



---

# IMPROVING THE PORT OF ROTTERDAM HINTERLAND ACCESSIBILITY AND TRANSPORT SUPPLY CHAINS

---

Excellent infrastructure to and from ports and port-industrial complexes is crucial for the competitiveness of both existing and new markets and therefore European prosperity and employment. Since the publication of the 2011 Transport White paper, the European Commission, in collaboration with the European Parliament, has played an important role in initiating new legislation under the umbrella of the Mobility packages. In the meantime, the urgency with regard to additional priorities in the context of climate objectives and digitization become more challenging. On the eve of a new 2019-2024 mandate for the European Parliament and the European Commission, it is of great importance to build on the path towards a robust internal transport market in which the added value of transport is optimized. With our priorities for the coming period, the Port of Rotterdam can contribute to the European policy objectives in these areas.

# KEY PRIORITIES FOR THE EUROPEAN ELECTIONS AND 2019-2024 EUROPEAN COMMISSION MANDATE

## DECARBONIZATION OF TRANSPORT SUPPLY CHAINS

Ports form an important transit node in supply chains of various commodities to and from industrial clusters and consumer areas in the hinterland. Ports can therefore play an important role in facilitating efficiency improvement in and decarbonisation of various parts of the supply chain.

At the request of the Port of Rotterdam, the Wuppertal Research Institute has developed a number of transition pathways for the logistics chains towards a CO<sub>2</sub>-neutral situation. This has been translated in the following strategies: a. Increasing the operational and technological efficiency of the logistics chains by optimizing and aligning schedules, using digital applications. b. Using alternative transition fuels and zero emission energy carriers in shipping. And c. Optimizing the mix of transport modalities.

## INCREASING OPERATIONAL EFFICIENCY

Digitalization and optimized planning are important tools towards our goals. The Port of Rotterdam facilitates and stimulates the exchange of data and the development of digital services and products. An example of this is making use of and constantly improving the Port Community System (PCS) for coordination, integration and the exchange of information in across all sectors between all port users. The PCS is the ports' data node for logistics and is currently used by more than 4000 organizations. Tasks as the pre-reporting of a vessel, the status of a shipment or export documentation are now merged into a single system. By using the PCS, data is passed on correctly, fewer administrative errors are made in declarations and capacity is used more efficiently. Combined with the development of various additional applications like the online route planner Navigate, which helps to set up efficient connections from, to and via Rotterdam, and Nextlogic, a barge chain optimization application that improves the planning and handling of barges via a data collaboration of seaport terminals, depots and barge operators other possibilities arise. This includes for example the bundling of cargo and the optimization of port calls.

### Port call optimization

By maximising the efficiency of vessel calls at shore-based terminals worldwide, participants in the ocean supply chain can improve safety and reduce costs. The Port of Rotterdam actively supports the optimization of port calls in terms of aligning the planning of all operational activities related to a vessel calling a port, both by developing standards and



applications. Increased efficiency in the supply chain of port calls is however only possible when ports, the port community and shipping sector work together, share data, use the same standards and are transparent in their communication. This is the reason the Port of Rotterdam was one of the initiators of the International Port Call Optimisation Taskforce. In this regard it is of great importance that the European Commission makes maximum use of data harmonization in accordance with the proposals of the International Maritime Organization (IMO/FAL43).

## USING ALTERNATIVE (TRANSITION) FUELS IN SHIPPING

In the medium term, ships need to switch to electric propulsion, hydrogen and synthetic fuels such as methanol. LNG and advanced biofuels can be used as transition fuels between 2020 and 2050. In light of current lack of feasible alternatives that are directly available for wide scale use, the Port of Rotterdam stimulates LNG and biofuels.

In case of LNG the infrastructure can also be used in the transition to bio-LNG in the longer perspective. Innovative new production technologies, such as supercritical gasification of wet biomass, enlarge the feedstock base necessary for the production of bio-LNG. However, in order to scale up bio-LNG and other alternative fuels in the future a proper and comprehensive alternative fuel infrastructure network is a necessary condition. Here incentive measures such as a Member State obligation to investigate market developments and adjustment of the policy framework with regard to standards are a necessary prerequisite for stimulating the successful rollout of an alternative fuel infrastructure.

### Electrification of transport operations

During the demurrage of ships in inland ports, power and heating for own use is produced through on-board combustion engines, which produces noise and various emissions in the immediate vicinity. However, as fossil fuel production for on-board electricity has lower costs than electricity because it is tax exempted, a level-playing field should be ensured between shore-side electricity vis-à-vis electricity generated on board ships (produced from the combustion of tax-exempted marine fuel) to decarbonize European ports and improve local air quality.

