

CONNECTING THE WORLD BUILDING TOMORROW'S SUSTAINABLE PORT





**MARCUS RADEMAKER | PROJECTMANAGER DIGITAL PORT
LIFECYCLE**

INTEGRATED DIGITAL SOLUTIONS FOR PORT AND MARITIME INFRASTRUCTURE AND NETWORKS

KEY QUESTIONS

1

What makes a Port?

2

What are Port Challenges?

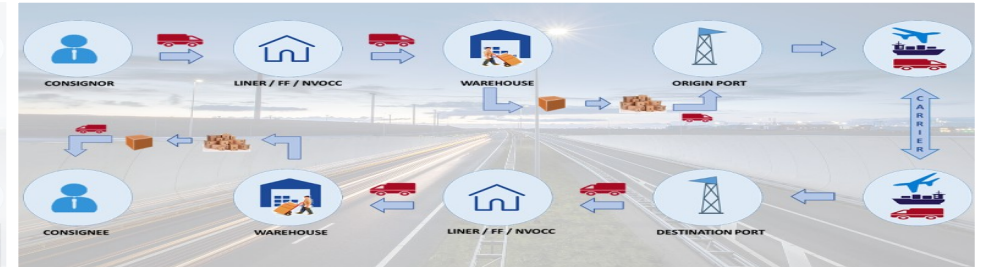
3

How to become a Smart Port?

WHAT MAKES A PORT?

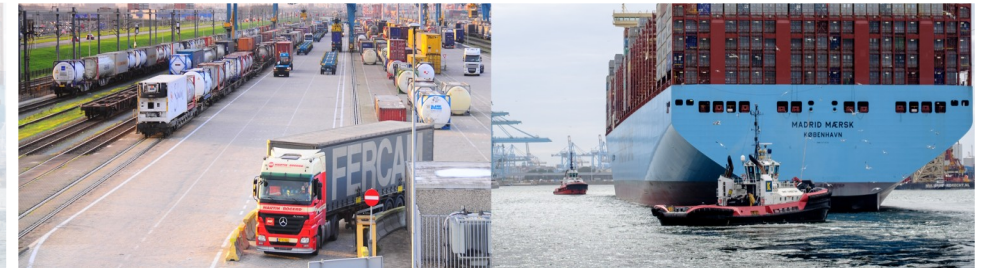
Logistics

Management of transport and cargo related processes



Transport

Operation of transport services between nodes



Infrastructure

Provisioning and exploitation of (fixed) assets



Location

Spatial context of port area



Source: The Geography of Transport Systems, Jean-Paul Rodrigue, 2020

WHAT ARE PORT CHALLENGES?

