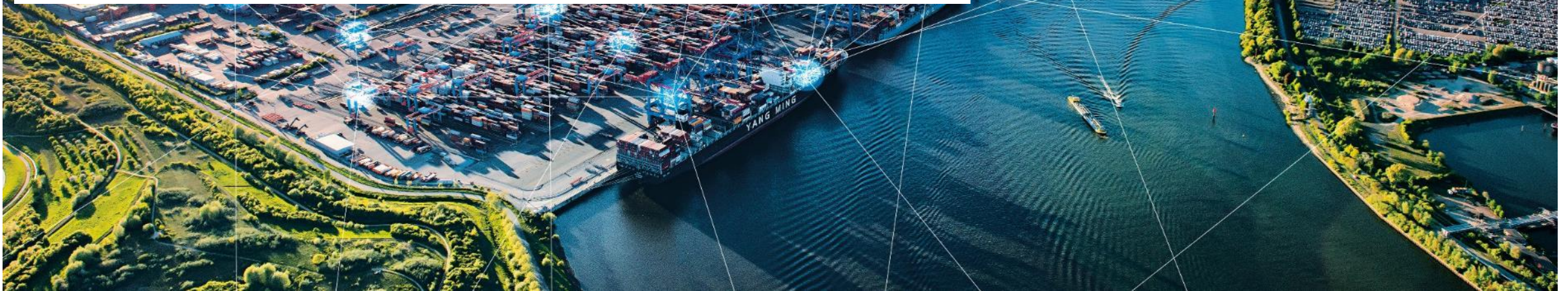




## Breakthrough Innovations for Ports Infrastructure and Performance

### Digital Supply Chain – How Port Community Systems Facilitate Successful Digital Transformation

Sven Daniels | Partner | Head of Digitalisation and Automation Excellence  
HPC Hamburg Port Consulting GmbH



# 45 Years of Excellence – what we have achieved

Anchored in operations

Let's meet at booth #28


**1,700**  
Projects in  
**130 COUNTRIES**



**1976**  
Founded as subsidiary  
of HHLA

**1st**  
**FULLY**  
**AUTOMATED**

Terminal of scale.  
Doubled capacity  
on the same  
footprint



**100**  
**ENTHUSIASTS**



With background  
from port and  
terminal operations  
and software

**OPTIMISATION**  
Improved operational  
excellence and  
reduced costs




**180+**  
**PORTS**

And terminals  
planned and  
optimised



**GREEN**  
**TRANSITION**

Alternative  
energies



**140+**

**Hinterland connectivity**

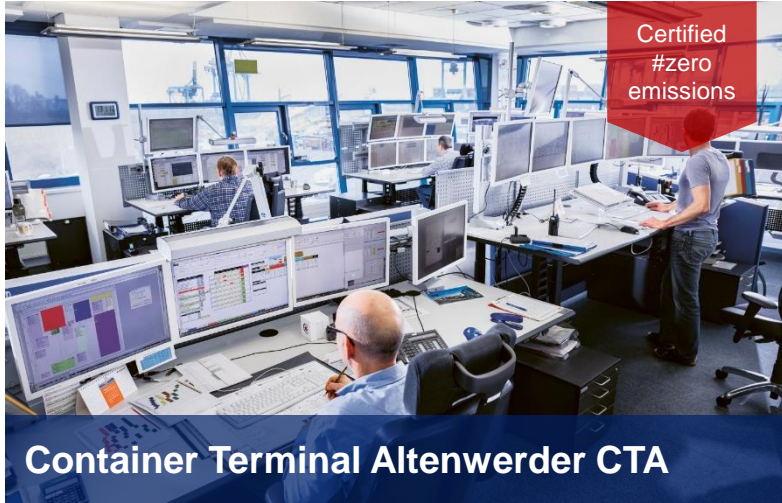
120 projects implemented for intermodal rail terminals,  
inland ports and warehouse logistics



