

Port of Antwerp-Bruges

Value creating partnerships
through chemical clusters

Daljit Singh Kohli
India Representative



Contents

1. A global port - Past and Present
2. Success factors – an integrated cluster
3. Partnerships for a sustainable future
4. Digital Transition



Good chemistry

1

A global port past & present

Largest integrated oil & chemical
cluster in Europe



Port of
Antwerp
Bruges





World port that
reconciles people, climate and the economy



One port
Two locations

**Stronger
together**

The 5 largest oil and chemical clusters in the world





2nd largest
port in **Europe**



Largest **car handling**
port in Europe
3.56 million cars/year



14,322
Hectares



164,000 **jobs**
Direct and indirect



Largest **chemical**
hub in Europe



Number one **export**
port in Europe



1,400
Companies



Total throughput
271.3 mio tons/year



Important **cruise**
port in Benelux
+ 300,000 passengers



15% of EU **gas** market

Port of Antwerp-Bruges

Europe's largest integrated oil & chemical cluster



88,7

Mt maritime
throughput of liquid
bulk



12,5

Mio TEU



15%

of EU gas needs
(LNG, CNG)



40

Mt of oil refinery
capacity



20

Mt Chemicals
output

2

Success factors

Largest integrated oil and chemical cluster in Europe



Port of
Antwerp
Bruges

Success factors

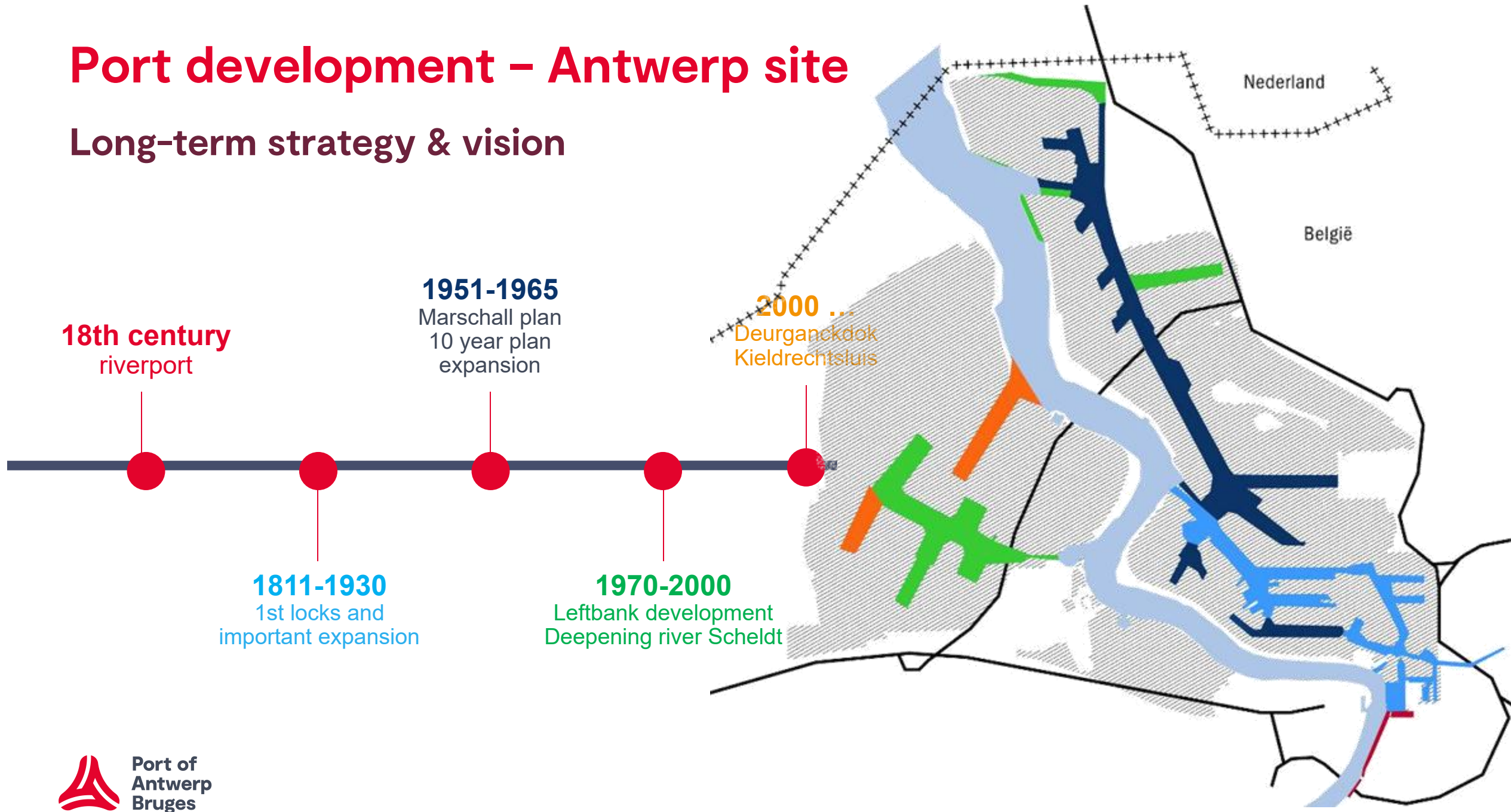
Europe's largest integrated oil & chemical cluster

