

# AI and the Maritime Workforce : Bridging the skills gap for a resilient future

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Paramaribo, CSA, October 14th 2025



**Port of  
Antwerp  
Bruges**  
International



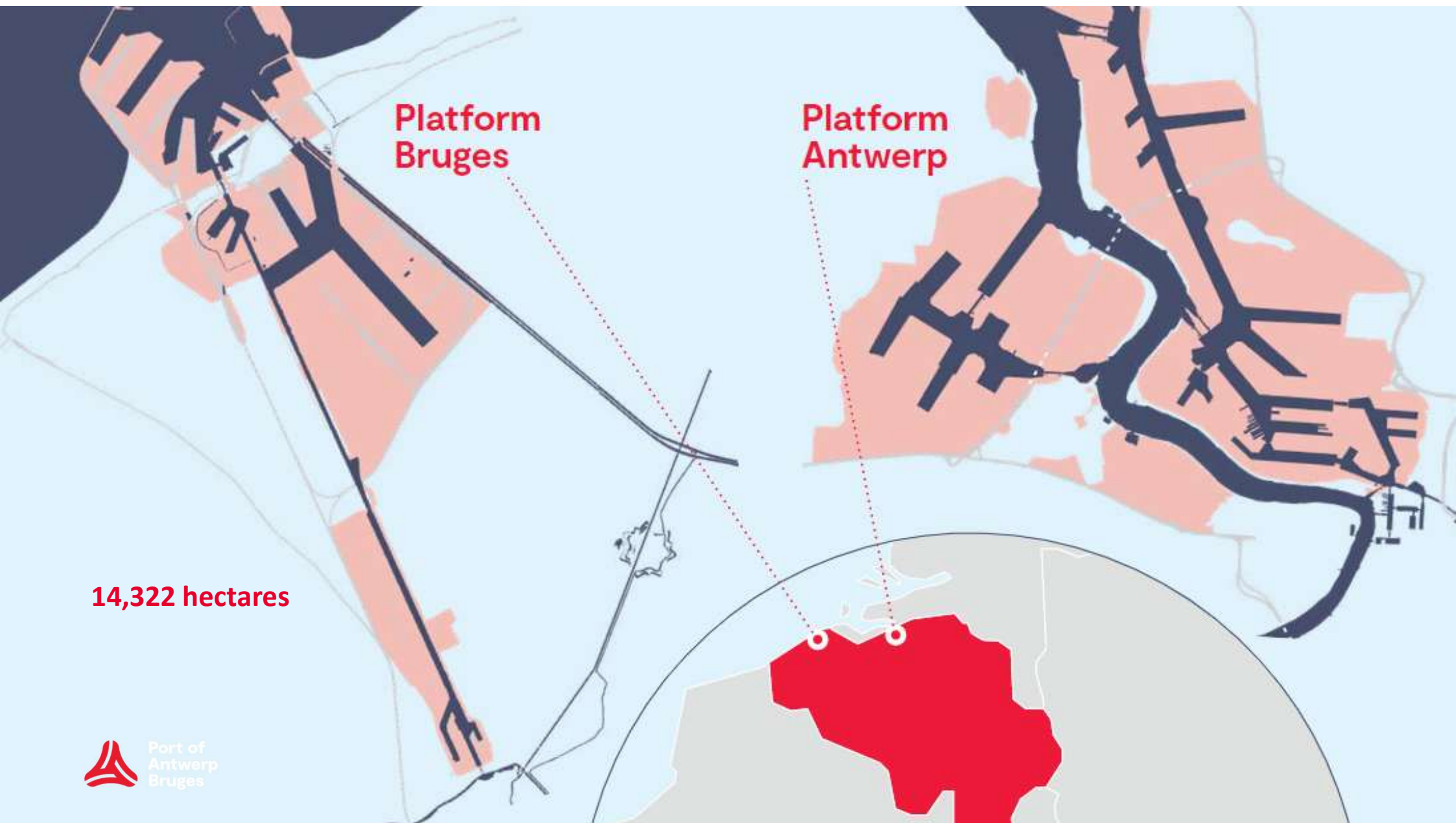
**SPTI**  
SURINAME PORT  
TRAINING INSTITUTE



Platform  
Bruges

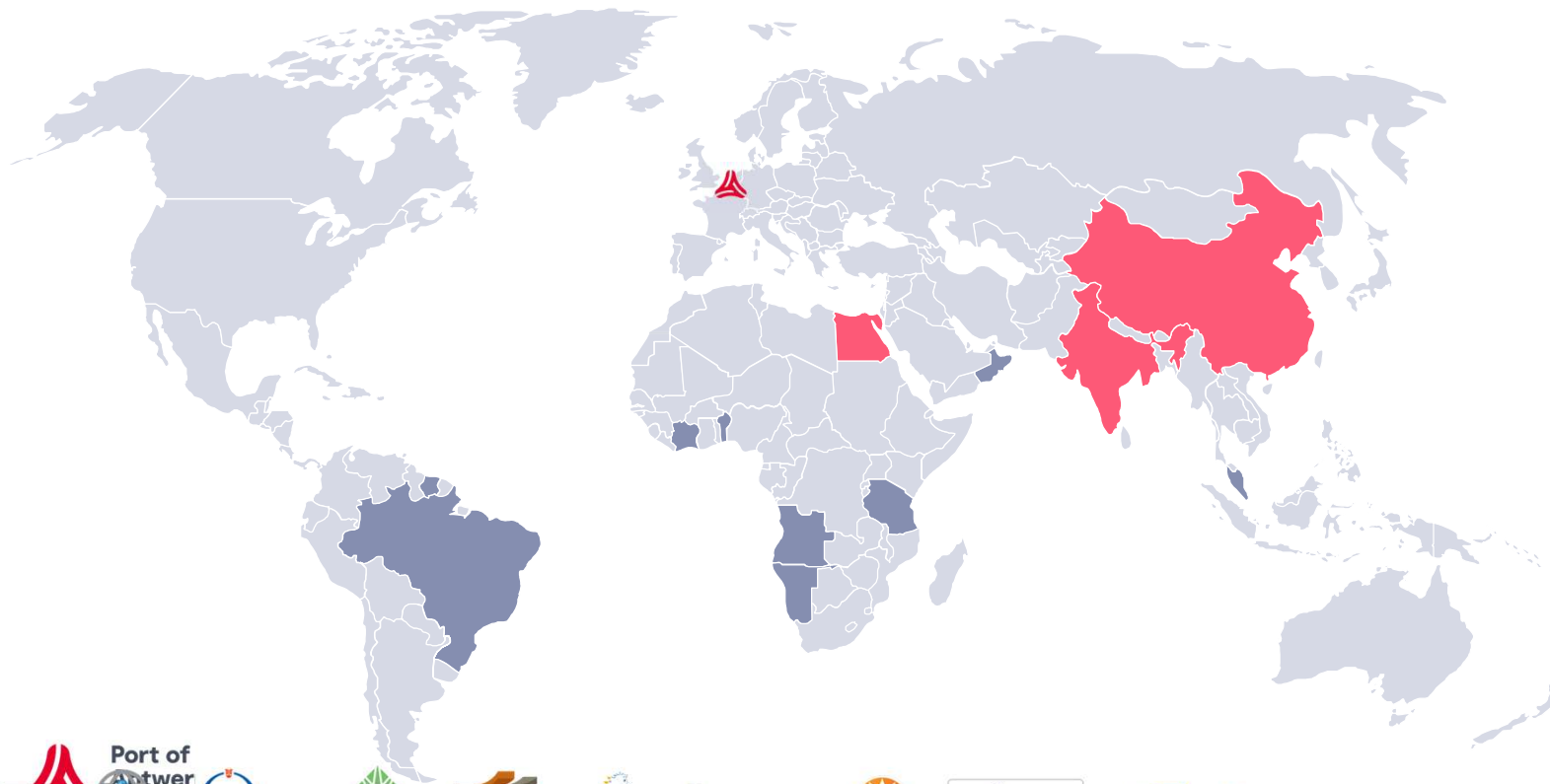
Platform  
Antwerp

14,322 hectares



# Global Port Network

## Structural partnerships



### Port of Antwerp-Bruges International – global partnerships:

- Havenbeheer Suriname, **Suriname**
- Porto do Açu, **Brazil**
- Port Autonome de Cotonou, **Benin**
- Namport, **Namibia**
- Porto de Luanda, **Angola**
- Tanzania Ports Authority, **Tanzania**
- Port of Duqm, **Oman**
- Lumut Port, **Malaysia**

