

NEUTRAL SOLUTION, COMMON BENEFIT



BSC BARGE
SERVICE
CENTER

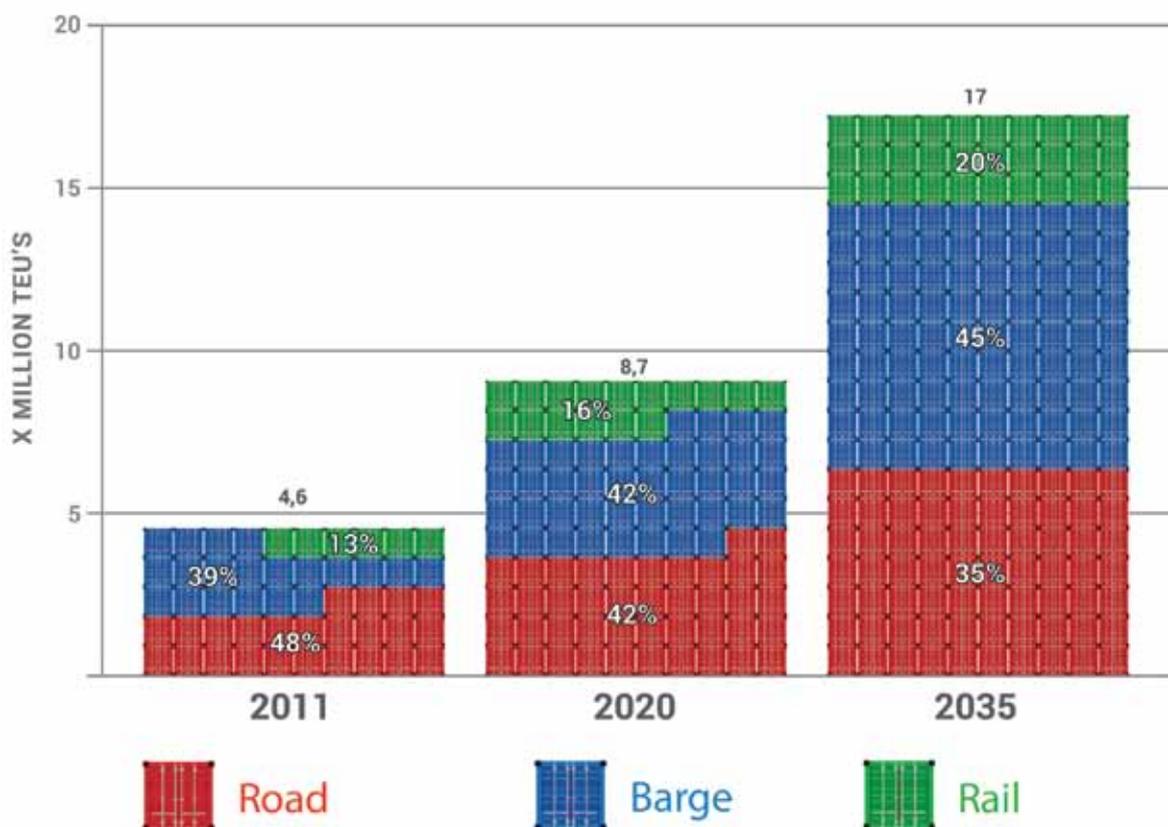
BARGE SERVICE CENTER

FEASIBLE, AFFORDABLE AND READY TO GO

In 2014 the flow of containers in the Port of Rotterdam will be fragmented even further, which will result in further delays for barge operators. Port of Rotterdam is increasingly focusing on sustainability and accessibility and has agreed upon challenging modal split ambitions for the coming decades (Figure 1).

Research by strategy consultants Mercator Novus shows that bundling of container numbers through a Barge Service Centre (BSC) will provide a real solution within a short period of time. The effects are beneficial for both barge operators and seaport terminals. A BSC can also be launched immediately in a cost-effective manner and without requiring complicated agreements.

Figure 1: Hinterland volume and modal split in the coming decades (based on Port Compass 2030 figures).



