

SMARTPORTS & KEY TRENDS IN ASIA

10th Philippine Ports & Shipping Conference
20th February 2019



Agenda

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- 3 Remote Control Trend**
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Introduction

Definition of Smartports

“ **No waste** of space, time, money and natural resources”

“More efficient traffic management is made possible by **interlinking the information and communication systems**. This is how we keep the current traffic situation in the entire port area under control and are able to plan proactively.”

Strategy:-“To develop intelligent solutions for traffic and trade flows in order to optimise the flow of information and **efficiently manage trade flows** at the port”

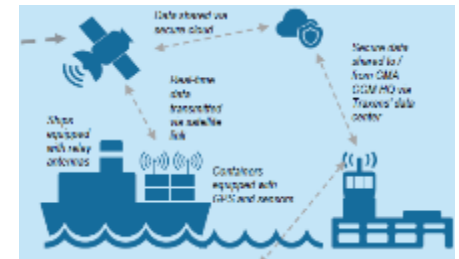
Smart port policy (for example)- “could be to **maximise local value**, rather than maximising cargo flows.”

Port Technology & Innovation

Larger Ports

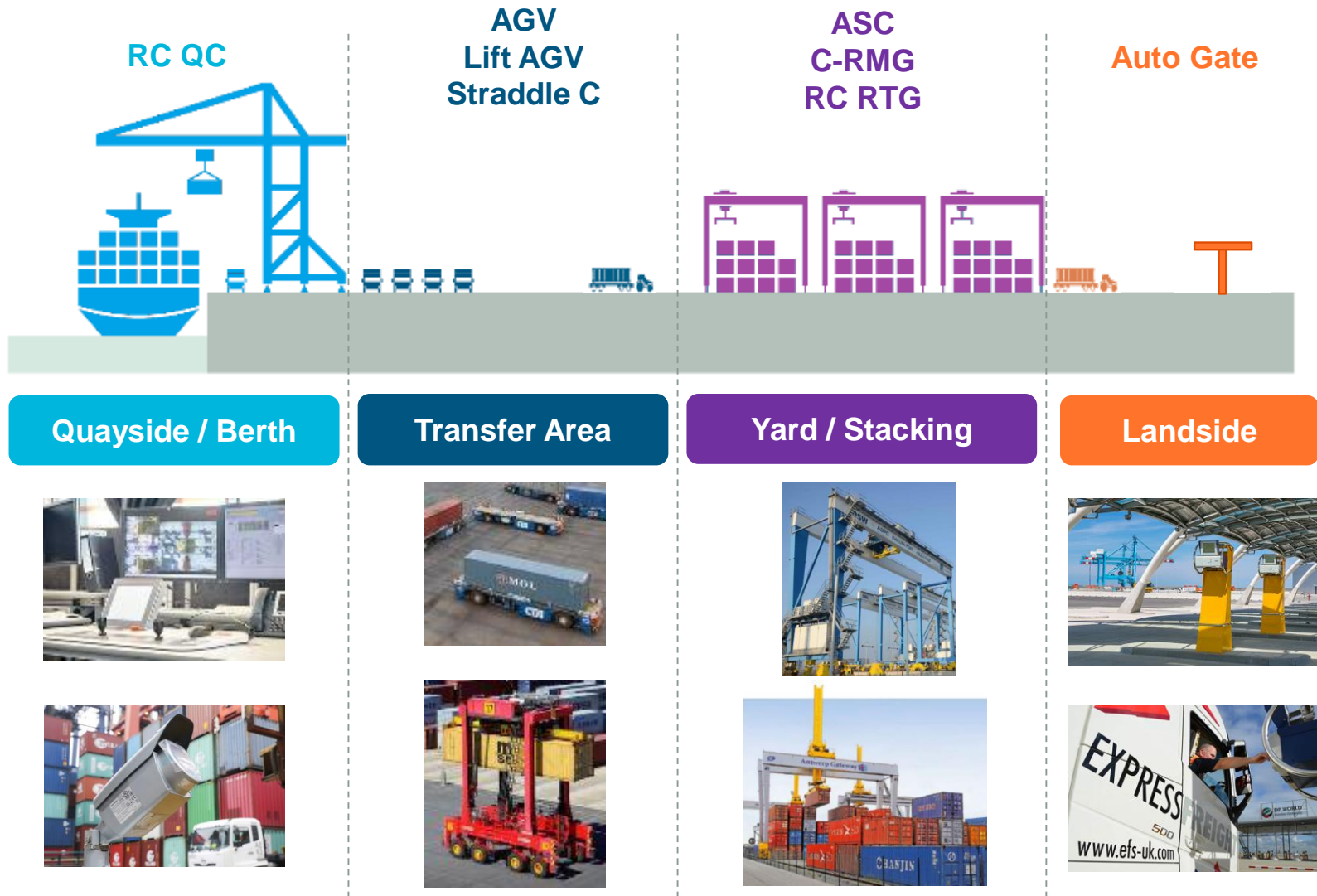


Smarter Ports

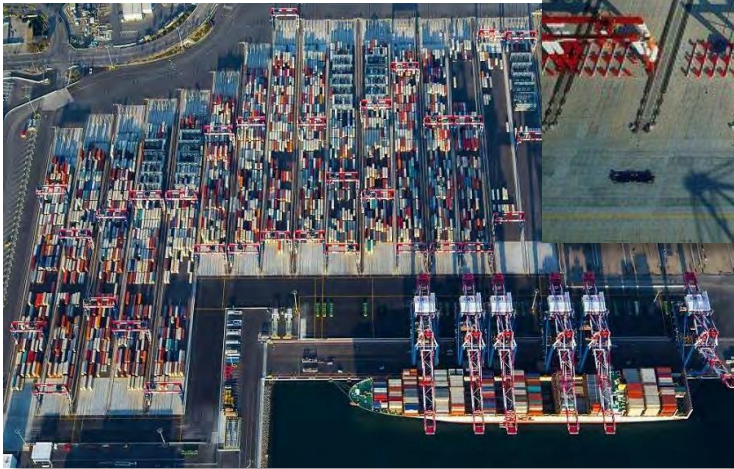


Automation Development

Terminal Automation



Yard Automation – ASC



Yard Automation – Straddle Carrier

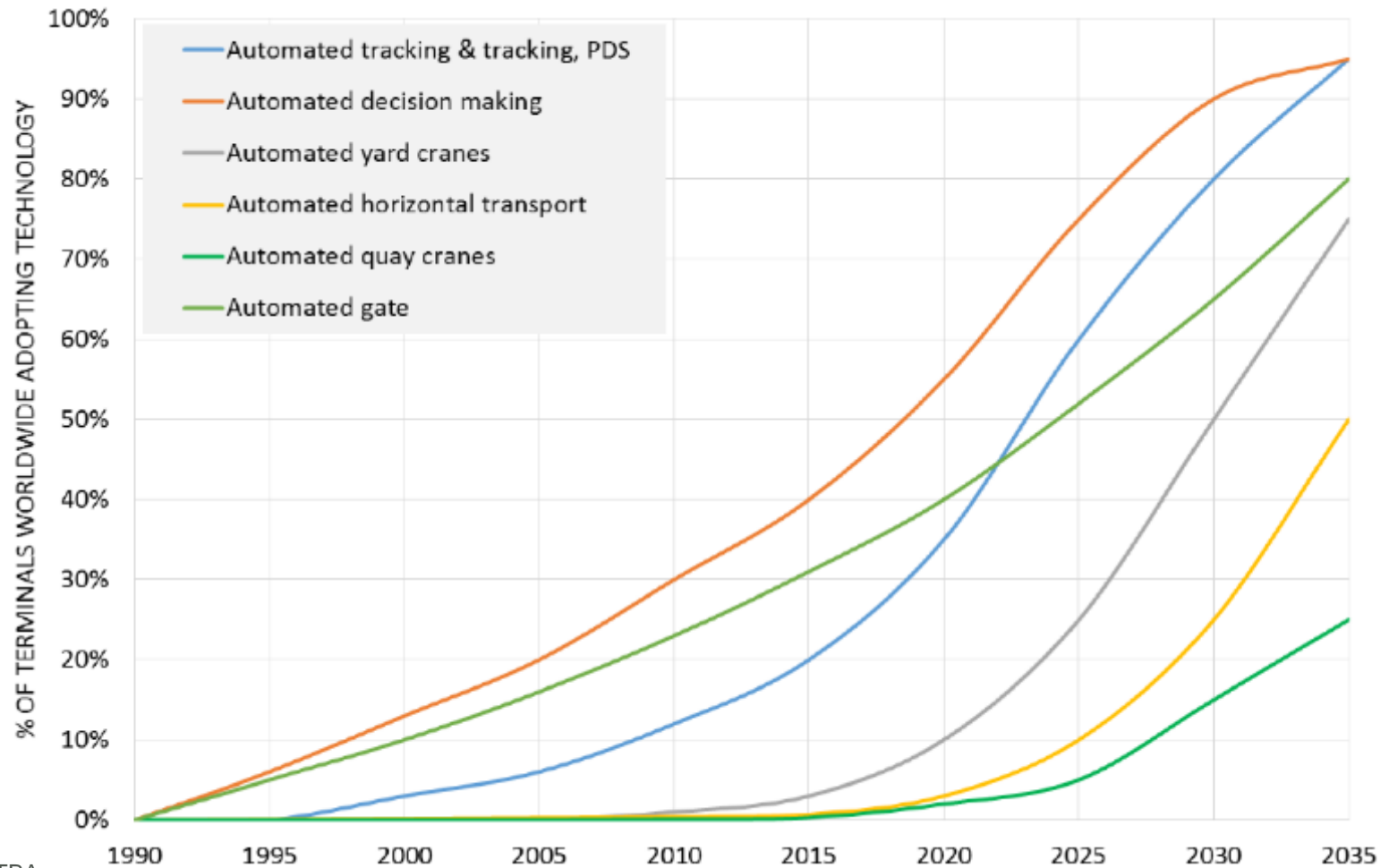


Automated Horizontal Transfer



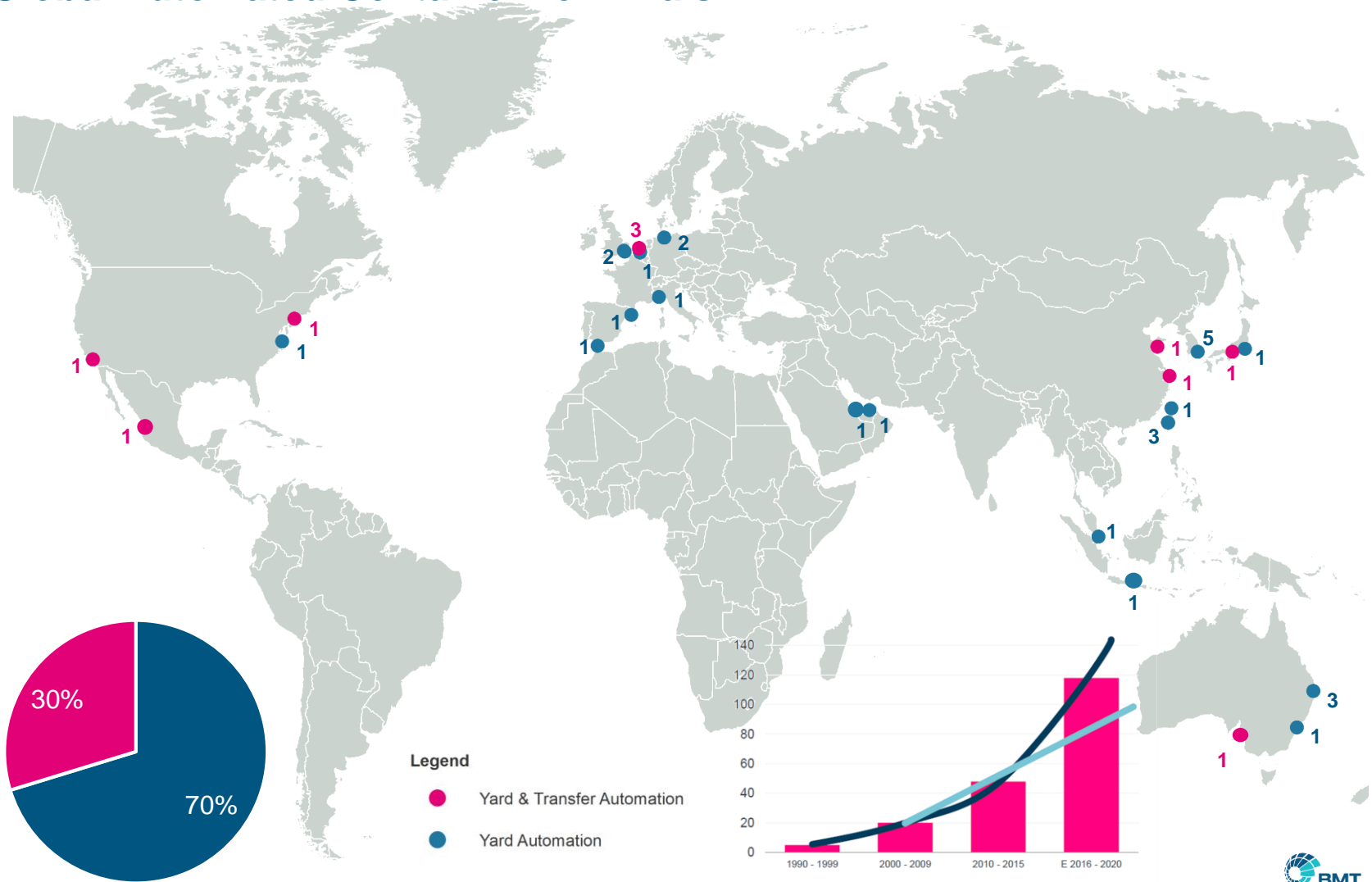
Terminal Automation Trend

Types of Automation Development



Source: TBA

Global Automated Container Terminals



Types of Automated Terminals



ASC

