

PORT OF  TALLINN

# CO<sub>2</sub> Reduction Through Digital Innovation

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PORT OF  TALLINN

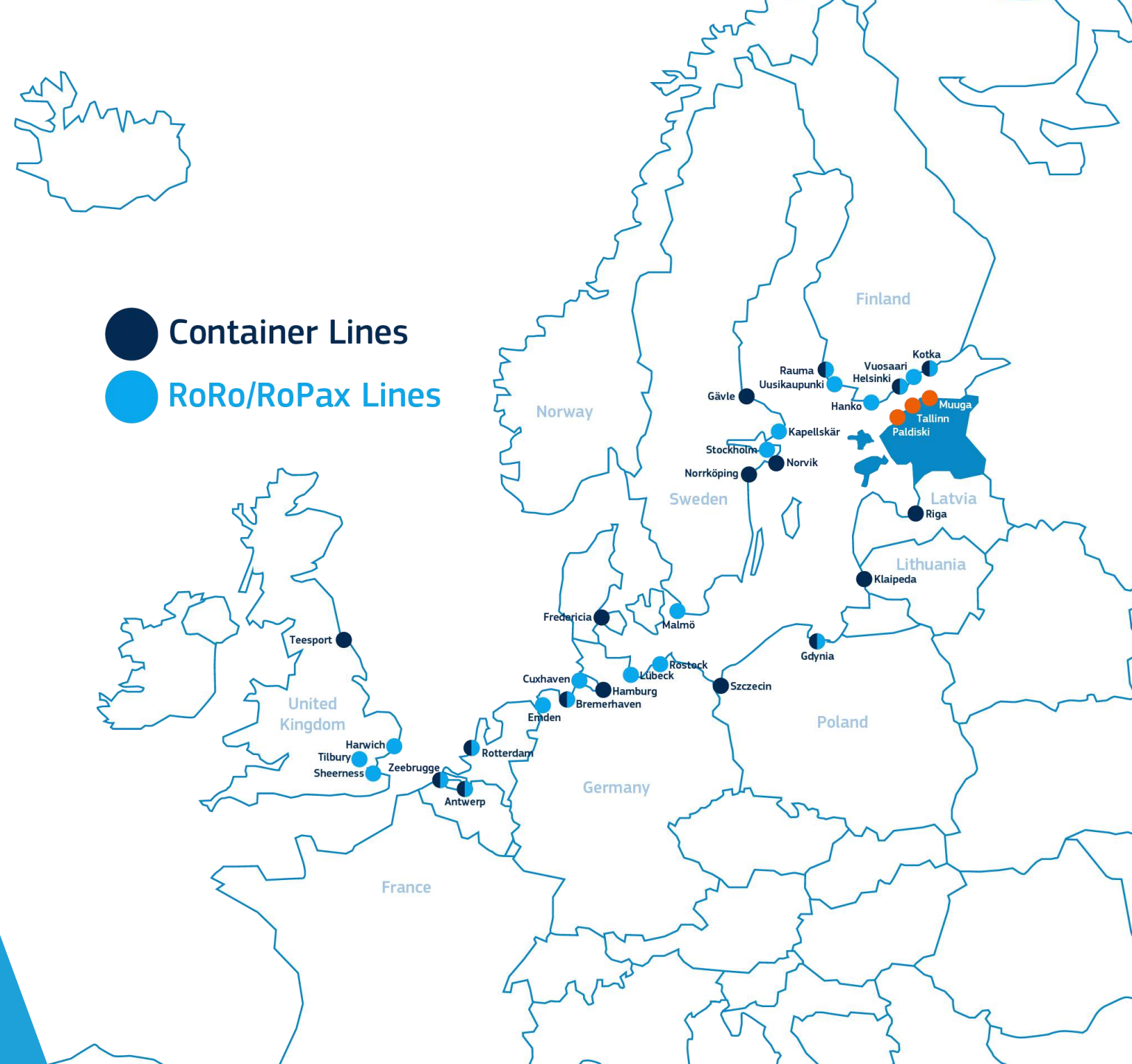
Company



# Location

Well Positioned as a gateway to hundreds of millions of customers.

