Port of Rotterdam Pronto arrival prediction

IMPLEMENTED 2018–2019 · TRANSPORT AND LOGISTICS · NETHERLANDS · BAND C · CLAIMED ONLY

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The Port of Rotterdam Authority launched Pronto, a shared port call platform that uses AI to predict when ships will arrive. The authority says it cut vessel waiting times by 20%; no independent check is published.

ABOUT THIS SYNOPSIS

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Facts and figures are as reported by the sources listed below, which may be incomplete, self-reported or out of date. Check the original source before relying on any figure.

The impact band, proof marker and SEAM view are MarLuc's opinion. The organisation is not a MarLuc client and has not reviewed or endorsed this synopsis. Names and trademarks belong to their owners.

NOTICE WORDING LAST UPDATED 16 NOVEMBER 2026

AT A GLANCE

AI and automation used: Self-learning (machine learning) model predicting vessel arrival times, within a shared port call platform.

Implemented: 2018–2019. Grade: band C, Process change, Claimed only.

Headline result, as reported: Port authority says AI arrival predictions cut vessel waiting times by 20% and predict berth arrival to within 20 minutes (2019)

1 · The case

The facts, as reported by the 3 sources listed at the end. Where a source is silent, the field says "Not reported".

Organisation

Port of Rotterdam Authority. Authority managing the port of Rotterdam in the Netherlands, where around 30,000 vessels call each year. In 2019 it set up PortXchange Products BV to offer its Pronto platform to other ports. Canvas block: 4. Operations and process. Also 6. Data and technology, 7. Partners and ecosystem.

Business challenge

The challenge. Ships wait at port when terminal capacity and services such as bunkering, maintenance and provisioning are not coordinated. Port call information such as water depths and arrival times was defined and communicated in many different ways.

How it was addressed. In April 2018 the authority launched Pronto, a joint platform for shipping

Who implemented it

In-house (In-house): Port of Rotterdam Authority: its data scientists built the arrival prediction model.
PortXchange Products BV (Software vendor): Set up by the authority in 2019 to offer Pronto to other ports.

Technology (SEAM pillar E)

SEAM types: T8 Predictive / ML models. Deployment: Not reported. Vendors and products: Pronto.

Where it was built in: A shared port call platform combining public data, company data and AI arrival predictions, used through the Pronto dashboard or fed into users' own systems.

What changed

Before: port call information shared in many formats between separate parties. After: a shared timeline per port call with AI-predicted arrival times, used by almost half of the port's shipping companies, agents, terminals and other nautical service providers, by the authority's account in 2019. Users still interpret the predicted times themselves. [1] [2] [3]

What it cost

Not reported

What it saved

Vessel waiting times down 20%, by the authority's account. It also says it can predict berth arrival to within 20 minutes and calculate arrival times for ships still about seven days away. Independent measurement: Not reported. [1] [2] [3]

Governance and control

The authority says it avoided a black box approach: it chose the parameters, can in theory show how each prediction came about, built in cyber security and uses no privacy-sensitive data. Users interpret the predicted times themselves. Accountable owner and independent assurance: Not reported.

S2 · Accountable owner · Not reported
Not reported.

A1 · Safe use · Claimed
Cyber security is integrated into the system and no privacy-sensitive data is used, by the authority's account; Pronto never shares cargo information. [1] [2]

A2 · Human in the loop · Claimed
Users interpret the predicted times in Pronto themselves, by the authority's account. [2]

A3 · Monitoring and assurance · Claimed
The authority says it avoided a black box: it selected the parameters and can in theory show how each prediction came about. [2]

A4 · Vendor AI · Not reported
Not reported.

A5 · Agent controls · Not reported
No agents described.

A6 · Standards and regulation · Not reported
Not reported.

What worked, what did not, what is unproven

WORKED

- Arrival predictions at the berth to within 20 minutes, by the authority's account.
- Use by almost half of the port's nautical service providers, by the authority's account.

DID NOT

- Not reported

UNPROVEN

- The 20% fall in waiting times, which no independent source checks.
- Use and results since PortXchange took on the platform.
- How much of the gain comes from AI predictions and how much from shared data.

Timeline

Apr 2018 Port authority launches Pronto, a shared port call app combining public data, company data and AI predictions [1]

Jan 2019 Authority says AI has reduced vessel waiting times by 20% and predicts berth arrival to within 20 minutes [2]

Aug 2019 Authority sets up PortXchange Products BV to offer Pronto to ports worldwide, with Shell and Maersk as partners [3]

2 · Grade and SEAM assessment

MarLuc's opinion, made on the evidence above. How cases are graded: marluc.co.uk/case-studies/how-we-rate

Level of change and impact

Claimed: Not applicable. Grade: C, Process change. Proof: Claimed only. Level of change: Process change.

Process change (Level 2, band C). Port call planning moved to a shared, data-driven timeline with AI-predicted arrivals, by the authority's account; results are self-reported.

The SEAM view and lessons learnt

The AI part, predicting arrival times, sits inside a wider change: getting many separate companies to share standardised data. The authority says the more parties share data and act on it, the better the chain works. For a larger organisation, the transferable point is that a

1. Agree shared data standards before adding prediction.
2. Make predictions explainable to the people who plan around them.
3. Measure the effect of prediction separately from the effect of data sharing.

Evidence

Score 1 of 4. Self-reported: the port authority's statements and named staff quoted in trade press.

Evaluation method. Self-reported company figures: port authority statements in 2018 and 2019.

Sources disagree. In 2018 the 20% figure was described as what the app allows ships to achieve; in 2019 the authority said AI had already reduced waiting times by 20%.

Status. Unclear: Pronto passed to PortXchange in 2019 to be offered to other ports; later results not found in sources opened.

3 · Original sources

Read these in full. To challenge a fact or a grade, use the contact form at marluc.co.uk or the link on https://marluc.co.uk/case-studies/port-of-rotterdam-pronto-arrival-prediction

[1] The Maritime Executive: Rotterdam introduces port call efficiency app (April 2018)
https://maritime-executive.com/article/rotterdam-introduces-port-call-efficiency-app

[2] MarineLink: Port of Rotterdam activates AI vessel platform (January 2019)
https://www.marinelink.com/news/port-rotterdam-activates-ai-vessel-461647

[3] The Maritime Executive: Port of Rotterdam Authority launches new technology company (August 2019)
https://maritime-executive.com/article/port-of-rotterdam-authority-launches-new-technology-company

Port of Rotterdam Authority website: https://www.portofrotterdam.com

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