

STAFFING

The terminal concept with mobile cranes, reach stackers and empty handlers is flexible but also relatively labour intensive. The starting point is that the Container Transferium will operate around the clock. This calls for a three-shift system with 10 employees during the day, 10 employees during the evening and 5 - 6 employees during the night. Taking account of sickness, holidays, etc. and with the addition of management, the Container Transferium will be staffed by approximately 40 FTE.

EFFICIENT DATA EXCHANGE

If the Container Transferium is to function optimally, electronic data exchange is crucial for the efficient handling of the information flow, the seamless coordination between all parties involved, the optimisation of operational schedules and the advance notification of information on destination so that the desired reduction in dwell times/improvements in efficiency at the sea terminals can be achieved. The Port Community System, developed by Port Infolink, could be used for this with very little modification. The biggest challenge is to generate a willingness among parties to share information with each other at an early stage.

EMPTY DEPOT INTEGRATED IN FIRST INSTANCE

The Container Transferium has a planned total capacity of 200,000 TEU. The terminal will therefore operate with an integrated empty depot in the first instance. The anticipated numbers of empties are too small for a separate, specialised service provider.

EXTENDED CUSTOMS STATUS AND ISPS SECURITY REGIME

The Container Transferium wants to have a customs and ISPS regime that will make the terminal virtually part of seaport Rotterdam. This is a precondition for competing with the truck, for 'pushing' containers to the Container Transferium and for achieving shorter dwell times at the sea terminals. Consultation with the Customs Department reveals that the customs regimes 'entrepot type C + domproc' and 'free zone type 2' offer maximum freedom to transport containers from the sea terminal to the Container Transferium without waiting to complete customs formalities. The final choice of regime not only depends on costs, but also the willingness of the parties taking part to share information and keep joint records. The realisation of the desired customs status will take about 1.5 - 2 years.

For the security regime, the best approach is to modify the ISPS guidelines for seaports. Sea terminals and the central Container Transferium would then satisfy the same regulations. In concrete terms, this means that the Container Transferium must incorporate facilities for customs scans (containers, nuclear) into the logistic process.

SERVICE POINT FOR ROAD TRANSPORT

In the immediate vicinity of the Container Transferium it is possible to set up a service point for truck drivers, with parking facilities, sanitary facilities, a restaurant, facilities for electronic advance notification, etc.

COLOPHON

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The question is not if there are going to be Container 'Transferia', but 'how', 'by whom' and 'when exactly'



INTRODUCTION

BACKGROUND

The container flows to and from Rotterdam could increase substantially in the coming decades, as long as the port remains easily accessible on the landward side. In 2006, the Port of Rotterdam Authority therefore launched the project 'Container Transferium'. This project forms part of a comprehensive Accessibility Plan, another aim of which is to improve the quality of life in the surrounding area (reducing emissions of fine dust and CO₂). The basic idea behind Container Transferia is to bring together container flows which currently travel by road and to transport these by inland vessel between the sea terminals on the Maasvlakte and a hub terminal in the port of Rotterdam's immediate hinterland. As a result, trucks will no longer need to travel right across the port and industrial area on the A15. Various links in the supply chain will be able to benefit from the Container Transferium:

- Time saving for trucks, which no longer need to call at the Maasvlakte
- Better flow of containers at the sea terminals and a corresponding increase in capacity
- Staggered and better planned arrival of containers at the sea terminals (levelling off peaks)
- Higher reliability of and efficiency in the supply chain.

FROM FEASIBILITY STUDY TO BUSINESS CONCEPT

In phase 1 of the project, it was established that market parties basically had a positive attitude to Container Transferia. Subsequently, in phase 2, the Port Authority investigated their feasibility. As a result, now in phase 3, the development of a central Container Transferium to the east of Rotterdam is being prioritised. The approach is five-track:

1. Location research/ location choice
2. Operational connection sea terminals
3. Formation of operating model and operating consortium via open procedure
4. Anchoring of public interest through incorporation in Programme Randstad Urgent
5. And-and approach for synergy with existing network of inland terminals.

Track 1 has already resulted in a preference for a 17-hectare site in Alblasterdam, where roads and waterways meet, directly on the river Noord. To support tracks 2 and 3, the business concept was elaborated. This serves as a framework, to be fleshed out further with interested parties. The central Container Transferium is expected to open in the period 2011-2013.

VISION OF THE CONTAINER TRANSFERIUM

The sharp growth in container throughput is causing increasing mismatches in the supply chain. It is becoming increasingly challenging to process flows on the landward side smoothly. There are numerous public and private initiatives to keep the container logistics system in step with the increase in the container flow.



