



University of Antwerp  
| TPR | Department of Transport  
and Regional Economics

# **BNP Paribas Fortis Chair on transport, logistics and ports**

**13de BNP Paribas Fortis Port Co.innovation café**

10 juni 2026



# Prof. Dr Thierry Vanellander

Promotor leerstoel BNPPF

- Welkom
- Leerstoel
  - Central theme
  - Maritime ecosystem
- Concept port co.innovation  
café

# PORT CO-INNOVATION

The graphic features the word 'PORT' in large, bold, teal letters at the top left. Below it, the word 'CO-INNOVATION' is written in large, bold, green letters. The 'I' in 'CO-INNOVATION' is replaced by a stylized crane. To the left of the 'CO' is a silhouette of a cargo ship. To the right of the 'NOVATION' is a small blue planet with a ring. The entire graphic is set against a light green background with a subtle dot pattern.

## Vertrekken van een definitie

- Waar draait co-innovatie om?
- De definitie is duidelijk: een nieuwe vorm van innovatie waarbij het doel van de actoren is:
  - samen nieuwe kennis te verwerven
  - nieuwe mogelijkheden voor samenwerking te creëren binnen het maritieme ecosysteem
- Innovatieve (ICT) oplossingen passen daar (theoretisch beschouwd) perfect in
- Maar volgt de praktijk? Fragmentatie? Community-vorming? Beschikbaar stellen van data?

Succesvol maritieme ecosysteem van de toekomst?



Awareness  
creëren

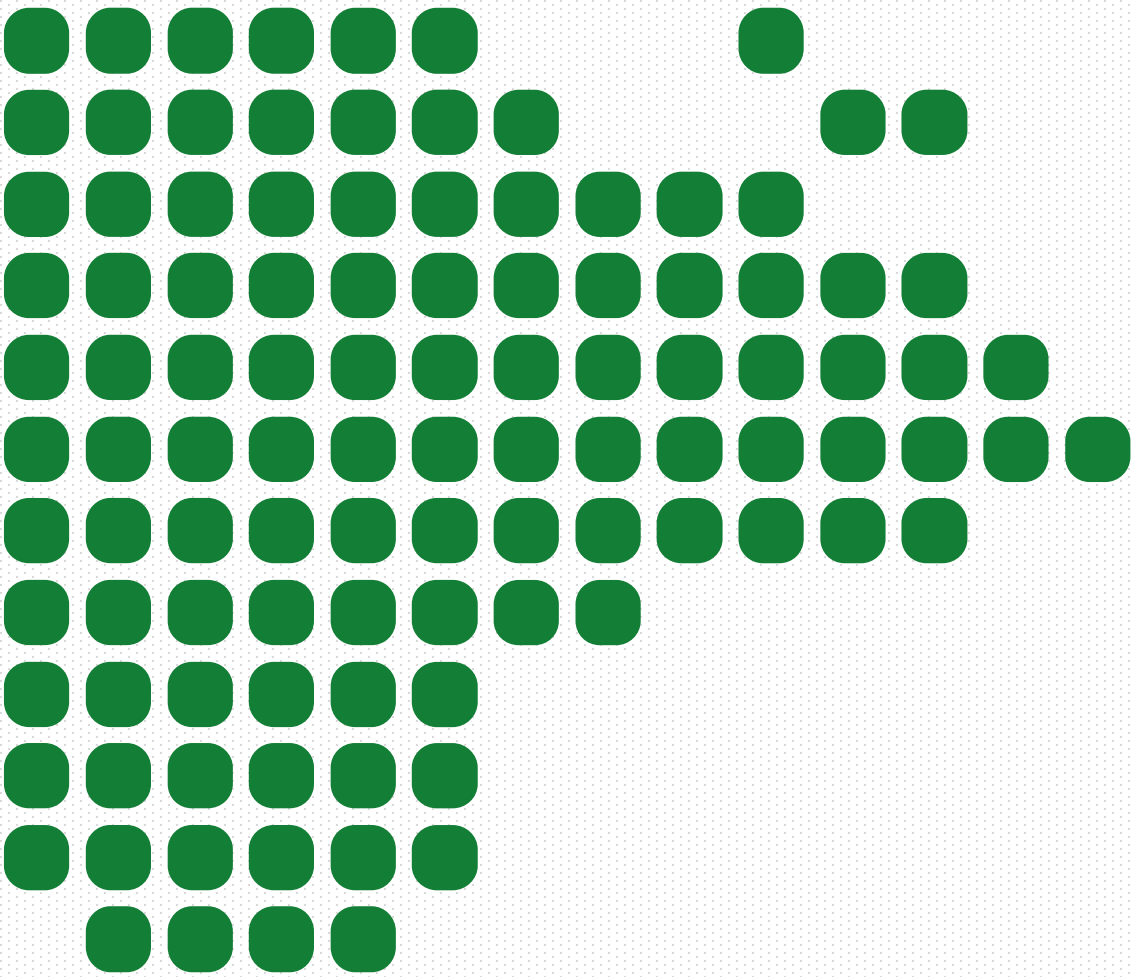
Kennis delen

Oplossingen zoeken

Netwerking

# Programma

- 14:30 Verwelkoming en inleiding
  - door Prof. dr. Thierry Vanellander, promotor van de leerstoel BNP Paribas Fortis Transport, Logistiek en Havens
  - en Inge De Wolf, Project coördinator PIONEERS, Port of Antwerp-Bruges
- 14:40 PIONEERS demos: lessons learned uit de praktijk
  - Battery storage en smart energy management door Yves De Lariviere, AET
  - Automated Container Shuttle Solutions door John Thelen, VDL
  - Green straddle carrier door Mathijs De Laet, PSA
  - Digital rail platform door Rudi Bonneux, Port of Antwerp-Bruges
- 15:10 PIONEERS handbook: decarbonisatie van een haven ecosysteem
  - door Eva Burm, Port of the Future Advisor bij Port of Antwerp-Bruges
- 15:30 Break
- 16:00 Co.Innovation café dialoog
- 17:30 Wrap-up
- 18:00 Netwerkmoment met hapje en drankje



# Co. Innovation Café

## BNP Paribas Fortis Leerstoel

10 juni 2026



Co-funded by the Horizon 2020 programme  
of the European Union

# PIONEERS

Portable Innovation Open Network for  
Efficiency and Emissions Reduction Solutions

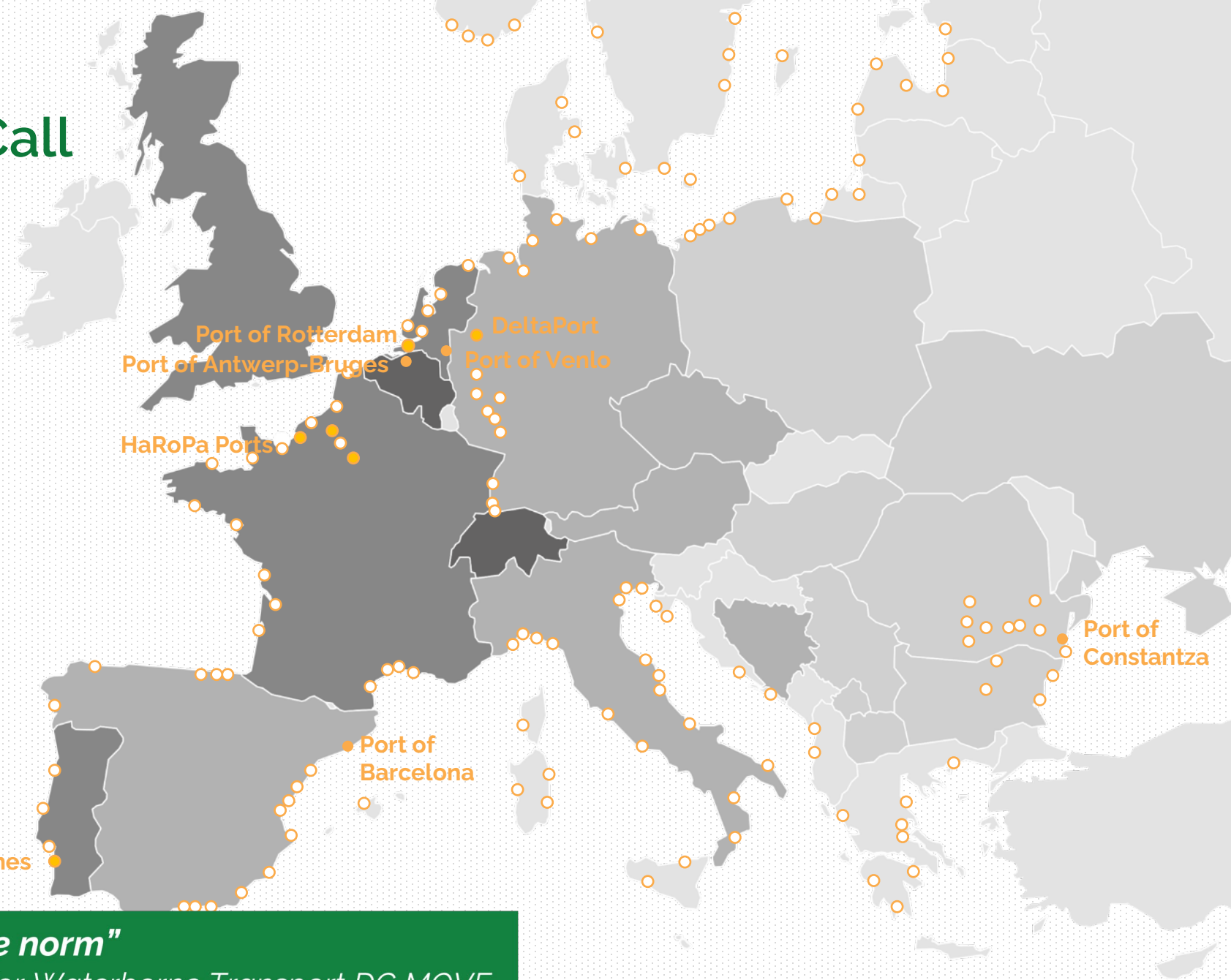


# Inge De Wolf, project coördinator PIONEERS

Port of Antwerp-Bruges

# EU H2020 Green Deal Call

## Greening EU port sector towards climate neutrality



***“Green Ports should be the norm”***  
*Magda Kopczynska, Director for Waterborne Transport DG MOVE  
@ PIONEERS International Conference 2022*



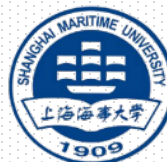
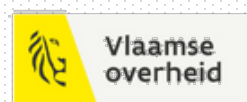
# PIONEERS

Portable Innovation Open  
Network for Efficiency and  
Emissions Reduction Solutions

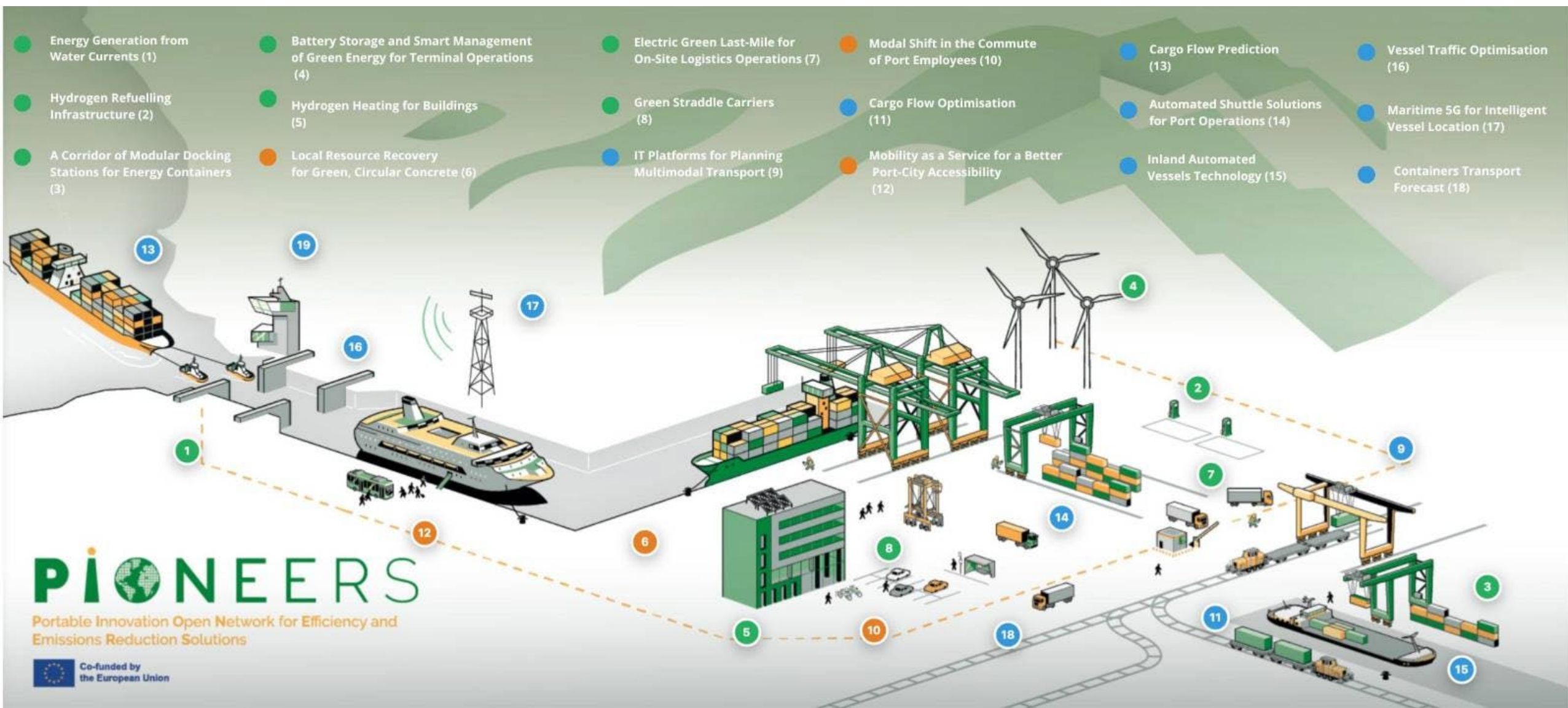
PIONEERS

- Reduce GHG emissions in ports while safeguarding their competitiveness
- Green Deal H2020 > Green Ports & Airports call > 25 Mio € for PIONEERS
- Collaboration of 47 public & private EU partners
- 4 ports: Antwerp-Bruges, Barcelona, Constanta, Venlo
- 19 demonstrations & 1 Green Port Master Plan
- 2021-2026

