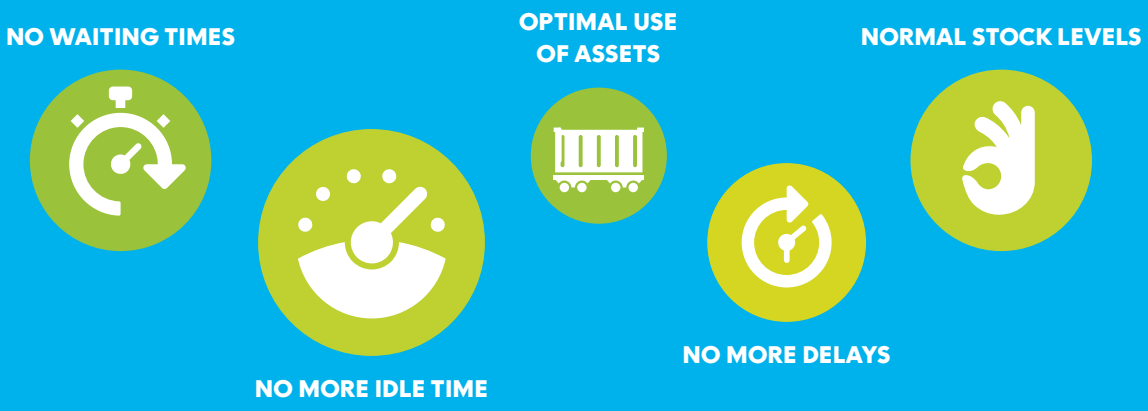
Port of Rotterdam

MOVING TOWARDS MORE EFFICIENT INLAND CONTAINER TRANSPORT WITH SCOPE

WHITE PAPER

SCOPE

The Port of Rotterdam Authority has conducted a SCOPE analysis for five shippers operating a substantial container flow between Rotterdam and an inland terminal. Using shared data, bottlenecks in the supply chain were identified and all supply chain members worked together to iron them out. SCOPE, a spin-off from the European research project SELIS, increases the reliability and efficiency of the supply chain, cuts costs and throughput times, and reduces the carbon footprint. Other shippers can also make use of this service.



SCOPE (Supply Chain Optimisation and Performance Engine) was developed by the Port of Rotterdam Authority to help shippers gain insight into and improve the performance of their supply chains operating through Rotterdam. The Port Authority intends to use this to create value for shippers and their supply chain partners.

The Port Authority analyses historical data of container flows between the sea port and the shipper's hinterland location. The insight is then shared with the relevant shipper, forwarder, inland terminal, deep-sea terminal and occasionally with the shipping company. Subsequently, two workshops are held so that together they can set out and implement improvement measures. The workshops are organised by the Port Authority.

DATA SHARING AND COLLABORATION

'We are using SCOPE to lay the foundations needed to optimise the supply chain,' say Ellen Naaijkens and Daniel Bollard, Shipping & Forwarding Business Managers at the Port of Rotterdam Authority. 'As a shipper, you can't do this on your own; you need to work together with chain partners. By sharing data and working together, you provide each other with insight into the logistic set-up and you remove obstacles'.

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INSIGHT INTO LEAD TIMES

The Port Authority has already conducted a SCOPE analysis for five major shippers. DSM used historic data to analyse container flows from DSM Engineering Materials in Geleen to the port of Rotterdam. 'We wanted to acquire better insight into the lead time of our shipments,' explains Kim van Neer, Category Manager at DSM. 'Inland container shipping suffered delays due to congestion at the Rotterdam terminals. We started delivering our containers earlier and earlier so we wouldn't miss any closings. Obviously, this was not the best solution in terms of lead-times and working capital. Therefore, we were very interested to investigate whether we could reduce long stays in the port and simultaneously learn whether there was room for improvement elsewhere in the supply chain.'

BOTTLENECK: EMPTY DEPOT

A delaying factor turned out to be getting information about shipping companies' empty container depots. In order to shorten the lead time of its intercompany flows, DSM decided that it would no longer bring empty containers from Rotterdam; instead it would get them from an 'empty depot' near the inland terminal in Born. 'This saves us 4.5 working days. Now we are going to look into whether we can implement the same for other container flows. Other process improvements may emerge as we go along.'

INCREASING SUSTAINABILITY

Reducing empty kilometres and choosing low emission modalities is in line with DSM's sustainability policy. 'More than ten years ago we switched all our shipments to Rotterdam from road transport to inland shipping and rail. We occasionally use a truck, but only if there's congestion at the sea port or if we would otherwise miss the closing time. Congestion at the deep sea terminals has made inland shipping less predictable in recent years, and we have started to ship more by rail. Going back to road transport is not an option for us. We are therefore delighted with a tool like SCOPE, which measures and optimises the reliability of our inland shipping.'