FROM THREE TO FIVE CONTAINER TERMINALS

The flow of containers to and from the Port of Rotterdam will expand in the next few years. This requires additional freights and movement per barge, as well as logistical headaches. Optimal logistics is currently a major challenge as schedules are currently not reliably implemented. Handling of inland container shipping in the port is normally long and delays between different terminals are fairly predictable. This can lead to a significant increase in processing time in the port. Because of this unpredictability barge operators have little control over the quality of service they provide their customers.

With effect from 2014 problems are expected to become worse as 2 new seaport terminals, APMT2 and RWG, will become operational at Tweede Maasvlakte (Figure 2). This will almost double the number of terminals and departure points for barges at Maasvlakte and as a result container flow will be further fragmented, which is an unfavourable result for both inland shipping and seaport terminals. There are also clear modal split ambitions: the share of barges must increase.

Various initiatives have been launched in recent years to cope with the modal split issue. One solution that regularly emerges is a Barge Service Centre (BSC) where containers from inland shipping that are intended for various seaport terminals can be dropped off at a single location. The containers are then moved to the surrounding seaport terminals by land. The resting time of barges in the port can thereby be reduced and sailing schedules can become more reliable.

Figure 2: More deepsea container terminals at Maasvlakte



BSC ON THE LONG-TERM AND SHORT-TERM

Several studies have been conducted on the BSC concept and a BSC has mostly emerged as a long-term solution (after 2035) once the container terminals at Tweede Maasvlakte are operating at full capacity. In the short term there no shortage of capacity is foreseen and a BSC would only be able to play a role during peak periods. A BSC with an occasional overflow option would probably not be economically viable.

A BSC can nevertheless also provide short-term value according to the feasibility study conducted in 2010 as commissioned by the Kramer Group and CBRB. A BSC would lead to such an increase in productivity at the seaport terminal that waiting times for barges will virtually disappear. The resulting improvement in productivity for barge operators and seaport terminals should be sufficient for the costs involved with operating a BSC to be covered. Based on the conclusions, CBRB, VITO, LINC and the Kramer Group have jointly signed a "Letter of Intent" to further elaborate on the BSC concept.

BSC WITH EFFECT FROM 2015

A second phase study, commissioned by CBRB and the Kramer Group, further elaborated on the BSC concept. The first goal of this study was to establish the value of a BSC shortly after completion of the two new seaport terminals. This is therefore concerned with a market situation where sufficient capacity will suddenly become available, without bottlenecks.

The 2nd objective was to identify the extent to which a BSC can contribute to the success of other initiatives to improve flow, such as central planning. Parties involved in the NextLogic project at the Port of Rotterdam are currently working on more efficient handling of inland container shipping.



Figure 3: Call sizes in Port of Rotterdam



Source (Nextlogic, Chain optimization inland shipping)

GROWTH OF SMALL CALLS

The average call size of barges (the number of loaded or unloaded containers per terminal visit) has a major impact on the efficiency of both the barge operators and the seaport terminals. Simply put, minor calls are much less efficient than large ones. Simply stated, this is the driving force behind the rational idea to bundle cargo as far as possible.