- Excellent road-, rail- and maritime connections for multimodality
- Regular daily connections with Scandinavian and European ports
- Ideal geographical location with low business risk for nearshoring



**NASDAQ**  
**BALTIC AWARDS**



2021 INVESTOR RELATIONS  
OF THE YEAR

# Port of Tallinn is a Listed Company

Port of Tallinn is listed on Nasdaq Tallinn  
Stock Exchange since June 13, 2018.

## Shareholders include:

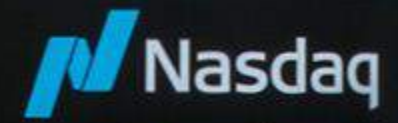
67% Republic of Estonia

33% Investment funds,  
pension funds, private investors

Nasdaq acknowledged Port of Tallinn as  
the most remarkable stock exchange  
debut of the year.



PORT OF  TALLINN



# BUSINESS FIELDS

PORT OF  TALLINN

## Passengers

- 10+ mln passengers a year
  - 5450 ferry calls a year
- Old City Harbour and Saaremaa Harbour
- Welcoming passenger ships, offering and developing the port infrastructure, serving passengers and vehicles

## Cargo

- 20+ mln tons of cargo a year
  - 1637 cargo ship calls a year
- Muuga Harbour, Paldiski South Harbour
  - Welcoming cargo ships, offering and developing the port infrastructure, serving passengers and vehicles

## Shipping

- Operating ferry traffic between the mainland and major islands
  - 2 mln passengers, 1 mln vehicles a year
- Ice breaking in the ports of Northern Estonia

## Real Estate

- 16 ha Old City Harbour real estate development
  - 76 ha Muuga Industrial Park
  - 39 ha Paldiski South Harbour Industrial Park
    - 10 ha Saaremaa Harbour
  - Land and commercial space