TERMINAL LAY-OUT

CHOICE OF LOCATION

For the desired central Container Transferium to the east of Rotterdam, eyes are drawn to a 17-hectare site in Alblasterdam, right on the river Noord (depth -5 metres Amsterdam Ordnance Datum) and a sailing time of around 3 hours to the Maasvlakte. The possible quay length here is 430 metres. It is also possible to further extend the site. The most important thing, however, is that this location is situated at a junction of roads and waterways. The site has a connection to the A15, from where it is easy for road hauliers to go in any direction. The river Noord is on the Rhine Navigation and north-south routes.

GROW-ALONG TERMINAL LAY-OUT

In the various life phases of the Container Transferium, the terminal lay-out will have to meet different criteria. In the first decade of its existence, Rotterdam's container logistics system will differ substantially from that in subsequent decades. The planned work on the A15 (2009 - 2015) and the anticipated ongoing capacity shortage at the sea terminals in the coming years support the need to have the Container Transferium up and running as soon as possible. From a public perspective, this would help to keep Rotterdam accessible during (the final years of) the roadworks on the A15. At the same time, the Container Transferium also has something attractive to offer various parties commercially. As long as the terminal is set up cost efficiently. In normal circumstances, therefore, the Container Transferium is (after the capacity of the A15 has been increased) a serious alternative to road transport.

Together with the sea terminals and inland terminals, the (im)possibilities of various terminal concepts were looked at on the basis of the above starting points. This resulted in a preference for the following terminal concept:

- Transshipment on 430 metres of quay by means of two mobile cranes (max. production 35 - 40 moves per hour)
- The quayside crane places containers for unloading on the ground next to it
- With truck-barge, limited possibility for direct truck moves on quay, greater volumes via the stack
- With barge-barge, limited possibility for direct ship-ship moves, greater volumes via the stack
- Six reach stackers which can be deployed flexibly on the water and landward sides
- Two empty depot handlers (5 - 7 high).

An alternative option, which would produce less CO₂ emissions and noise, is the use of electric bridge cranes.

With the further increase in container volumes and the decline in the truck's economic radius of action, the terminal lay-out could shift, in time, to a more innovative, fast-moving terminal concept in order to maximise the number of containers handled per m².

DAILY DEPARTURE TO EVERY SEA TERMINAL

If the central Container Transferium is to function as a link between Maasvlakte and hinterland, there must be at least one daily dedicated departure to each of the three current sea terminals. The estimated turnaround time for one return trip is 16 hours (including unloading and loading at least 100 TEU). The Container Transferium must therefore have at least two barges available in the initial phase.

Long-stay/storage

Some of the containers remain at a sea terminal for disproportionately longer than the average dwell time of 6 - 8 days, sometimes as long as 4 to 6 weeks. Shippers no longer use these containers so much as a means of transport, but as a virtual warehouse. The market for long-stay containers is highly dependent on temporary capacity surpluses/shortages at different points in the supply chain. Market parties estimate that around 4% of containers handled - or 400,000 TEU per annum – can be considered long-stay. This means that at any given moment, 33,000 TEU are being stored somewhere in the logistic system. With a long-stay capacity of around 2000 TEU per hectare, this offers opportunities for the central Container Transferium. Although the central Container Transferium will not focus primarily on the flow of long-stay containers, the business concept is based on a percentage of long-stay containers.

In the long term, growth in the long-stay market is expected to keep pace with that in the total container flow. The central Container Transferium's long-stay product is interesting for sea terminals (extra stacking space) as well as shippers and network forwarders (extra warehouse capacity).

SHIFTING PRODUCT PORTFOLIO THROUGH TIME

Within its economic lifespan, the central Container Transferium will be faced with various market contexts. As a result, the composition of the product portfolio could change substantially. Important variables here are the changing capacity ratios between parties on the (global) container market and the truck's economic radius of action. According to expectations, the costs of road transport will rise by an annual 5%. Due to the scale effect of inland shipping, the truck-barge product offered by the central Container Transferium will (in the near future) be structurally cheaper than transport to the Maasvlakte solely by truck. Congestion (tackling the A15) and the introduction of road pricing will have an impact on this.

On the basis of the main variables shortage of/surplus capacity of the sea terminal and costs of road transport/costs for Container Transferium, there are four market contexts in which the Container Transferium must operate.