# PIONEERS' 47 PARTNERS



# PIONEERS transition arena

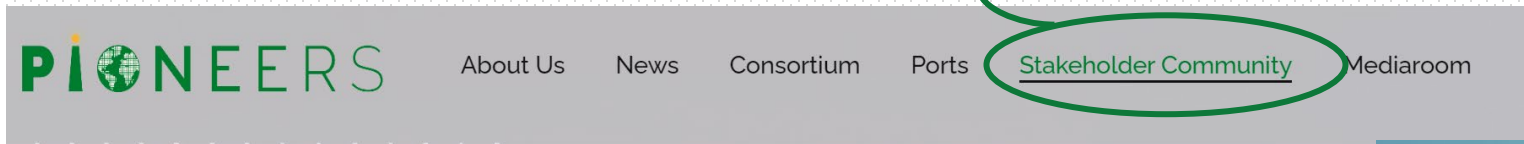


**PIONEERS**

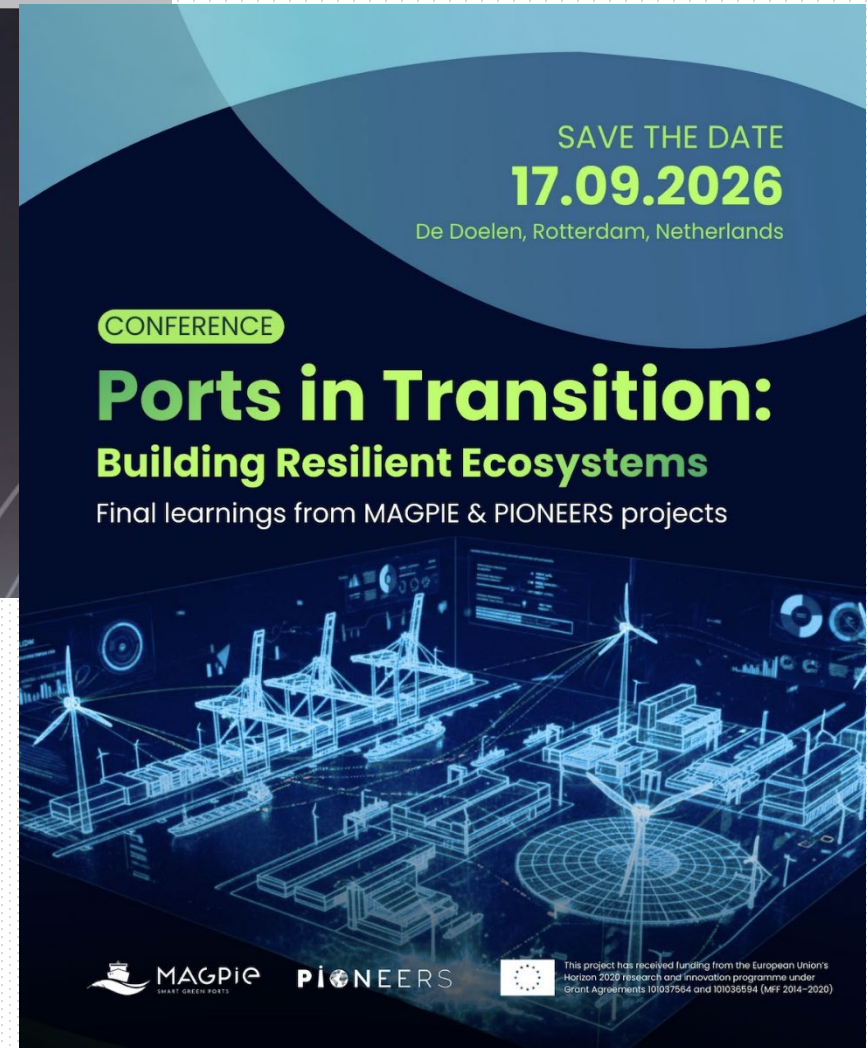
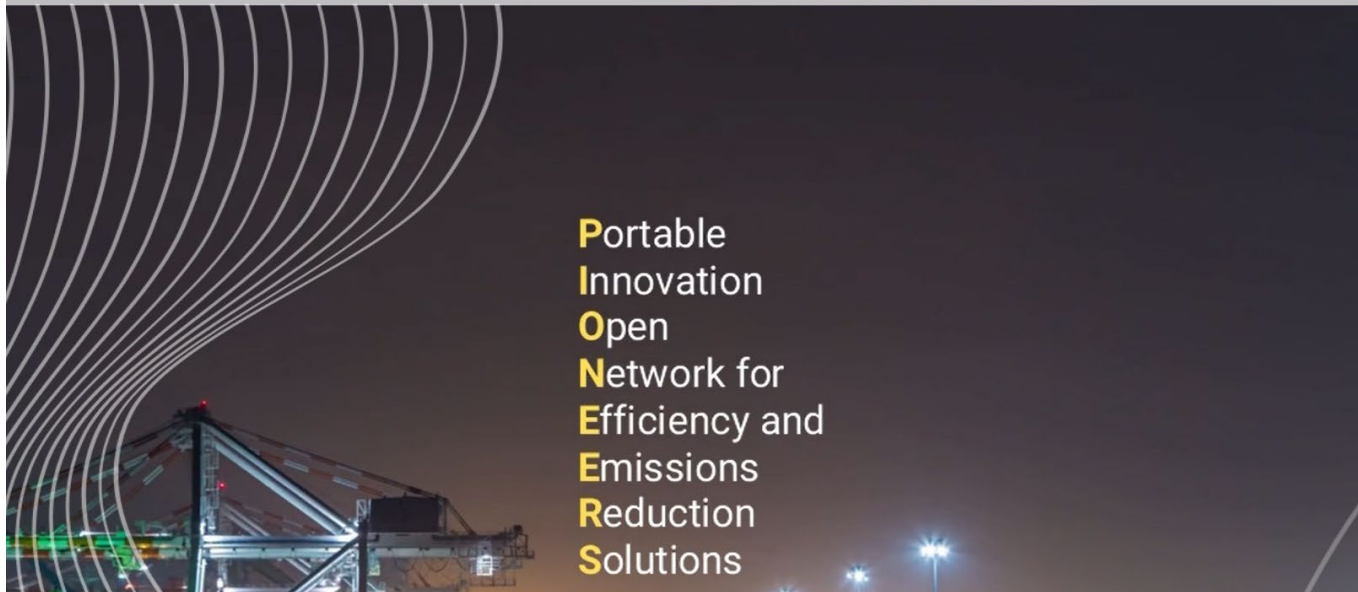
Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions

# FOLLOW PIONEERS!

Subscribe to receive updates on the project



Save the date: Final Conference



[www.pioneers-ports.eu](http://www.pioneers-ports.eu)

 PIONEERS Ports

 PIONEERS\_EU

#PIONEERSeuports

PIONEERS



# Sprekers



Yves De Lariviere

Battery storage system

Automated container  
shuttle solutions

John Thelen



Mathijs De Laet

Green straddle  
carriers

Digital rail platform

Rudi Bonneux



# Sprekers



**Yves De Larivière**

**Battery storage system**

# AET Battery storage system



# AET & Univers Pioneers developments

## Problem Statement

- **Challenge:** Optimize on-site renewable energy resource utilization at Antwerp Euroterminal (AET).
- **Context:** Existing renewable energy generation capabilities lacked an energy storage system and Energy Management System (EMS).
- **Primary Goal:**
  - Maximize use of (self-)generated renewable energy.
  - Reduce dependency on the grid.
  - Meet carbon reduction targets.
- **EMS Requirements:**
  - Enable real-time monitoring and predictive optimization.
  - Integrate seamlessly with existing energy assets.
  - Support broader sustainability and operational efficiency objectives.

## Parties Involved

- **Antwerp Euroterminal (AET)**, the project lead
- **Univers**, the EMS software provider
- **Air Plus & Altascopco**, the BESS system providers
- **3rd party consultants**, contracted by AET

# Goal & implementation

## AET Challenge

- Going the 'extra mile' towards the transition to Net Zero by optimizing operations, reducing energy costs, and decreasing grid dependency.
- Maximize on-site energy generation through a smart energy management system that orchestrates all assets (via real-time connection)

## Key Takeaways

- **Permit & Approval Delays**
- **Additional On-Site Costs**
- **Battery Sizing & Cost Analysis**
- **Software Integration & Protocols**
- **Device Communication Challenges**
- **Battery Monitoring & Maintenance – “Health Checks”**
- **Collaboration & Engagement**
- **Correct EMS system**

# Sprekers

Automated container  
shuttle solutions

John Thelen





# VDL MTT solutions

John Thelen



KRACHT DOOR SAMENWERKING

## VDL MTT specs

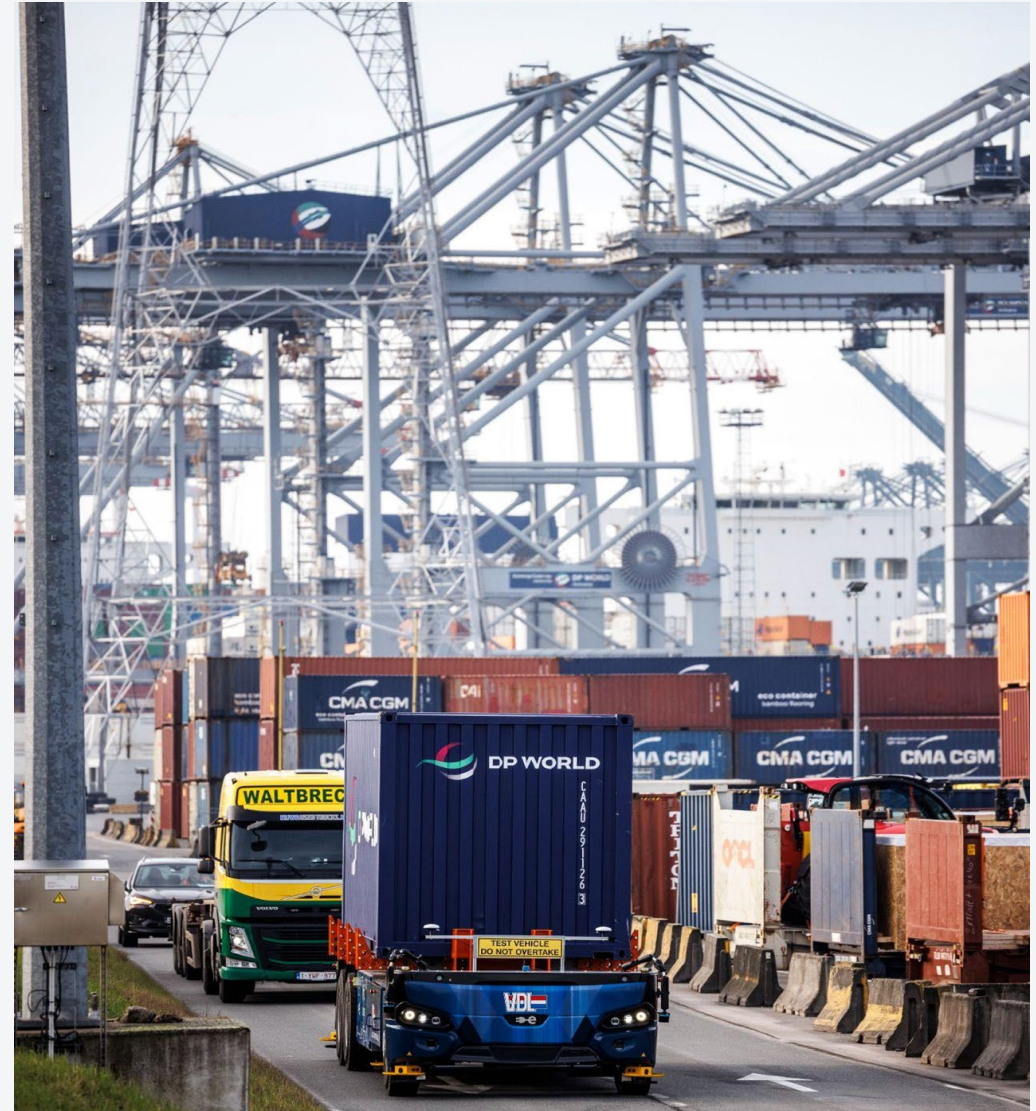
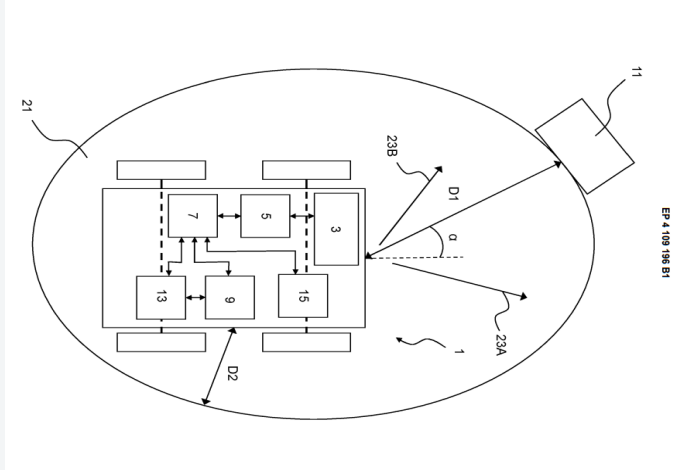
- 6x4 axle setup
- Max speed 8 - 10 km/h
- Max weight (GVW): 50.000 kg
- Max payload: 35.000 kg
- Max axle load: 20.000 kg
- Automatic charging
- ISO-3691-4 compliant



# VDL MTT safety system for mixed traffic

Safety is no accident:

- 2D and 3D Lidars for 360 degree obstacle detection
- Warning zone for driving comfort
- CE and ISO 3691-4 compliant
- EU patent: EP4109196B1



# VDL MTT Logistic solutions roadmap



Pioneers Q2 2025



- 50 ton GVW
- 35 ton payload
- 6 km/h mixed traffic
- Transponderless navigation
- 20 ft containers



Pioneers Q1 2026



- 15 ton GVW
- 10 ton payload
- 10 km/h mixed traffic
- Loading / unloading via SC / ECH
- Cornerless superstructure with guiders
- Mixed operation
- 20 ft containers



Q2 2026



- 15 ton GVW
- 10 ton payload
- 10 km/h mixed traffic
- 8 km/h cornering
- 3D lidar object detection

Thanks for your attention



# Sprekers

**ATS**  
A PSA Antwerp & MPET Company

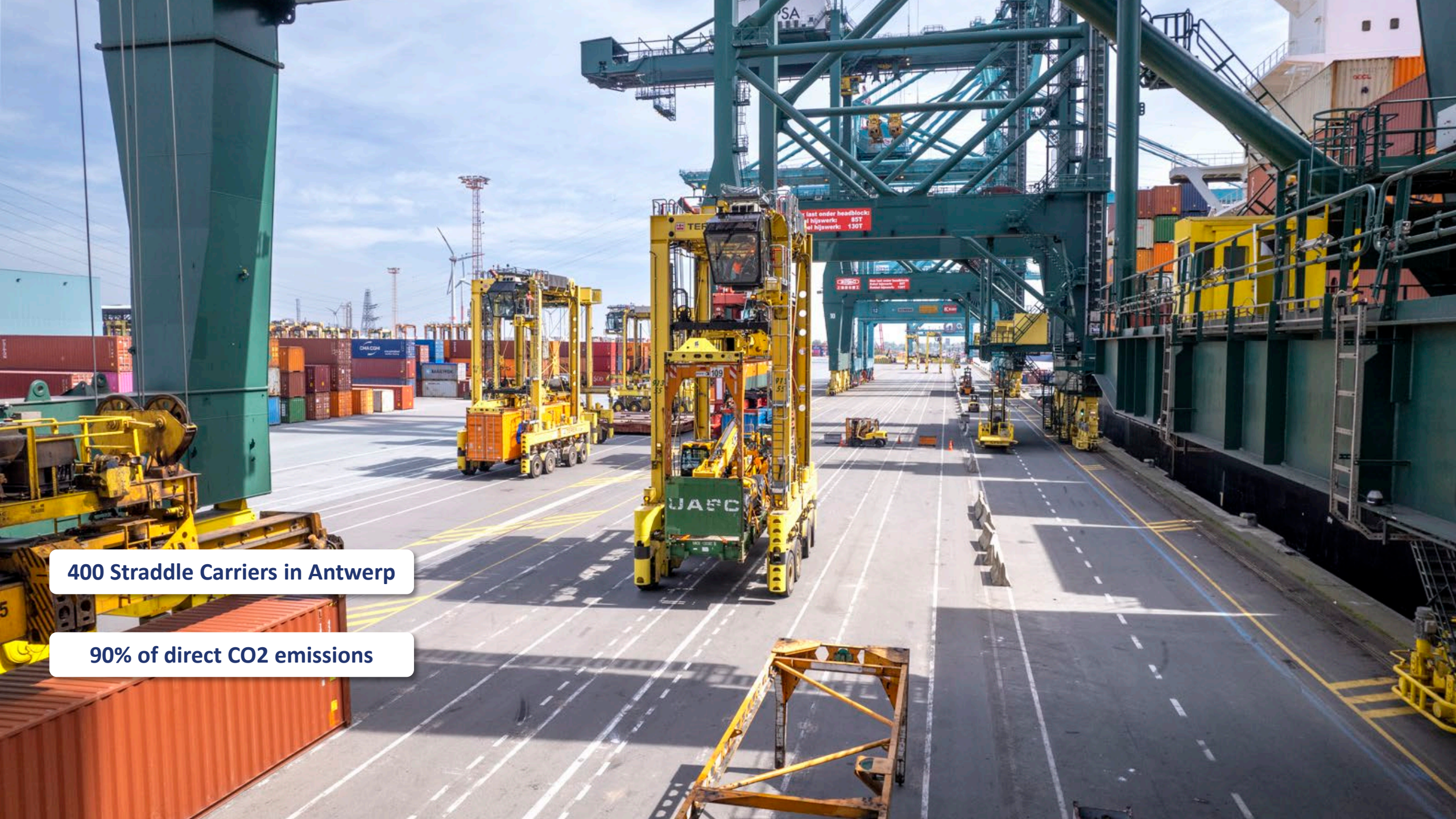


**Mathijs De Laet**

**Green straddle  
carriers**

# PSA-MPET Green Straddle Carriers





**400 Straddle Carriers in Antwerp**

**90% of direct CO2 emissions**

# PSA-MPET Green Straddle Carrier Program

Green Straddle Carrier Program

“New” standard  
**HYBRID**  
25% reduction



# PSA-MPET Pioneers developments

Prototype 1 (2023)



30% less diesel consumption compared to traditional diesel

Prototype 2 (2025)



78% less diesel consumption compared to traditional diesel



# Sprekers

Digital rail platform

Rudi Bonneux



# Digital Rail Platform



# Context

- ✓ Rail Vision **PoAB** - Infrabel: increase share of **railfreight** within port area

- ✓ **Digitization as key enabler:**

- ✓ Creating greater transparency in **supply and logistics** through data collection, data sharing and data exchange
- ✓ Better coordinating the logistics processes of the various players in the supply chain
- ✓ Supporting via IT the current **manual processes**



Port



Infrastructure  
Manager



Deepsea  
Terminals

- ✓ Key stakeholders: Port, Infrastructure Manager, Railway Undertakings, Service Facilities, Deepsea Terminals, Shippers & Forwarders
- ✓ Data from different sources (current): Infra manager Infrabel, PoAB bridges&locks, RU's via Raildata as 'message broker', Shunting hill operator, UIC for master data, ...