- Decouple process and minimise apron size
- With AGV or Shuttle Carrier
- High stack volume and density
- Optimised throughput



Auto Straddle

- Highly flexible
- Stacking and transportation by same type of equipment
- Relatively low initial investment
- Shorter time to implementation / realisation

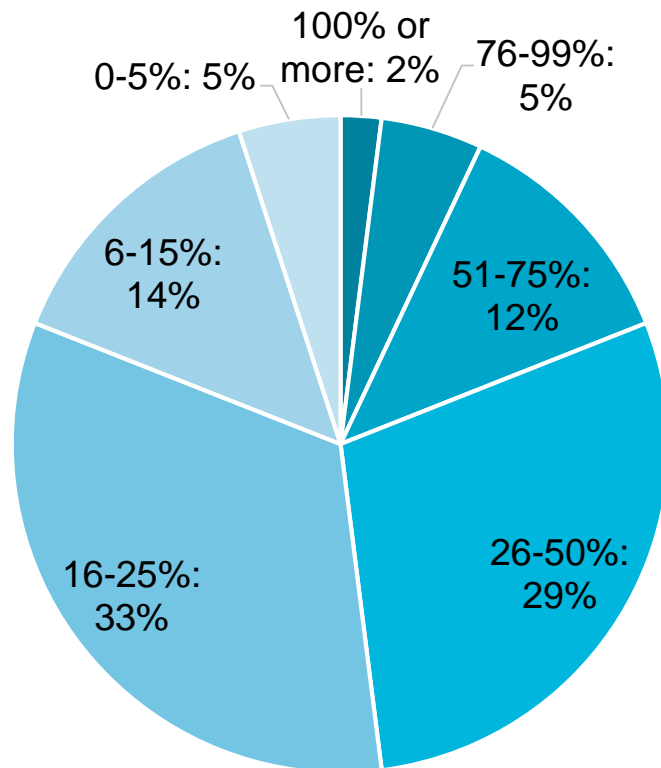


RC RTG

- Various degree of automation
- High stack capacity and manoeuvrability
- With TT or unmanned truck (AI trucks)
- Medium and large terminals