EXTENDING SCOPE ANALYSES

In the coming period, the Port Authority will organise even more SCOPE analyses. Shippers with a substantial container flow to or from Rotterdam are eligible for this service. Ellen Naaijkens explains what the process looks like: 'In order to analyse a container flow, we need the container numbers from the past 12 to 24 months. We run an analysis on them. We look at which deep-sea terminal handled the greatest volume and request information on the gate in/gate out movements from both the deep-sea terminal and the inland terminal. Combining this data gives us insight into supply chain performance aspects such as throughput times, time spent at the terminal, modal split and so on, as well as any discrepancies in relation to the average or applied KPI's.'
The insight is presented and discussed in a joint workshop involving all parties concerned. This then serves as a basis on which to draw up improvement measures. In a subsequent workshop, the implementation of these improvement measures is worked out in greater detail, and in some cases it may even be possible to assess the effect one of them is having. It is a low-threshold approach, which costs shippers and the other supply chain partners little time and soon produces favourable results. An online dashboard allows shippers to acquire regular insight into the performance of their own supply chain.

> *"Besides costs and sustainability, transport reliability is one of the most important decision criteria for shippers."*

THE IMPLICATIONS FOR PORTS INTEGRATED SOLUTIONS

In addition to SCOPE, the Port of Rotterdam Authority has developed various other tools that use data to increase efficiency in logistics chains. DSM sees the digitisation of supply chains as a spearhead which can also provide real-time insights and forecasts. Kim van Neer: 'As an industry player, we need reliable ETAs to inform our customers, keep inventory levels low, improve planning and increase sustainability. Unfortunately, the ETAs passed on by shipping companies are often far from reliable. At the moment we are seeing some promising initiatives that provide predictive ETAs. We are discussing this with a number of parties. It would be great if these promising initiatives could be given a place within Portbase's Port Community System, which we also work with. To be able to build efficient transport chains, we need integrated solutions.'

SCIENTIFIC BASIS

SCOPE is a spin-off from the European SELIS project (Shared European Logistics Intelligence Information Space) for research into solutions aimed at cutting transport emissions. The project ended in August 2019 after having run for three years. Throughout Europe, market participants and research institutes joined forces within Living Labs. In Rotterdam, the Port Authority, Erasmus University and APM Terminals (APMT) worked together under the Living Labs collaborative partnership to acquire insight into inland transport chains and increase their reliability. The Erasmus Centre for Urban, Port and Transport Economics (UPT) provided data analysts and researchers in the field of supply chain management, logistics and port economics. They worked closely with the industry partners.

MEASURING RELIABILITY

'Besides costs and sustainability, transport reliability is one of the most important decision criteria for shippers,' says Larissa van der Lugt, port economist and Director of Erasmus Centre for Urban, Port and Transport Economics. 'They need to be able to rely on their goods arriving at their distribution centres at the scheduled time. This is important for their warehouse planning. Although shippers often have cost-related data, they have no data on the reliability of inland transport, so they can neither measure it nor improve it. That is where the idea of building a knowledge platform, as part of the SELIS project, for the integration and analysis of data relating to transport reliability came from. We traced the route followed by the container from the sea port via inland terminals to the distribution centre. Making this understandable requires data from various chain partners. The Port Authority facilitated its collection.'

PRACTICE-ORIENTED RESEARCH

As a measure of reliability, the project partners opted for the deviation from the average throughput time between sea port and distribution centre. An initial analysis revealed a particularly large deviation at the inland terminal. Van der Lugt: 'Containers can sometimes be waiting there for days, but you need to examine each individual situation to see if this really is a problem.

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Sometimes a shipper will deliberately leave the containers at the inland terminal for a while. This kind of thing demonstrates how close a researcher has to be to everyday operations before being able to say something that holds water.'

TALENT DEVELOPMENT

Van der Lugt believes the collaboration between industry and science within the framework of SELIS makes you want more: 'Data-based research is becoming increasingly important to universities. We may have the research capacity, but it's the companies that have market insight and process data. On the basis of this data, we can do useful things and develop knowledge. It will also help develop talent: the students involved in SELIS are an attractive prospect for the labour market. The insights acquired will become part of the curriculum for students who are yet to graduate.'

EMPIRICAL ANALYSIS

Kim van Neer: 'Collaboration between chain partners, as well as between science and industry, is creating opportunities for making supply chains more efficient. I hope more and more chain partners will recognise its value.' Daniel Bollard: 'Improvements always take place in practice. However, with a project such as SELIS, it is possible to develop the necessary scientific models, methods and supporting evidence.' Larissa van der Lugt: 'The great thing is that the SELIS project has led to a practical spin-off in the form of SCOPE! We can use this to put the transport reliability to and from Rotterdam firmly on the agenda.'

CONTACT

If you are a shipper with a substantial inland container flow to or from Rotterdam and would like to be considered for a SCOPE analysis, please contact:

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