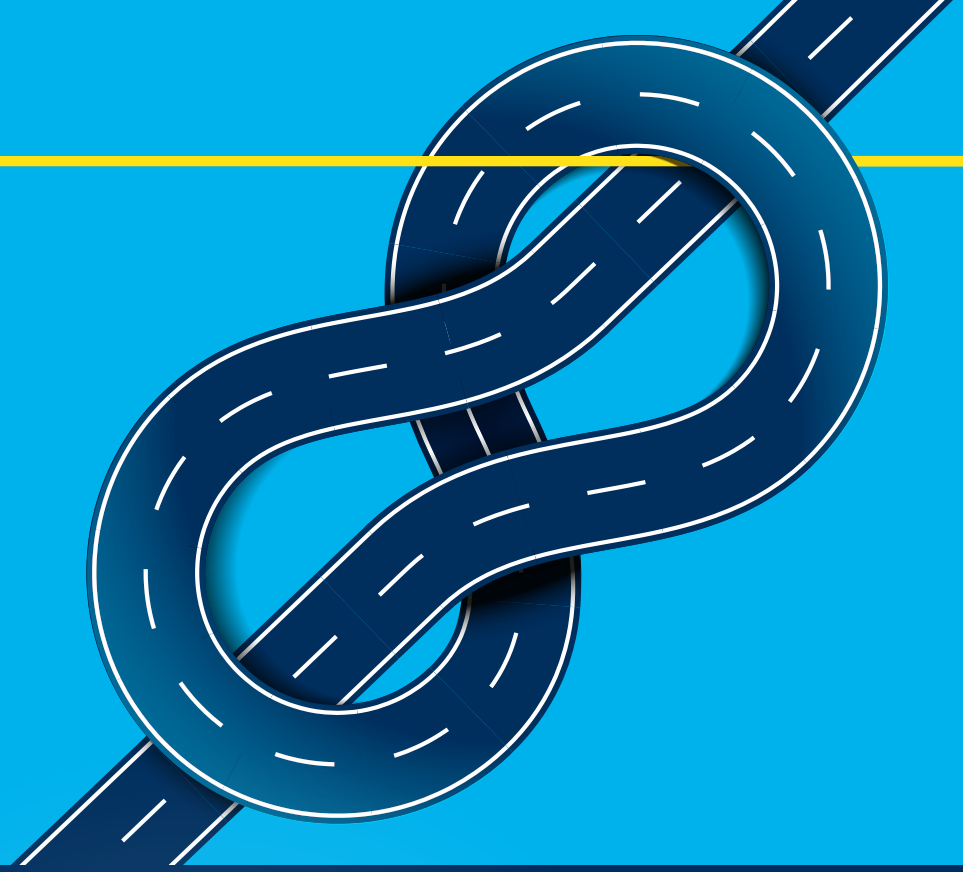
Port of Rotterdam

FROM CHALLENGES TO CONTINUITY

THE ESSENTIAL ROLE OF COLLABORATION IN CONTAINER ROAD TRANSPORT



WHITEPAPER

Rotterdam aims to remain an accessible port well into the future. However, the impact of growing volumes and increasing congestion in the region necessitates adjustments to the chain. Given the anticipated opportunities and challenges in road transport, there is only one path to a resilient, future-proof supply chain: collaboration.

SUPPLY CHAIN TALKS

- Rising traffic density: the implications for the efficiency of container transport.
- Strategic approach: three focal points to address the challenges.
- Efficiency through collaboration: how supply chain parties can enhance performance collectively.
- Technological progress: the impact of digitalisation on the supply chain.

Rotterdam's hub function is invaluable for Europe. The port of Rotterdam serves as the central hub ensuring smooth and efficient trade flows to, from, and across the continent. More than 30 per cent of all container imports and exports for Northwest Europe pass through Rotterdam. These containers often carry essential goods, such as food, medicines and semi-finished products for European industry. In addition, 13 per cent of energy consumed in Europe passes through Rotterdam.

'This entails great responsibility – not only for us as a port but also for other parties in the chain. Security of supply is crucial,' says Hanna Stelzel, Director Containers at the Port of Rotterdam Authority.

However, increasing congestion and growing volumes pose a significant challenge for container transport by road in the region. There is work to be done. This is the main finding of a recent study by the sector council container road transport (Mutual Fact Finding Study on Road Transport, Haskoning). The research included a simulation study, which examined the so-called high scenario. Thanks to the availability of data, we no longer need to rely on gut feelings. We can now use hard figures to demonstrate the impact of certain developments on the supply chain, as well as the potential effects of various measures. And that impact is considerable.