Contextual Transitions

2030

Spatial Scarcity

2040

Digital Transition

2050

Energy
Transition

2100

Climate
Adaptation

2045

Labor Market
Transition

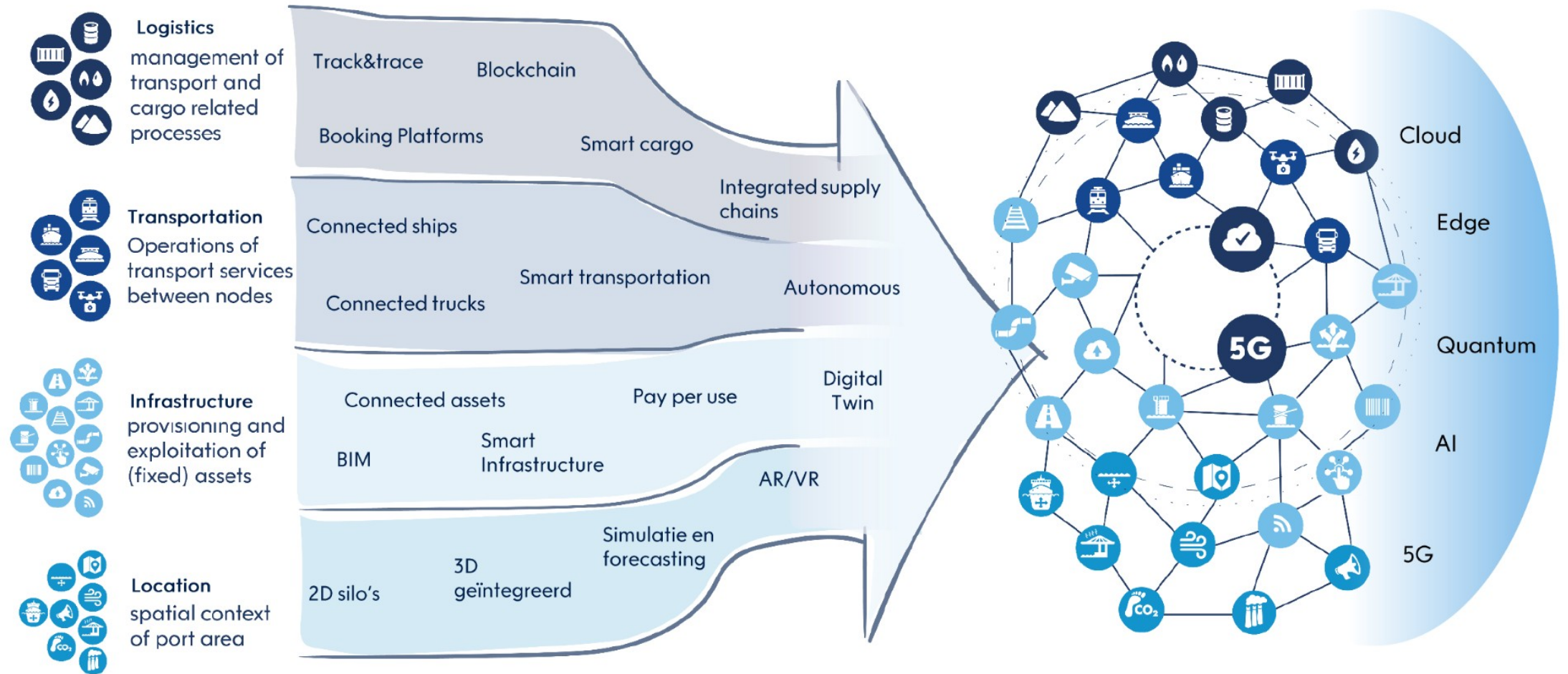
2035

Future Security

2080

Critical & Raw
Materials
Transition

HOW TO BECOME A SMART PORT?





Period:

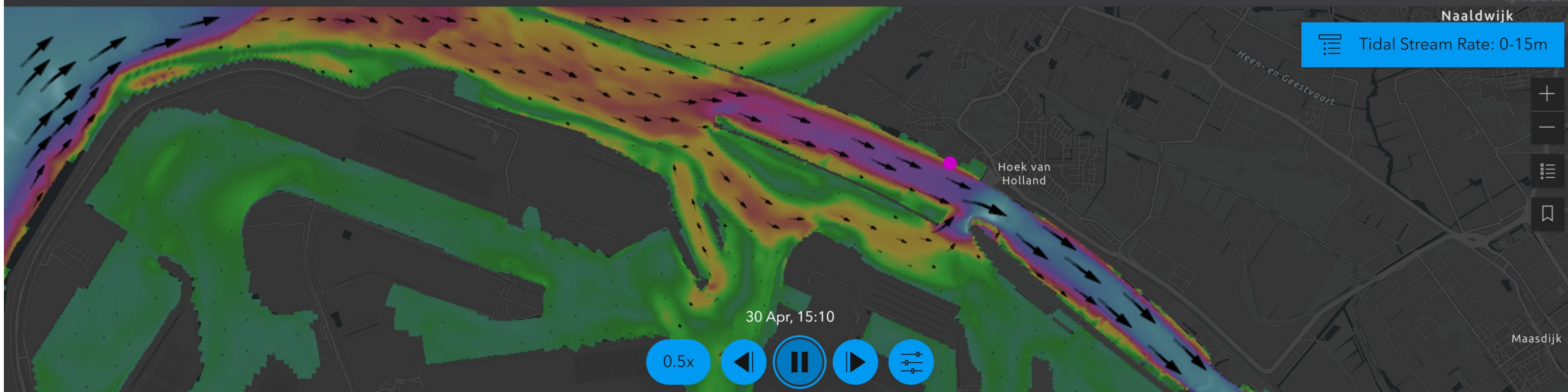
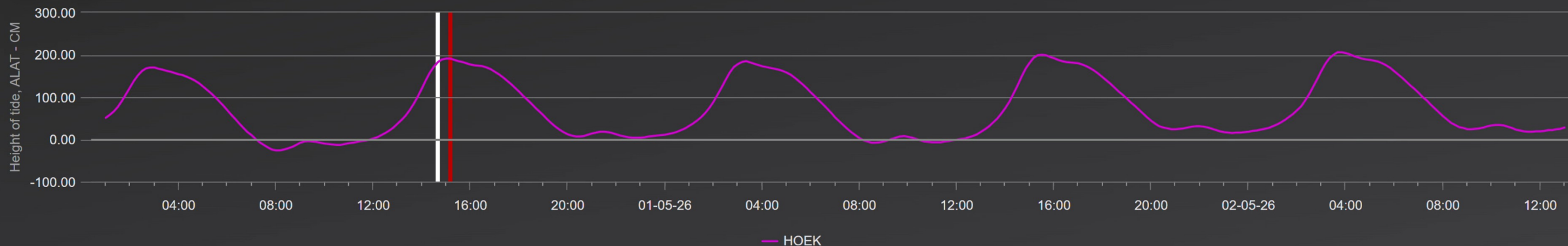
30 Apr, 01:00 - 02 May, 13:00