# The smart port defined

Five foundational pillars underpin the long-term vision



Integrated port operations



Adaptive modal shifts



Cybersecurity



Impact on climate  
and ecology



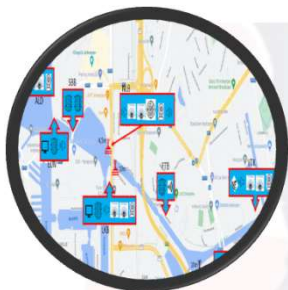
Digital talent and  
ecosystems

# Our digital footprint

Essential for a smart, safe & secure port in a 24/7/365 context



180km  
fibre optic



VTS Argonauten  
Oosterweel



WIFI



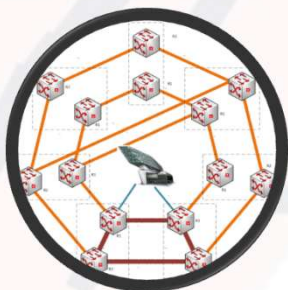
Data Centers  
ANR + ZBR



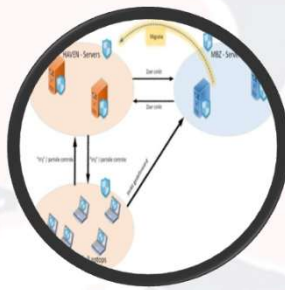
Central Control  
Room ZBR



Radio Technology  
ROIP Antennas



Redundant  
network



ZBR / ANR  
Connectivity



Uniform cameraplan  
OT



>12.500 assets  
under management

>100

PCS >86 mio  
messages p/a

22

Radar locations

254

Safety bouy infra

12

Meteo stations

800

CCTV Cameras

1494

Laptops

1276

Mobiles

1363

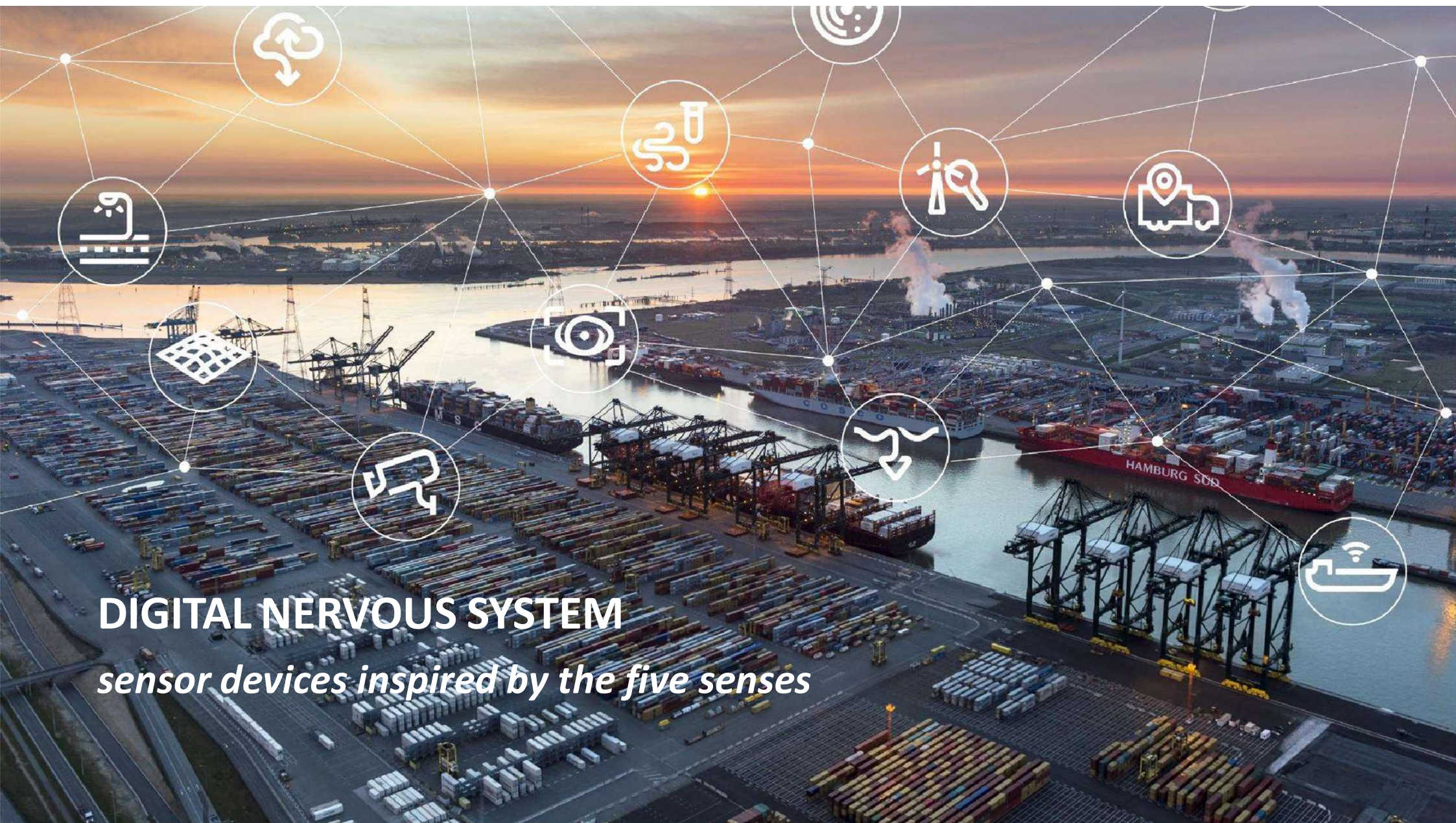
Network Devices

480

Radio Devices

...

Assets IOT, etc.