Developed *HPC Ukraina* (now HHLA CTO) as terminal operator in Odessa

# Leading European container terminal operator

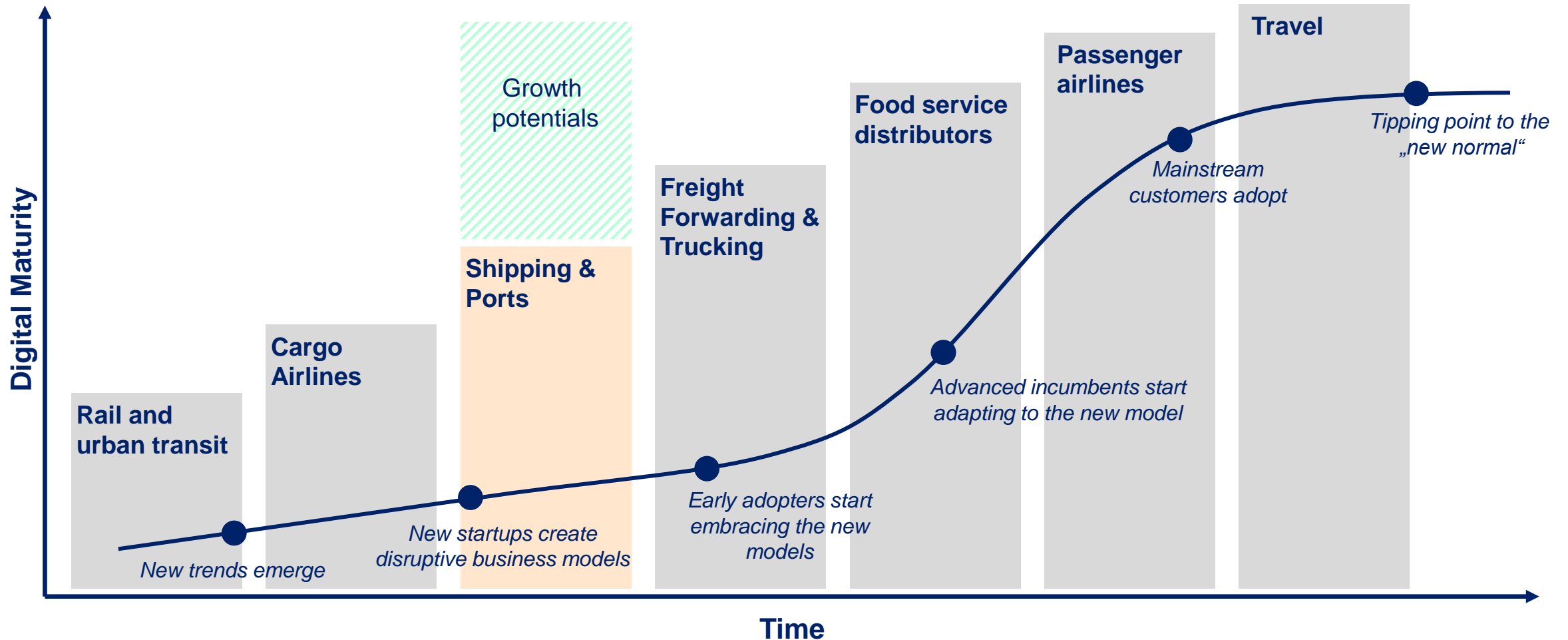
With a throughput of 7.6 m TEU with state-of-the-art handling technology



# Why digitalisation?

Our industry is in an early stage of digitalization – this opens opportunities for future-oriented operators

## Travel, transport and logistics industry digital maturity curve



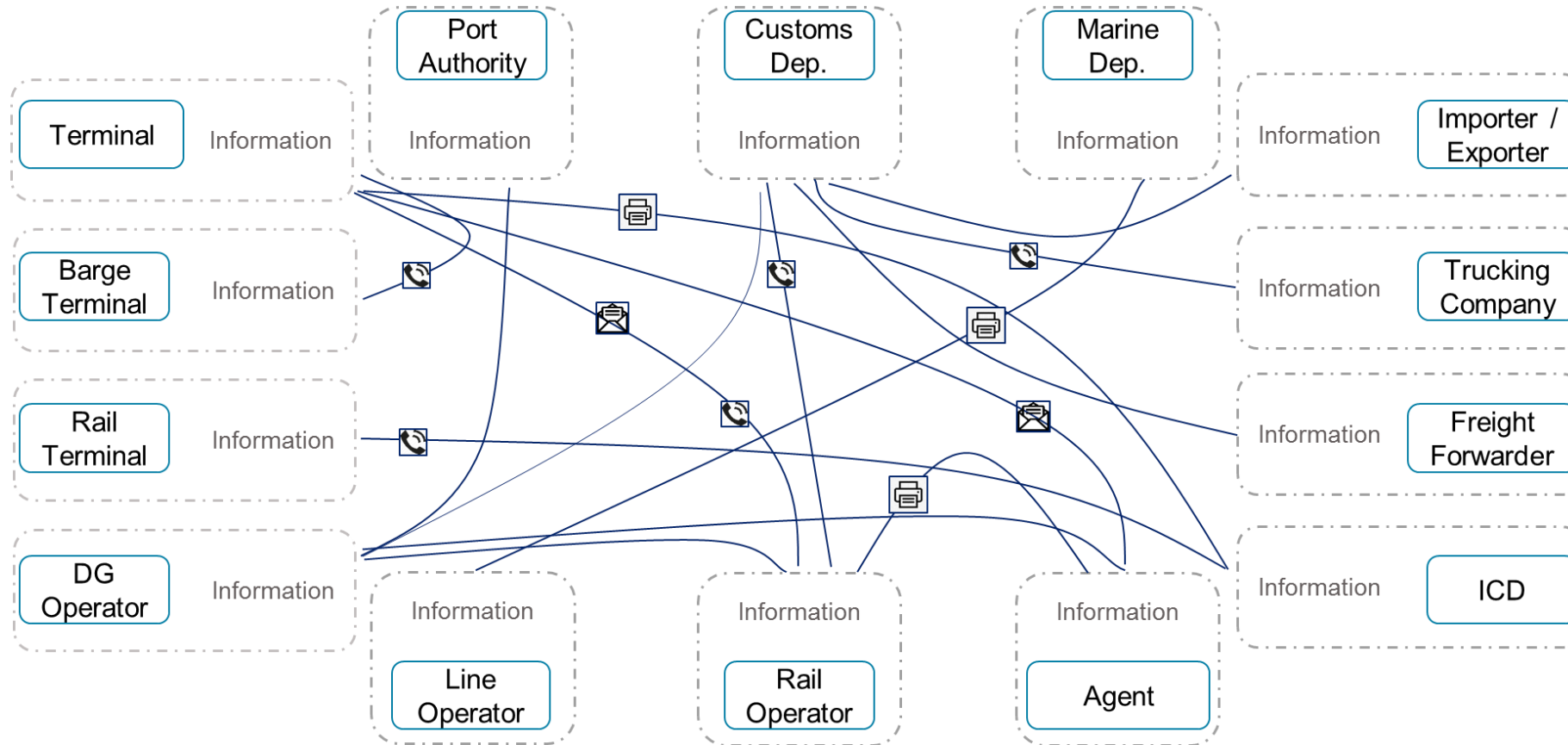
# Why digitalisation?