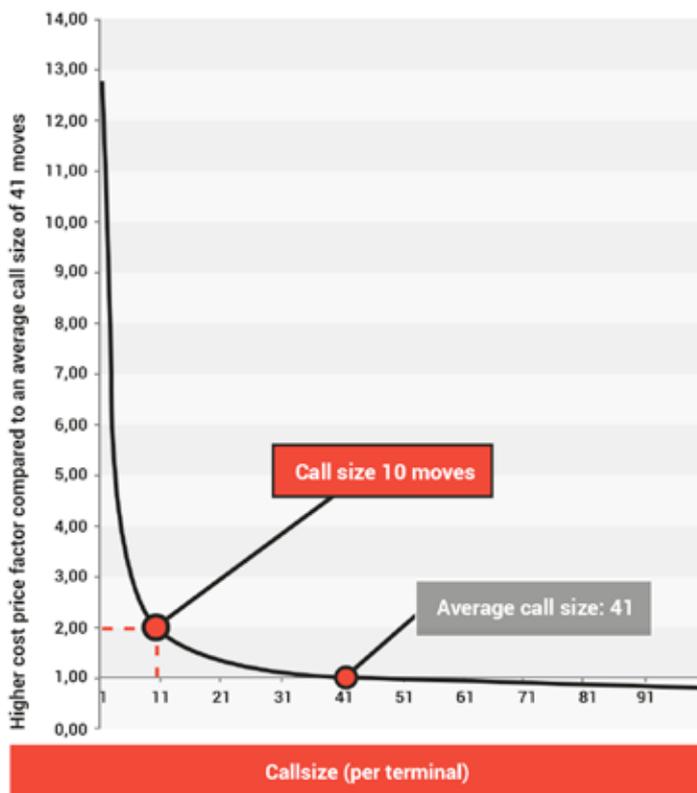
For the entire Maasvlakte the average call size for barges is currently at 41 moves. More important here is the percentage of small calls, which involves calls of less than ten moves. For the entire Maasvlakte the average percentage of small calls is fifteen percent, but when terminals are considered separately this number varies from 9 to 20 percent (Figure 3).

From 2014 the number of terminal calls that barges make will increase significantly. If market conditions remain constant this will result in a decrease in call size and an increase in the percentage of small calls. Such as development will have implications for both barge operators and the seaport terminals. The study outlined the cost of small calls for both parties.

PRODUCTIVITY DECLINE FOR CONTAINER TERMINALS

Call sizes determine the productivity of a seaport terminal. It takes a total of 30 minutes to moor a barge, which is a significant factor on the average amount of time spent on each container. The effect of call sizes on the productivity of a seaport terminal is therefore significant.

Figure 4: Cost profile for various call sizes



A call size of ten moves will for instance result in a productivity level of eleven containers per hour, while a call size of 41 moves will result in a productivity level of 25 containers per hour. A small call of ten moves therefore costs roughly twice as much as an average call of 41 moves (Figure 4).

The scenarios calculated in the study show that reducing the number of small calls has a favourable impact on the productivity of seaport terminals.



CONNECTION LOSS FOR BARGE OPERATORS

The turnaround time between hinterland ports and the Port of Rotterdam is a major factor in the productivity of barge operators. The faster a barge can complete such circulation, the higher productivity.

Residence time in the port appears to be a decisive factor in reality: depending on the sailing route to be taken, the period of stay in the Port of Rotterdam occupies a quarter or even up to half of the circulation time. A part of that time is spent loading and unloading at the seaport terminals, but this productivity time is nothing compared to the loss of connection between terminals.

Since it is not feasible to connect consecutive seaport terminals to each other, barges lose an average of six hours through waiting between different terminal calls. Waiting time of six hours for a call of 10 containers costs barge operators between Euro 40 to Euro 120 per container, depending on the type of vessel.

It is estimated that the total connection losses at the Port of Rotterdam is approximately 300,000 hours per year. If the average cost per barge is Euro 100 per hour, this amounts to a total of Euro 30 million. The scenarios used in the study show that it would be very beneficial for barge operators if small calls with long waiting times can be eliminated.



BUNDLING OF SMALL CALLS AT BSC

The bundling of small calls will clearly be beneficial for seaport terminals and barge operators alike. Seaport terminals will obtain savings by avoiding small cargo volumes, which will in turn increase productivity at the terminal.

Inland navigation costs are also reduced and operational guarantees can be obtained. With fewer moorings at terminals BSC barges will also be able to plan shorter and better scheduled trips, with a much smaller risk of connection loss. Bundled handling at a BSC is a favourable solution, especially in the short term in a market with large capacity and a decrease in the average call size.

The savings that will be achieved under these conditions outweighs any additional costs related to central processing and distribution. BSC will therefore not only be profitable over the long term, but also over the short term.