Picture: Kalmar

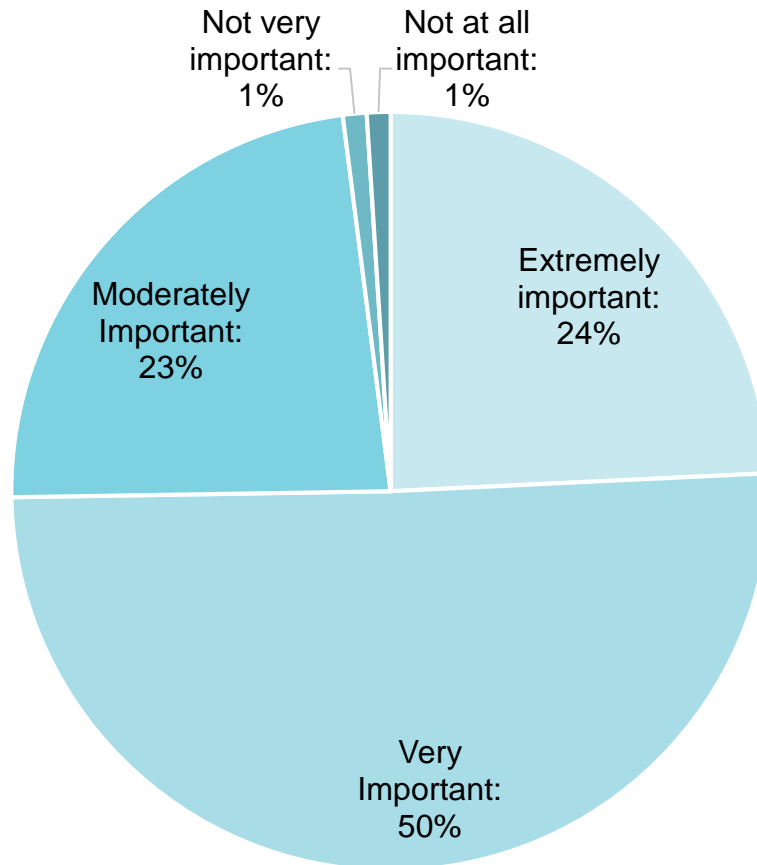
Automation – Reduction in Operating Cost?



- Labour cost is key cost component, which accounts for 40-60% of the total costs per TEU (US)
- Manned operations requires double of labour cost than full automation
- Power & fuel perspective, eRTG (e-mode) of 2-3 kwh/TLC vs ASC of 1-3 kwh/TLC

Source: TechValidate 2018 survey of 78 current users of Navis

Automation – Secure Competitiveness?



- An ASC costs about US\$1 million more than an electrified RTG
- RMG requires rail construction, thus involves additional costs
- IT investment is in a range of US\$1-1.3 million, depending on the choice of TOS

Source: TechValidate 2018 survey of 78 current users of Navis

Automation – Benefits?



