THE BELGIAN EXAMPLE

Karel Buijsse, Strategic Product Manager, e-Bo enterprises, and
Commander S.G. Kurt De Winter, Belgian Navy.

Wind EUROPE

Against all odds

Security in the maritime domain

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Technology integration of IT, OT & software systems spanning the digital transformation journey

e-BO **OFFSHORE**

e-BO **CORPORATE**

e-BO **PUBLIC SAFETY**

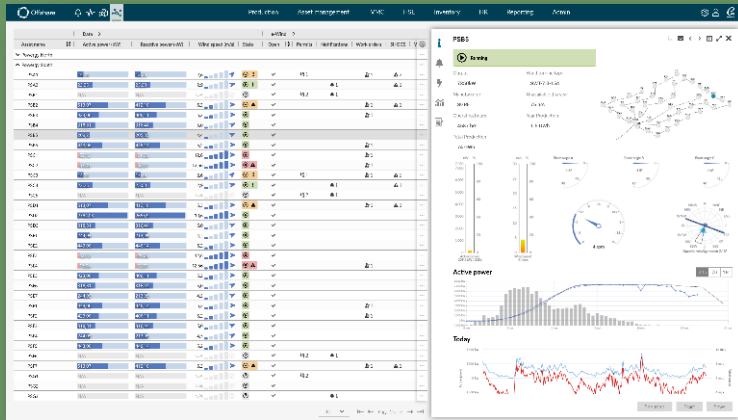Networking   Security   Control room software   Private Cloud infrastructure   Private WAN/LTE

Delivering services
in 280+ locations
across Europe

Headquarters
Belgium

Offices
Germany
France
UK

25% developers

110+ employees

Oostend

Ypres

Offshore collaboration that connects people, data and processes on a secure software platform

Efficient processes, valuable insights and minimized risk

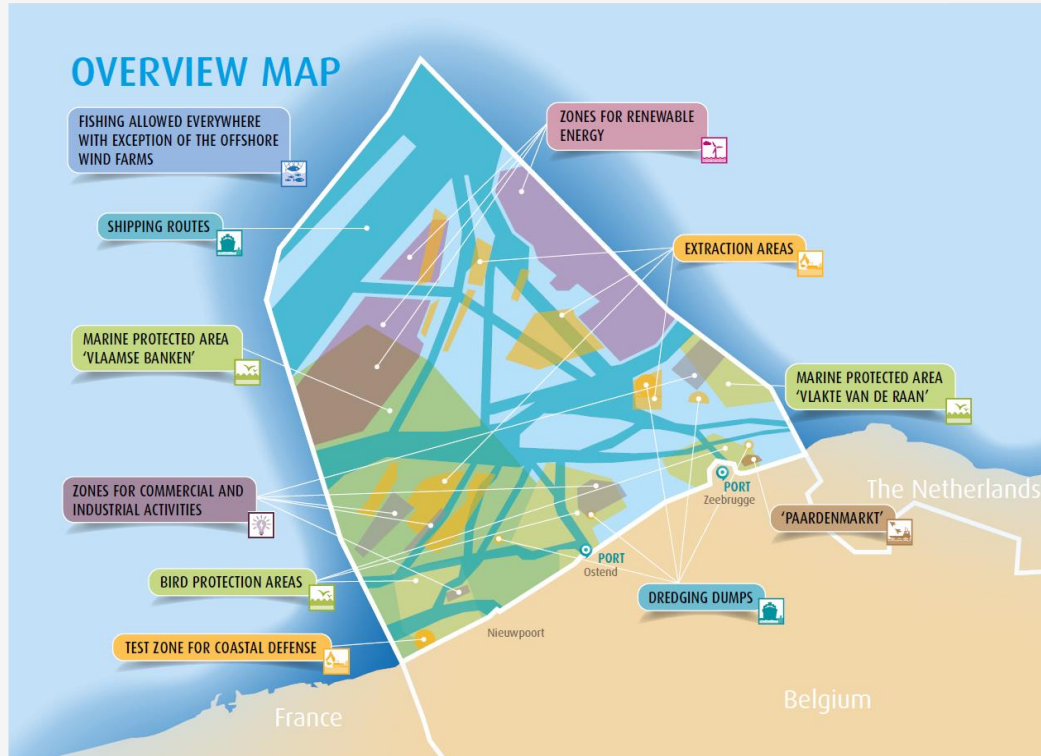| 590	388	20k	250k	>6500 MW	22	500	100K
WIND TURBINES	SUBSEA CABLES	ACTIVATED PERSONS	BIG DATA SIGNALS	MANAGED ASSETS	SUBSTATIONS	VESSELS	UPLOADED CERTIFICATES

