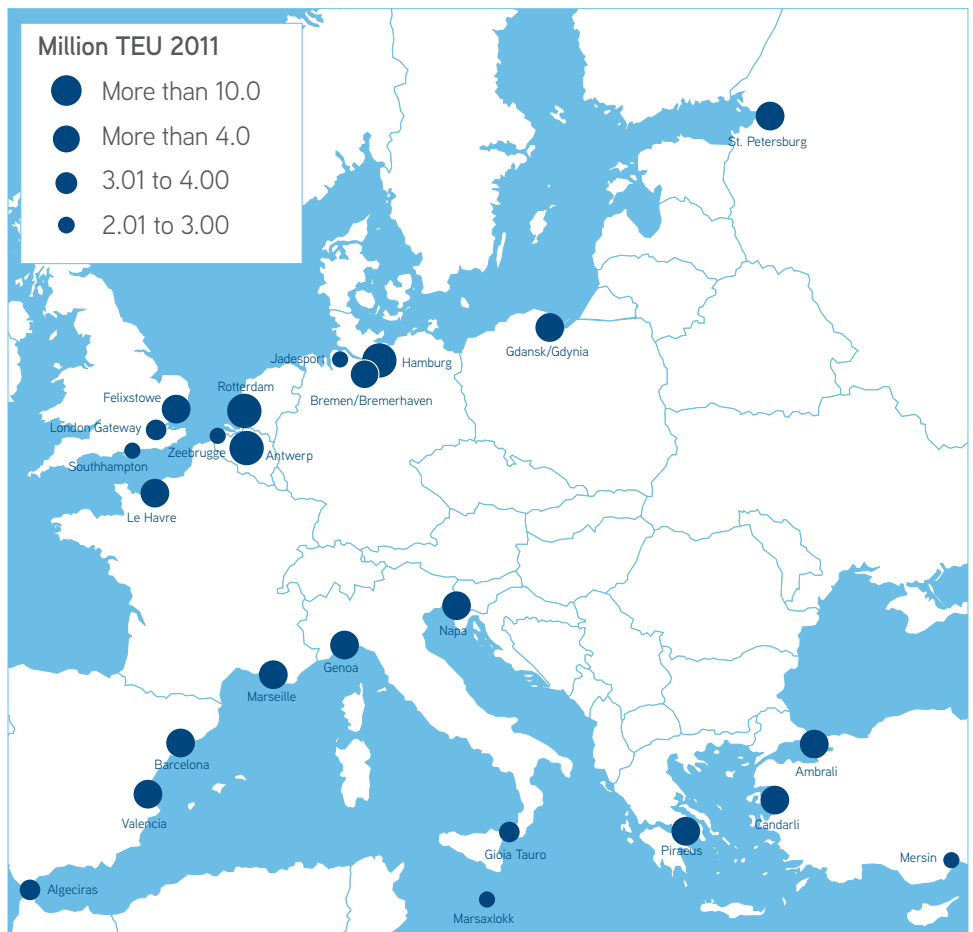
TRADE AND CONTAINER SHIPPING SET TO RISE ACROSS THE BOARD, WITH THE EASTERN MEDITERRANEAN EMERGING AS A KEY ROUTE TO EUROPE’S HEARTLAND

New sea routes into Europe from Asia mean infrastructure is expanding. On the Mediterranean and Adriatic Sea for example, large new port facilities allow container ships taking the Suez Canal route to deliver more directly to Central and Eastern Europe. Goods reach their destination quicker than if they went via the Rotterdam or Hamburg routes, with a time advantage of 5-7 days.

Environmental factors also play a key role, with CO2 emissions on the Suez to Venezia route considerably less than the conventional route to Rotterdam, for example.

Concurrently, the major ports are constantly upgrading their facilities. This is the result of capacity constraint in places such as Rotterdam, but also in response to the challenge posed by ever larger container ships. Container line Maersk has ordered ten huge new container ships that are longer than a modern aircraft carrier and bulkier than an oil tanker. Measuring 400 metres long, 59 metres wide and 73 metres high, they will be able to carry 18,000 20-foot containers – 2,500 more than the Maersk PS class, currently the largest container ship afloat.

FIGURE 2 – EUROPE’S MAJOR CONTAINER PORTS 2020



Source: Colliers International Research

Growing Rail Infrastructure:

- › Development of the land bridge between China and Europe is a key focus of external rail infrastructure.
- › Rail links between China and Europe suffer from a lack of capacity and inefficiencies which hinder their competitiveness against sea routes.
- › That said, investment in the infrastructure is on-going and there are many proposals regarding massive investment in this mode.
- › For example, the Baku-Tbilisi-Kars line will link the east of Turkey to Baku in Azerbaijan. The project is set to complete by the end of 2012, and will form a vital link in a China-Europe rail route going via Turkey. As part of the joint project, a special zone will be constructed in Georgia to allow trains to transfer easily from the wide gauge used in Georgia to the standard gauge used in Turkey and Europe.