FOUR CT MARKET CONTEXTS

I SHORTAGE OF SEA TERMINAL CAPACITY, CT BARGE EXPENSIVE

Parties which focus only on price continue to use direct transport by road. Truck-barge is only purchased by parties willing to pay for reliability. The ZHTs (seaport terminals) are interested in a product that increases their efficiency (capacity). ILTs (inland terminals) and barge operators are faced with long waiting times at the ZHT and want to protect their ship's turnaround time. Barge-barge therefore features significantly in the CT product portfolio.

II SURPLUS SEA TERMINAL CAPACITY, CT BARGE EXPENSIVE

As ever, road transport is too cheap. Only those clients who are willing to pay for reliability use the CT. There is no longer any question of overburdening the terminals. In the most negative scenario, the shipowners are no longer willing to accept an extra charge for barge moves, so the CT is faced with this. With the keener competition between terminals, it might actually become possible to play terminals off against each another.

IV SHORTAGE OF SEA TERMINAL CAPACITY, CT BARGE CHEAP

The CT is full of truck-barge traffic, the price of which increases in line with the ongoing rise, in the medium term, in the cost of road haulage. The margin is improving continually through time. The remaining capacity is sold to the ZHT in barge-barge for a favourable price, to enhance ZHT efficiency. The CT is a structural cash cow. The challenge is to increase the margin in stages and expand capacity through all kinds of efficiency-improving measures (perhaps completely new, innovative handling technology).

III SURPLUS SEA TERMINAL CAPACITY, CT BARGE CHEAP

The 'sea side' is not yet interested in the CT, but all hinterland parties, whether they buy on the basis of quality or price, purchase truck-barge from the CT. Barge-barge remains limited to incidental shipments from the larger barge operators.

In market contexts III and IV, the central Container Transferium is relatively easy to run commercially and financially. In market contexts I and II, this is more complex and dependent on formulating the right preconditions.

- Modal shift rail (Betuwe Line)
- Dwell time management
- Night driving (+truck uncoupling points)
- Truck appointment system
- Accessibility programme incl. location policy, dynamic traffic management on the A15, encouraging modal shift, etc.
- Modal shift criteria (+system of fines) on allocating sites
- Construction of MV2
- Increasing capacity of A15 (MAVA project)
- Opening of Betuwe Line
- Increasing capacity of ILTs (inland terminals) and establishing new ILTs
- Road pricing
- Establishment of the accessibility BV

To benefit fully from these initiatives, an integrated approach is needed. Unconnected measures will quickly be nullified by old and new mismatches. The Container Transferium plays an important role here. The main building blocks of an integrated and managed container logistics system of efficient and environmentally-friendly transport are:

1. rapid realisation of the necessary infrastructure (including Container Transferia)
2. selective strengthening of the network of inland terminals
3. early data exchange and planning
4. the establishment of organisational interconnections and participations.

There is now a great sense of urgency. Certainly as large-scale works are due to start soon (2009 - 2015) on the A15. The question is not if there are going to be Container Transferia but 'how', 'by whom' and 'when exactly'. Following on from the conclusions of the feasibility study, market parties have already been experimenting with forms of Container Transferia to the north and south of Rotterdam. Here, use is made of existing facilities. The main challenge facing the Port Authority now is therefore to secure a central Container Transferium to the east of Rotterdam. Achieving this is complex, for a number of reasons: there is no existing terminal infrastructure (high initial investment), the planned Transferium is close to the port of Rotterdam and there are no large shippers in the immediate vicinity of the Container Transferium to guarantee basic cargo.

The value of the future central Container Transferium will be determined to a large degree by the capacity to respond to current bottlenecks (decreasing reliability of goods flows, longer waiting times for inland shipping, rapidly declining accessibility of Maasvlakte for trucks, capacity limits of sea terminals, fine dust and CO2 emissions, inaccessibility of port for emergency services) and integration into future transport systems. The Container Transferium serves both public and private interests here. The reliable and efficient handling of container flows improves the competitive edge of mainport Rotterdam. An added advantage is that the local economy around the Container Transferium would also benefit.



THE BUSINESS MODEL FOR THE CONTAINER TRANSFERIUM

NEUTRAL TERMINAL

In principle, anyone could take charge of developing and operating the central Container Transferium:

- Shipping companies (primary focus: repositioning empties, port equalisation and carrier haulage)
- Sea terminals (primary focus: high efficiency sea terminals)
- Network forwarding agents (primary focus: reliable & efficient transport)
- Inland terminals (primary focus: customer and coordination with existing inland network in connection with smaller barge volumes)
- Empty depots (primary focus: empty containers)
- Road hauliers (primary focus: efficiency).