Source: TechValidate 2018 survey of 78 current users of Navis

Remote Control Trend

Remote Control Centre – Hong Kong (HIT-T9)



Remote Control Centre – Thailand (LCB Terminal D)

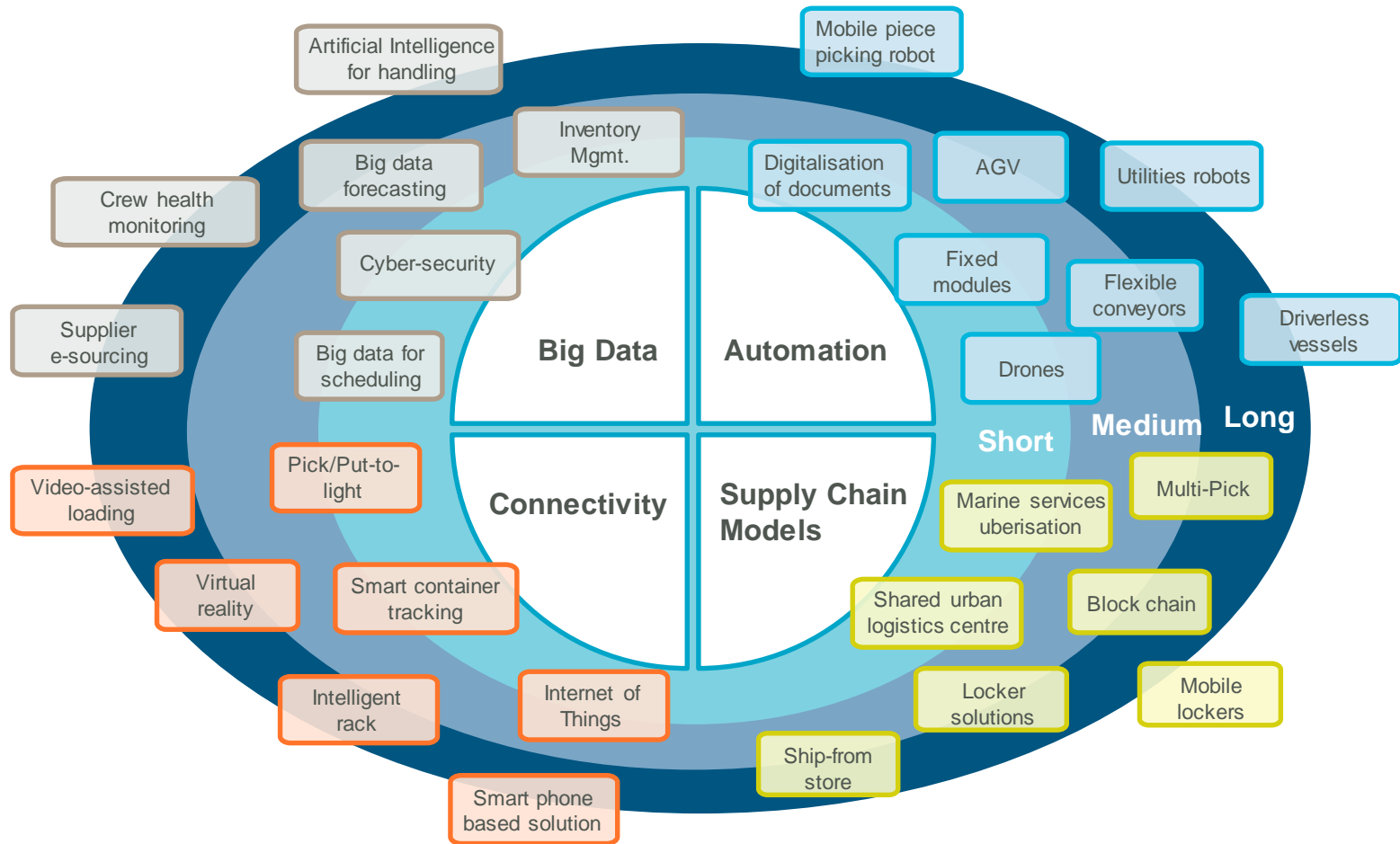


Remote Control Trend

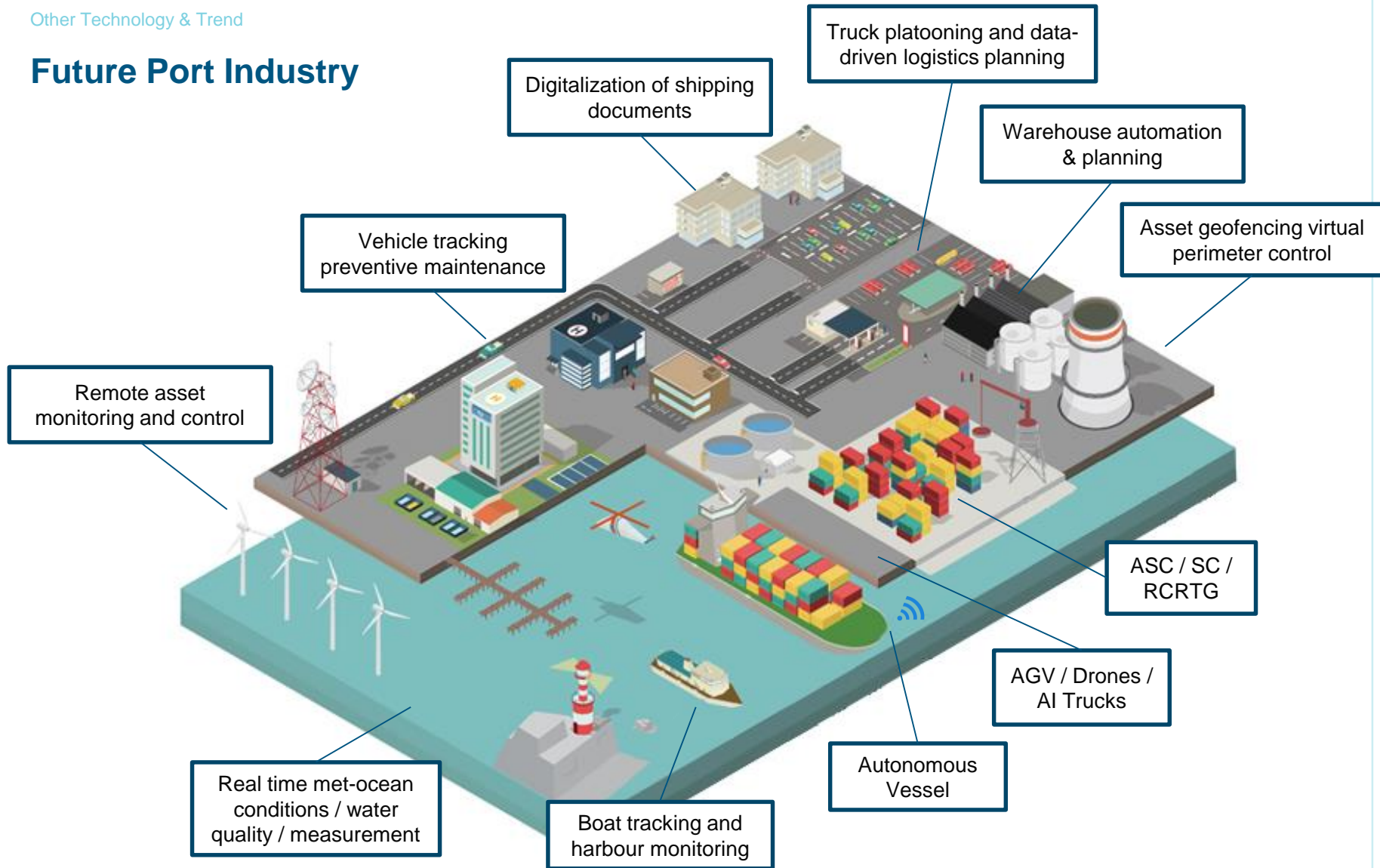
- Remote control QC and RTG have been made available to the market
- QC and RTG with remote control function cost higher than traditional QC and RTG, but much less than ASC
 - Traditional RTG – USD ~1.7 mil
 - **RC RTG – USD ~2 mil** (+17% vs traditional RTG)
 - ASC – USD ~3 mil (+76% vs traditional RTG)
- Labour – one driver for traditional RTG vs one staff for **4-8** RC-RTGs
- Productivity – expect higher MPH (allegedly 20% by HIT) but at **limited level** given standardised process
- Safety and better working environment
- Remote control top priority for greenfield terminals and also preferred option for brownfield where conversion is possible