# Rail Trans Port Manager Application

Integrated digital platform providing E2E visibility on port related rail transport



*Facilitate rail flow management*

*to and from and within the port area*

*by collecting, processing and integrating train and wagon related planning and tracking data from various sources.*

# Rail Transport Manager Application



## Benefits / Drivers

- **Strategic:** Improvement of position of rail transport modus via increasing efficiency of rail transport in the port area
- **Innovation:** Unique total real-time view on rail transport across all stakeholders in one solution
- **Operational:** Extensive planning and tracking of rail freight allowing to do better (pro-active) flow management
- **Integration:** Integrating data from various sources while giving each stakeholder its specific view (incl. data consumption)

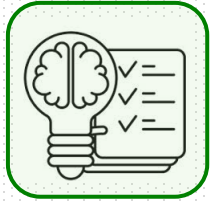


## Results



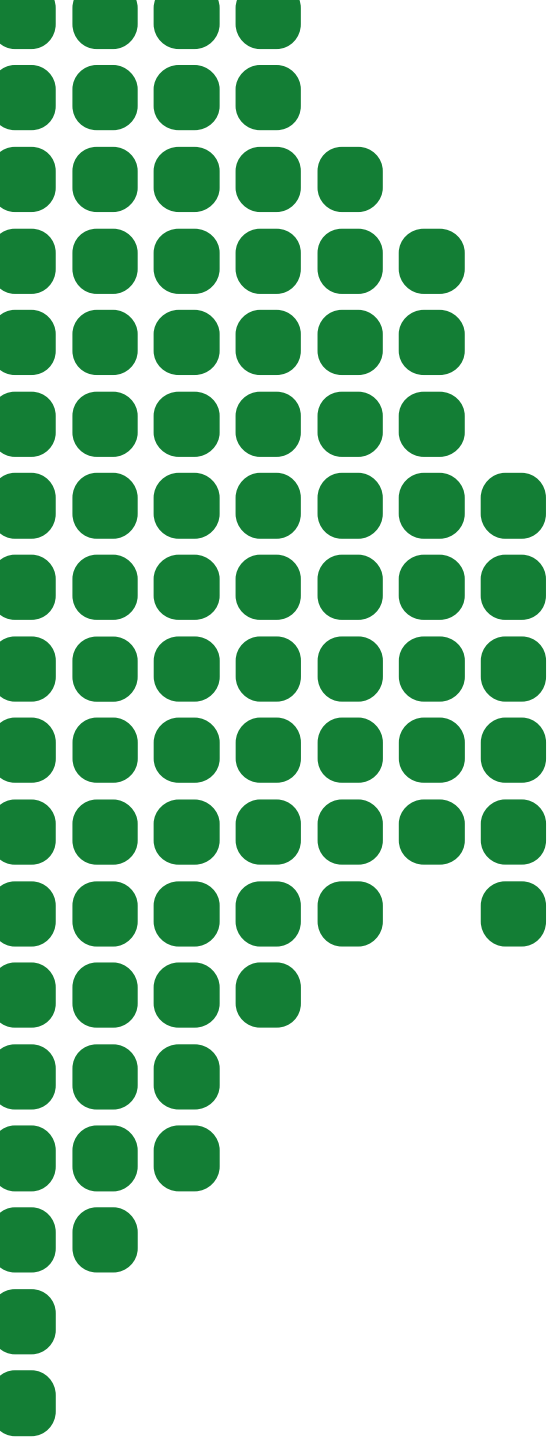
- Platform **development** completed with comprehensive data integration
- Infrastructure manager (Infrabel) has better view on rail flow and can be more active on **flow management**
- Railway undertakings have better view on **wagon status** (multi carrier trips and shunting)
- **Deepseaterminal** has realtime view on trains
- Insights in integrated data and data sharing should be leading to **operational excellence** (eg. Bundle management)

# Rail Trans Port Manager Application



## Lessons Learned

- Data is KEY: willingness of data sharing to the platform.  
Data access control to various stakeholders is crucial taking into account required transparency & commercial sensitivity - careful management of (restricted) data access within the platform.
- Data is KEY: data quality – correctness, availability, completeness.  
Upfront data (quality) analysis is essential (in terms of processing and in terms of app performance), followed by data quality monitoring and improvement tracks.
- Lack of overall implemented European wide data standards (TAF / TSI, TSI Telematics).  
Don't underestimate complexity in data processing and integration of data from different sources.  
European fragmentation and country-based practices hinder end-to-end visibility.
- Platform success depends on added value it can bring to the major rail stakeholders: value proposition per stakeholder can be different, applying iterative development based on user feedback.



# PIONEERS handbook of best practices

Green ports masterplanning

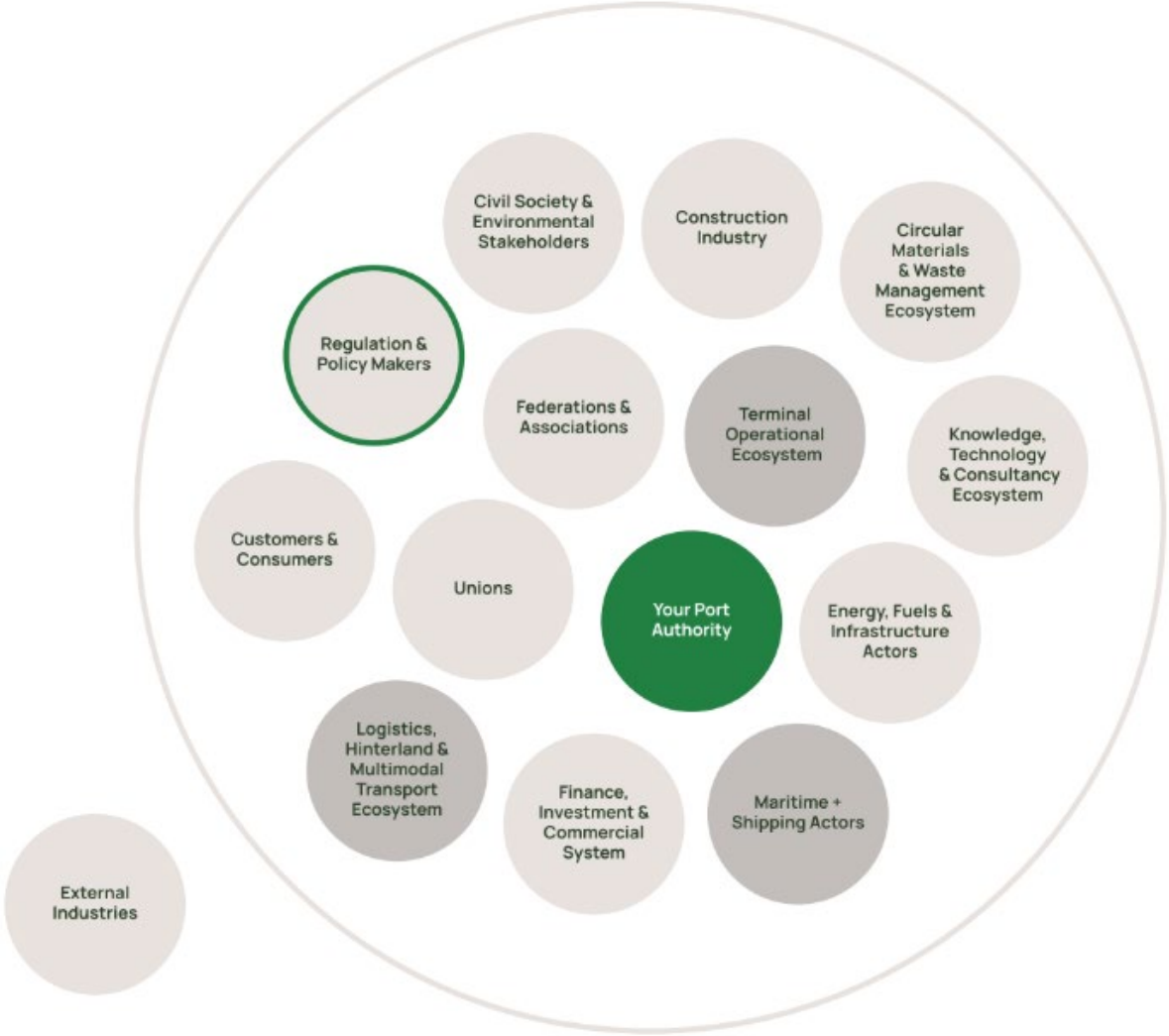


# Eva Burm, Port of the Future Advisor & PIONEERS Green Ports Masterplan

Port of Antwerp-Bruges



# Problem exploration: actors in the transition to a climate-neutral port



# Problem exploration: factors in the transition to a climate-neutral port

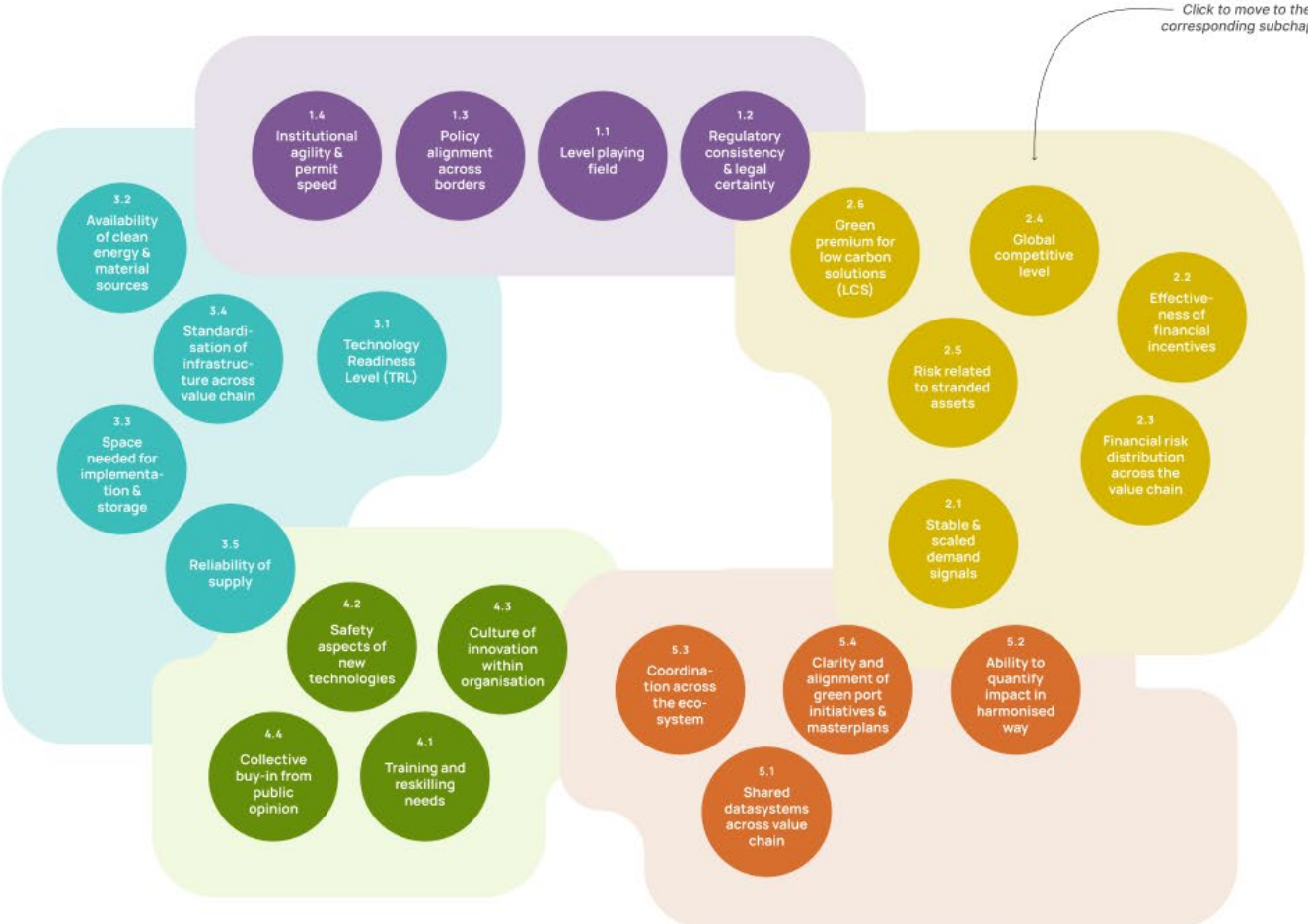
## Green Ports Systems Map

→ **Technology, Infrastructure & Operational Readiness**

Decarbonisation depends on whether technologies are ready, infrastructure is adequate, and assets can be safely integrated into port operations.

→ **Social & Ecological Context**

Innovation capabilities, community trust, workforce readiness, and ecological responsibility shape whether ports can deploy new systems without facing social or environmental backlash.



→ **Governance & Policy**

Consistent and predictable rules, aligned standards, and streamlined permitting enable ports to plan and invest confidently in long-term decarbonisation.

→ **Financial & Market Dynamics**

Making the green premium viable requires de-risking investments, stabilising demand signals, and distributing financial risk fairly across the value chain.