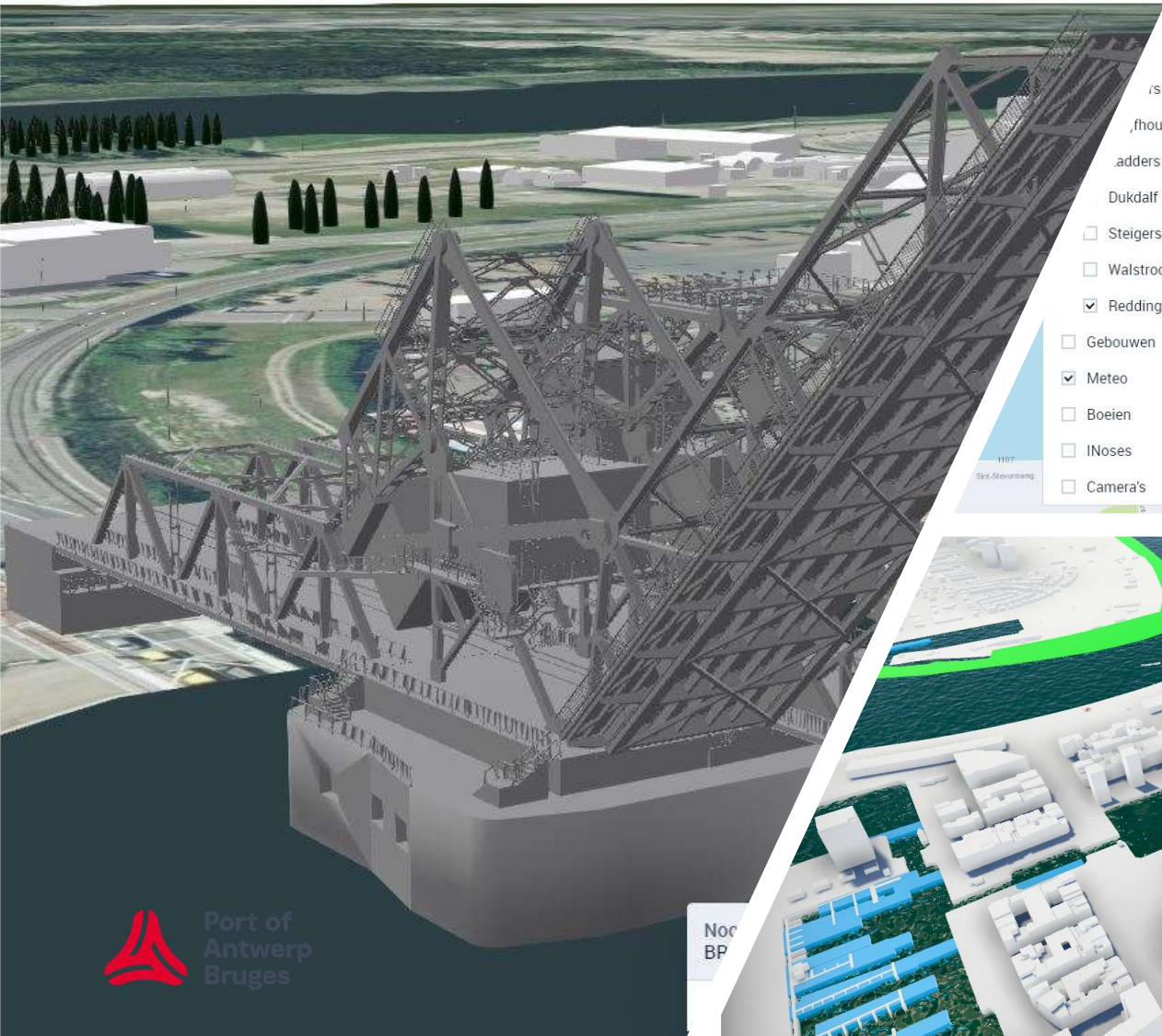


## DIGITAL NERVOUS SYSTEM

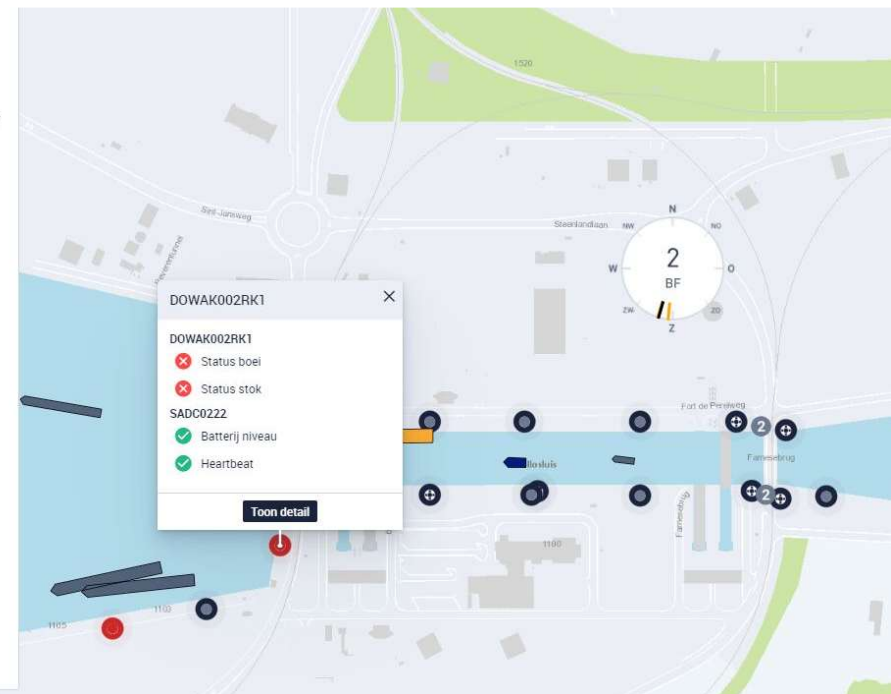
*sensor devices inspired by the five senses*



# Situational awareness through the Digital Twin “APICA”



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  - ☐ Steigers
  - ☐ Walstroomkasten
  - ☒ Reddingskasten
- ☐ Gebouwen
- ☒ Meteo
- ☐ Boeien
- ☐ INoses
- ☐ Camera's



DOWAK002RK1

DOWAK002RK1

- ☒ Status boei
- ☒ Status stok
- ☒ SADC0222
- ☒ Batterij niveau
- ☒ Heartbeat

Toon detail



# AI and the maritime workforce

- The maritime sector is entering a **new era** of automation and AI-driven operations. Predictive analytics, digital twins, and smart logistics require a workforce equipped with new digital and decision-making skills. Many ports, particularly in emerging regions, face a widening skills gap that threatens operational efficiency and safety
- 60–70% of port workers lack digital or data skills (global training studies)
- Automation creates new hybrid roles — human-machine collaboration
- Continuous reskilling needed at all levels (operators, supervisors, managers)
- Digital & Data Literacy – reading dashboards, understanding AI outputs
- Operational AI Supervision – knowing when to trust automation
- Cyber & Systems Awareness – safeguarding connected infrastructure
- Soft Skills – systems thinking, problem-solving, collaboration



# Lessons learned after five+ years of digital transformation

1. **People first** Digital transformation is **not** (only) a **technology challenge**. Mindset matters!
2. **Strategy** It starts from the top with a **clear vision** of where you want to go and why
3. **Envision it** Paint a picture of the **future** (APICA)
4. **Learning from others** **Outside – in** innovation is very powerful as an accelerator
5. **Clarity** Be **clear about the goals**, but keep in mind the journey matters as well
6. **Culture** “Culture eats strategy for breakfast”  
(‘what if’ mentality, experiment & failing/learning = ok)
7. **Step by step** How to eat an **elephant**, one **burger** at a time – **make it realistic**
8. **Perspective matters** **4 perspectives** (inside-out/outside in/tech/culture). Tech is ‘just’ a means to an

# Thank you



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