TRANSCONTINENTAL RAIL ROUTES EMERGING, BUT INFRASTRUCTURE PLACES A LIMIT ON CAPACITY AND EFFICIENCY

Despite the dominance of sea routes they are being supplemented by long distance rail services. By sea, the journey from China takes around 35 days. By rail the journey takes 20-25 days. For example, new rail services have started between Antwerp, Europe’s second-largest port, and Chongqing, the industrial hub located in China’s southwest. Chongqing produces 25 million laptop computers a year.

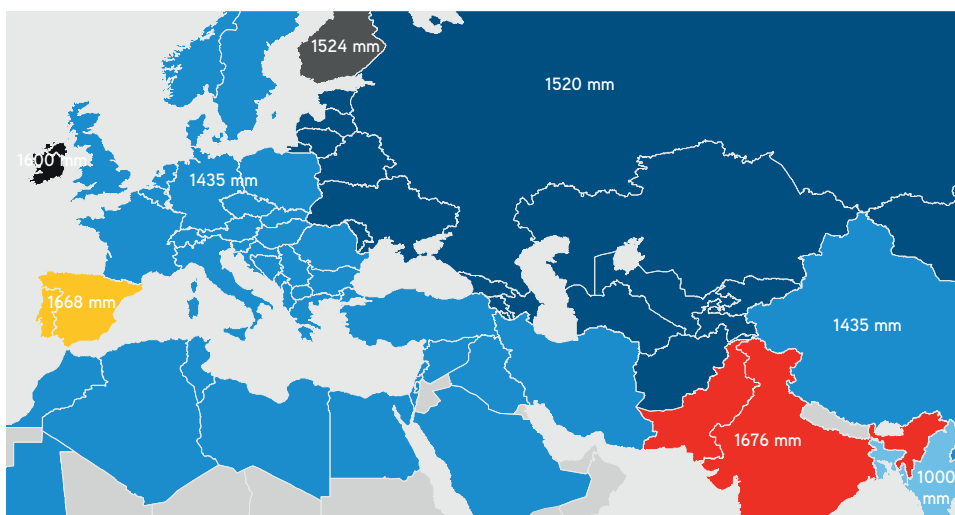
However, capacity for such services is hindered by current limitations in rail infrastructure. Notably the inherent inflexibility of rail, meaning that there will have to be a modal shift from rail to road at some point in any supply chain.

The most significant issue for rail freight capacity in Europe is different track gauges across national boundaries (see figure 3). This hampers the efficiency of services through Russia, other CIS countries and some Baltic States. Because the track gauge is different in China and Western Europe, time is lost loading containers onto new carriers.

For many years the approach to carrying unitised cargos by rail was to adapt the wagon rather than the infrastructure. Special low loader wagons were developed that enabled standard containers to meet loading gauge restrictions in most countries, but these came with speed restrictions. Gradually, height and width restrictions have been addressed across the main freight lines, facilitating new “high-cube” containers with greater capacity. This allows rail freight to compete with sea freight from a capacity perspective, resulting in transcontinental rail services that are increasing in frequency and popularity, despite variations in track gauge.

Nevertheless, as long as the physical impediments are in place, long-distance rail from Asia to Europe is likely to remain only a small part of the logistics picture. It is, however, forming an increasingly important part of the logistics network for the internal movement of goods across Europe, especially for those from Turkey.

FIGURE 3 – VARIATION IN RAIL TRACK GAUGES



Source: Colliers International Research

Key Air Infrastructure Developments:

- › With growth at Western Europe’s major existing airports currently constrained by environmental and planning issues, we expect growth in air freight infrastructure to be focused on regional hubs such as Leipzig/Halle.
- › In Eastern Europe, however, where there is a distinct lack of freight through the airports, there is scope for growth.
- › Across the region’s major airports there is talk of expansion and certainly a large deal of space improvement occurring. However, there is not much actual construction – this is something we will see developing over the long-term once demand is proven.
- › A new multi-modal cargo complex at Sheremetyevo International Airport in Moscow is currently under construction and is planned to start operations before the end of 2012. The new cargo terminal has a chance to become one of the leading air freight hubs of Eastern Europe.
- › Frankfurt, the second largest freight airport in Europe, is constantly developing. The freight volume is expected to reach 3.16 million tonnes a year by 2020. The cargo handling infrastructure required for this increased capacity will be developed in stages on a total of 27 hectares at CargoCity South. The plan for the first phase (2013-2014) envisages construction of 50,000 sq m of cargo halls.

EUROPEAN AIR FREIGHT UNDER PRESSURE

Ports aside, the other main entry or exit route for goods is Europe’s airports. On a monetary value basis the continent’s airports handle around 30% of goods. However, the focus is on high value low volume, and on a tonnage basis air routes account for just 1% of extra-EU trade.