Due to the individual approach of all these different parties, the value of the Container Transferium can only be partially realised. Furthermore, commercial and operational conflicts of interests can arise. The business concept is therefore based on the central Container Transferium being a neutral terminal. This terminal will handle transshipment, transport by water to/from the Maasvlakte, etc. The Container Transferium will not sell intermodal port-to-door transport. This is the main job of inland terminals.

FOUR MAIN PRODUCTS

The Container Transferium will offer four main products: truck-barge, barge-barge, empty depot and long-stay/storage.

Truck-barge

The truck-barge product is directly in line with the public objective to get as many trucks as possible off the road. Road hauliers deliver their containers to the Container Transferium, which provides transport to the Maasvlakte by freight barge. The product resembles that offered by the current inland terminals, with a few specific differences: the central Container Transferium is closer to the sea terminals, there is no shipper in the immediate vicinity as launching customer and the Container Transferium only sells port-to-Container Transferium transport and not port-to-door transport.

The services to road haulage make high demands on the operational implementation of the truck-barge product, including seamless communication via the open Port Community System. In addition to this, the lack of a launching customer calls for specific measures to limit initial losses and idle capacity in the start-up phase.

With the truck-barge product, the central Container Transferium focuses primarily on the regional export and import trade in Greater Rijnmond. More distant destinations are already largely served via the current inland terminals and inland hubs. However, a substantial proportion of the more long-distance traffic always travels by direct truck, as not all regions are accessible via competitive intermodal transport and/or road hauliers can offer efficient alternatives.

On the basis of research carried out in 2005 into the source and destination of containers on the Delta, it was established how many containers pass through the planned location of the central Container Transferium and what proportion of these are eligible for transshipment. The assumption is that the central Container Transferium could serve 60% of the potential market. For 2005, this resulted in a potential of over 190,000 TEU. Considering

the rapid growth in the container market, this potential market will have increased considerably in 2008. The business concept is based on further structural growth of 4% per annum in the market for the truck-barge product.

Through better planning, advance notification, extended gate concepts, a further decline in the truck's radius of action, etc. the Container Transferium would perhaps also attract time-critical cargo in the future. The truck-barge product could prove valuable for road hauliers and small forwarding agents ('floating truck' that always arrives on time) as well as network forwarders and carrier haulage shipping companies (cargo always reaches shipper on time) and sea terminals (higher production at sea terminal).

Barge-barge

The barge-barge product offers inland shippers the opportunity to deliver containers to the Container Transferium, rather than small call sizes on the Maasvlakte, so that they can be combined into one large call size. Thanks to its position right on the important waterways, the planned location of the central Container Transferium lends itself very well to this. Ultimately, the nautical space will partly determine if and how successful the central Container Transferium can be in this barge-barge market.

It is difficult to estimate the size of the barge-barge market and it depends on such factors as the number of calling points for an inland vessel on the Maasvlakte, the number of inland terminals over which the total cargo flow is distributed, the size of the cargo flow to a specific inland terminal in relation to the number of sea terminals called at and the shortage of/surplus capacity at the sea terminals leading to more/less stringent demands on call sizes.

In the current market context, the central Container Transferium can play a substantial sorting role. The available capacity at the sea terminals is and will remain limited for the coming years, the volumes at some inland terminals are still restricted and the number of calling points on the Maasvlakte will increase further. Naturally, a number of inland terminals/inland hubs will grow to such an extent that it will be possible to maintain daily direct services with the sea terminals. On the other hand, new inland terminals will be developed in the regions and these will not yet have sufficient cargo. The business concept is based on 20% of the cargo at the Container Transferium involving barge-barge. The barge-barge product is valuable for (small) inland terminals (higher frequency to/from Delta), inland hubs and inland shipping operators (protection of turnaround time of the large inland vessel) as well as the sea terminals (higher production). Cooperation with other inland terminals in the region is possible.

Empty depot

The number of empty containers involved in maritime traffic between Europe and Asia is still increasing. The empty flow is therefore becoming increasingly important and means that a well functioning empty depot is a 'need to have' for the central Container Transferium. The empty depot function largely determines the charges the road haulier imposes to drive to and from the Container Transferium. A haulier will only be willing to charge a keen price if he can match his outward journey with a return one, often an empty container. For the Container Transferium, it is therefore important to achieve a minimum size as soon as possible and to have empties in the depot from as many shipping companies as possible. A well functioning empty depot ensures that the central Container Transferium can actually market the truck-barge product. The market for the central Container Transferium's empty-depot product is equal to the structural imbalance in the area served. According to expectations, the empty-depot market is, at the least, keeping pace with total growth in container throughput; the increase is probably even greater. The empty-depot product is particularly interesting for shipping companies (empty containers can be returned quickly to Asia as well as reaching the shipper rapidly).