Another promising technology that is supported by the Port of Rotterdam is electrified inland container shipping. Here together with other partners we support a concept called Modular Energy Containers, which allow inland vessels to propel with zero emissions. However because this new business model is based on a pay-per-use principle this means costs can be competitive with the current

fossil fuel energy usage costs. This is possible because the modular energy containers can also be used to meet other demands such as energy storage, grid stabilization and local energy distribution. Its these types of projects with new business models that demonstrate the need to create and support synergies with policy areas that are not directly related to decarbonization of transport modes but do have important impacts on its success.

### OPTIMISING THE MIX OF TRANSPORT MODALITIES

The Port of Rotterdam is an efficient, flexible and reliable link between the various modalities ranging from sea shipping, inland shipping, rail, road traffic and pipelines, and has a reliable backbone infrastructure for all modalities within the region. This puts the port in the position to play an important role in optimising the mix of transport modes used in order to add as much value as possible to the supply chains and reduce externalities at the same time. This can consist of an increased share of rail freight transport and inland shipping, but also sustainable road transport, which together can ultimately contribute to modal shift aspirations.

Controlling a shift of modalities, however, is not easy. Practice shows that modalities are not simply interchangeable. This is partly due to historically grown markets, its size and the specific market segment and area. Different modes should therefore be seen as complimentary to each other which in combination can offer more efficient transport solutions as the appropriate mode of transport is used for each link of the transport chain. Forcing a general modal shift will therefore not always be as effective as thought. The interoperability between different transport modes remains key and should be further promoted, thereby providing the flexibility for each mode of transport to live up to its strengths while avoiding a 'one-size-fits-all' approach.

### Futureproof Hinterland Accessibility

To achieve this, we are urging European policymakers to focus on a future-proof accessibility vision that is characterised by robustness. This means connections that ensure climate resilience, reliability, flexible buffer capacity and optimum capacity utilisation for all modes of transport; it also means developing the different modes' strengths and eliminating bottlenecks from corridors to and from the hinterland.

### INLAND SHIPPING

Inland waterways are responsible for 45% of the Port of Rotterdam's hinterland transport. As this figure indicates, this is a unique transport mode with a high intrinsic energy efficiency compared to other modes. Because of its available capacity, it represents a reliable alternative for various specific freight segments, taking the pressure off overloaded road networks in densely populated regions at the same time. The Port of Rotterdam is therefore committed to a reliable and improved inland shipping product. The further scale-up of digital information exchange between the port of Rotterdam and inland shipping terminals makes the bundling of container freight possible. This has increased the volume of cargo transported by the waterways by 20% and cut inland vessels' time in port by 35%. The Port of

Rotterdam is also looking with different parties into how transport can be made sustainable more quickly, for example through the use of container batteries to power inland vessels.

However, inland shipping is under pressure due to the increasing frequency of low and high water levels as a result of climate change. Customers and shippers who use the inland waterways have often incurred considerable financial disadvantage because of low water levels; in Germany, the effects of low water levels have been blamed for a 0.2% reduction in GNP growth. Because of these problems arising from more extreme fluctuations in water levels, the Port of Rotterdam is calling for European action on depth restrictions, clearance heights, river management and retention basins on Europe's inland waterways. Making optimum use of inland shipping in the future requires a smart replacement and maintenance policy for the waterways with regard to bridges and their heights, to locks and to inland shipping terminals.

### ROAD TRANSPORT



Its efficiency and versatility make transport by truck a good way to cover short distances to and from the Port of Rotterdam. However, road capacity is a scarce resource. This compels us to organise road transport smartly, so that its capacity is not only used more effectively but also becomes safer and cleaner. In this context, the Port of Rotterdam first of all supports developments with regard to the acceptance, wider rollout and facilitation of longer and heavier vehicles (LHVs). Both from a sustainability viewpoint and for the sake of transport costs, it is desirable for LHVs to be accepted on European corridors. This requires suitable infrastructure and a road safety vision. In addition, we are prioritising truck platooning, more use of night-time transport, truckparkings and forms of connected transport. Dedicated freight lanes offer opportunities in this respect, both within and outside the port area.

In connected transport, multiple trucks drive as a group while they are planned as a unit and driven at a safe distance from each other. The Port of Rotterdam is already seeking to put these components into practice in the newly started construction of the Container Exchange Route (CER), in which container terminals, empty depots, haulage companies and the Customs on the Maasvlakte will be linked together by means of (ultimately) automated multi-trailer systems via a dedicated internal lane.