1. Vision and strategic focus
2. Community builder and facilitator
3. A truly integrated cluster
4. Infrastructure and connectivity
5. Innovative spirit

**Port Authority as
master planner**

Port development – Antwerp site

Long-term strategy & vision



Daily operations

Port Authority as a driver
for Port of Antwerp-Bruges

Frontrunner in four roles



Regulator



Operator



Landlord



Community builder

Unique ecosystem



Cargo handling



Logistics



Industry

Logistics

Local value-added logistics increase efficiency



Steel service centers



Vehicle service centers



Warehousing activities



Sampling

Stock management

Packaging

Order picking

Labelling

Quality Control

Blending

Customization



Success factors - A truly integrated cluster

RAW MATERIALS	FEEDSTOCKS	BUILDING BLOCKS	COMMODITIES	INTERMEDIATES	FINAL PRODUCTS
C ₁ Natural gas, Crude oil, Condensate	Methane, Refinery residue	Synthesis gas	Methanol Ammonia, Nitric acid	Formaldehyde Urea, AN, CAN, UAN	Glues, Resins Fertilisers
C ₂ Natural gas, Crude oil, Condensate	C2-C3, Naphtha	Ethylene	PE, EDC, VCM Ethylene oxide	PVC, Glycols, EVOH, Ethyl, BO, Glycol ethers	Polymers, EPDM, Copolymers
C ₃ Natural gas, Crude oil, Condensate	C2-C3, Naphtha	Propylene, Propane	Polypropylene Propylene oxide, Acrylic acid	Polyols, SAP	Polymers e.g., Polyurethane
C ₄ Crude oil	Refinery off-gas, Naphtha	Mixed C4	Butadiene	Polybutadiene	Acrylonitrile, Butadiene, Styrene
C ₆ Crude oil	Naphtha	Benzene, Toluene	Cyclohexane, Caprolactam, Aniline	BPA, Nylon 66, MDI	Polycarbonate, Polyurethane
C _{7,8} Crude oil	Naphtha	Mixed xylenes	O, P-Xylene	PA, PTA	PET
Cl Sea water, Brine	Chlorine, NaOH	EDC, Phosgene	VCM	PVC, MDI, Hypochlorites	Plastics, Polyurethane, Bleach

SHIP, PIPELINE, BARGE

PIPELINE, BARGE, RAIL

RAIL, ROAD

MAINLY ROAD

■ Items are produced in the cluster

Success factors – A truly integrated cluster

Synergy of products because of investments in chemical industry



1 billion Euro
World Scale PDH
(propane
dehydrogenation)