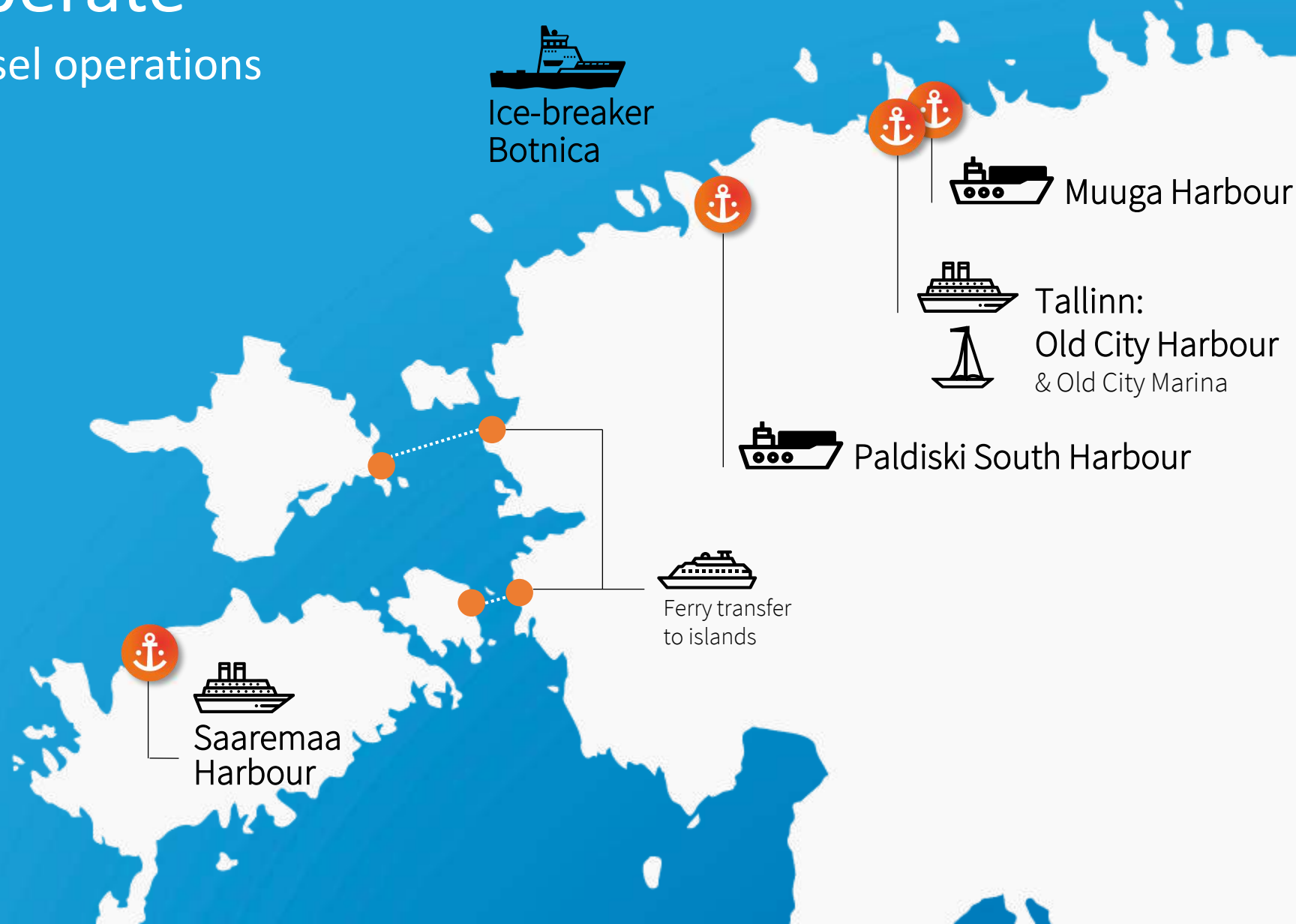


# Where we operate

from harbours to vessel operations

Port of Tallinn doesn't by far mean ports in the city limits of Tallinn.

Port of Tallinn is a port complex with harbours located all over Estonia.