What's wrong with us as an industry?



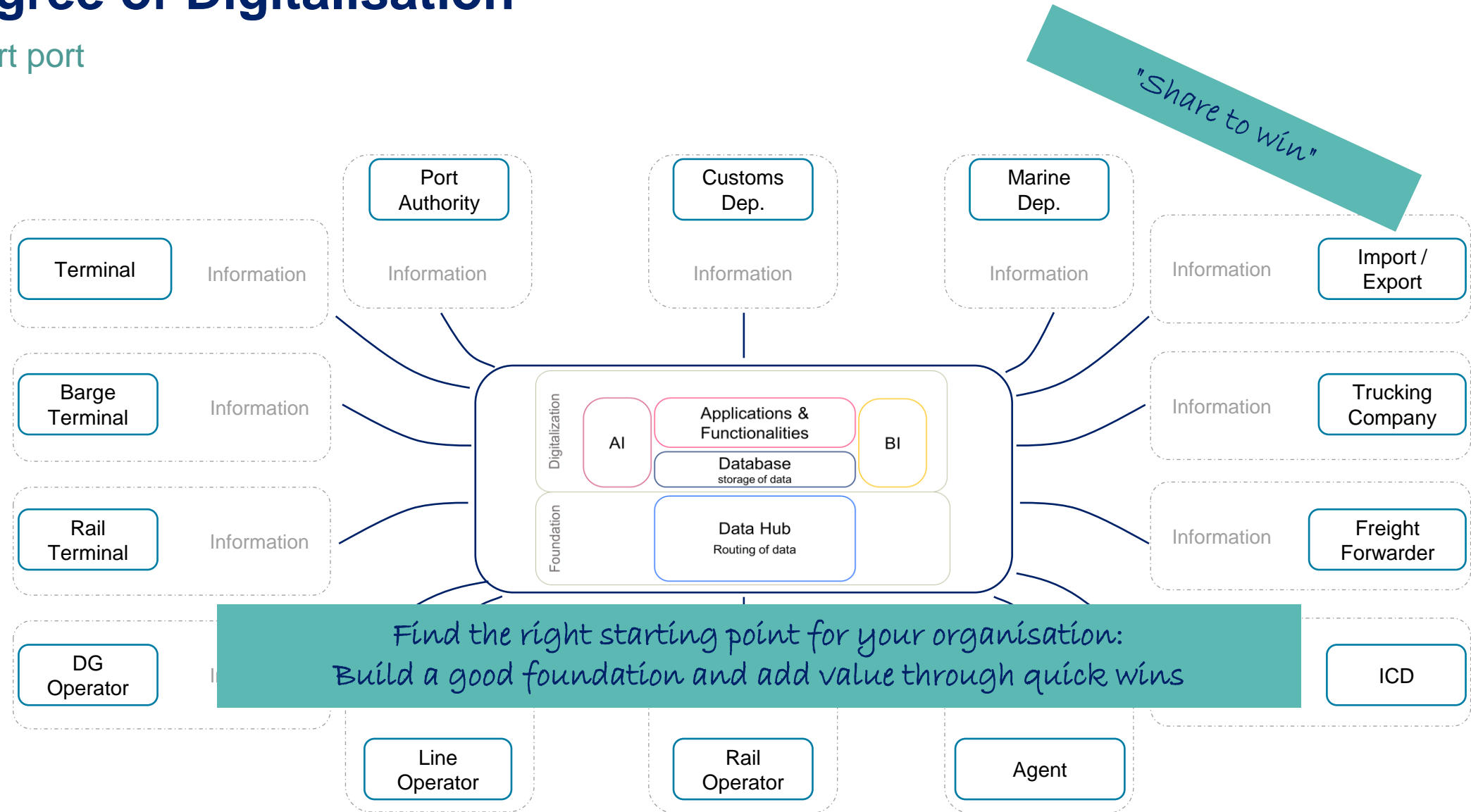
# Degree of Digitalisation

Current situation in many ports around the world



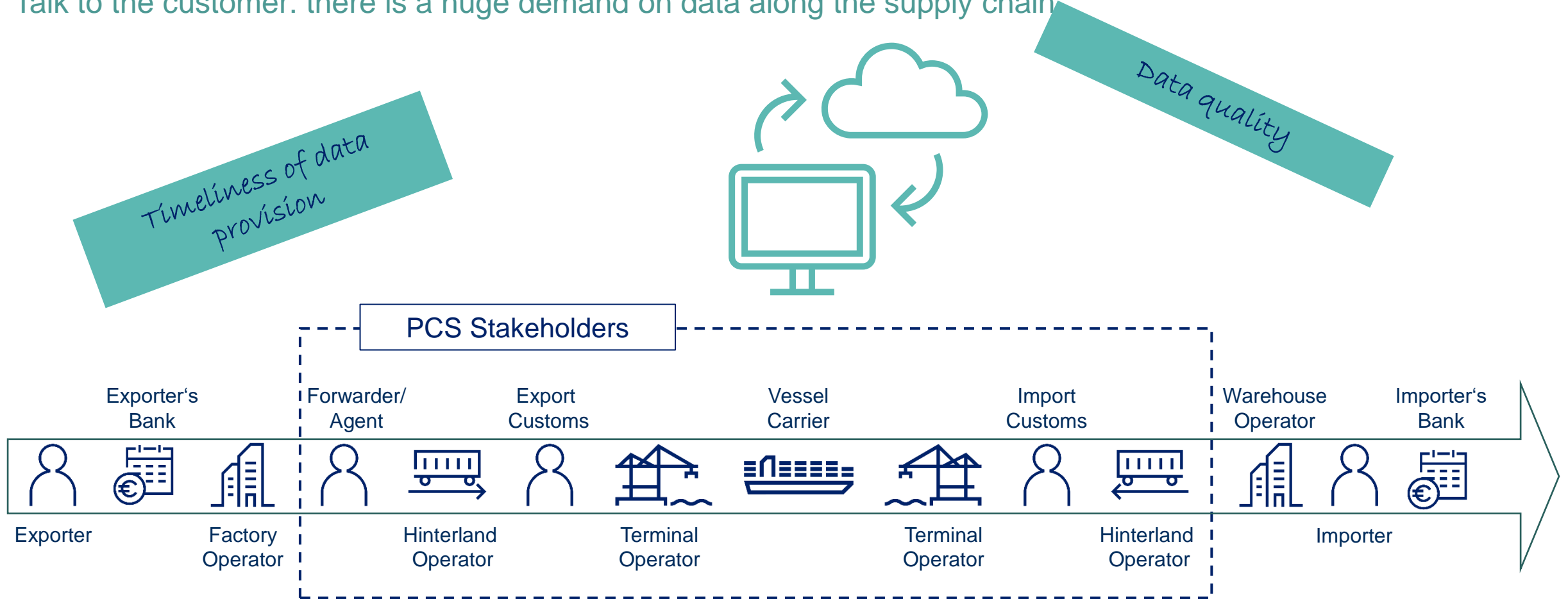
# Degree of Digitalisation

Smart port