Offshore Customers & Partners

The Belgian EEZ is a complex & densely operated environment

OVERVIEW MAP

FISHING ALLOWED EVERYWHERE WITH EXCEPTION OF THE OFFSHORE WIND FARMS

ZONES FOR RENEWABLE ENERGY

SHIPPING ROUTES

EXTRACTION AREAS

MARINE PROTECTED AREA 'VLAAMSE BANKEN'

MARINE PROTECTED AREA 'VLAKTE VAN DE RAAN'

ZONES FOR COMMERCIAL AND INDUSTRIAL ACTIVITIES

PORT Zeebrugge

The Netherlands

'PAARDENMARKT'

BIRD PROTECTION AREAS

PORT Ostend

DREDGING DUMPS

TEST ZONE FOR COASTAL DEFENSE

Nieuwpoort

France

Belgium

Small	3,600 km^2 (0,5% North Sea)
Busy movements/year	55,000 ship
Responsibilities	17 government institutions
Activities	

nature conservation
energy production
shipping
dredging activities
fishing
aquaculture
sand extraction
coastal protection
military activities
tourism
protection of cultural heritage
research
commercial activities
industrial activities

Marine Spatial Planning - needs to be enforced

Transport

Energy

Defence

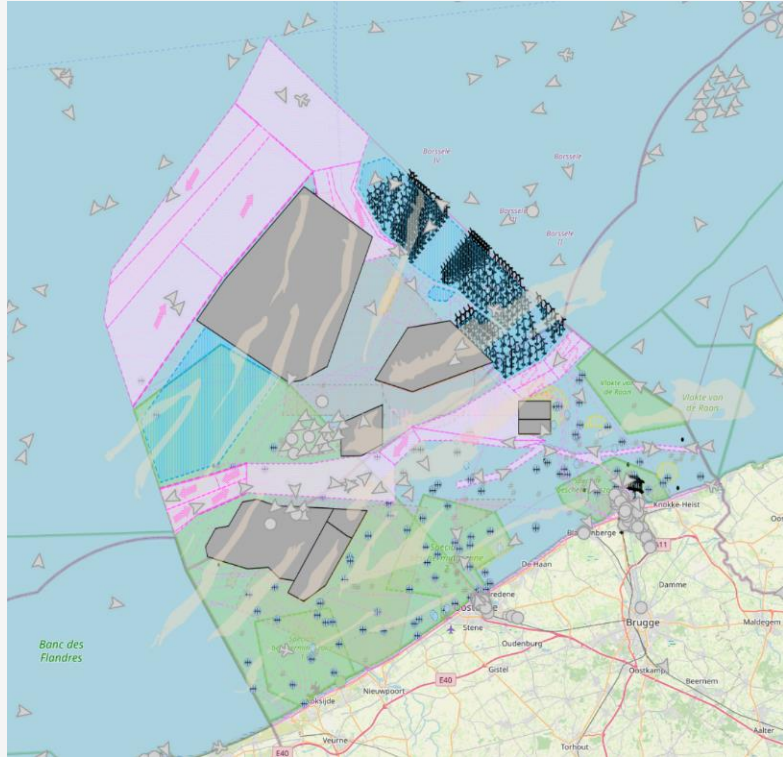Sand extraction

Nutrition

Ecology
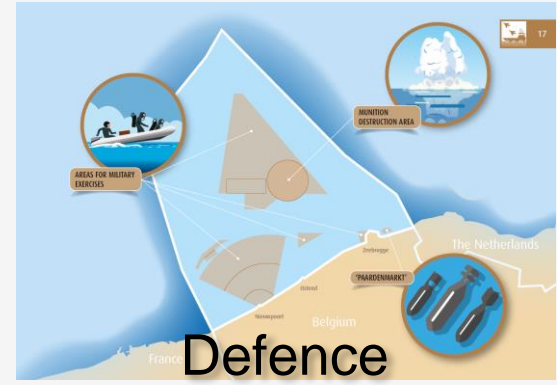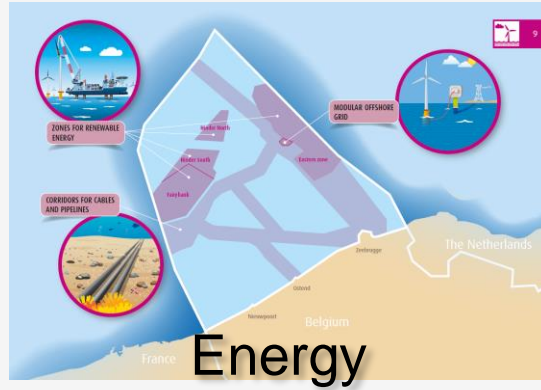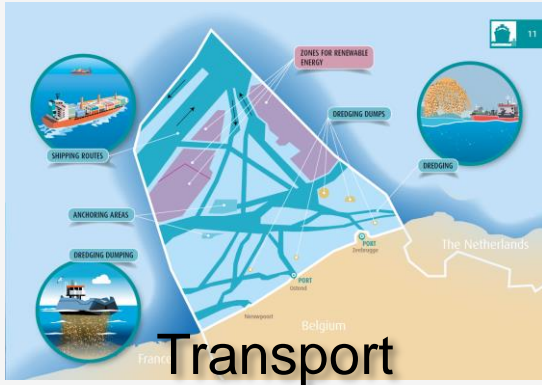
Maritime Information Exchange - MIK