Old City Harbour



Muuga Harbour



Paldiski South Harbour



Saaremaa Harbour

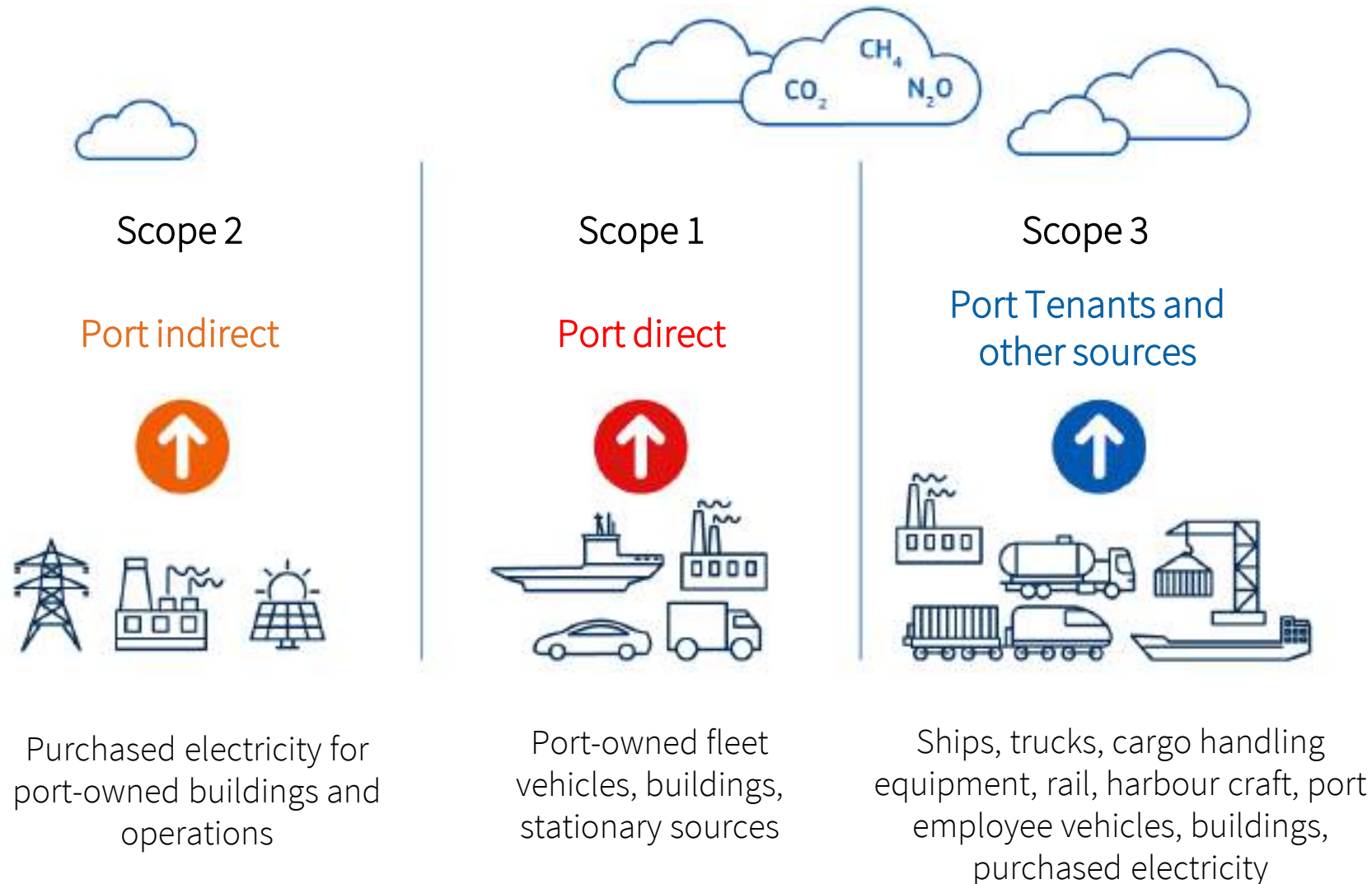
An aerial photograph of the Port of Tallinn, Estonia, showing various ships docked at the quay and buildings in the background. The image is overlaid with a semi-transparent blue filter.