Because of its coordinating role, the port of Rotterdam focuses particularly on improving accessibility by developing digital information systems. For example, both independently and in conjunction with logistics partners, it provides the business community with increasingly accurate information about the logistics and traffic situation in the port area. This is done first by adding information to the Port Community System, allowing terminals and empty depots and carriers to receive updates from each other when logistical processes are underway, and hence to prepare better for them. It is also achieved by setting up traffic monitoring systems in which even more data, for example from road hauliers, is bundled anonymously on the basis of the Open Trip Model. This gives planners a more complete picture of current travel times, delays, traffic jams and planned closures, which have an impact on logistics processes. Phase two is an expansion of the scope of this improved traffic information from the Rotterdam region to further European corridors. For this to happen, it is important for standards such as the Open Trip open source data-sharing model and the uniform scheme for authorisation and identification iSHARE to be recognised at European level for resolving these traffic monitoring issues efficiently and safely.

## RAIL FREIGHT TRANSPORT

Freight transport is increasing due to economic growth, and the port of Rotterdam wants to arrange goods flows by rail wherever possible in order to take the pressure off roads and to make a positive contribution to environmental objectives. Rail provides access to important industrial economic regions along the Rhine-Alpine corridor from Rotterdam to Genoa, but also, for example, to the emerging fast-growing markets along the North Sea Baltic corridor.

### Removing barriers for cross-border rail operation

It is of vital importance for the Ten-T rail freight corridors to focus on improving interconnectedness between the different national networks. The connection and therefore the speed of construction of the third track in Germany between Emmerich and Oberhausen with the Betuwe dedicated rail freight line is particularly important. The major Rastatt incident underlined the importance of diversion routes being available with equivalent characteristics in terms of train length, gauge and axle loads along the entire corridor, in the event of incidents or work. Various contingency plans have now

been published, which represents a good first step. However, a second step is the concrete investment required to actually develop diversion routes. In addition rail freight often competes with passenger trains for path allocation on the network. In order to promote rail freight and to reduce road congestion, the Port of Rotterdam calls for a higher prioritization of freight in the capacity planning and an improvement in the efficient use of the existing rail infrastructure.

### Interoperability

By 2023, half of all European rail corridors must have ERTMS. However, the slow progress on implementation of ERTMS – usually due to high investment risks – as a way of improving technical interoperability is impeding the smooth functioning of the railway market and efficient cargo flow by rail from ports to the European hinterland. In addition, other technical cross-border issues such as differences in traction energy, train length, train controlling systems, operational rules and train crew certification need to be addressed. The Port of Rotterdam therefore supports the recent call by the Council of Ministers in Vienna for a follow-on to the ministerial declaration on ‘Rail freight corridors to boost international freight’ issued in Rotterdam on 21 June 2016, in which various initiatives aimed at resolving the above problems are reconfirmed.

## TRANS-EUROPEAN TRANSPORT NETWORK

With the Trans-European Transport Networks (TEN-T) policy, the EU has the tool it needs to set the direction for a reliable and sustainable transport network by 2030. The completion of the TEN-T network on time must be an absolute priority. However, in many areas in Europe we see that investment in new and existing transport infrastructure is lacking. In the context of the forthcoming evaluation and revision of both the TEN-T network policy framework and CEF funding instrument, it is therefore important to identify more clearly and deal with underlying bottlenecks. Ports are strategic assets for the cross-border stimulation of these objectives but received only 4% of the available EU funding in the period of 2014-2017. We argue that more attention should be paid to upgrading existing infrastructure which needs to be fit for the future in anticipation of digitalization of the sector, the expected increase in demand for transport services, and the possible effects of climate change such as drought and flooding. In addition maintenance of deteriorating existing infrastructure also needs adequate attention as in many parts of Europe infrastructure is poor and can create safety concerns.

## Port of Rotterdam Authority

The objective of the Port of Rotterdam Authority is to enhance the port's competitive position as a logistics hub and world-class industrial complex. Not only in terms of size, but also with regard to quality. The Port Authority is therefore leading the transition to sustainable energy and it is committed to digitalisation in order to make the port, and the supply chain, more efficient. The core tasks of the Port Authority are to develop, manage and exploit the port in a sustainable way and to deliver speedy and safe services for shipping.

### More information

Port of Rotterdam Authority • P.O. Box 6622 • 3002 AP Rotterdam • the Netherlands • +31 (0)10 252 1010