→ **Planning, Coordination & Data**

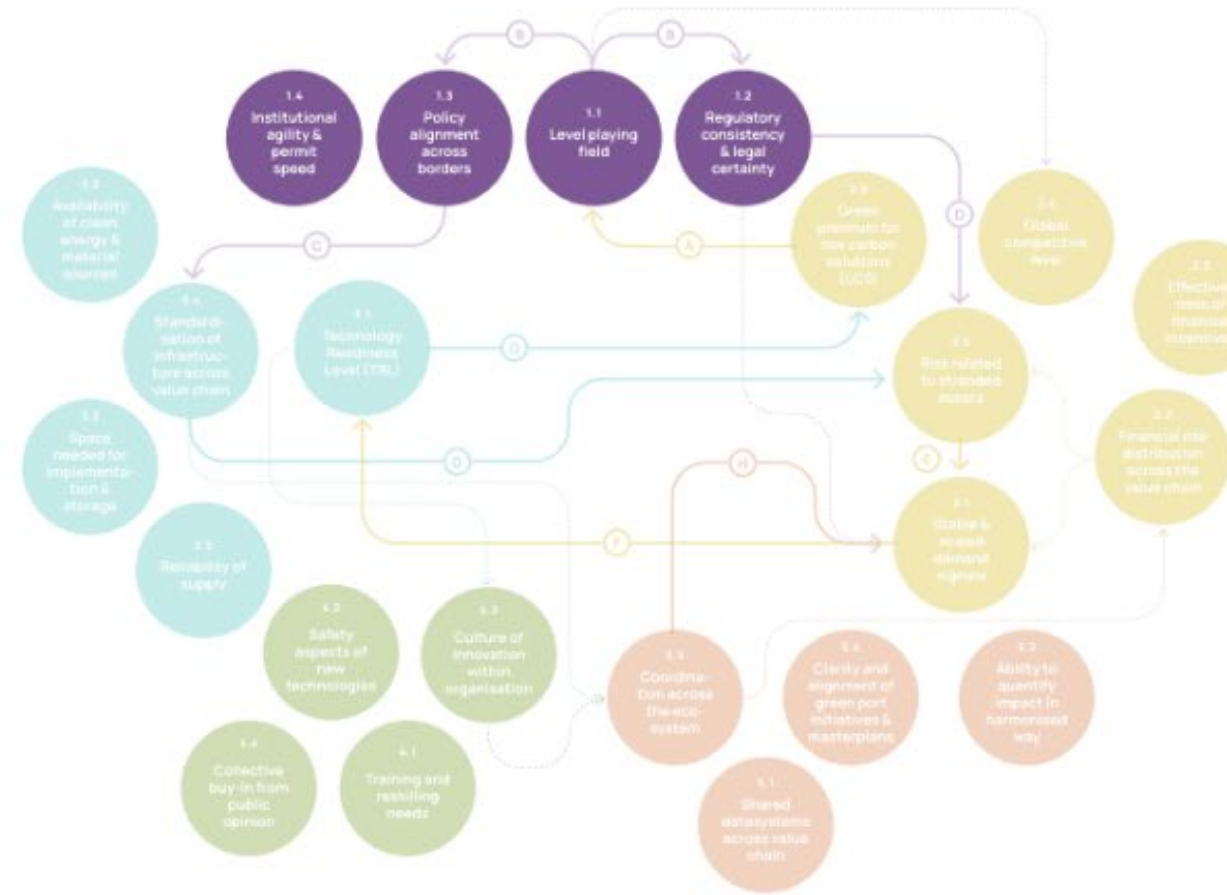
Synchronised roadmaps and transparent, interoperable data systems allow actors to align timelines, prevent stranded assets, and scale collectively.



# 01 / Governance & policy

**Consistent and predictable rules, aligned standards, and streamlined permitting enable ports to plan and invest confidently in long-term decarbonisation.**

Ports need predictable rules, aligned standards, and strong governance to plan major transitions. Legislation must create a level playing field, ensuring that all ports operate under harmonised requirements across regions rather than navigating a fragmented regulatory landscape. Equally important is reducing the complexity of permits and legislative implementation, so regulatory processes enable innovation instead of delaying or blocking the pilots and projects needed for the transition.



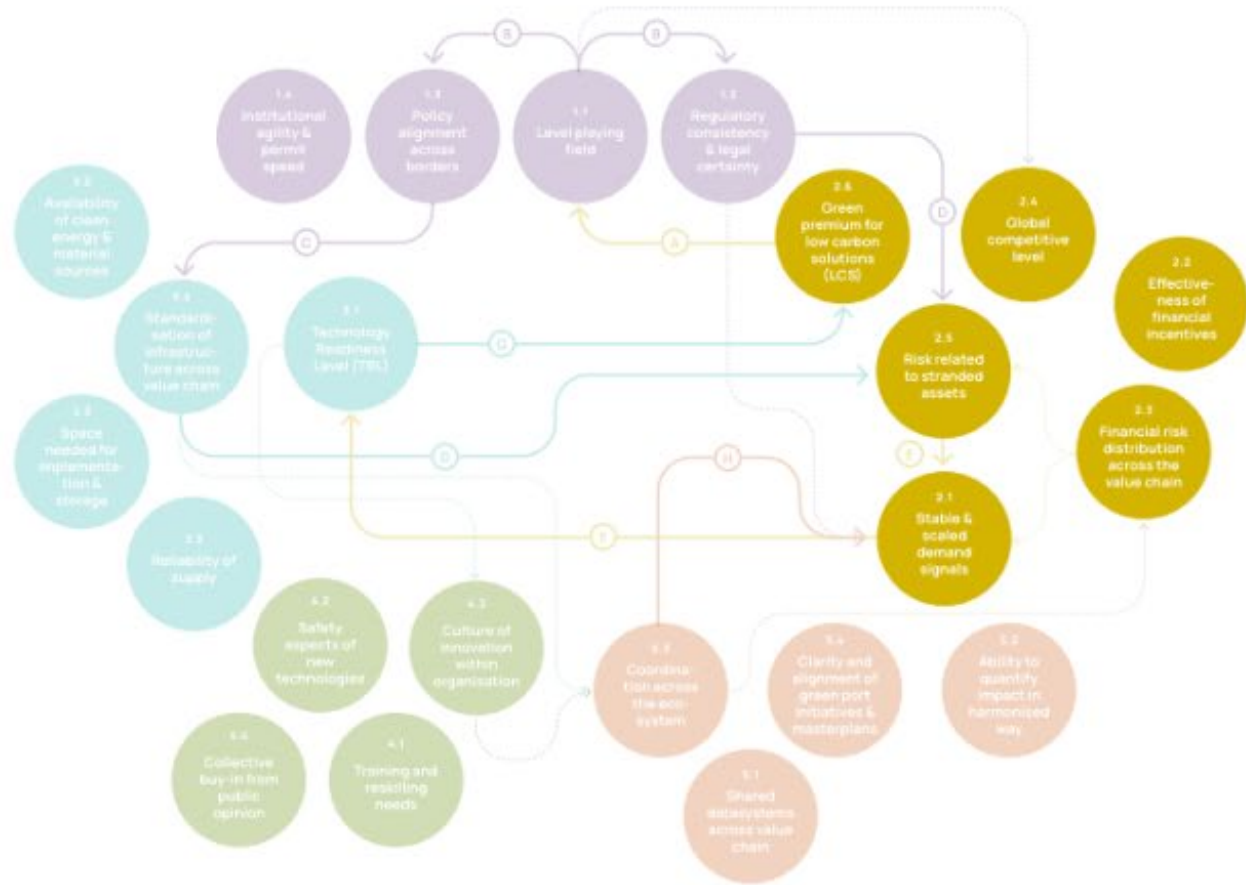
1.1 / Level playing field	16
1.2 / Regulatory consistency & legal certainty	18
1.3 / Policy alignment across borders	20
1.4 / Permit complexity & speed	22



# 02 / Financial & Market Dynamics

**Making the green premium viable requires de-risking investments, stabilising demand signals, and distributing financial risk fairly across the value chain.**

Decarbonisation requires large upfront investments with uncertain returns. Ports must manage market volatility, shifting fuel prices, evolving customer demand, and investment risks. Ensuring viable business models, access to funding, and risk-sharing mechanisms is essential for accelerating adoption of low-carbon infrastructure and technologies.



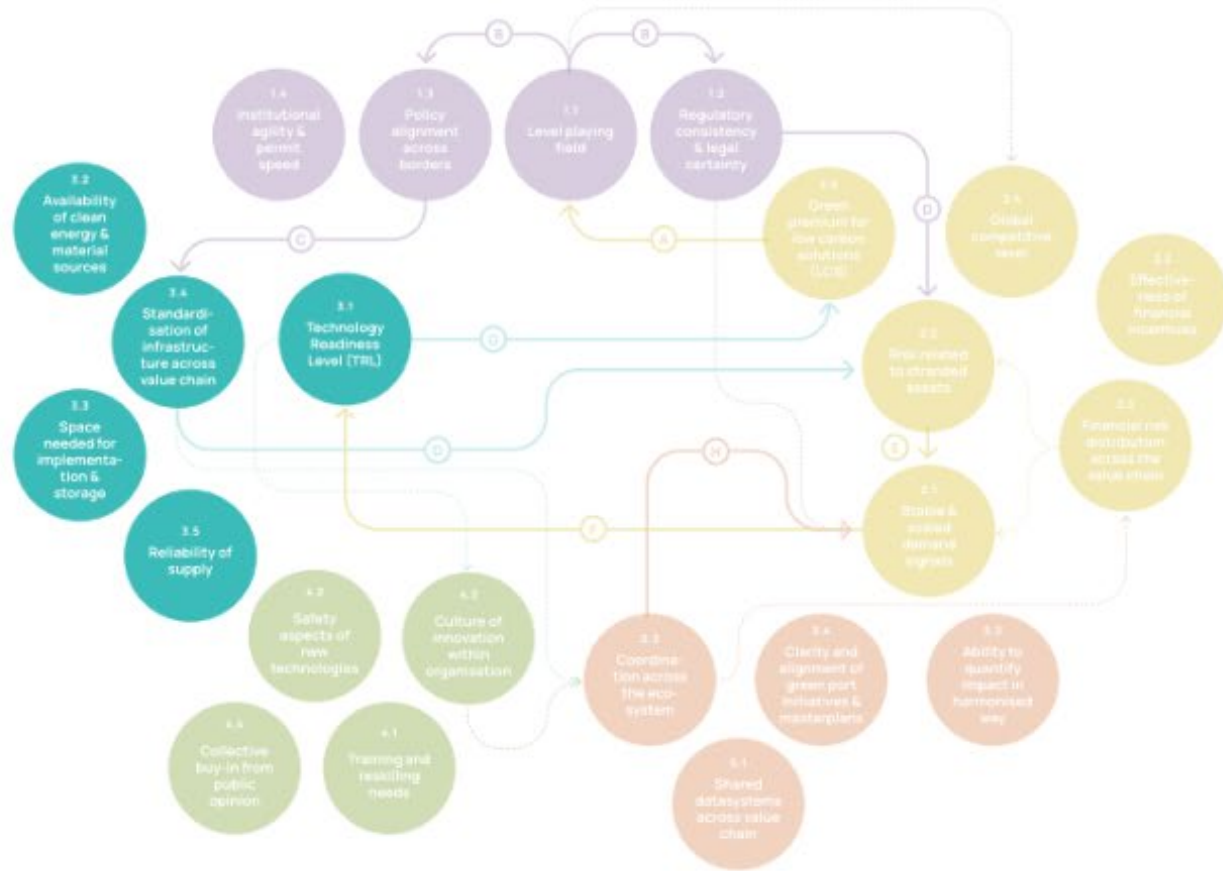
2.1 / Stable and scaled demand signals	25
2.2 / Effectiveness of financial incentives (grants, funding)	27
2.3 / Financial risk distribution across the value chain	29
2.4 / Global competitive level (financial competitive gap created due to green shift)	31
2.5 / Risk related to stranded assets	33
2.6 / Green premium for low carbon solutions (LCS)	35



# 03 / Technology, Infrastructure & Operational Readiness

Decarbonisation depends on whether technologies are ready, infrastructure is adequate, and assets can be safely integrated into port operations.

Decarbonisation relies on whether technologies are ready (TRL), compatible with existing port operations, and supported by adequate infrastructure and (upgraded or retrofitted) assets.



3.1 / Technology Readiness Level (TRL)	38
3.2 / Availability of imported clean energy & material sources	40
3.3 / Space needed for implementation & (energy) storage	42
3.4 / Standardisation of infrastructure across the value chain	44
3.5 / Reliability of supply	46

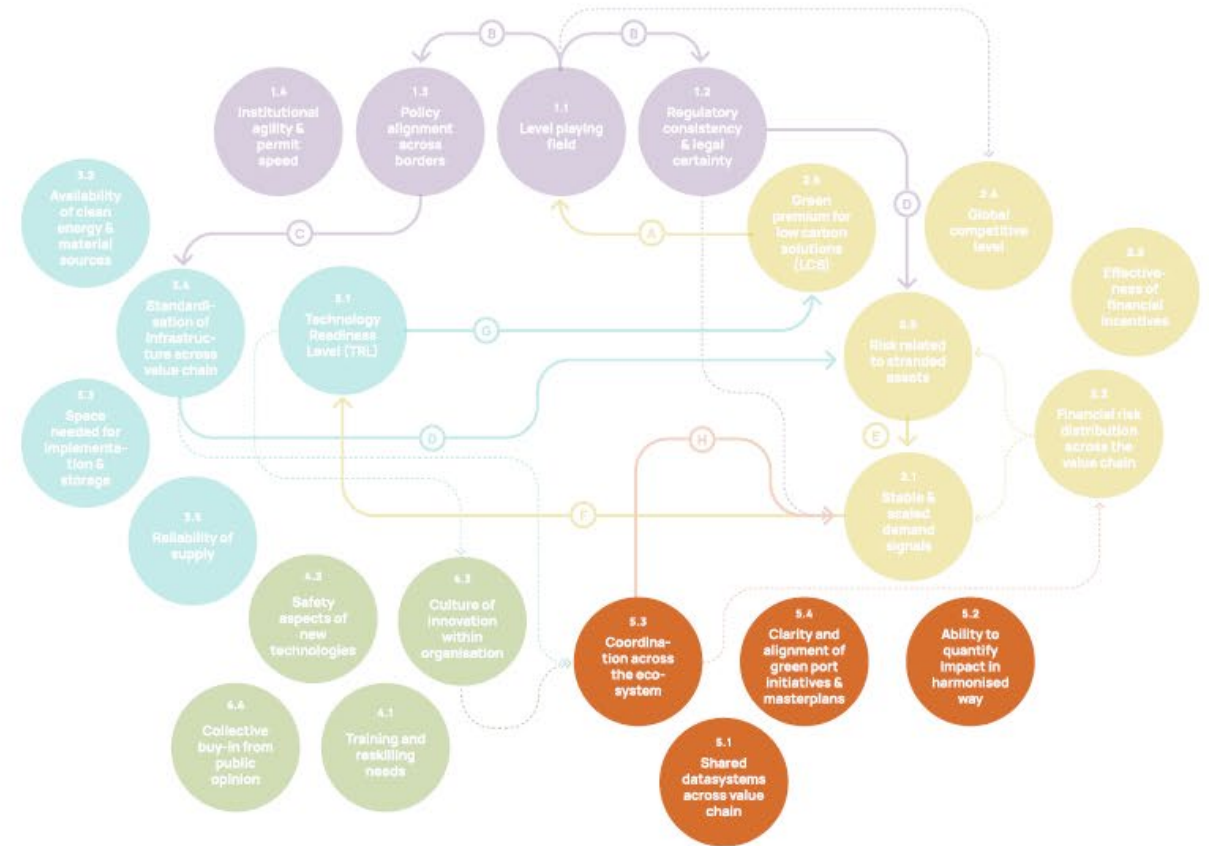




# 05 / Planning, Coordination & Data

**Synchronised roadmaps and transparent, interoperable data systems allow actors to align timelines, prevent stranded assets, and scale collectively.**

Ports sit at the centre of complex, interdependent value chains, where decarbonisation depends on synchronised planning between shipowners, fuel suppliers, grid operators, terminal operators, and regulators. Achieving this requires shared long-term roadmaps, aligned investment timelines, and coordinated decisions on fuels, infrastructure, and energy demand. Equally important is the ability to share reliable, interoperable data across actors: without transparent emissions data, real-time operational insights, standardised metrics, or digital tools like digital twins and joint dashboards, ports cannot accurately forecast needs, measure progress, or prevent stranded assets. Effective decarbonisation therefore relies on both cross-actor coordination and a trusted data ecosystem that supports collective planning and continuous optimisation.