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CO<sub>2</sub> emission

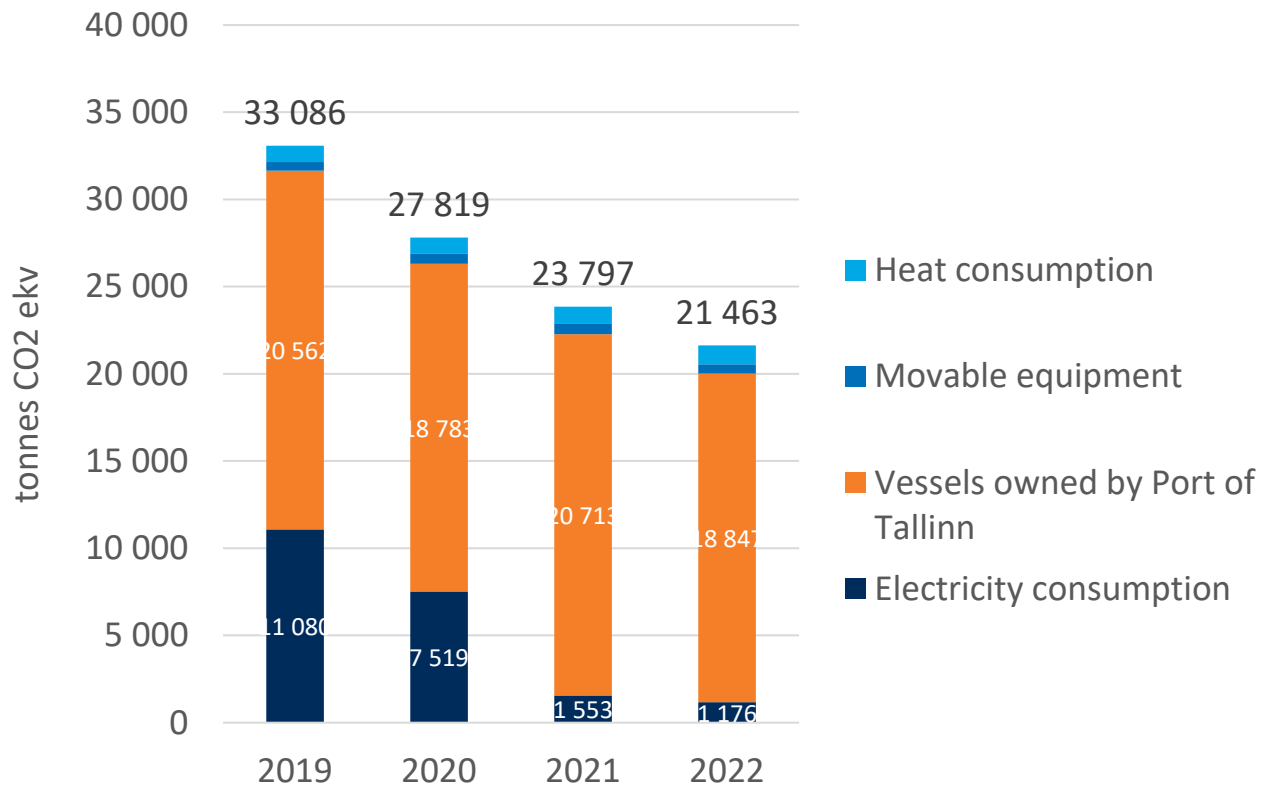


# CO<sub>2</sub> mapping

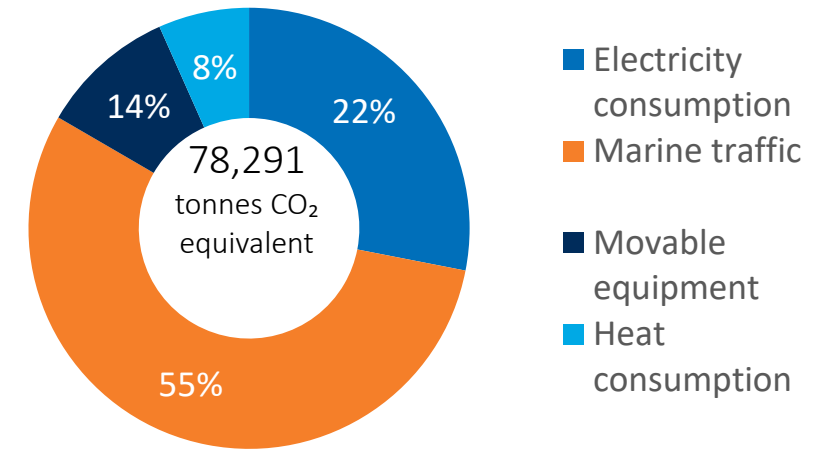


# GHG emission

### GHG emission of Port of Tallinn Group



### 2022 total GHG emissions (incl. operators, tenants, marine traffic)



An aerial photograph of the Port of Tallinn, Estonia, showing the harbor, ships, and surrounding urban buildings. The entire image is overlaid with a semi-transparent blue filter. The text 'PORT OF TALLINN' is centered in the middle of the image, with a small orange anchor icon between the words 'OF' and 'TALLINN'.