Hoek van Holland

NAP

ALAT





Referentiepunt Domein: NRDP

Windhoogte: 15

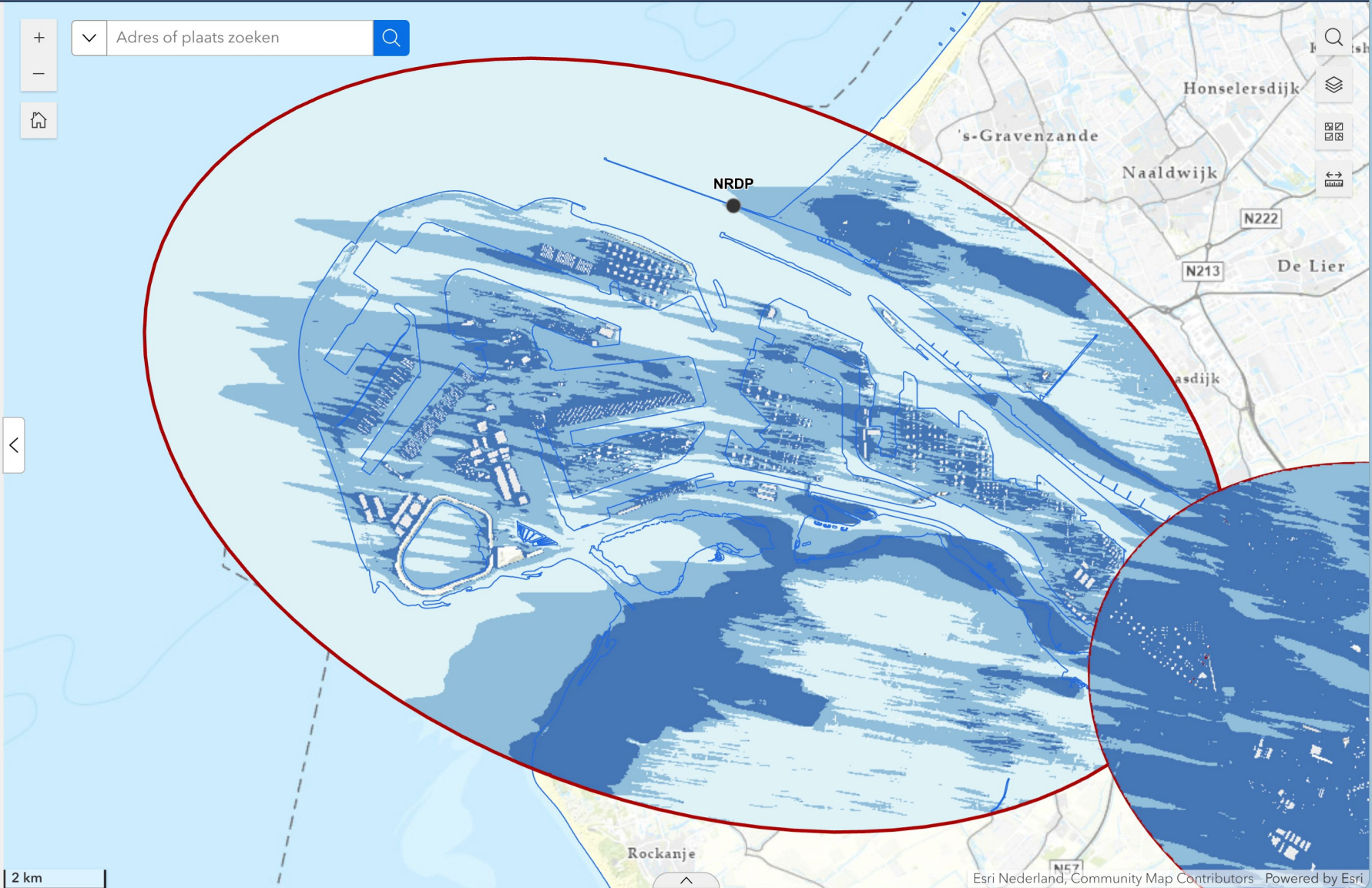
Haal en Toon voorspelling

1

1 - 2026-04-30T14:00:00Z : 100 deg, 8 m/s

Stop interval

Tijd	Richting	Snelheid	Hoogte	Domein	Value
Description	Description	Description		Description	
<hr/>					