Increasing congestion and growing volumes

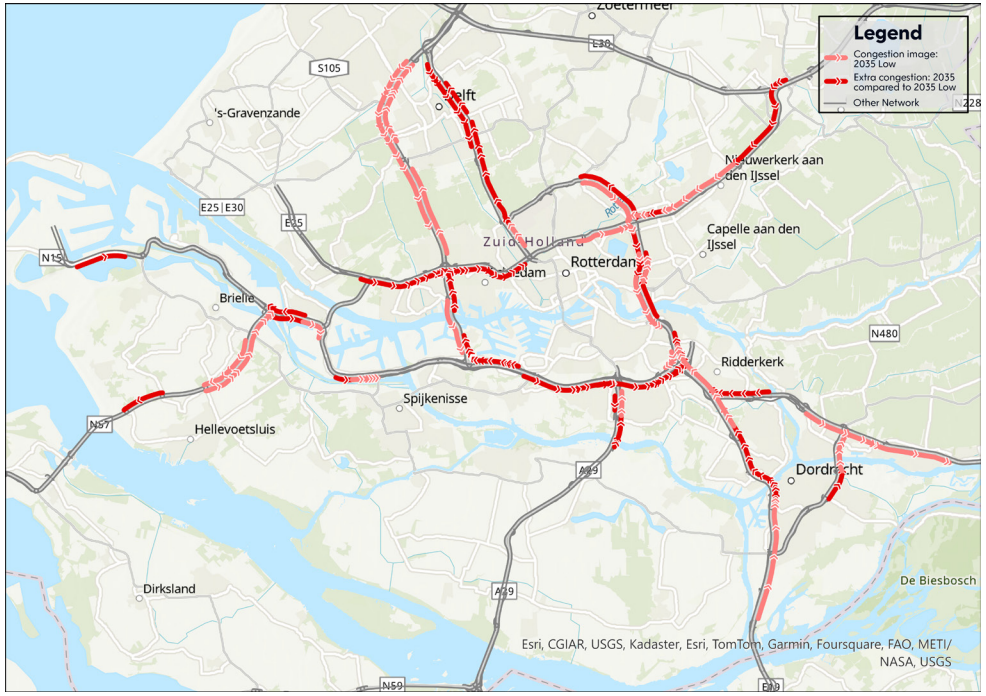
In the coming years, the road network around Rotterdam is expected to become busier, primarily due to a significant rise in commuter traffic. This will lead to increased congestion and slower driving speeds, thereby reducing the number of assignments that can be completed per truck each day. As a result of increasing congestion, delays are also growing on key corridors to the hinterland. By 2035, these delays are expected to increase by 30 to 60 minutes. This estimate does not account for incidents and roadworks, which could cause additional travel time losses of up to 60 minutes. In exceptional cases, time losses increase even further.

'A major concern is the decline in profitability. It's already difficult for carriers to meet their commitments. If nothing is done, there's a chance we'll only be able to complete one trip per day in the future,' says Marco Post, Director of Operations at H.N. Post en Zonen and vice-chair of the Alliance of Sea Container Carriers (AZV) of TLN.

According to the high scenario, the number of transport movements in the region is expected to increase by 43% by 2030 compared to 2022, and by as much as 70% by 2035. Volumes passing thought the port of Rotterdam are also projected to grow. The combination of increasing delays and anticipated volume growth will lead to nearly a doubling of the required road transport capacity by 2035, according to the high scenario in the simulation study.