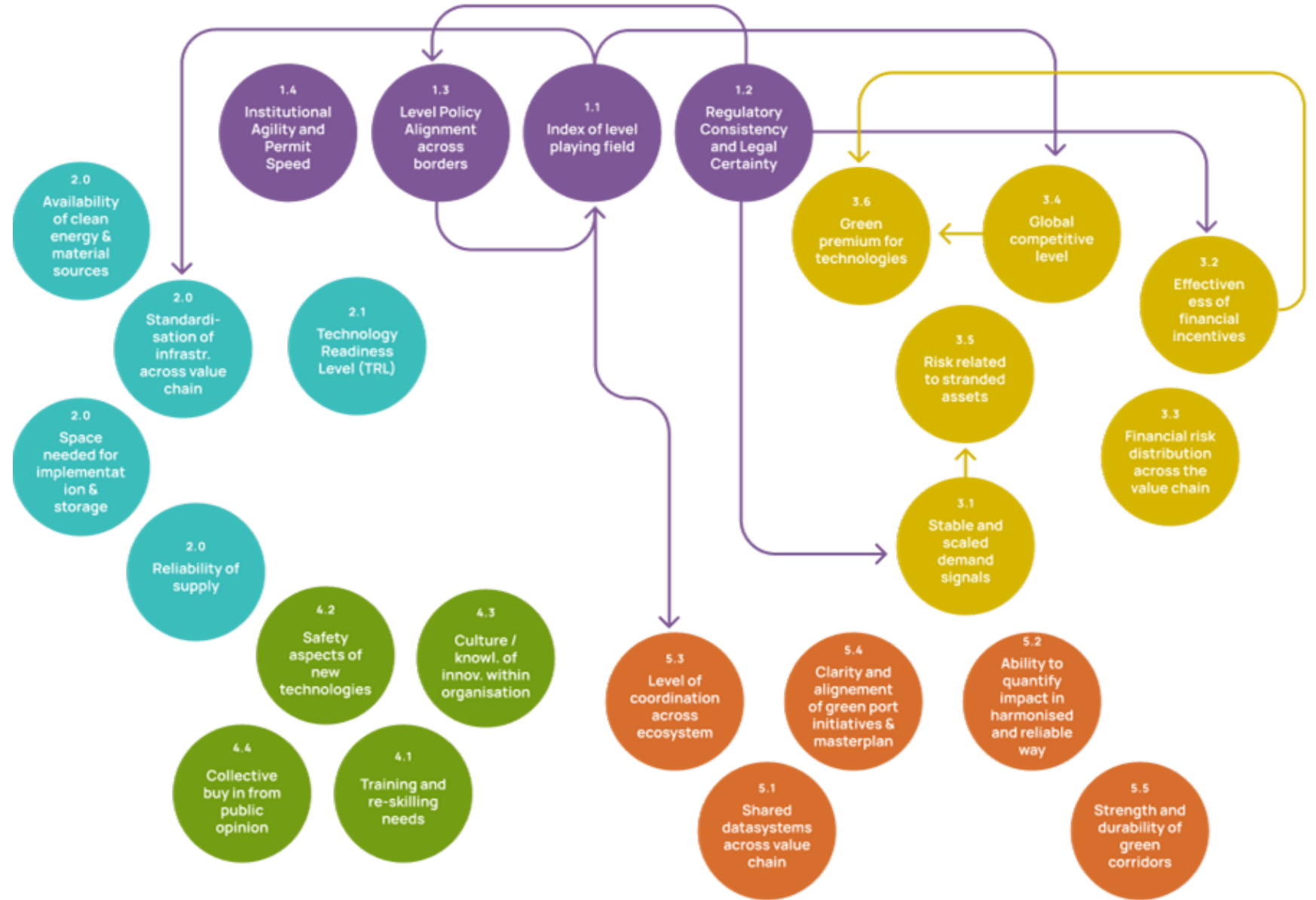


5.1 / Shared data systems across value chain	58
5.2 / Ability to quantify impact in harmonised and reliable way	60
5.3 / Coordination across the ecosystem	62
5.4 / Clarity and alignment of green port initiatives and masterplans	64

# 03 / Shape the level playing field

What if we used our credibility as a (semi-)public entity to advocate for policy conditions that enable the transition?

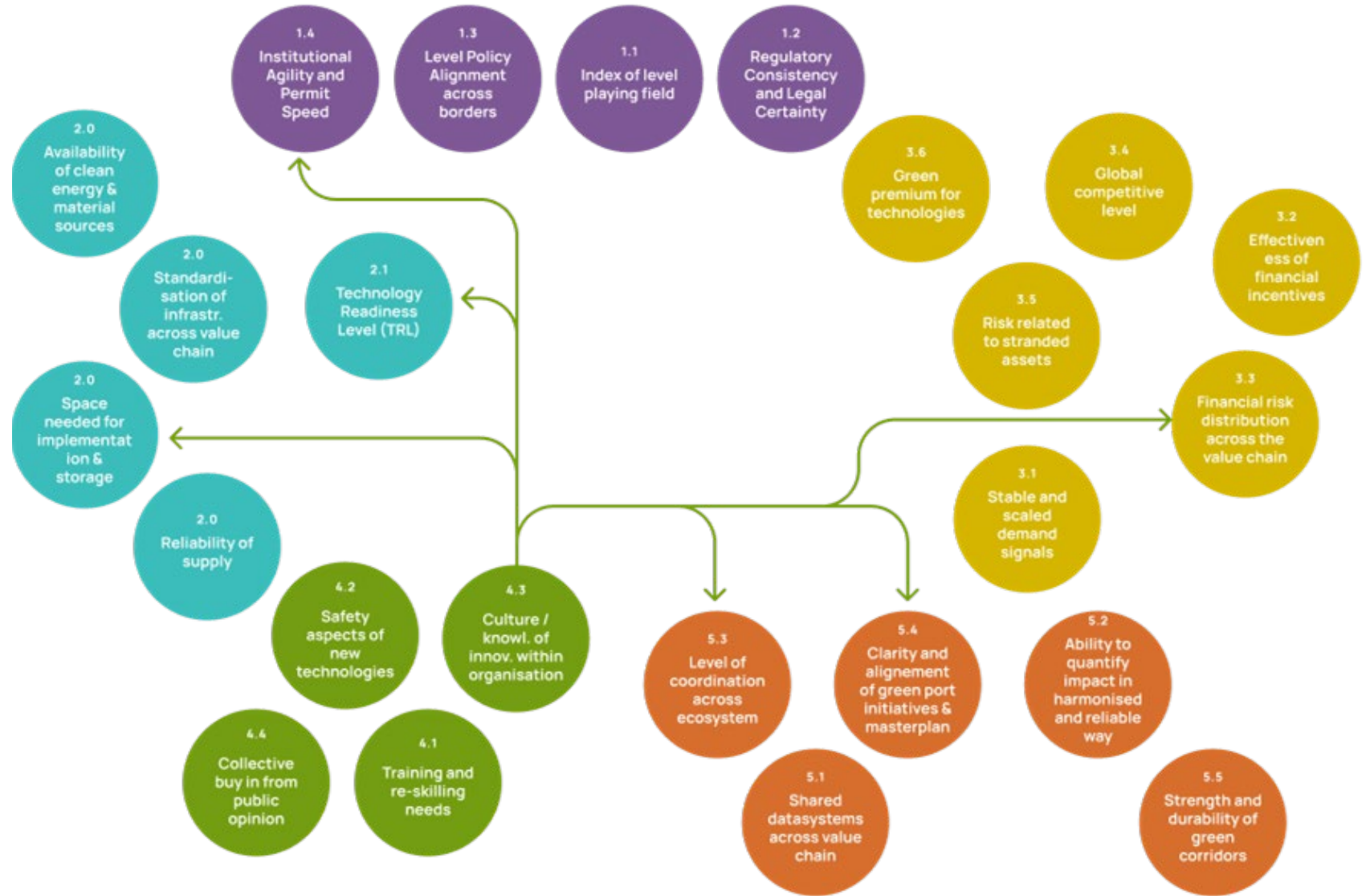
Use your voice, your data, and your legitimacy to push for systemic change at EU and national level.



# 02 / Create the conditions

What if we used our landlord and regulatory authority to accelerate innovation?

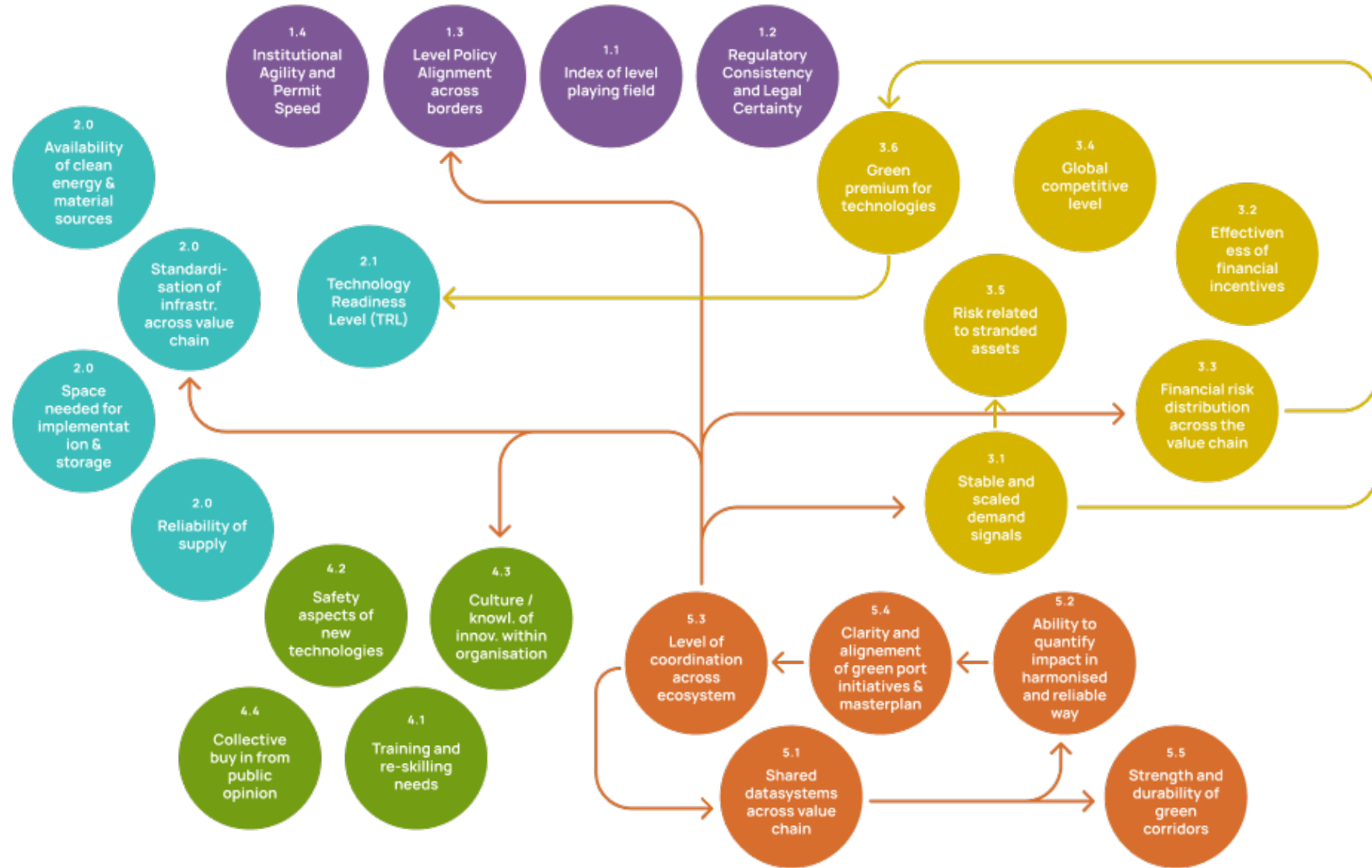
Make it easy, fast, and predictable for companies to deploy green solutions in your port. Provide the physical space, help remove administrative friction and serve as an open innovation platform or testbed.



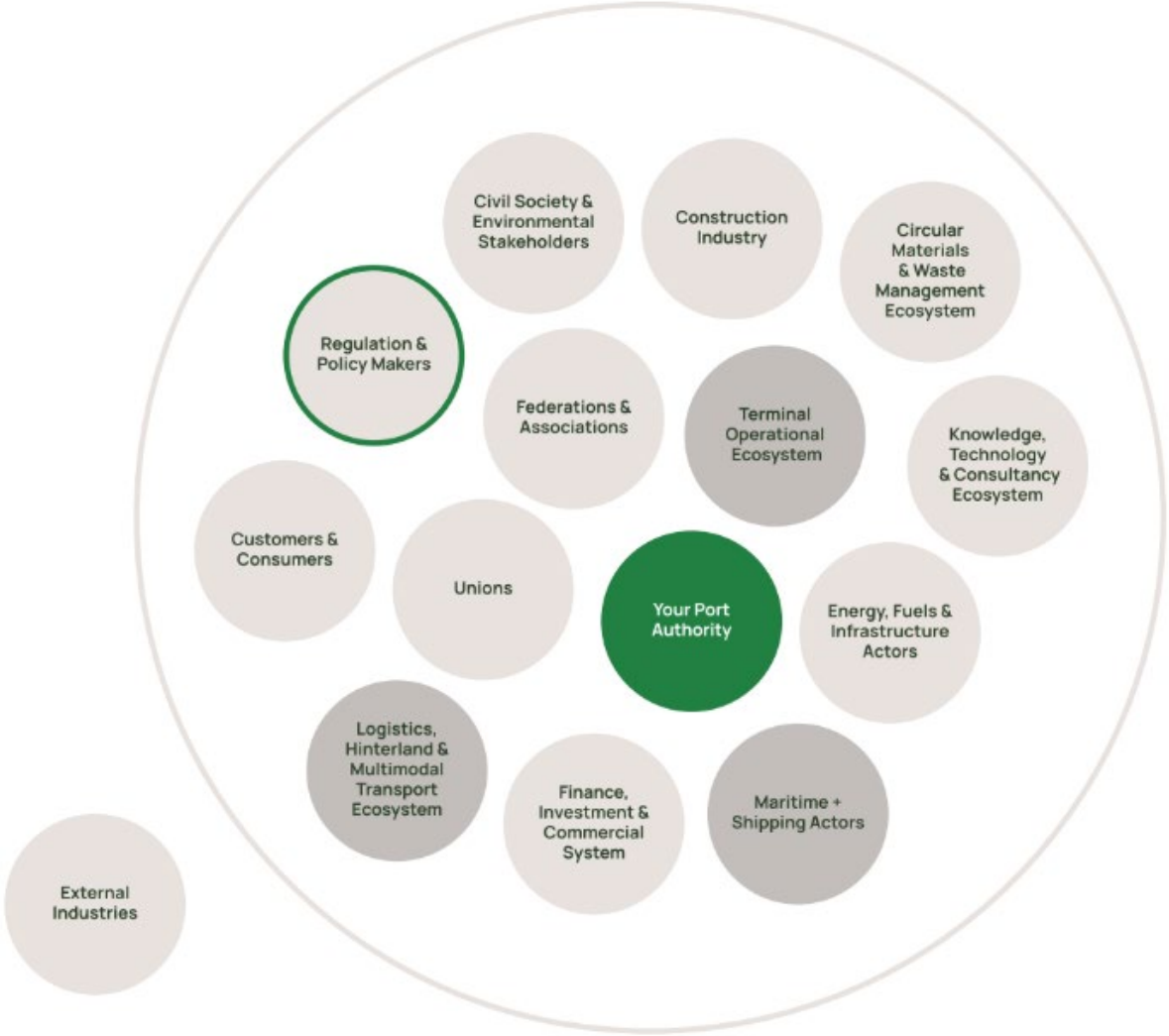
# 01 / Build the coalition

What if we used our convening power to orchestrate collective action across the value chain?

No single actor can decarbonize alone. Bring fuel suppliers, terminals, shipping lines, grid operators, and other ports to the table. Make coordination across the ecosystem happen.

