

# Vessel traffic management in the Port of Rotterdam

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## Itsuwa Maru and the Port of Rotterdam

Motor tanker Itsuwa Maru approached the English Channel from her rough crossing of Biscay Bay, heading for the Port of Rotterdam. She encountered a delay of 90 minutes, and this was reported to her agent in the Rotterdam, 34 hours before her expected arrival at Shtandart Tank Terminal. Her agent forwarded a revised ETA to the harbour control centre of the Port of Rotterdam Authority, and 20 minutes after, a revised port passage plan was made available to the master of the Itsuwa Maru, including a requested time of arrival at pilot station and administrative clearance.

After pilot boarding, the master and the maritime pilot exchanged information and aligned their plans and intentions. Subsequently, VTS was informed that the vessels' passage plan could be maintained. Operational clearance was given by VTS and immediately a prediction of the intended path of the vessel to the terminal, including predictions of estimated traffic density and real-time hydro/meteo information, was shown on the pilot's laptop. The master – surprised by the vast amount of shipping movements in the port entrance – wondered why the efficiency he experienced was not standard practice for each big port. It was his first time to the Port of Rotterdam and, unlike any port entry he had experienced before, he felt relaxed and confident that his vessel would be moored safely and efficiently according to plan.

He decided to ask the first officer to act as officer in command and assist the maritime pilot in his control, so he could prepare for the meeting with the terminal operator and his agent, as soon as the vessel moored. Certainly, no minute seemed to be lost in this port and as indicated in the port entry guide, traffic planning and terminal planning were aligned as well.

The prospects of vessel traffic management in the Port of Rotterdam have been discussed in Port Technology International previously (2004), but the effects of the investments of the Port of Rotterdam Authority in traffic management have become clearer in recent times. The port entry by MT Itsuwa Maru described above, pictures the port entry process as may be expected within a few years from now. It is one of the results of a changed approach by the Harbourmaster Division of the Port of Rotterdam Authority to sustain safety and efficiency in vessel traffic in the port and accommodate the effects on vessel traffic of foreseen growth of port business.

## New challenges for the Harbourmaster Division of the Port of Rotterdam Authority

As already foreseen in 2003, both developments in the maritime domain and other developments in the port's business raised the need for the harbourmaster to be proactive and to be prepared; prepared to manage the additional wet area and vessel traffic due



Figure 1. Screenshot of HaMIS (2011). The port and traffic image shows real-time movements of vessels based on radar and AIS data. The supporting data around it provides details on the voyage, the cargo, intended inspections and reference data for each vessel. A mouse click on the vessel in the image immediately makes the vessel, voyage and cargo related data available, it is shown in the tables. Alternatively, a mouse click on a vessel in the table will mark that vessel in the image.



Figure 2. A screenshot of the traffic image based on Aramis (2011). Aramis V3000 is used by VTSO's in the Traffic Centres from January 2012, to monitor the traffic and identify individual vessels, tracks, intended routes, ATA's, ATD's, CPA's and TCPA's, amongst others.

to the seaward extension of the port, and safeguard nautical safety and efficiency at current level.

In the next 20 years, a 38 percent increase in visits of seagoing vessels (40 percent increase in vessel movements) and a more complex vessel traffic are expected. Other reasons for the Port of Rotterdam Authority to step up and to develop the vision on vessel traffic management include:

- Economies of scale in most segments, particularly in container shipping;
- Increase in maritime transport of dangerous goods (including LNG);
- An end to further adjusting physical risk control measures;
- Increase in market demand for traffic management;
- The sustainability objectives of the Port of Rotterdam – 'reduce emissions from shipping'.

The Port of Rotterdam Authority is happy to support and facilitate this 'change process' for the Harbourmaster Division, as from its investment, it expects a positive impact on the nautical competitive position of the port. This is not only due to the introduction of better traffic planning and cooperation between the nautical stakeholders, terminal operators and Harbourmaster Division, but also due to increased efficiency in vessel inspections and improved cooperation between the different inspection bodies involved. In this respect, the renewal and enhancement of the Harbourmaster Management Information System (HaMIS) and its connectivity to internal and external partners play an important role (see Figure 1).