# Degree of Digitalisation

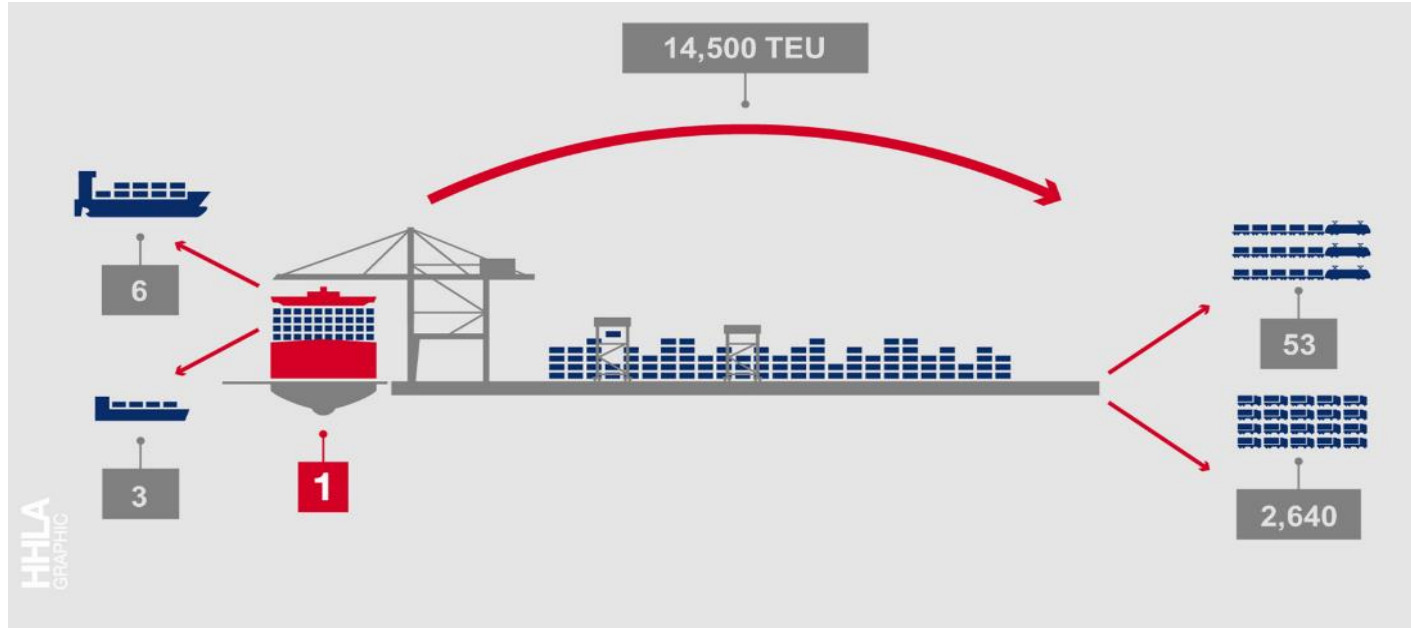
Talk to the customer: there is a huge demand on data along the supply chain





# Truck Appointment System

Hinterland traffic management to relieve common pains in the port and its community



## Overview of Partners



## Overview of