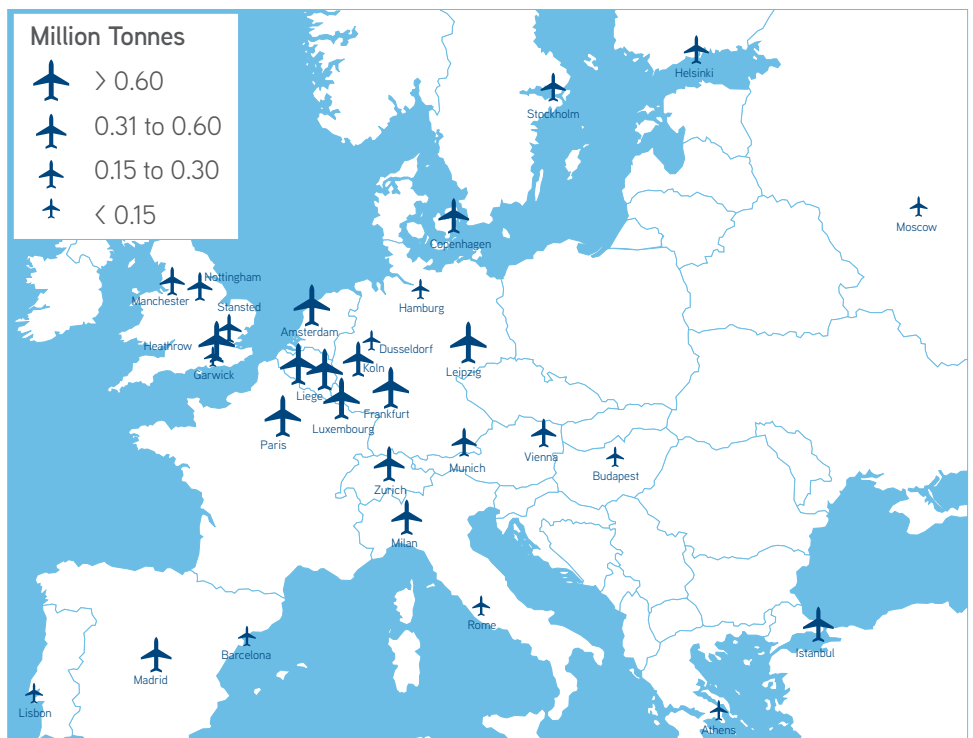
Airports like Frankfurt and Heathrow operate at, or close to, capacity. High land prices and congested airspace are a feature of the largest airports, and many operators have found that they can function more efficiently using a regional hub.

Leipzig/Halle airport, for example, has grown its freight volume from just over 15,000 tonnes in 2005 to over 660,000 tonnes in 2010. This growth was helped by investment in an additional runway, and by DHL’s choice of the airport as a regional hub. Leipzig is very well connected and the airport has direct motorway and rail links.

As with Europe’s sea ports, its key freight airports are located within areas of both high manufacturing output and consumer demand. As Eastern Europe sees an expansion in the scale of its manufacturing and consumer markets we expect this to put some pressure on, and encourage the development of, air infrastructure in the region.

The big issue for air freight is the EU commitment to reduce emissions from international aviation. After the verdict of the European Court of Justice in 2011, the European Commission decided to proceed with the implementation of the Emissions Trading System from the start of 2012, which includes aviation. However, the initiative is facing strong opposition from airlines and a large group of trade-partner countries such as China.

FIGURE 4 – EUROPE’S MAIN FREIGHT AIRPORTS 2010



Source: Airports Council International

522 offices in 62 countries on 6 continents

United States: 147
Canada: 37
Latin America: 19
Asia Pacific: 201
EMEA: 118

- €1.3 billion in annual revenue
- 116 million square meters under management
- 12,300 professionals

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CONCLUDING COMMENTS

It is clear that sea freight will remain the dominant mode for Europe's external trade for a very long time to come. Other transport modes simply cannot compete with its scale and efficiency.

The key area where we are likely to see the most growth is within the new port developments in the Eastern Mediterranean and the Baltic Sea – which are vital in serving Eastern Europe as it starts to play a bigger part in the global supply chain. That said the major European ports such as Rotterdam have major expansion plans in place, and with the development of ever larger cargo ships the ports with the facilities to handle them will be well placed to increase market share, as trans-continental sea routes become increasingly concentrated around these select ports.

Air freight is still a key player in external trade. However, the major western airports are running out of capacity and with opposition mounting against expansion at the major commercial hubs (e.g. Heathrow), and the environmental cost of such activity, it is not an area likely to see dramatic growth. Although given the lack of activity in Eastern Europe's airports, we may see some expansion here as the demand for and production of high value goods starts to increase, as these countries move up the development path.

One notable area for growth – or at least an area where the EU would like to encourage growth – is rail. From an environmental perspective it beats road freight hands down, and over long-distances it can prove extremely cost efficient. However, differing rail gauges in key links in the chain such as Russia pose a problem cost wise. And a lack of capacity and speed in much of Europe's network also acts as a break, although this is set to steadily improve. In summary we expect this mode to very gradually gain market share as infrastructure developments come online.