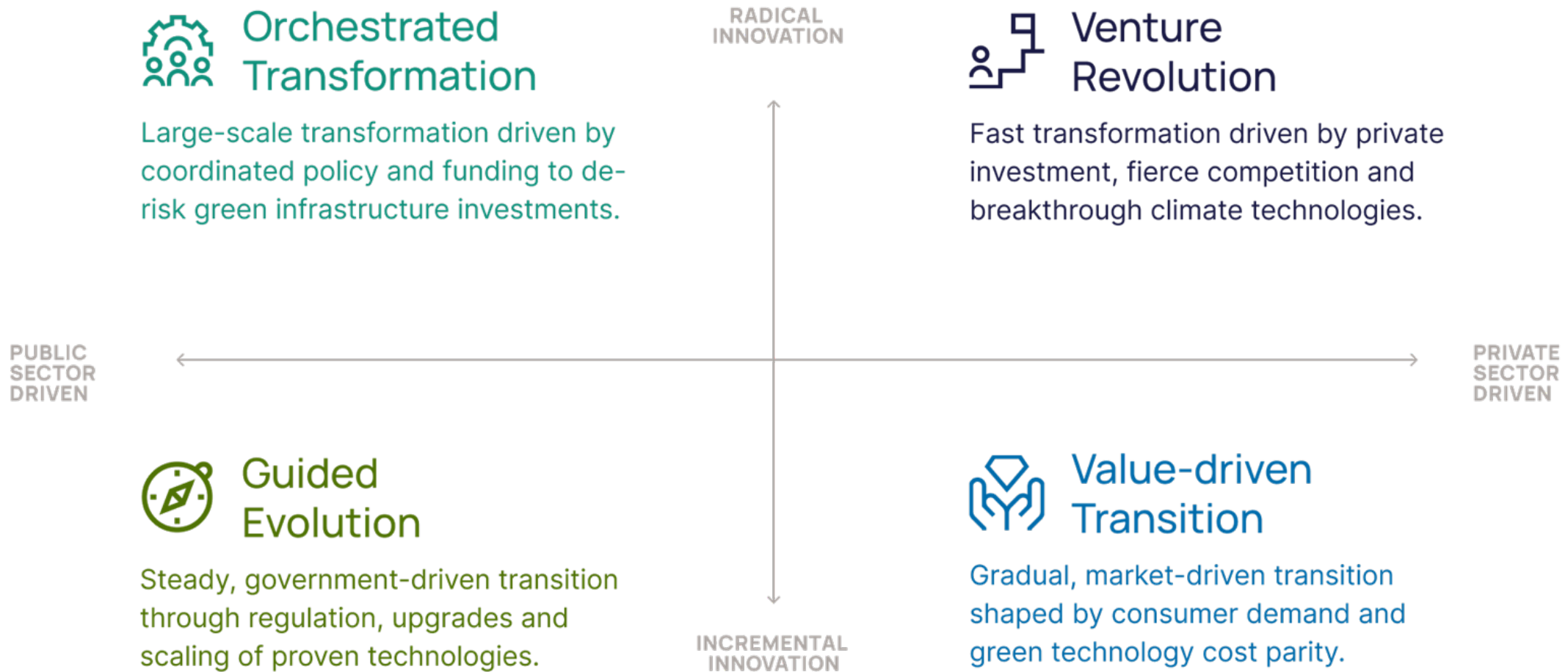


# Coordination across the port ecosystem



# Envisioning desired futures

“backcast” your own port decarbonisation roadmap



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# Envisioning plausible, desired futures



## Orchestrated Transformation

Large-scale transformation driven by coordinated policy and funding to de-risk green infrastructure investments.

RADICAL INNOVATION



## Venture Revolution

Fast transformation driven by private investment, fierce competition and breakthrough climate technologies.

PUBLIC SECTOR DRIVEN



## Guided Evolution

Steady, government-driven transition through regulation, upgrades and scaling of proven technologies.

INCREMENTAL INNOVATION



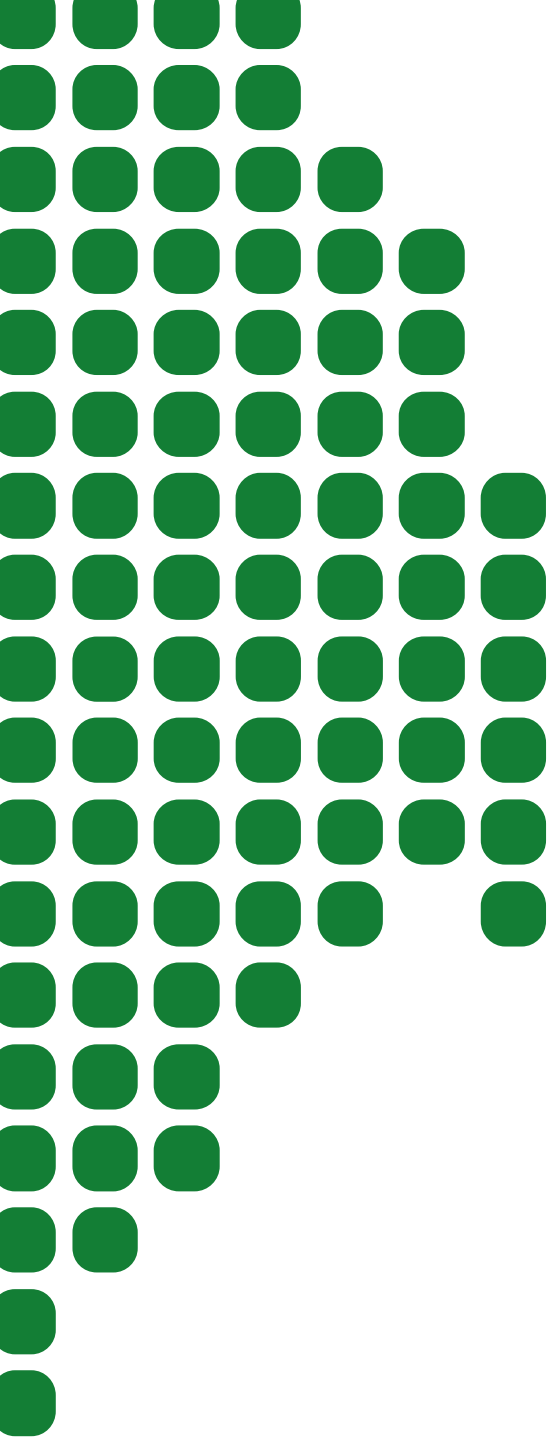
## Value-driven Transition

Gradual, market-driven transition shaped by consumer demand and green technology cost parity.

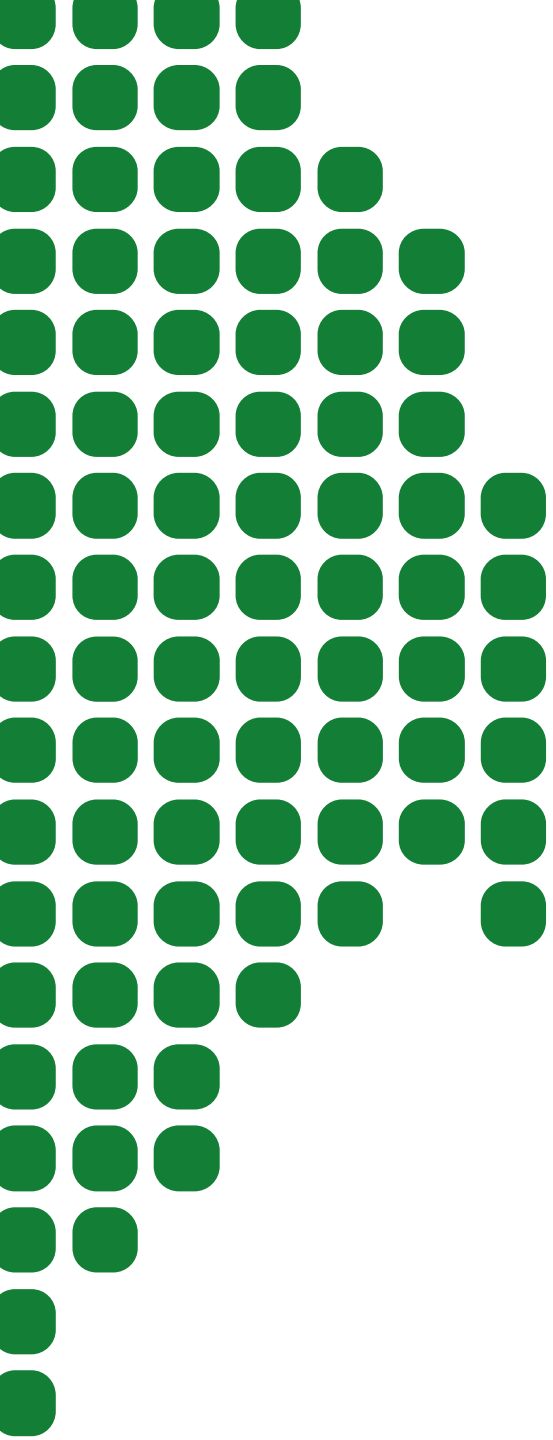
PRIVATE SECTOR DRIVEN

# Breakout

- Tafel 1 (paars): Modal shift (Rudi) – Christa – Willem Elsschotzaal
- Tafel 2 (groen): Digitalisering (John) – Thierry – Scaldiszaal (1e verdiep)
- Tafel 3 (geel): Sustainable port design (Mathijs) – Eva – Prentenkabinet (1e verdiep)
- Tafel 4 (rood/oranje): Clean energy (Yves) – Wouter – Thomas Greshamzaal

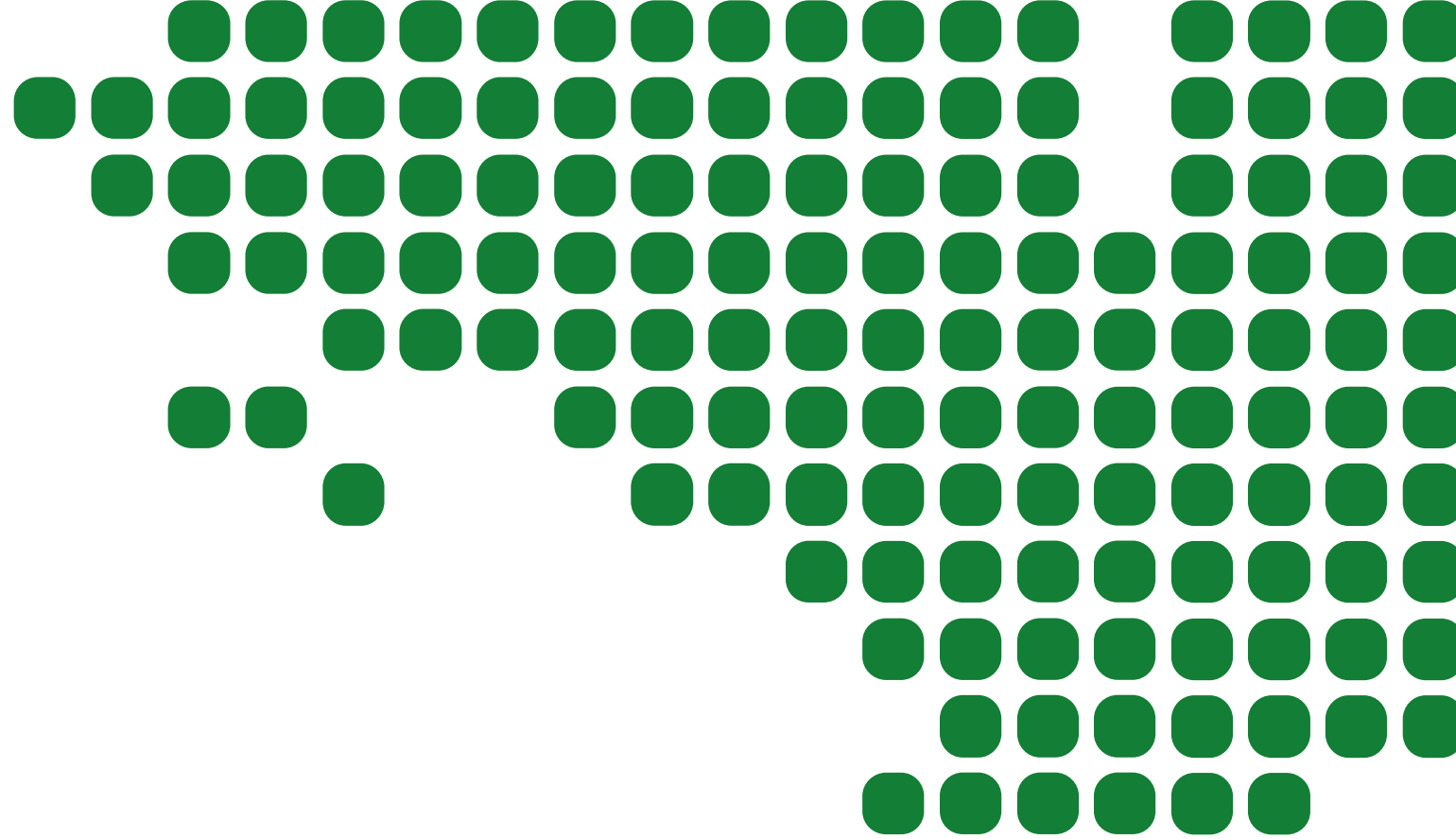


BREAK



# Co. Innovation Café Dialoog

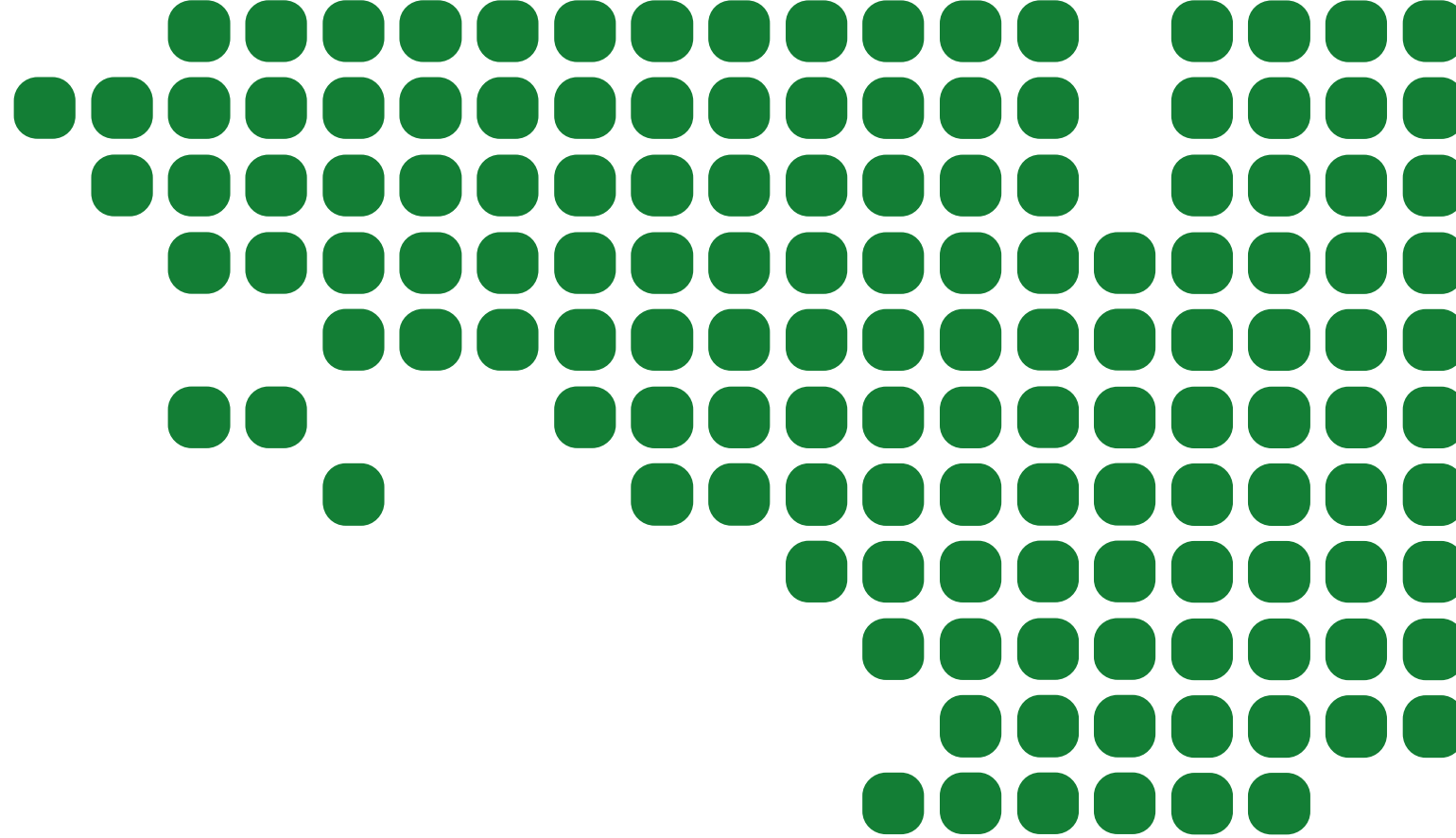
BNP Paribas Fortis leerstoel  
Transport, Logistiek en Havens