>1 billion Euro
Optimizing
refinery



<1 billion euro
Delayed Cocker
Unit



400 M Euro
Tank Storage
Terminal



315 M Euro
SAP, acryl acid



>550 million Euro
Alkoxyate and
ethylene oxide
capacity expansion



3 Billion Euro
PDH and ethane
cracker



World's largest
butane tank



300 M Euro
Aniline



25 M Euro
Expansion Plant



80 M Euro
New Hydrogen
plant



Success factors - Connectivity

Multimodal gateway to the European hinterland

Rail



Inland navigation



Road



Shortsea



Pipeline



60% of European
consumer market
within range of 500 km



Port of
Antwerp
Bruges



Connectivity

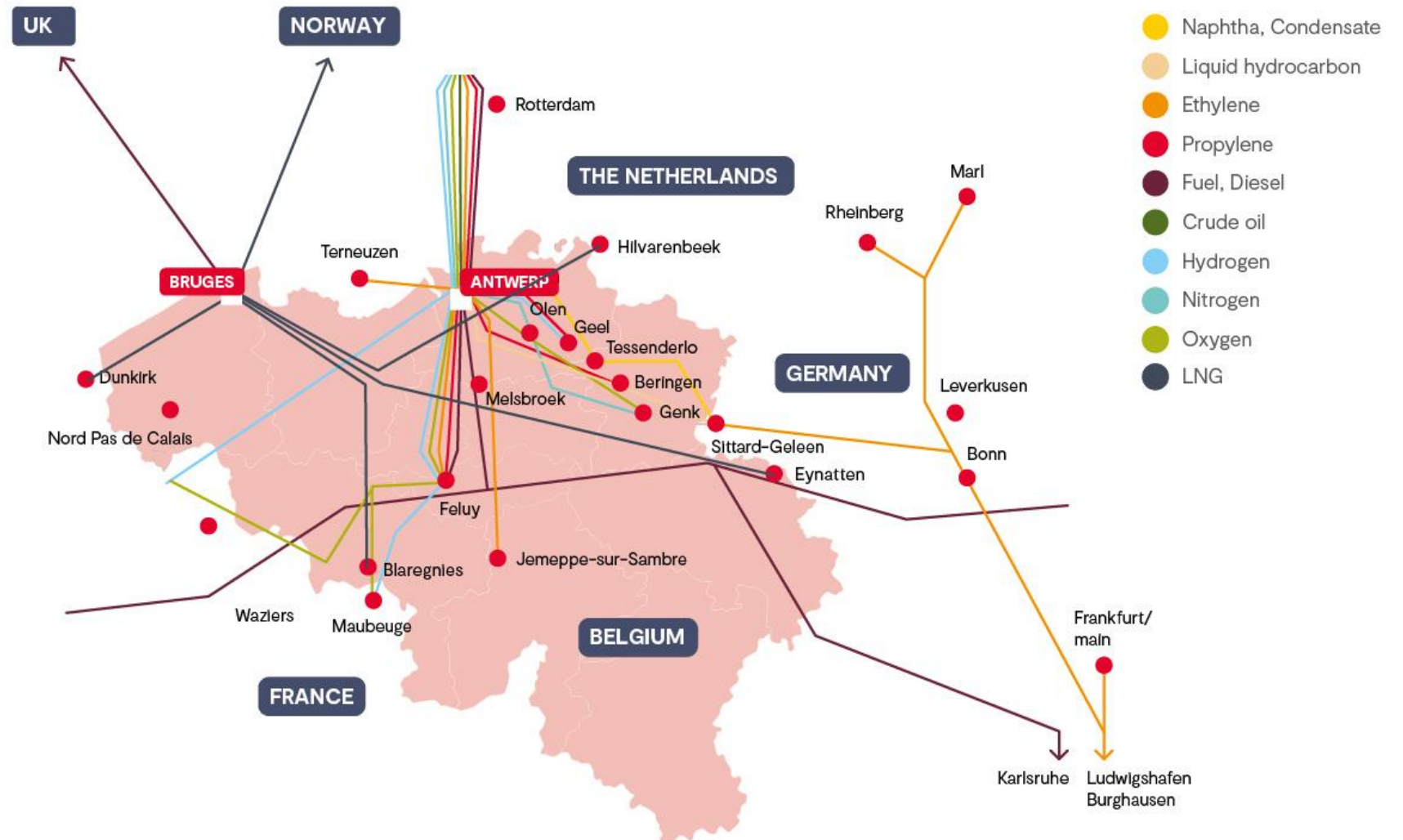
European pipeline hub

Key role in energy transition

Environmentally friendly

Energy-efficient

Safe and reliable



Success factors - Infrastructure

Tank terminal and pipeline network Scaling up the hydrogencarrier capacity

- Extensive **pipeline network** for different products. Interconnected **open-access hydrogen backbone** to be operational from 2026 onwards.
- Top-of-class network of major **tank storage and handling** providers. With existing ammonia and methanol capacity to be expanded and supplemented with other **hydrogencarriers**. (Terminal Analysis ongoing)