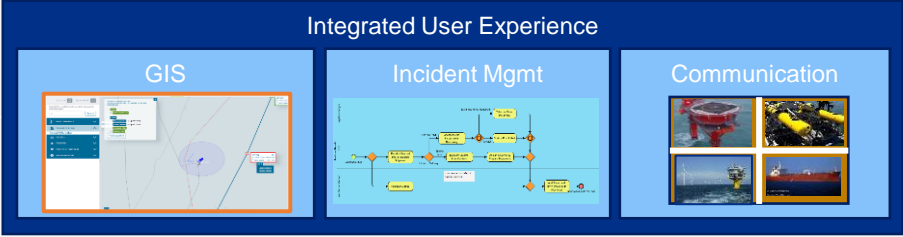# Need for one application to jointly run maritime domain management

Understanding events, activities & circumstances within and associated with the maritime environment that are relevant for all maritime stakeholders

Providing the intelligence and means to take action & communicate appropriately and timely
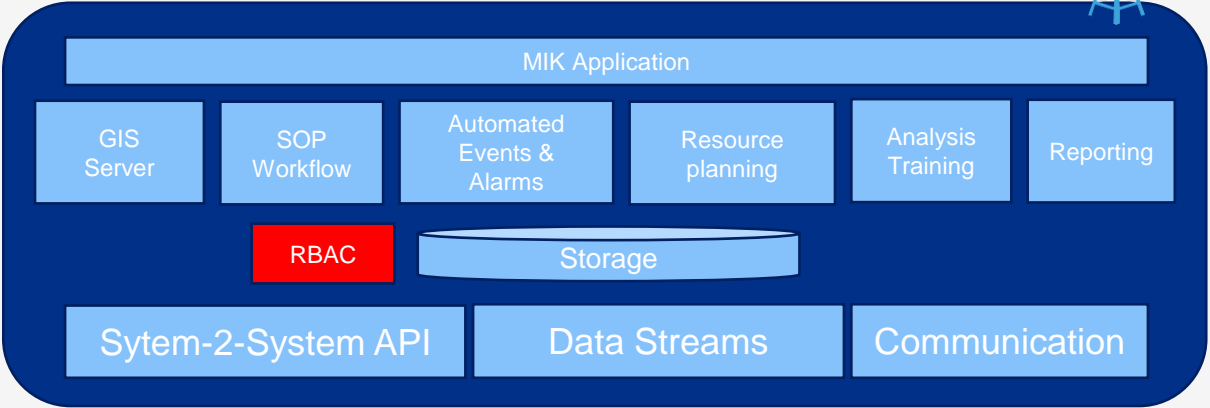
Delivering this in a single application vs 20+ stovepipe applications used today

Lessons learned

Nurture relationships – the triple helix strategy in a complex eco system

Industry

Associations : BOC, BOP, VOKA

EPCI & WTG OEMs

Supply Chain : Services, Suppliers

Integrators : OSS, HV, Cyber

University   Business   Government

Federal Government

- FOD Mob
- FOD Energy
-     NordSea
- FOD Economy
- BMM
- BIPT
- MIK: Customs, Police, Defence
- VDS, VQB

Public Authorities :
- TSO (Elia)

Regional Government

- POM WVL

Flemish Government
- Ports
- MDK
    - MRCC
    - SRK

Academic

Associations : DBC (Vlaio)

Universities

Spinoffs
Ostend Science Park

Lessons learned

Find the wins

Wind farm intrusion prevention support by coast guard ←→ perimeter camera or radar access

Verifying sand extraction taxation reports verification through behavioral analysis of dredging operations

Automatic reporting & delivery of proof for traffic or environmental violations

Be flexible

Getting data access requires agreements and take time

Joint agile development is key to demonstrate progress

Looking forward

Need for further automation and detailed detection

Inferring illegal activities through abnormal behavior detection (machine learning)

Small contact detection (border protection, illegal activities)

Possible solutions will be investigated with stakeholders and academia

More and diverse sensors - cameras, radar, vibration detection

Expand sensors to patrol vessles - both at sea & in the air

Sensor fusion – combine information from multiple and diverse sources

Where to find us

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Wind EUROPE

ELECTRIC CITY 2021
23-25 NOVEMBER
COPENHAGEN

Belgian Offshore Cluster

stand C2-C13&C14