Objectives

- Transparency and control of truck arrivals
- Better capacity utilisation by lowering peaks
- Reduction of congestion
- Improved resource planning
- Increased terminal performance

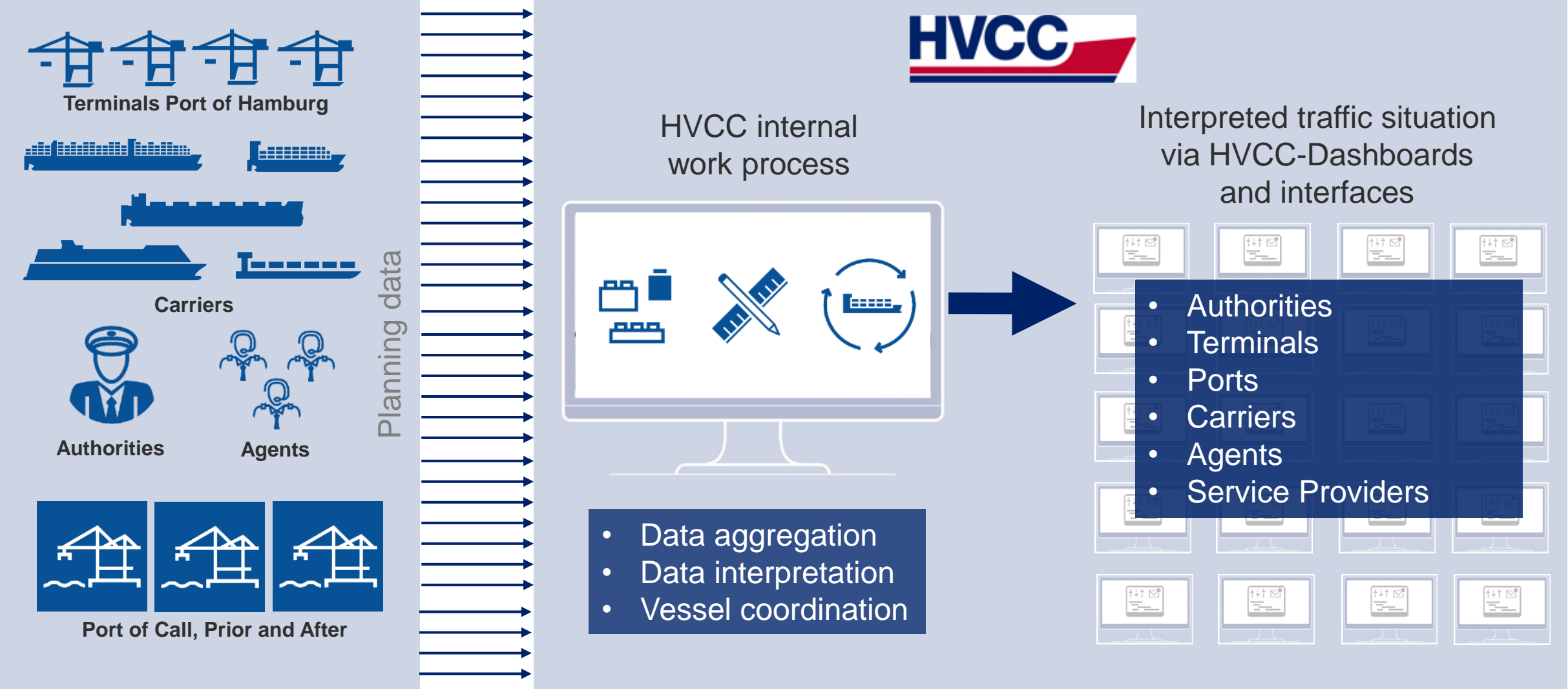
# Every port region has challenges to overcome