Success factors – innovative spirit

Digital & Circulair innovation hubs



3

Clusters and partnerships

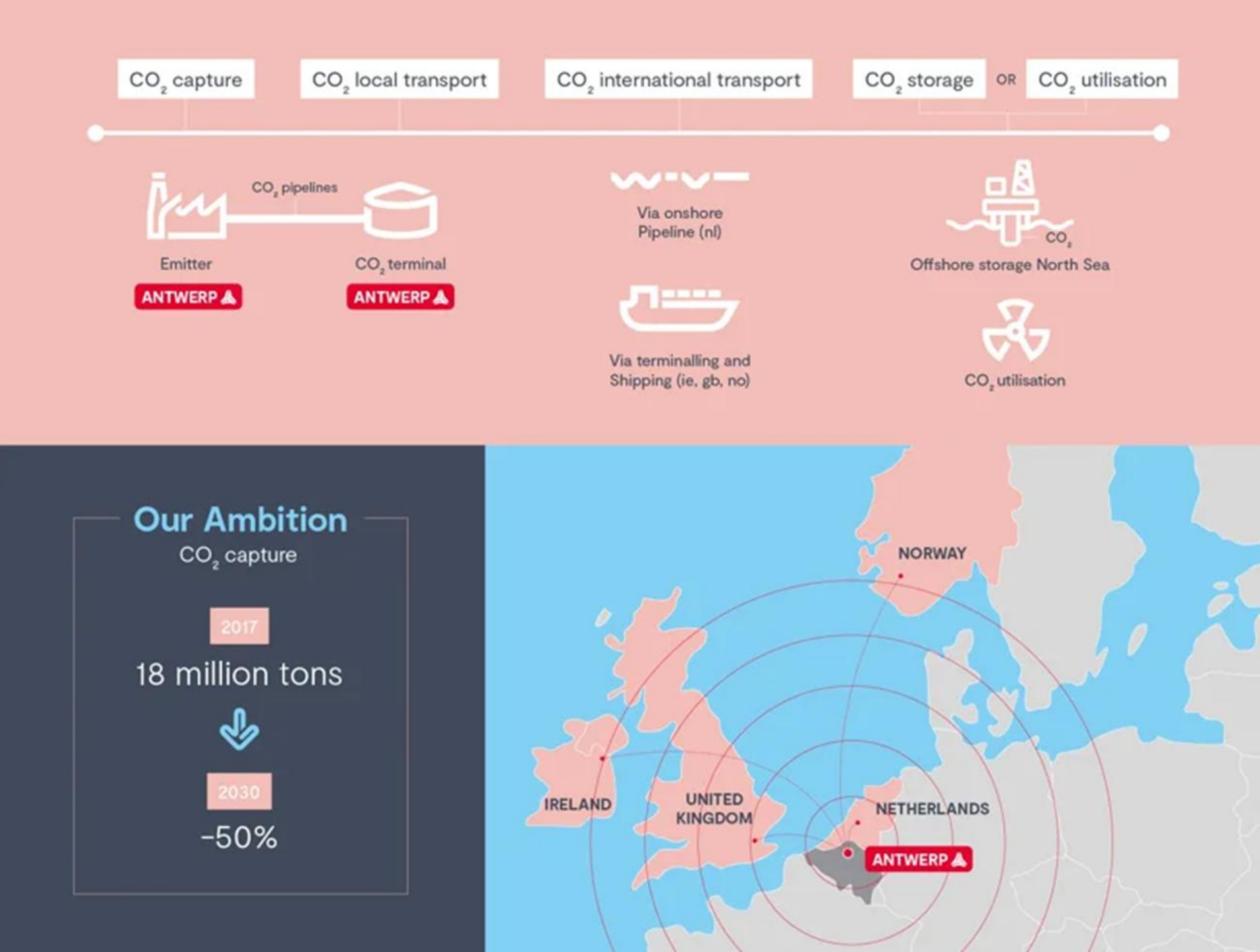
Towards a sustainable future



Port of
Antwerp
Bruges

Antwerp@C

with 8 partners



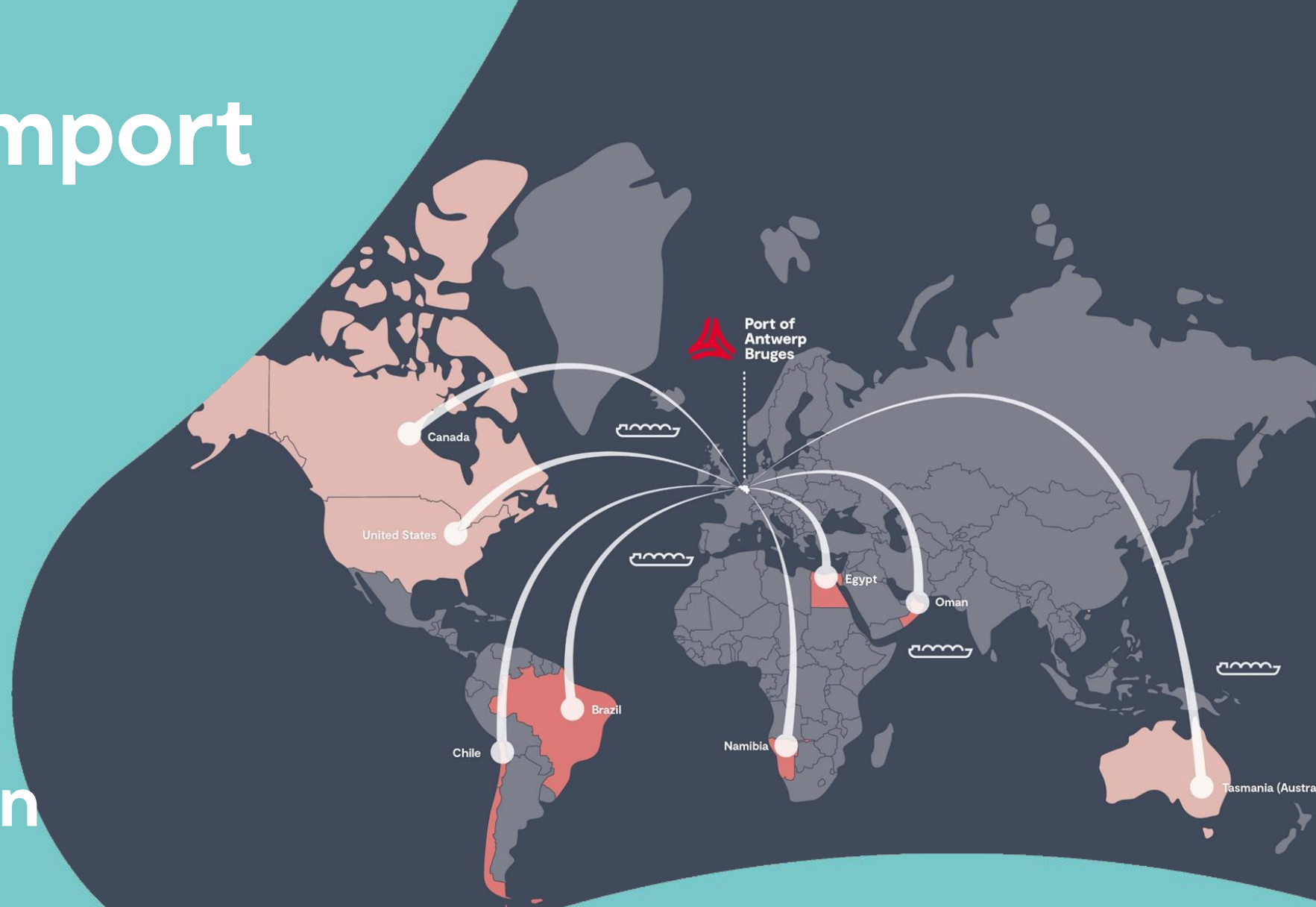
Power to Methanol demonstrator

with 7 partners



Hydrogen Import Coalition

Importing
green hydrogen
corner stone of
energy transition



4

Digital transition

Unleashing
the Power of
TOGETHER



Port of
Antwerp
Bruges



Frontrunner digital transition

5G

RX/seaport

NxtPort

Customs