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Sustainable Future

# Masterplan of the Old City Harbour

Zaha Hadid Architects



# Terminal D

- Solar panels
- LED lighting
- CO<sub>2</sub> and temperature-controlled ventilation system
- Natural smoke extraction system
- Waterless urinals
- Double facade to reduce cooling requirements
- Interior architecture includes natural wood and wildlife – plenty of plants and ornamental trees



# Cruise terminal

- BIM project
- Seawater-based heating and cooling
- Solar panels and renewable energy
- Kebony wood with lower carbon footprint
- Real plants and smart ventilation
- Innovative wastewater reception facilities



# Kick-off of the new Terminal A



# Muuga - Rail Baltica



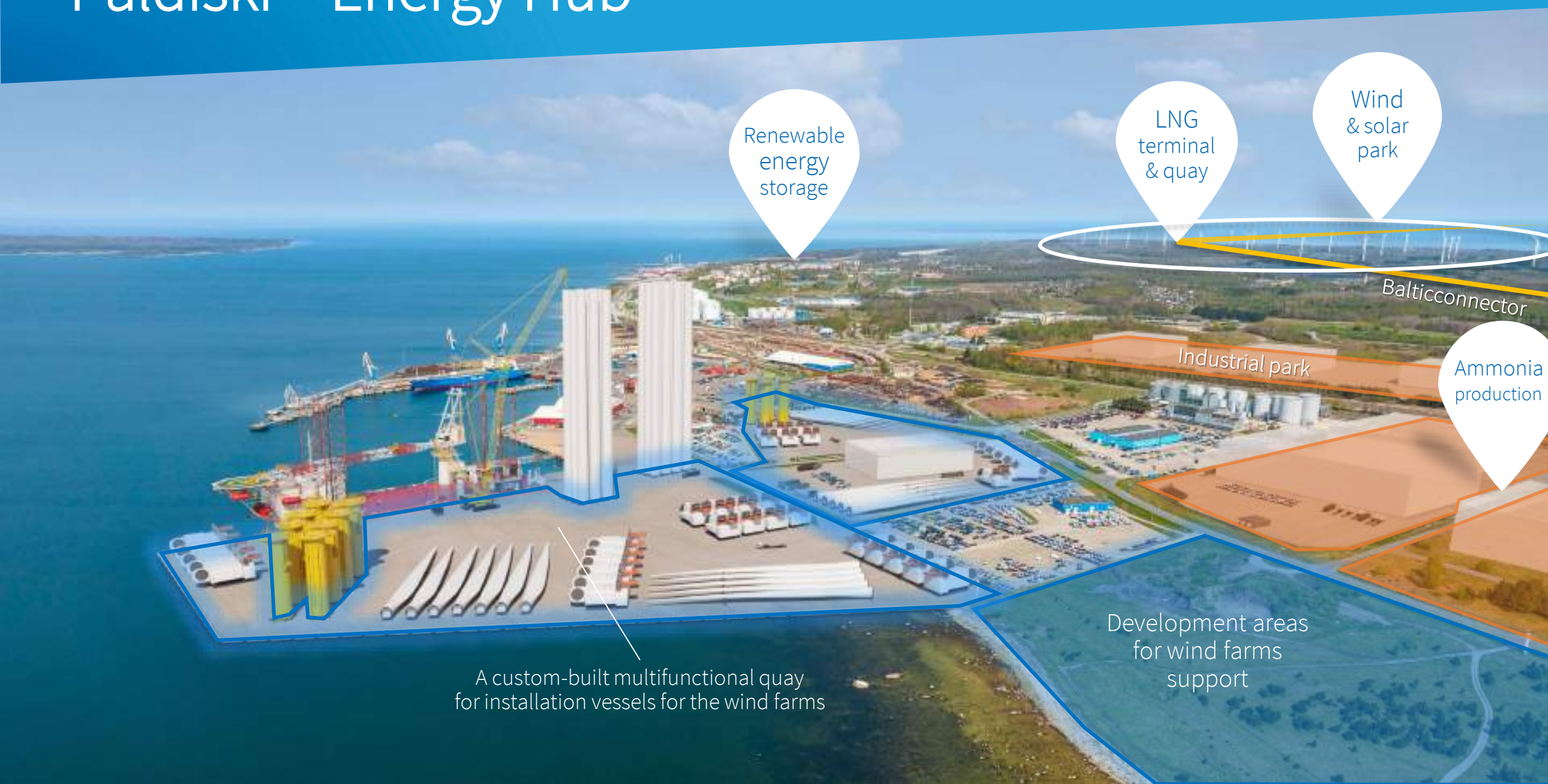


# Paldiski South - offshore wind & Green HUB

Dedicated offshore wind quay



# Paldiski – Energy Hub



Renewable energy storage

LNG terminal & quay

Wind & solar park

Balticconnector

Industrial park

Ammonia production

Development areas for wind farms support

A custom-built multifunctional quay for installation vessels for the wind farms

# Automooring

- 3 quays
- In use from 2021
- For ships on the shorter sea routes
- Shorter mooring time and lower fuel consumption
- Less air pollution
- Less noise and vibration



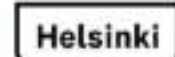
# Onshore Power

- 5 quays
- In use from 2021
- Ships of the Finnish and Swedish route
- Less air pollution, noise and vibration
- 1 ship 7 h per day, decrease per year:
  - 1440 t CO<sub>2</sub>;
  - 20 t NO<sub>x</sub>;
  - 820 kg SO<sub>x</sub>;
  - 2,5-3% fuel consumption
- Frequency 50 Hz, voltage 11kV



# FIN-EST

## Green Corridor



KLIMAMINISTEERIUM

An aerial photograph of a port facility, likely in Tallinn, Estonia, showing various docks, piers, and buildings. The image is overlaid with a semi-transparent blue filter. The text 'PORT OF TALLINN' is centered in the upper half, with a small orange anchor icon between the words 'OF' and 'TALLINN'.

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Digital solutions



Process Management

&

Digital Strategy



Pre-gate

Check-in

Gathering area

Smart Port

PORT OF  TALLINN  
The Port of Good News





Efficient use of the port area

Shorter time spent to load and unload the vehicles to the ship

Efficient use of the vehicle check-in points

Less “useless” time for passenger to spend on the port area

Clear traffic management at the port

Reduced CO2 emission

Tools for the port personnel to run the daily operations

# Smart Port

for Estonian ferry ports

- TS Laevad - subsidiary company of Port of Tallinn
- Operates **4 ports** connecting Estonian mainland to the islands of Hiiumaa and Saaremaa
- **Fully integrated ticketing system**
- More than **2.4 million passengers** and more than **1.2 million vehicles** use the service annually



# Port of Tallinn Digital Twin

## Smart Port -

intelligent system which automates the vehicle traffic and shortens the time passenger cars and trucks spend on harbour premises