HVCC helps vessels to sail at optimal speed to arrive just-in-time



# HVCC collaboration platform

One single truth across all partners



# Blockchain Technology

New ways of exchanging documents requiring protection

## Motivation

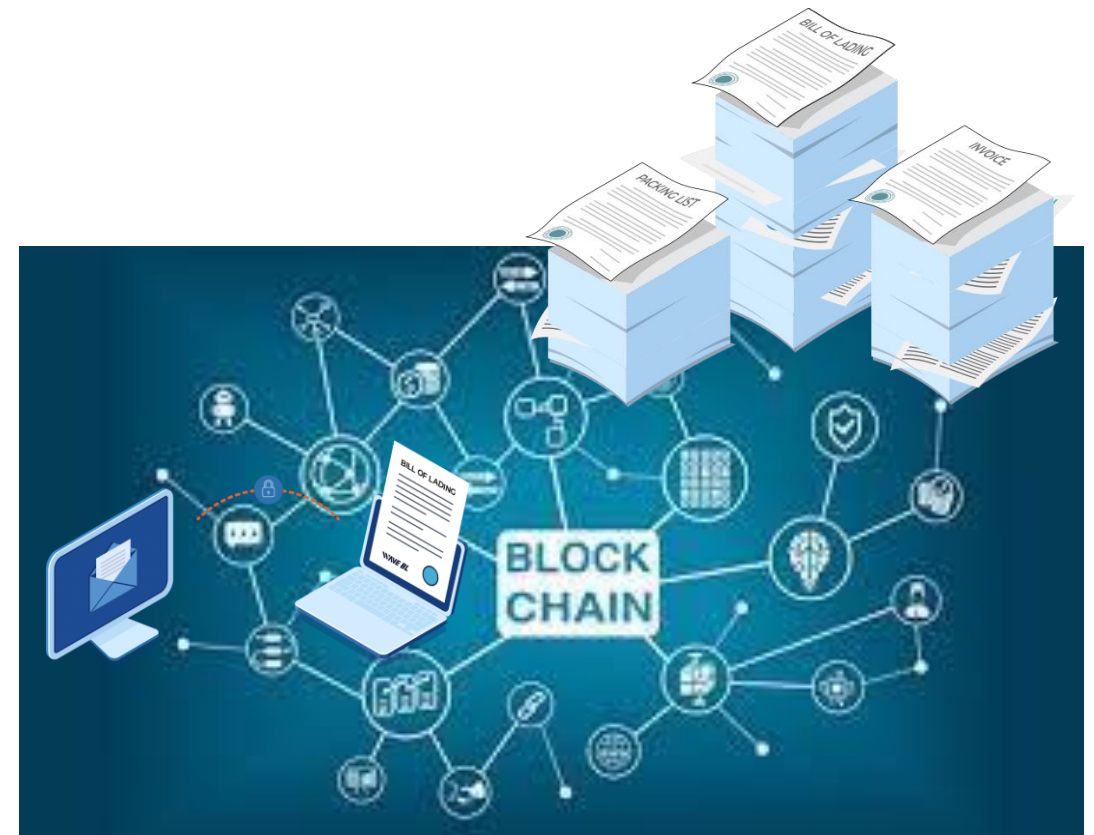
- Ease the exchange of formal document requiring protection between specific stakeholders
- Protect the documents against falsification

## Approach

- Develop a cloud solution that hosts documents such as B/Ls, invoices etc.
- Apply blockchain technology to guarantee originality