Digital twin



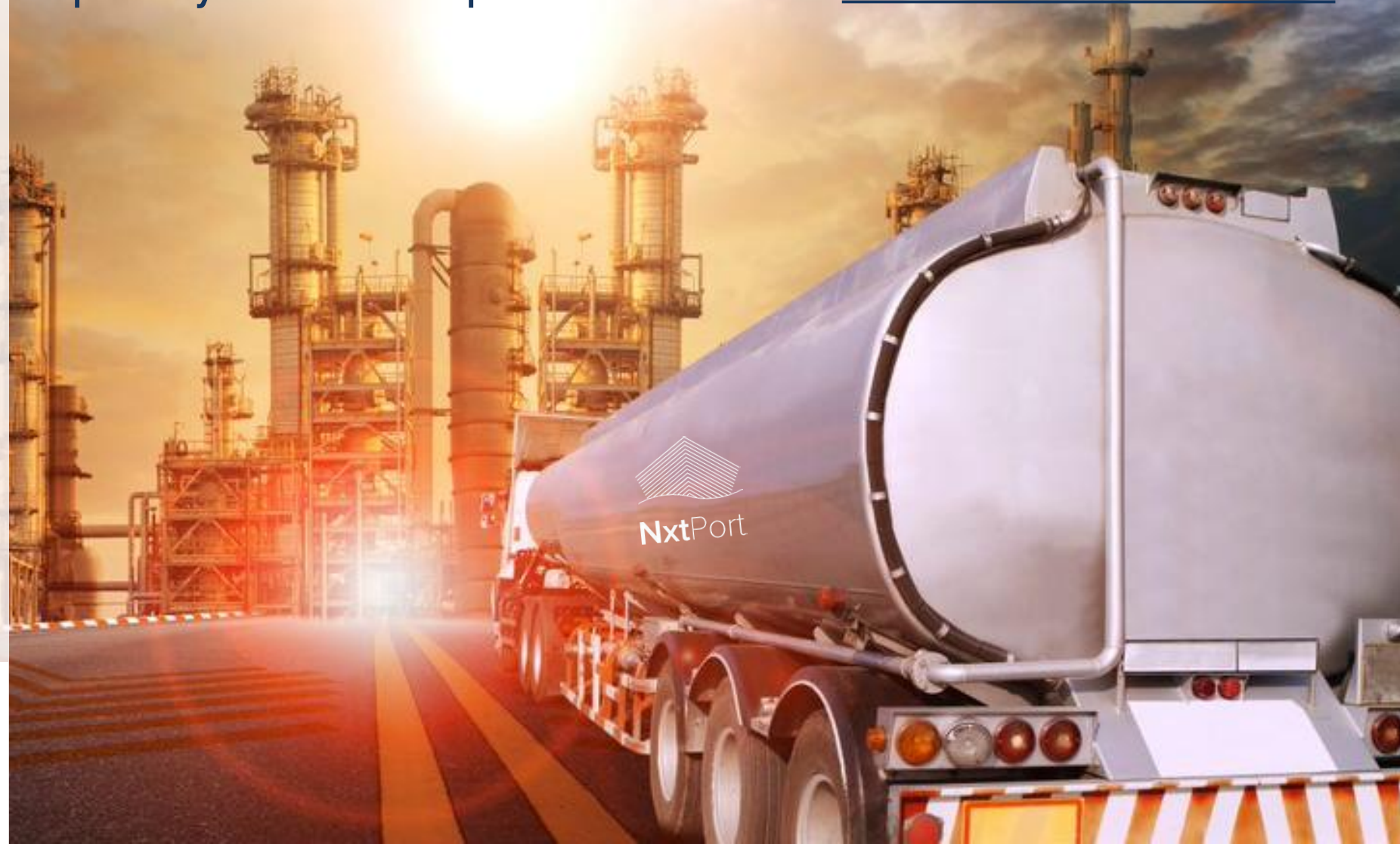
Port of
Antwerp
Bruges



DIGITALISATION OF CHEMICAL LOGISTICS

By frontrunners in the
Port of Antwerp-Bruges
integrated chemical cluster

Hinterland transport is hampered by paper-based administration, leading to delays, costly mistakes, quality and compliance issues for all stakeholders



INSTANT VALUE

Reduce cross contamination

Avoiding data re-entry

Create digital audit trails

Improve asset utilization

Reduce waiting times

Improve customer loyalty

Save 16 million sheets of paper per annum

HAPPENING NOW

Acceleration of further workflow digitization in chemical supply chain

From operational efficiency use cases to predictability and decarbonization

From intra-port logistics optimization to digital international trade lanes

**The march
towards USD
1 Trillion in 2040**

requires secure data exchange solutions to connect supply chain partners in their local and global communities

More show cases at

www.nextport-international.com

In tune with the world

Daljit Singh Kohli – India Representative
daljit.singh@portofantwerpbruges.com