BSC: NEUTRAL AND RELIABLE

Apart from savings in time and money, BSC will also provide qualitative improvement in the Rotterdam barge product as container shipping will become more attractive for shippers. Barge operators will for instance be able to offer more frequent departures from all seaport terminals when daily services are provided by a BSC. Such an improvement would promote the desired move of an increased part of the container flow towards inland shipping.

The study showed that a BSC concept should score well at the Port of Rotterdam when it comes to significant criteria and it is therefore one of the most promising solutions to the bundling issue.



NEUTRAL

The BSC is a neutral bundling solution for all barge operators and seaport terminals. Implementation is possible without requiring complex arrangements. There is a great need among barge operators for a neutral solution because it is expected of everyone in future to have an in-house solution available and when it comes to bundling cooperation with a competitor is not preferable.

CONTROLLABLE

Barge operators can conclude contractual agreements with a BSC, which is currently lacking at seaport terminals at present. This is a clear improvement; when binding agreements are in place the sector will be able to monitor and promote the quality of the barge product.

EFFICIENT

Contrary to hinterland bundling limited extra operations are required for bundling small calls at a BSC in the Port of Rotterdam. Bundling is also cost effective as no detours are required.

RESPONSIVE

A BSC allows barge operators to be flexible: barges can decide at the last minute to make use of it without having to undertake excessive planning.

FREQUENT

A daily visit to a BSC also allows barge operators to offer a daily service to their customers at all port terminals. This substantial improvement in current frequency will also promote container lead times, which can even be halved in some cases.

COMPLEMENTARY

Integration of a BSC concept can contribute to the success of other initiatives to improve traffic flow. If a barge service centre can participate in Nextlogic that will further contribute to optimisation.

RELIABILITY

A BSC is a robust solution that ties in well with current practice. The concept is tested it can be launched without investment, pilots or complex arrangements. No experiments, no surprises.

RCT: AN OPTIMAL LOCATION

Following the study, Rotterdam Container Terminal (RCT) of the Kramer Group has identified a suitable candidate that can operate the BSC. The location between Hartelhaven and Amazonehaven is conveniently close to the existing and new seaport terminals. Many barge operators already have a visit to RCT in their schedules to collect and return empty containers (empties), so they do not need to sail out of their way.

RCT provides the opportunity to efficiently establish the internal logistics of a BSC and it allows for very flexible delivery to various terminals at Maasvlakte (3 TEU truck, MTS, terminal truck and chassis). In order to provide an internal transport solution RCT should be connected in future to a closed transport route to all seaport terminals (Figure 5).

Figure 5: Closed transport routes to container terminals



RCT: PROVEN AND READY TO START

Besides the infrastructure required RCT also has the capacity and experience required to launch a Barge Service Centre immediately. RCT also has extensive experience in inter-terminal transport (over 80,000 moves per year) and it specialises in barge processing (more than 200,000 moves per year). RCT also ran a pilot project with barge operators with more than 20,000 containers at the APM Terminal at Maasvlakte 1.

The RCT site has more than sufficient capacity (more than 500,000 TEU) to accommodate the BSC concept and it has several options available to double capacity at minimum in future. This is not necessary in the short-term, however, as the BSC concept can be launched at the current RCT site without time-consuming investments.

SYNERGY AND COOPERATION

No single technological or logistical method can provide a total solution for growth and fragmentation of container flows in Rotterdam. A BSC at RCT can immediately provide a substantial share, however. When that BSC is included in the NextLogic scheduling tool frequency and lead times can even improve.

CONCLUSIONS

A Barge Service Centre can also provide real added value for barge operators and seaport terminals in the short term by reducing costs by bundling small calls. The savings obtained in the chain mean that profitable operation of a BSC is a very real possibility.

A BSC at the Rotterdam Container Terminal can quickly become operational, which is a further advantage because the flow of containers will be further fragmented in 2014 by the arrival of two additional port terminals. The proportion of small calls and associated problems will therefore only increase.

It is in the communal interest of the Port of Rotterdam, the seaport terminals and barge operators that agreements are quickly reached on the operation of a BSC.



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