## Result

- First adopters pursue applying blockchain
- Expensive information exchange procedures become obsolete



# Smart and Powerful Apps

## Hatch Clerk App

### Motivation

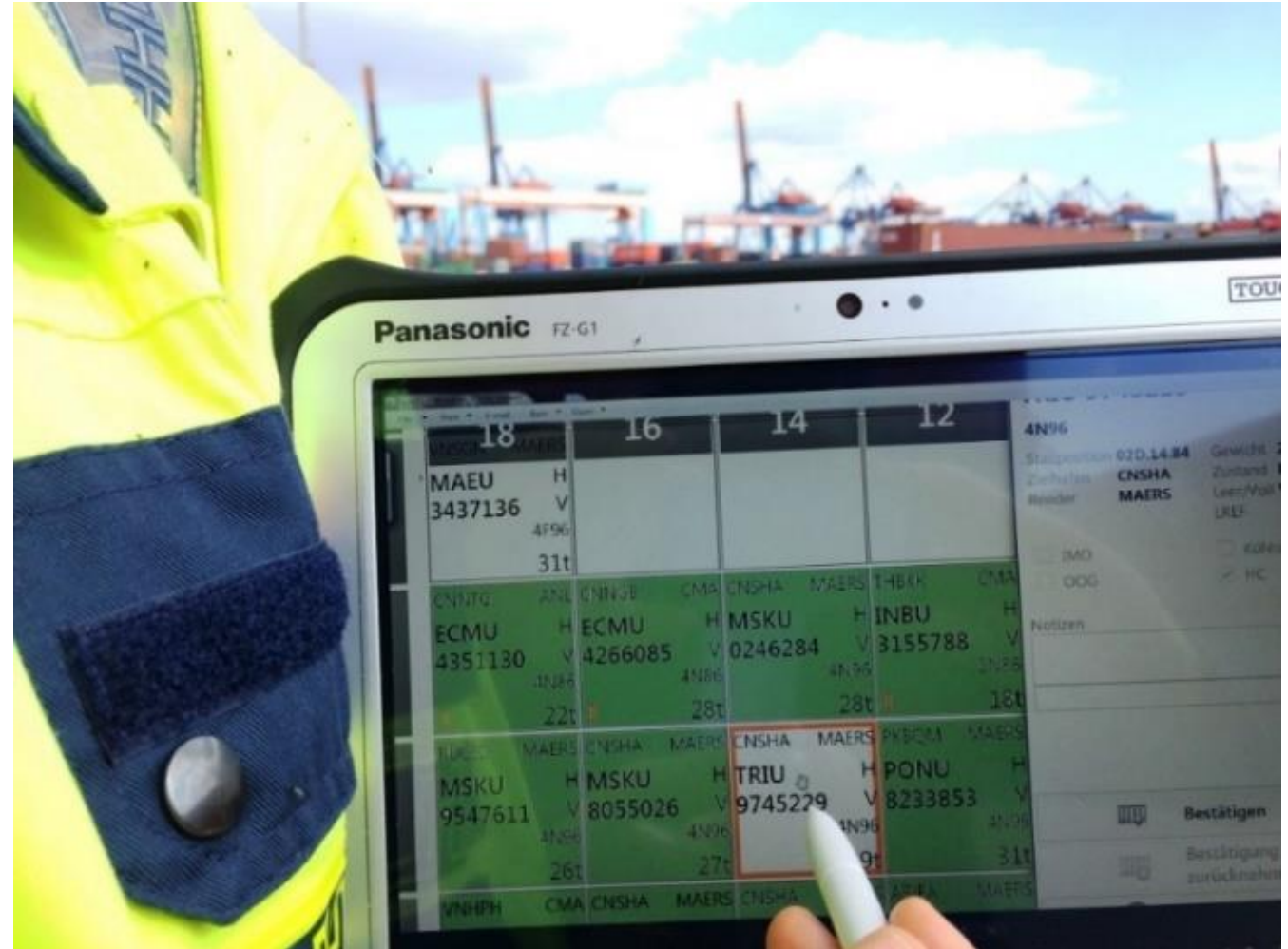
- Digitisation of paper bay-plans used onboard by hatch clerks (decks-men)

### Approach

- Develop an app running on a rugged tablet to be used onboard the vessel during discharge and load operations

### Result

- Real-time updates of final stowage positions onboard
- Minimised operations delays after plan changes
- Minimized 'vessel closing' after departure
- Lower paper consumption