## Ronde 1.

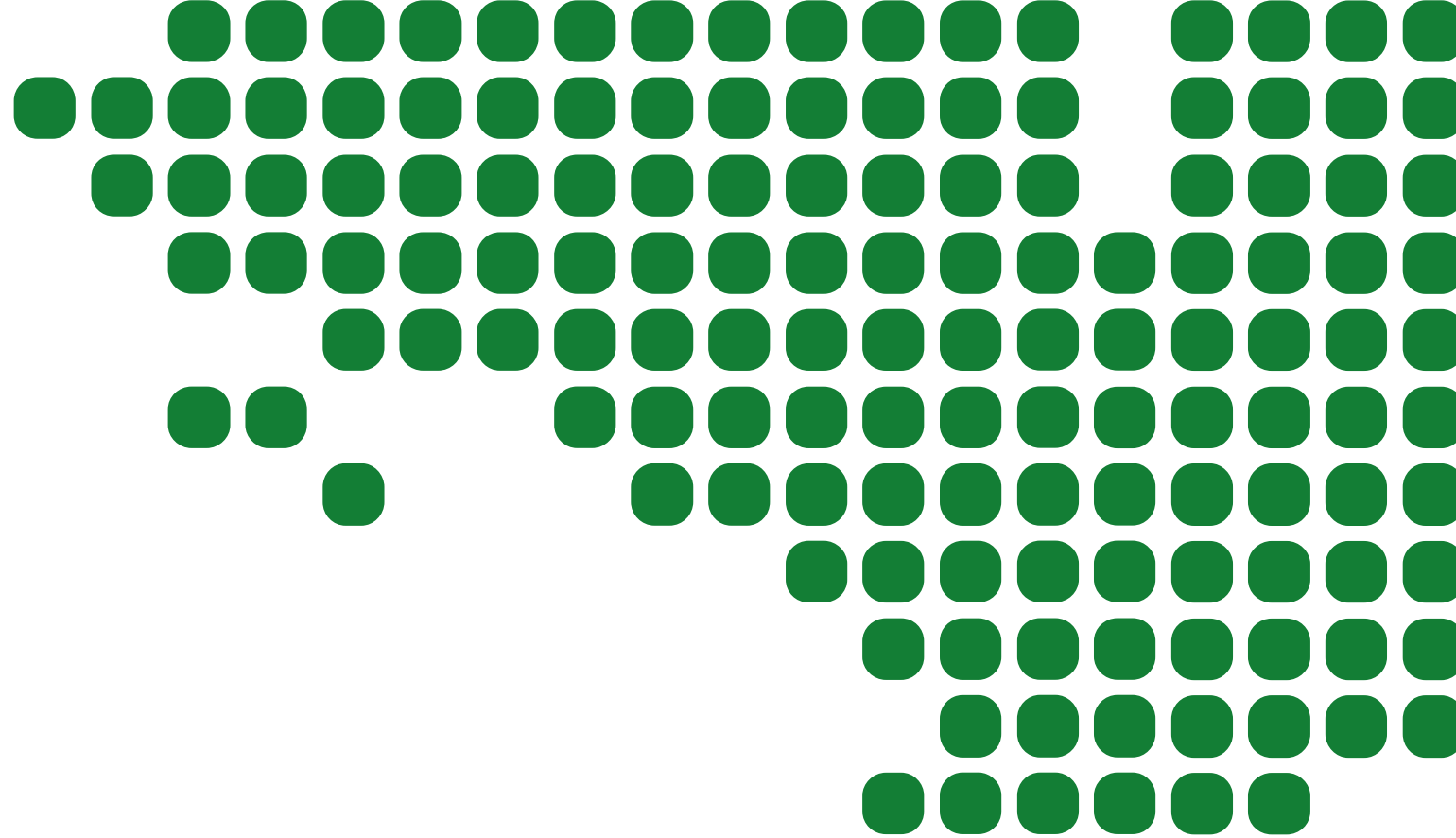
Hoe kunnen we regelgeving en beleid zo inrichten dat innovatie in de haven sneller van testfase (demo) naar toepassing in de praktijk gaat?

TAFEL 1



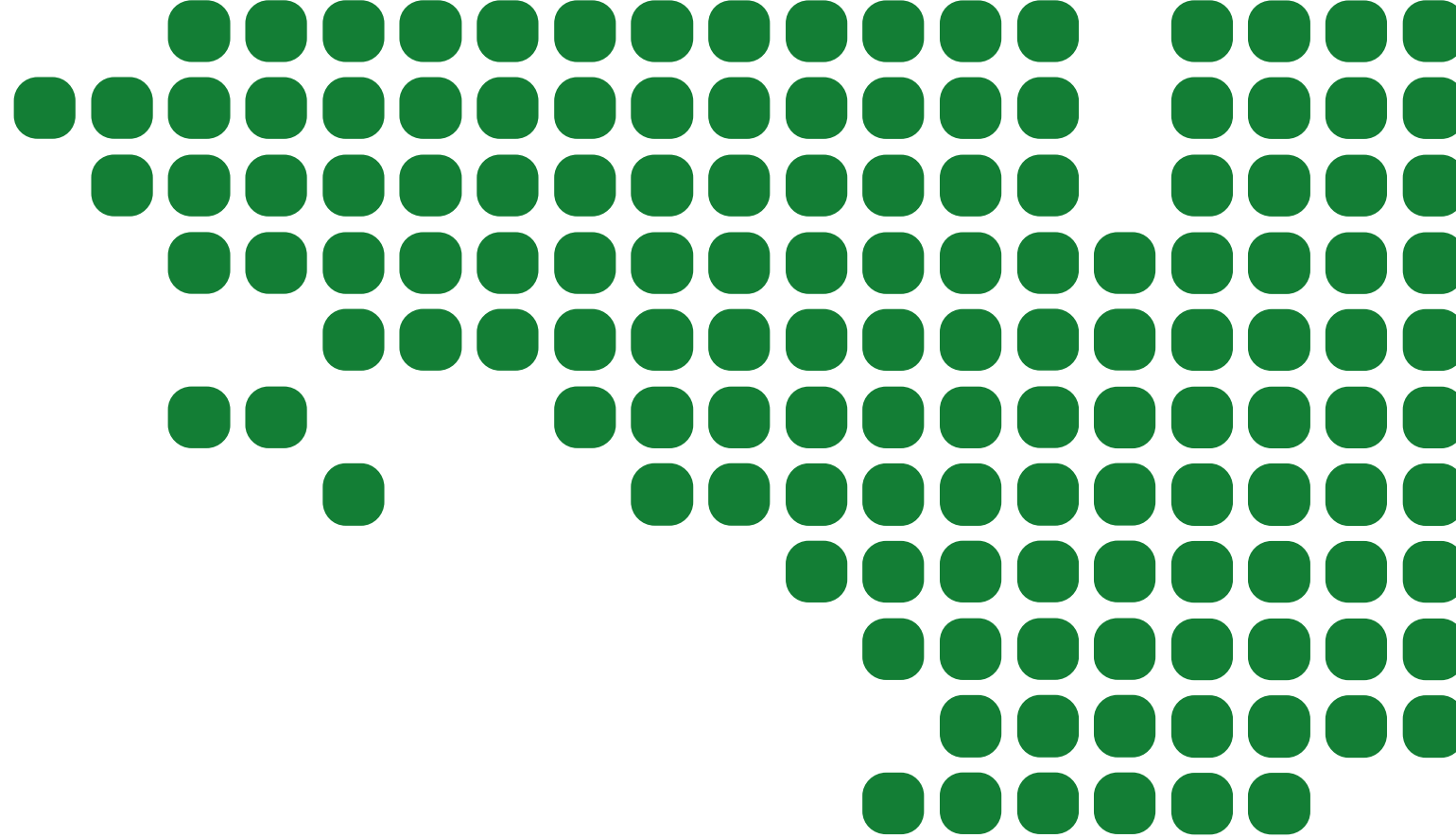
Ronde 2.

Wat als private tech-spelers morgen de standaarden bepalen voor jouw sector — zonder dat jij mee aan tafel zat?



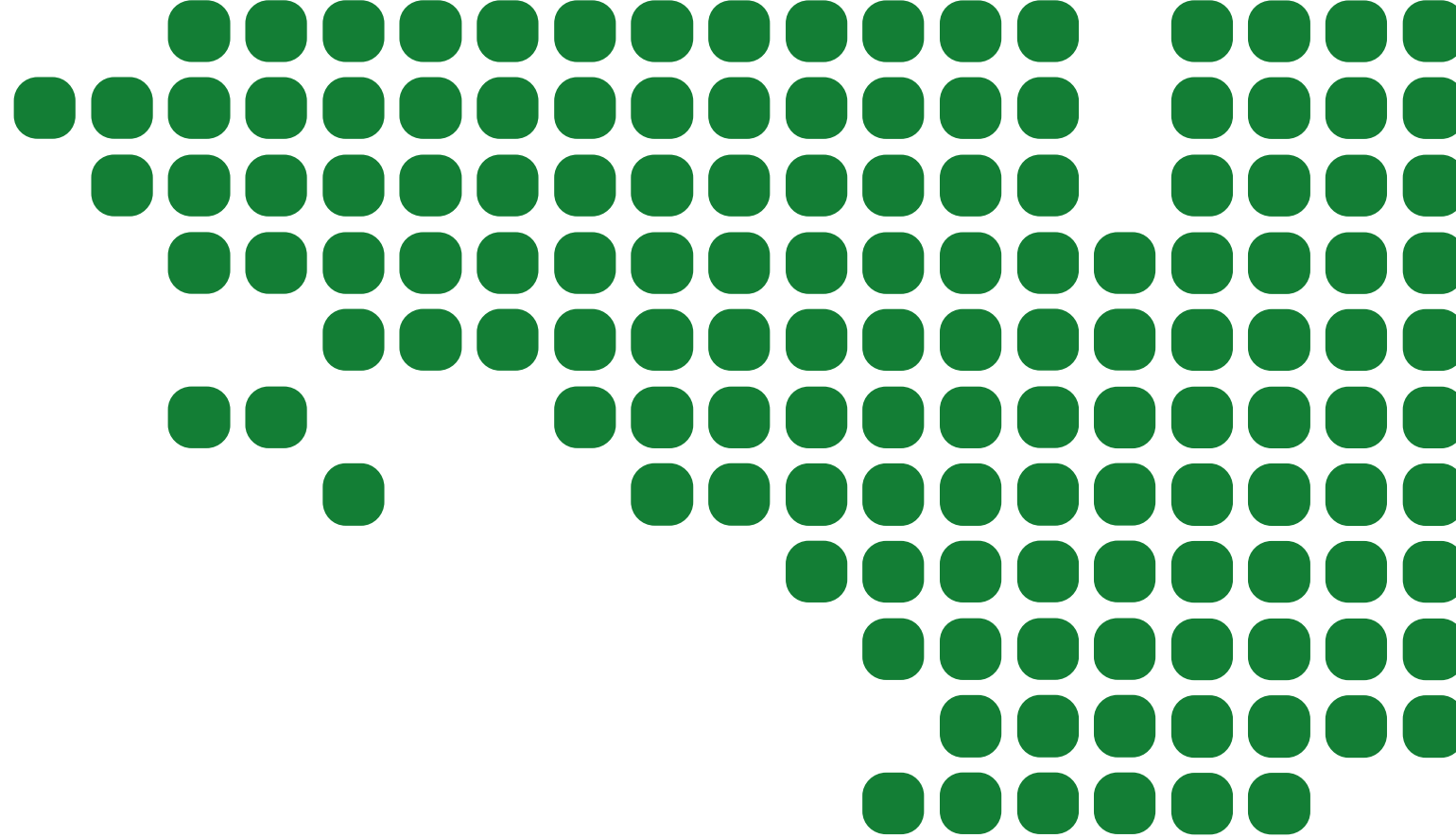
## Ronde 1.

Hoe kunnen we nieuwe technologieën in de haven breed gedragen maken – bij vakbonden, medewerkers, omwonenden en het grote publiek?



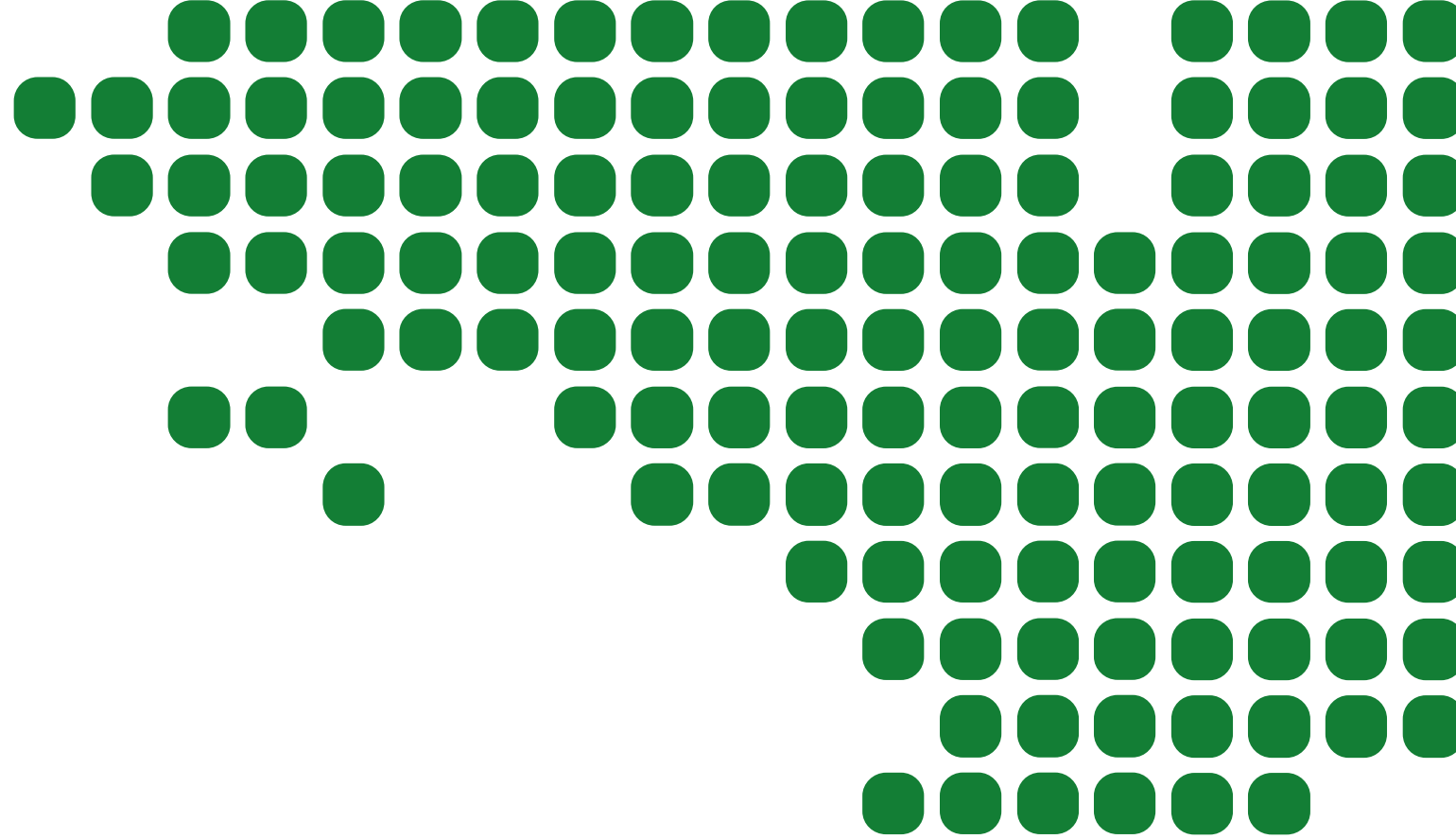
## Ronde 2.