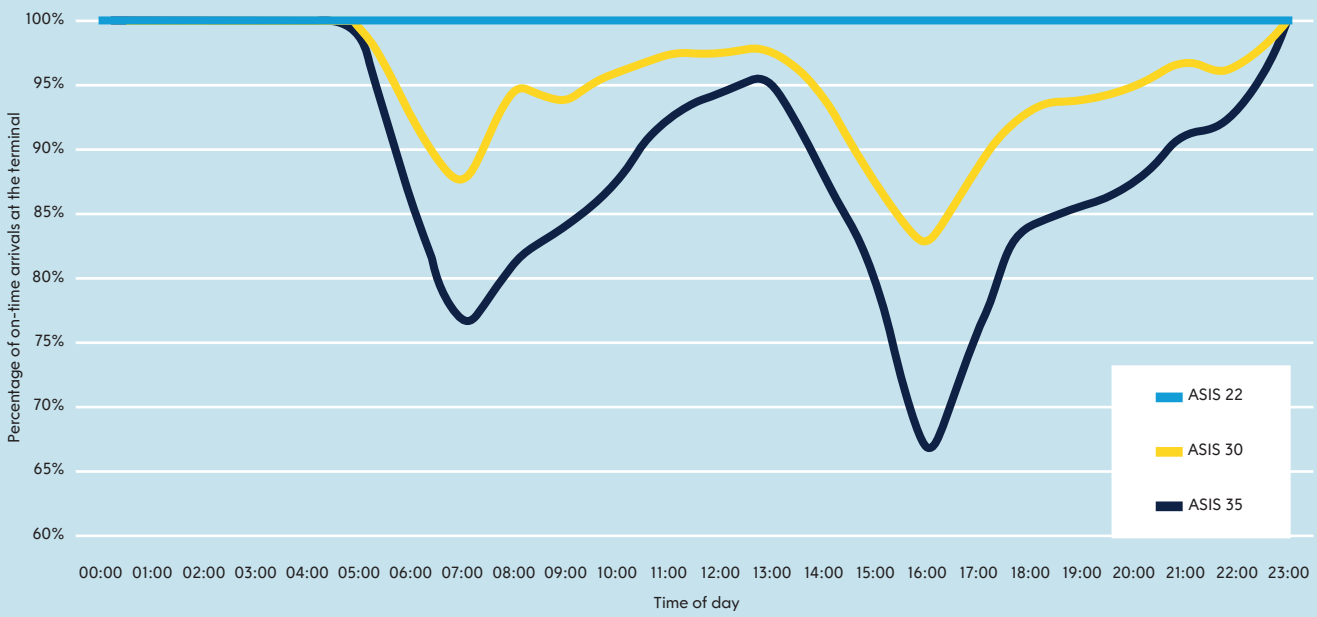
Due to congestion, the same trucks will be able to complete fewer trips per day. This presents a significant challenge in itself, but when combined with the current shortage of drivers and limited truck parking capacity, it becomes an even greater concern. 'If we don't do anything, it will become virtually impossible to provide a decent product during rush hour,' predicts Post. If container volume growth is lower than expected in the high scenario, but regional traffic increases, more trucks will still be required. After all, efficiency depends on traffic density.

In addition, the on-time performance of truck handling



Mutual Fact Finding Study on Road Transport, Haskoning

ON-TIME PERFORMANCE OF TRUCKS, TERMINALS AND DEPOTS



Mutual Fact Finding Study on Road Transport, Haskoning

operations at deepsea terminals and empty depots is under pressure, with an expected average daily decline of 5% by 2030 and 13% by 2035. On-time performance indicates whether a carrier arrives at a terminal on time, according to the schedule. During peak hours, on-time performance at the terminals is expected to decline significantly, dropping by 35% in the evening rush hour by 2035. This means that only 65% of the trips would be on time.

'The smooth flow of containers determines the success or failure of a terminal. When the yard isn't running efficiently, productivity plummets and everything grinds to a halt. This comes at the expense of a reliable supply chain,' says Patrick Vroegop, Commercial & Business Development Director at Rotterdam World Gateway (RWG). 'While reliability, in addition to price, is the most important factor when choosing hinterland transport,' adds Marco Tak, Director of the Association of Rotterdam Shipbrokers and Agents. A decrease in on-time performance is also evident in the hinterland. If an agreed time in the port is missed, the delay often impacts the rest of the supply chain.

For shippers, the urgency lies elsewhere, according to Casper Roerade, Policy Advisor for main ports and international supply chains at Evofenedex: 'While regional parties immediately feel the impact of congestion and often act in the short term, international shippers adopt a more strategic approach. We remain alert and anticipate possible delays but regard them as part of a broader operational dynamic, in which supply chain reliability is guaranteed through flexible planning, allowing leeway in delivery times, and activating alternative routes if necessary.'

Strategic focal points

Although the impact on each stakeholder differs and the sense of urgency varies, all parties involved in the sector negotiations agree on one thing: changes are necessary to continue guaranteeing good service to the hinterland. Everyone prefers to think in terms of solutions rather than problems and is convinced that a joint approach will be able to efficiently accommodate the expected growth in road transport to and from the port.

Planned infrastructure investments can ease the pain. However, infrastructure investments alone are insufficient to ensure that container transport by road remains future-proof. Therefore, the sector council has identified three key strategic focal points:

1 SPREADING ROAD TRANSPORT TO OFF-PEAK HOURS

By distributing transport assignments more evenly throughout the day and using the quieter periods, the average driving speed increases. This higher speed subsequently leads to more assignments per truck, thereby reducing the overall road transport capacity required in the future. The result: a performance improvement at the daily level of approximately 6% by 2030 and 10% by 2035, compared to the current situation. For carriers operating exclusively during quieter periods, the performance improvement is significantly greater. Moreover, spreading road transport helps to reduce peak loads on the terminals. Outside peak hours, there are fewer delays on the road network, resulting in improved on-time performance at the terminals and more efficient throughput in the yard.