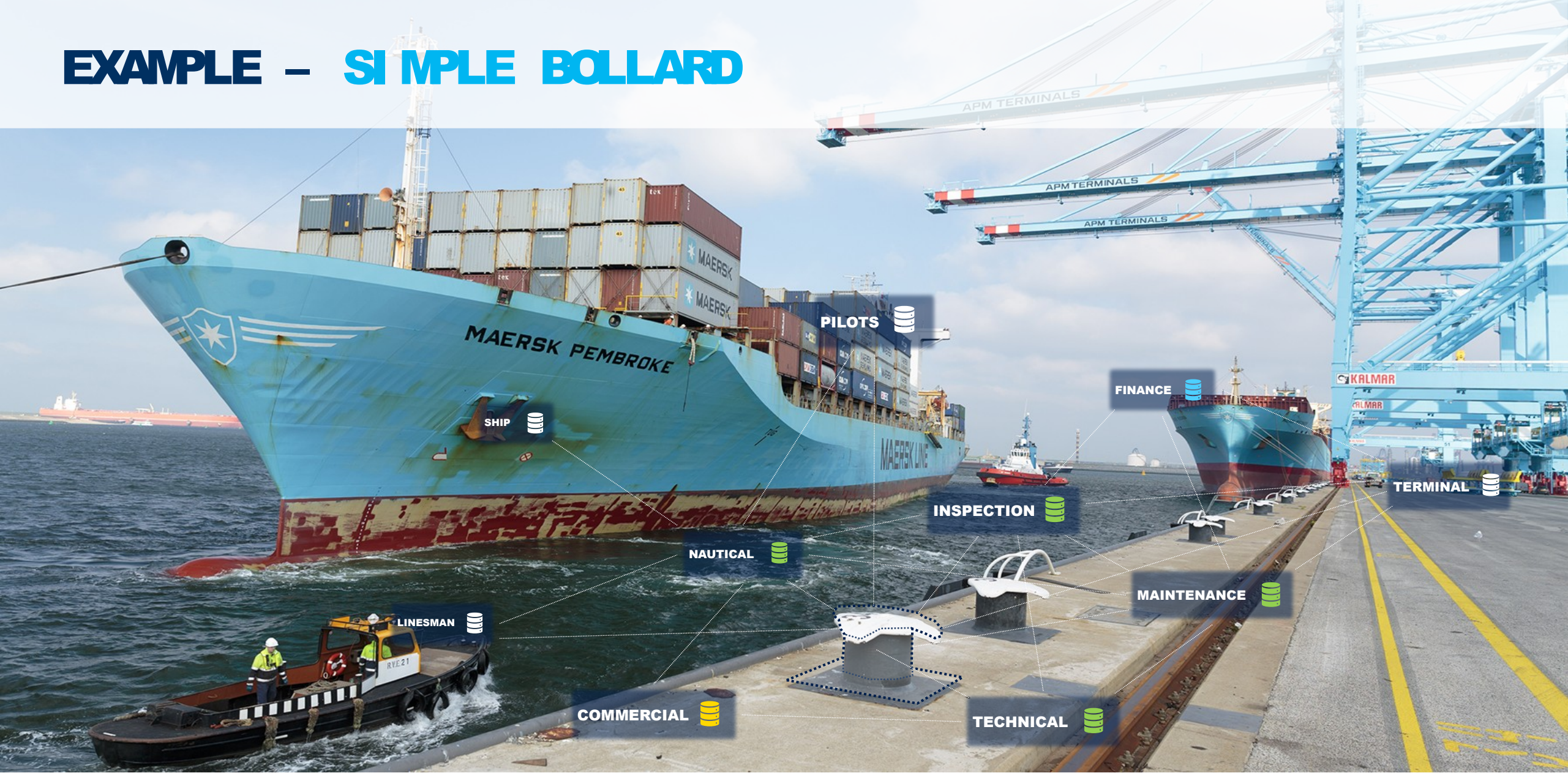
lichtmast_armatuur
conf 98.8%
obj 98932b7f
lichtmast_armatuur_m: -3.566106
lichtmast_armatuur_s: quality_C

lichtmast_armatuur
conf 88.7%
obj f9c49f4f
lichtmast_armatuur_m: -1.090234
lichtmast_armatuur_s: quality_B

verkeersbord_categorie_abcdefg
conf 97.8%
obj 0f858f68
verkeersbord_categor: quality_AB