Reuse of basic traffic information in the port community and exchange of planning information between chain partners is being arranged. This will take place firstly in agreements between the responsible organizations, and secondly, by means of information systems of associated partners and web-services between HaMIS and/or the port's PCS.

## Improving VTS

In the tactical and operational domain of vessel traffic management, the renewed VTS centres and upgraded VTS equipment play an

equally important role. The interaction between VTS and the maritime pilot in the port entry of MT Itsuwa Maru envisages the teamwork of VTS and the maritime pilot in the tactical domain of vessel traffic management. Enhanced imaging of the traffic (Aramis) image and enhanced availability of voyage, cargo and inspections related information of each vessel traffic participant (HaMIS) provide the VTSO with the necessary information to carry out VTS, as well as assist in calamity abatement and emergency response in the port area when necessary.

## Coordinating the nautical chain

The harbourmaster of the Port of Rotterdam has to be prepared to play a new role: coordinator of the nautical chain. In this respect, the chain is formed by interacting organizations in the vessel traffic management process. In this new role, his aim is to enhance the efficiency of the nautical process to optimize port accessibility, for example, by reducing delays that are due to miscommunication and mismatch of servicing by the nautical service providers, to an accepted minimum. The aim is to acquire and share reliable and relevant vessel traffic related information, and to strengthen the cooperation between stakeholders involved.

In this new role, the harbourmaster acknowledges the unsegregated basis of all stakeholders in this cooperative vessel traffic management arrangement, and respects their individual interests. In all other activities under this arrangement, he will help to achieve the common goal set out by this agreement.

Preconditions for achieving this common goal (some still under development) are:

- All mandatory notifications to the harbourmaster are delivered, processed and settled electronically;
- The agent and/or the master of the vessel provides the harbourmaster with the necessary information – including updates and planning where applicable – in time;
- Planning horizon is extended until ETA – 72 hours before arrival and ETD – 24 hours before dispatch;
- Terminal planning is the basis of vessel traffic planning;
- Planning of each individual dispatch is checked against vessel



traffic planning and fixed based on agreement with the nautical service providers assisting in that dispatch;

- Planning and progress are monitored continuously, and where necessary, amended as agreed by all parties involved, under supervision by the harbourmaster;
- The harbourmaster monitors compliance with the vessel traffic management arrangement, and confront any non-compliant parties;
- Information related to a vessel's port call in the harbourmaster's domain is made transparent and available for the port community;
- Procedures and processes in the nautical chain; in particular between VTS and maritime pilotage;
- A platform for cooperation has been established to facilitate the parties involved in vessel traffic management in their cooperative efforts to improve the chain-process; and
- In this chain-process, planning is detached from financial arrangements between the nautical service providers and their clients.

## Conclusion

Vessel traffic management in the Port of Rotterdam is about sharing reliable information, about minimizing unnecessary delays along the chain. It is about planning, coordinating and respecting arrangements and agreements. This is not only for the benefit of the port's clients, but also for the benefit of the port itself.

The Port of Rotterdam Authority shared her vision and progress with, amongst others, IHMA and IALA. IHMA recognized the challenge out there for ports and supported awareness and initiated better disclosure of port information for stakeholders in the maritime domain.

IALA has become interested to further explore the relevant developments for VTS in particular, but also its eNavigation Committee is out looking for the stakeholders' functional needs to help rearrange the navigation and communication instruments, systems, networks and data management.

*You can read about the Port of Rotterdam's vision for the future in Nico van Dooren's article on page 36.*

### ABOUT THE AUTHOR



**Raymond Seignette** is engaged in maritime policy making and strategy development for the Port of Rotterdam Authority. He also serves as Adviser of the European Seaports Organization (ESPO), as Associate Member of IALA and in several other national and international platforms where public-private cooperation aims for a sustainable future of the port sector.

### ABOUT THE COMPANY

The **Port of Rotterdam Authority** is a public limited company (N.V.) and is amongst others involved in development, construction, management and operation of the port and industrial area in Rotterdam; and safe, efficient and effective handling of vessels and vessel traffic (VTS) in the port and port approaches.

### ENQUIRIES

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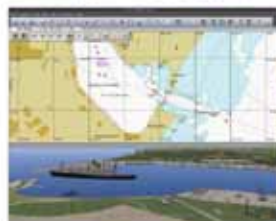
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