Links to document management software

Digital work orders based on port assets

**Building BIM:**  
Information Modeling

CRM

Customer Relationship Management

GIS

Drone area mapping

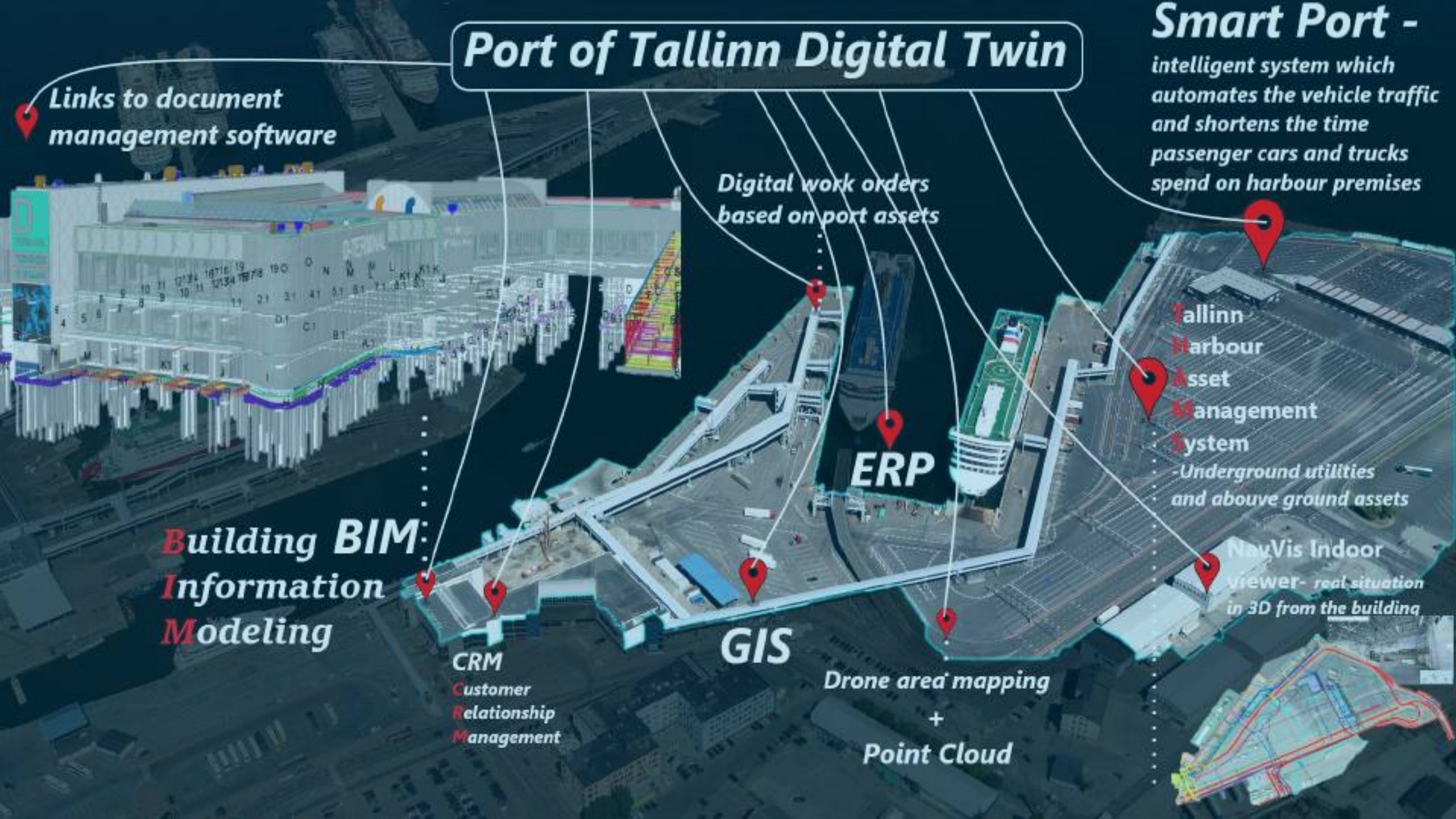
+  
Point Cloud

ERP

Tallinn Harbour Asset Management System

Underground utilities and above ground assets

NavVis Indoor viewer - real situation in 3D from the building





Model at the site

High demands to the subcontractors

The check of the as-built model, tolerances

Scanning & 360 Pictures.  
Augmented reality

Data input into the as-built-model – Simplebim®



GREENHOUSE GAS  
EMISSION  
MONITORING



SMART PORT  
traffic +  
roro +  
vehicles to  
ships

AIS DATABASE  
vessel traffic

PRODUCTION  
AND  
CONSUMPTION  
OF HEATING  
(TS +  
operators)

ELECTRICITY  
CONSUMPTION  
(TS +  
operators)

TUG BOATS,  
PILOTS, TS  
VESSELS  
fuel  
consumption

OLD CITY  
MARINA  
port visits

QUESTIONNAIRE  
FOR  
OPERATORS

TS LAEVAD  
fuel+  
electricity  
consumption

EMSA  
DATABASE  
(EL  
INFRASTRUCTURE)  
ship emission

X-TEE vehicle  
license plate  
+ category  
data = fuel  
consumption

TS SHIPPING  
fuel +  
electricity  
consumption

RAILFREIGHT  
TRAFFIC  
fuel  
consumption

TS WEB  
APPLICATION  
for SQL data  
management

# Thank You!

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[ts.ee/en](https://ts.ee/en)

[ts.ee/en/investor](https://ts.ee/en/investor)

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