Nearest address: Waalhaven N.z. 34 3087BL Rotterdam
GPS position: 51.896855, 4.442296, heading 15.1°
Speed from GPS: <unknown>
Frame number: 1
Seconds driven: 0.0
lichtmast_armatuur 2 detections seen
verkeersbord_catego 1 detections seen

EXAMPLE – SIMPLE BOLLARD



EXAMPLE – SMART BOLLARD



H-L-N-M2-353-KAD-002-060-AFM-000

BOLLARD STATUS



H-L-N-M2-353-KAD-002-060-AFM-000

BOLLARD PLANNING

Time	Action
20191607 14:50	ETA
20191707 12:00	ETD
20191707 13:00	Inspct
20191707 13:30	ETA
20191707 15:00	Inspct
20191807 20:30	ETD
20192107 08:00	Maintnc
20192107 13:00	Maintnc

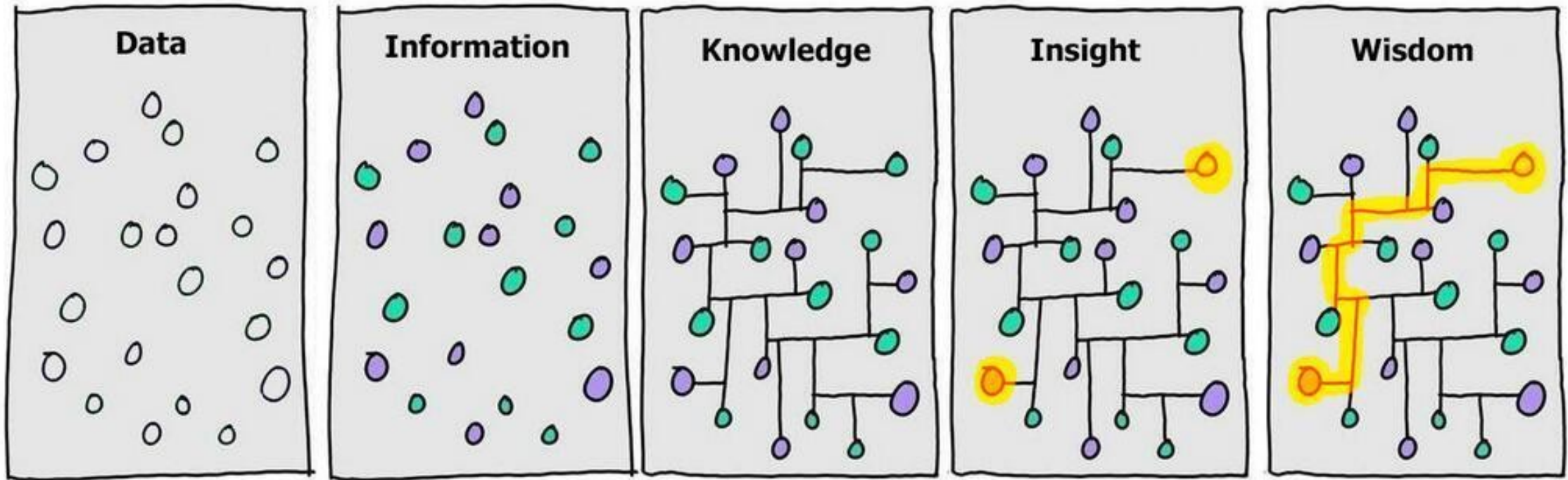
H-L-N-M2-353-KAD-002-060-AFM-000

BOLLARD HISTORY



STRUCTURED MEMORY THROUGH KNOWLEDGE

GRAPHS The Connective Tissue



DIGITAL INTELLIGENCE AS THE FOUNDATION OF A SMART PORT



Questions, ideas, challenges?
Let's connect!



Project-/ Programmanager
m.rademaker@portofrotterdam.com