# AI-based dwell time prediction

Using hidden structures to predict dwell times of import containers

## Motivation

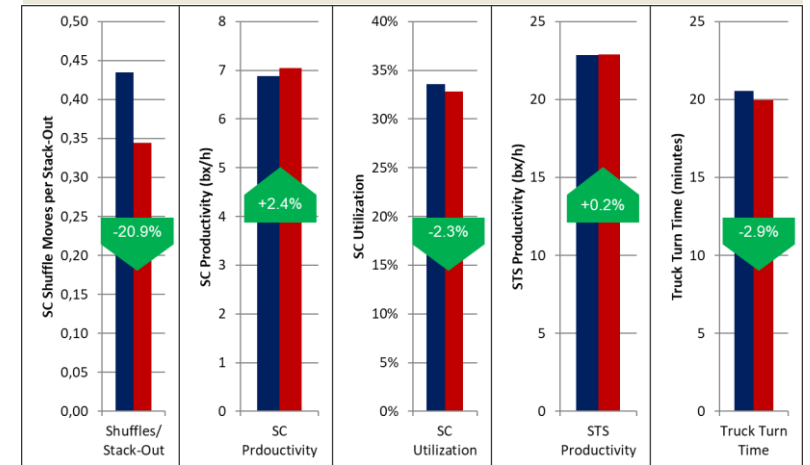
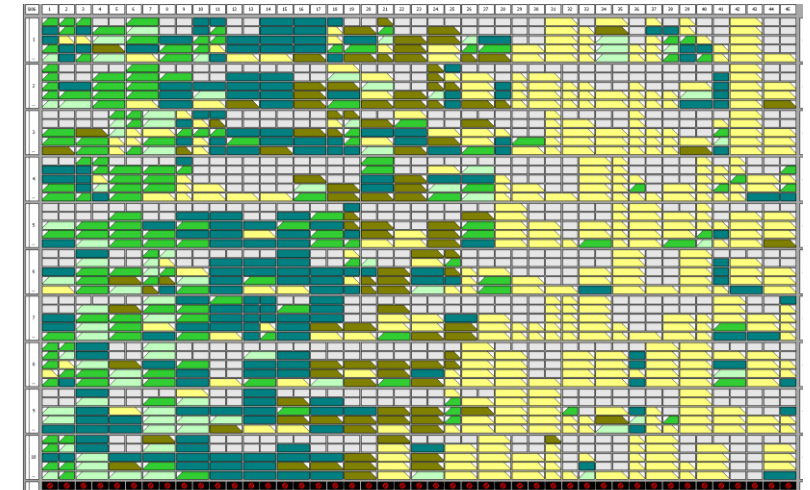
- In the moment of stack-in import containers lack information on pick-up time and transport means
- Yard planning systems calculate the target stacking position based on incomplete information: expected dwell time and ongoing transport are not in the equation.
- Hence, additional shuffle moves require additional resources, maintenance and energy, leading to inefficiencies

## Approach

- Based of millions of data sets, can we develop a ML model to identify hidden structures, which can be used to predict individual container dwell times and ongoing transport means?
- Feed those predicted values into the yard planning system and hope for better results, hence less shuffle moves.

## Result

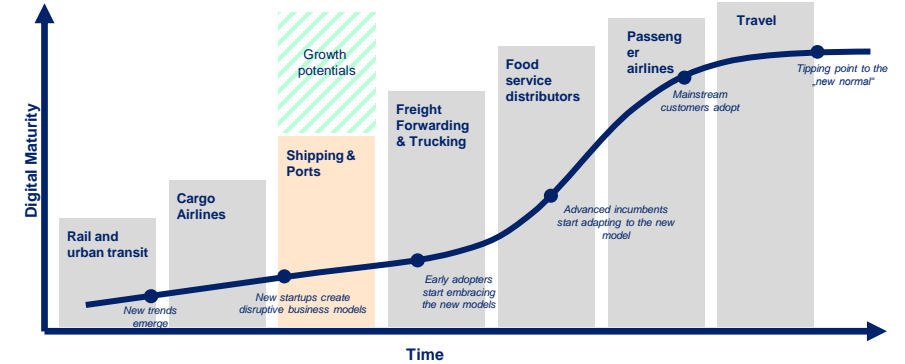
- Reduced number of shuffle moves by +120,000 per year
- All relevant KPIs show improvements



Current Stacking Smart Stacking

# Key Takeaways

Digitalisation is not only applying technology, it is rather an organisation's mind-set



- There is **no blue-line print** towards digitalisation! Find the **individual starting point for your organisation**
- **Technology is available.**
- You have given up on some problems? **Open the shelf of unsolvable problems** and have a look at them again!
- Beware of **skilled labour shortage!** We need to **attract talents!**
- Digitalisation needs software **Engineering** and **Change Management**
- **Standardisation** is key
- **Build and empower a team!** Ports and terminals should develop in-house talent and team to drive the implementation and reduce dependency from vendors

# HOW CAN WE HELP TO DIGITIZE YOUR PORT?

Let's meet at booth #28

Sven Daniels | Partner



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