Terminals are highly dependent on others. While work at these terminals continues 24/7, this is not always the case in the hinterland. This can lead to bottlenecks there. If the hinterland also shifts towards a 24-hour economy, supply chains can be made future-proof. According to Vroegop, large parties in particular should be able to facilitate that transition. To encourage efficient throughput in the yard, RWG introduced a peak surcharge for containers collected between 06:00 and 18:00 on weekdays. 'We're seeing a shift in handling to outside peak hours, which results in an additional eight to nine hours of collection each week,' notes Vroegop.

Additional hubs in the hinterland can also help flatten the peak, according to Post: 'You then become less dependent on others and retain more control in your own hands. However, extra handling is required, which inevitably incurs additional costs.'

2 FEWER EMPTY AND CONTAINERLESS RUNS

Additional hub locations also contribute to the second focal point: reducing empty and containerless runs – as does the (direct) reloading of containers. 'If we use equipment more efficiently, fewer kilometers are driven and more cargo is transported per truck per day,' Tak calculates.

'That's certainly feasible,' Post adds. 'There are digital platforms, such as Avantida, where empty containers can be registered for reloading. However, not every shipping company or freight forwarder responds to such requests with the same speed. In consultation with these parties, we are now exploring whether response times can be improved.'

A 25% reduction in empty runs between deepsea terminals, empty depots and the hinterland would lead to a performance improvement of approximately 10% in both 2030 and 2035. Within the sector, it is now essential to explore what agreements can be made among chain partners, such as those concerning the return locations for empty containers, to realise this objective.
By reducing containerless trips, the required road transport capacity also diminishes, contributing to a more efficient use of resources.

3 DYNAMIC PORT PLANNING

The third strategic focal point concerns the development of dynamic port planning. This entails the optimal coordination between demand (truck handling) and supply (terminal handling capacity). Real-time insight and continuous updates facilitate ongoing optimisation and enhance the reliability of the supply chain. The underlying premise is that stakeholders retain the autonomy to confirm the most favourable plan.

In essence, dynamic planning serves to enhance efficiency and optimise the utilisation of capacity across supply chain parties. The system is designed to respond to unforeseen events, such as delays or disruptions, by adjusting scheduling. By 2030, dynamic planning is projected to deliver a 10% improvement in on-time performance, even in the face of increased congestion. For the carriers, such dynamic port planning is of critical importance,
Post observes: 'We note that terminals using time slots tend to optimise their internal processes. However, these slots may prove highly inefficient for hauliers. Such isolated optimisation can, in fact, be counterproductive to the efficiency of the supply chain as a whole.'

Digitalisation and data exchange

Moreover, the integration of digital solutions and data exchange is essential. Tools such as Port Alert - an innovative app offering real-time information to all stakeholders in container logistics, with a particular focus on road transport – enhance transparency and result in more efficient and reliable processes. 'With the right tools, all parties gain real-time insight into transport status, delays and incidents, enabling them to respond swiftly,' says Roerade.

According to Tak, it's all about sharing the right data. 'We must understand what information is required in order to share it effectively.' Port concurs: 'Because the sector consultation brings all parties to the table, it offers deeper insight into developments across the supply chain and how actions taken at one point may affect processes elsewhere.' The focal points serve to alleviate the challenges faced by the port of Rotterdam. Roerade emphasises the importance of innovation and collaboration. 'Awareness of challenges and strategic priorities can drive technological investments.' Optimising the supply chain necessitates the effective use of all modalities. 'We must continue to focus on modal shift,' says Roerade. Stelzel adds that all capacity, including rail and inland shipping, must be better utilised. 'The focal points will alleviate the pressure, but the growth in volume cannot be transported to the hinterland by road alone.'

The sector council remain open to good ideas. Supply chain parties with solutions to the challenges facing the sector are encouraged to share them with the affiliated industry organisations.

OPPORTUNITIES THROUGH MORE EFFICIENT TRANSPORT AND COLLABORATION

LOWER COSTS & FEWER WASTED KILOMETRES

Through more efficient execution of transport assignments, increased loading rates, and a reduction in empty runs.

MORE EFFICIENT USE OF TERMINALS, DEPOTS AND DRIVERS

Lower peak loads and improved traffic flow reduce pressure on infrastructure.

HIGHER PREDICTABILITY & CUSTOMER SATISFACTION

More reliable deliveries, fewer no-shows and greater supply chain stability through enhanced planning and distribution.

STRONGER COMPETITIVE POSITION & ECONOMIC GROWTH

Rotterdam maintains its leading position as a logistics hub through more efficient volume handling and enhanced collaboration.

CHAIN FLEXIBILITY & ROBUSTNESS

Reduced impact of delays, disruptions and incidents through real-time data and dynamic port planning.

MORE SUSTAINABLE LOGISTICS & FEWER CO_2 EMISSIONS

Better use of vehicles and infrastructure contributes to environmental objectives.

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