Wat als je als organisatie een heroriëntatietraject moet aanbieden aan elke werknemer die zijn of haar job ziet veranderen of verdwijnen?



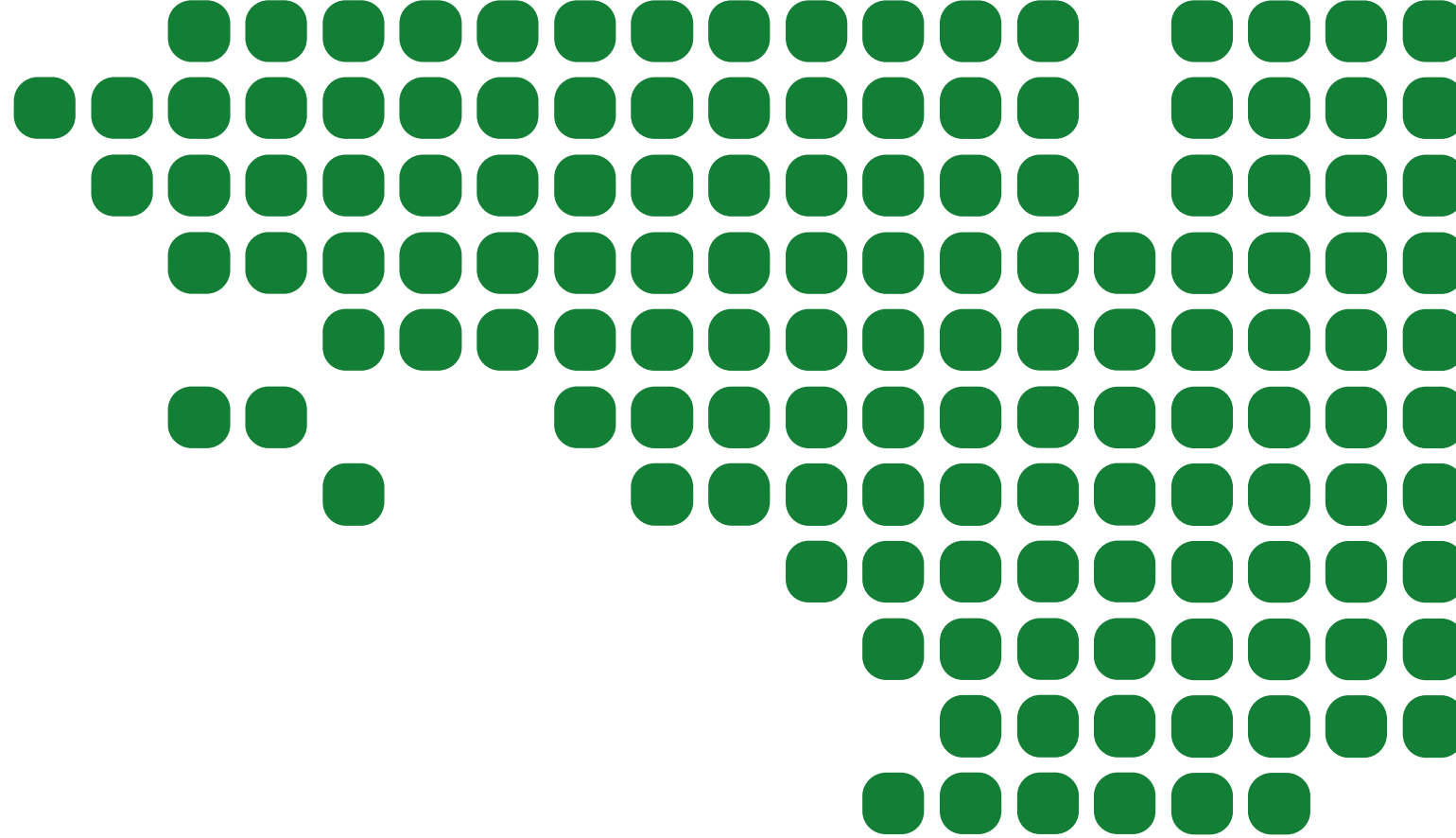
## Ronde 1.

Hoe kunnen we de kloof tussen technologische belofte en operationele realiteit sneller overbruggen?



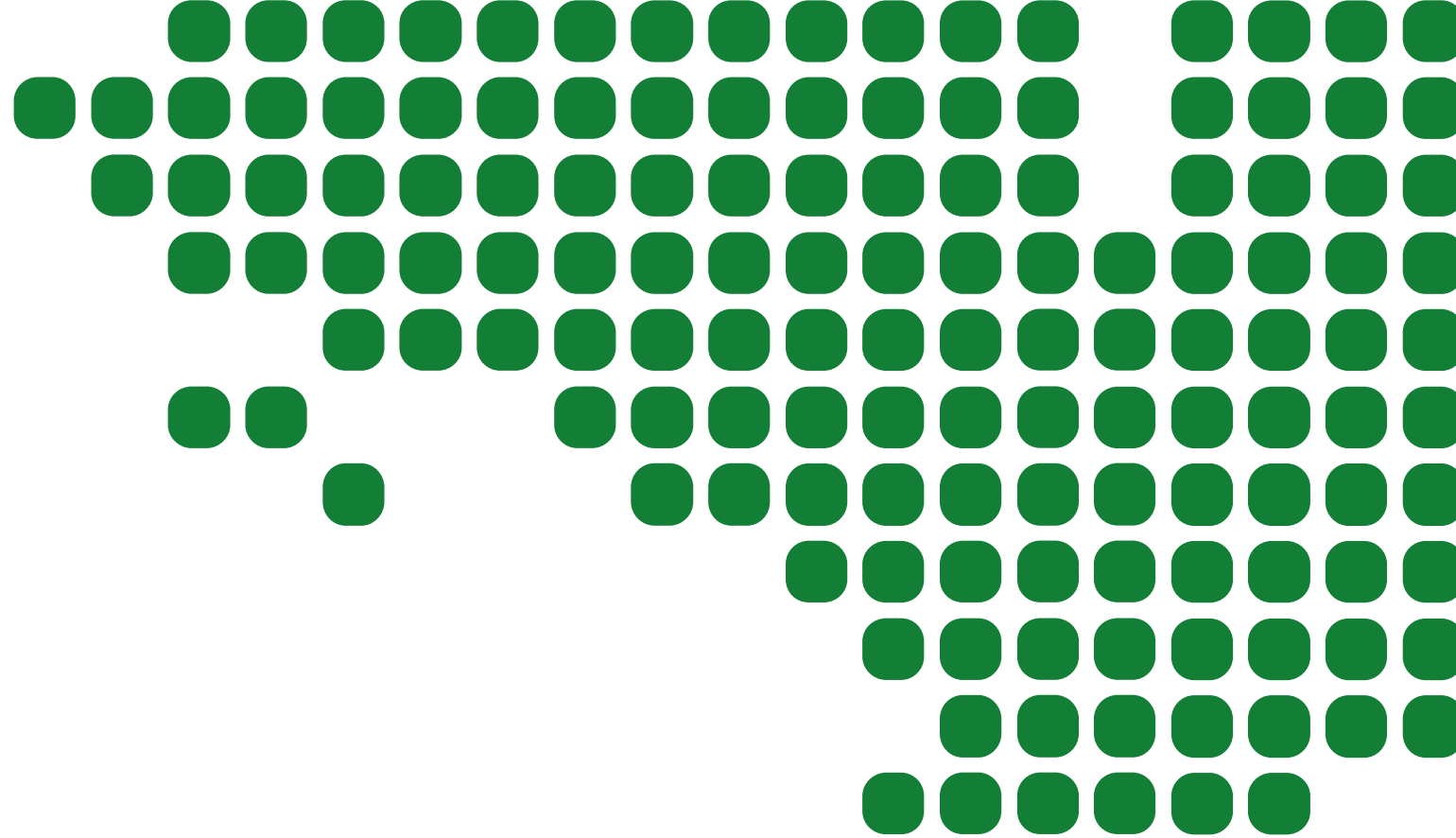
## Ronde 2.

Wat als jouw belangrijkste klanten morgen groene operaties eisen?



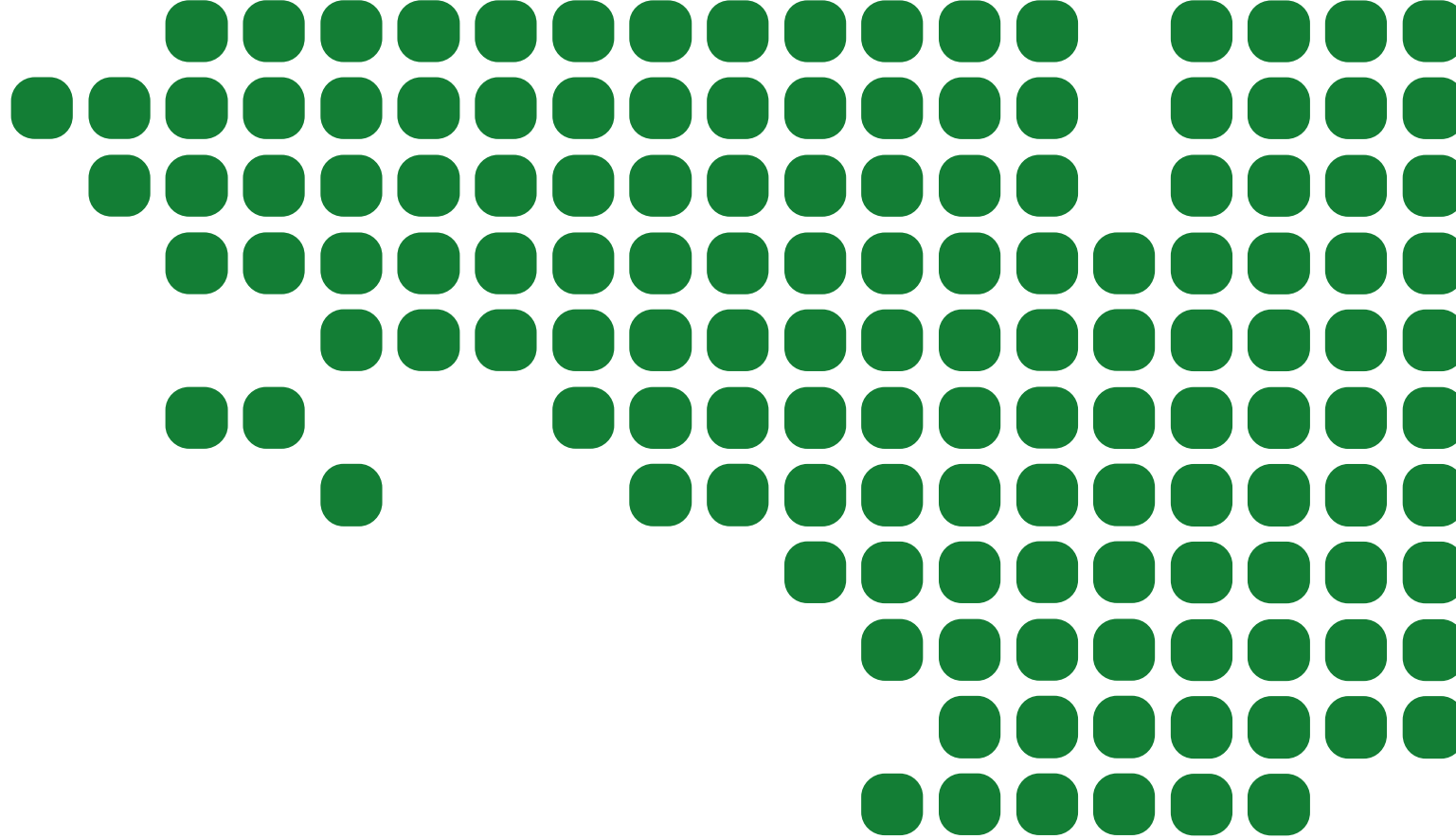
## Ronde 1.

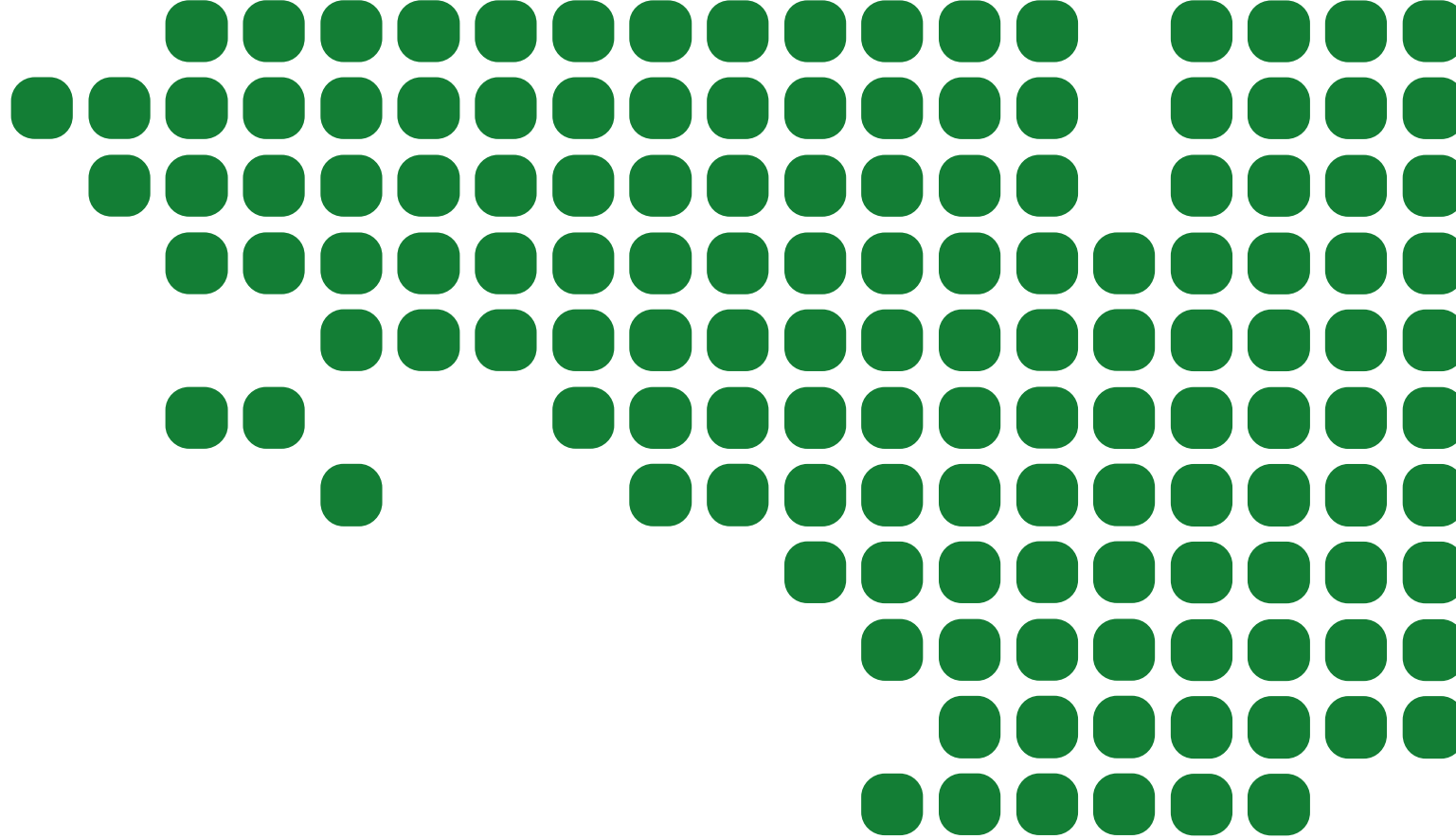
Hoe kunnen we het financiële risico van groene innovatie eerlijker verdelen over de waardeketen?



## Ronde 2.

Wat als banken en verzekeraars morgen verplicht worden om de CO<sub>2</sub>-kost van elke investering mee te tellen in hun investeringsbeslissing?





# Plenair

Wrap-up sessie



**Prof. Dr. Christa Sys**

# Closing

Koen Ceyskens, Director -  
Corporate Coverage Belgium



# Networking





University of Antwerp  
| TPR | Department of Transport  
and Regional Economics