Other Technology & Trend

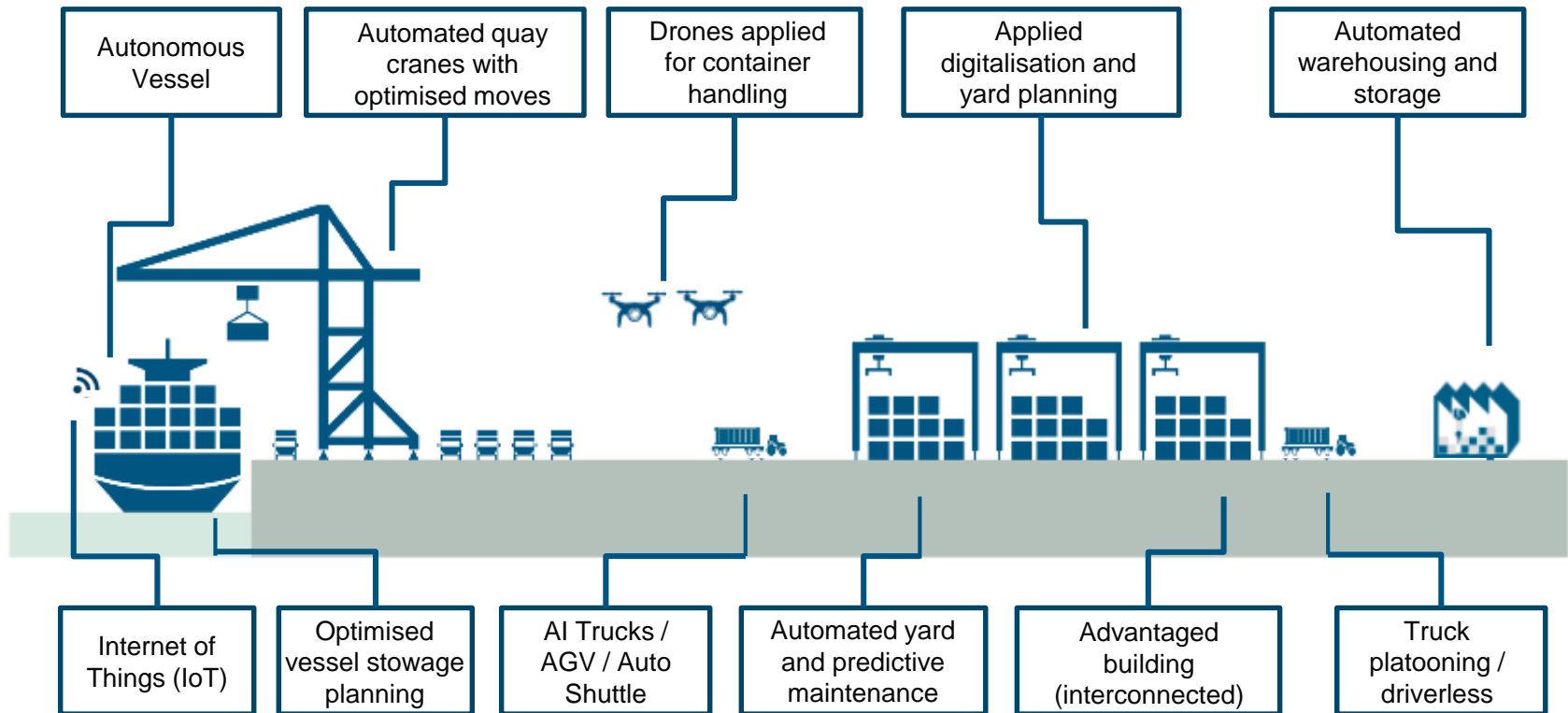
Innovation Trends on Logistics and Transport



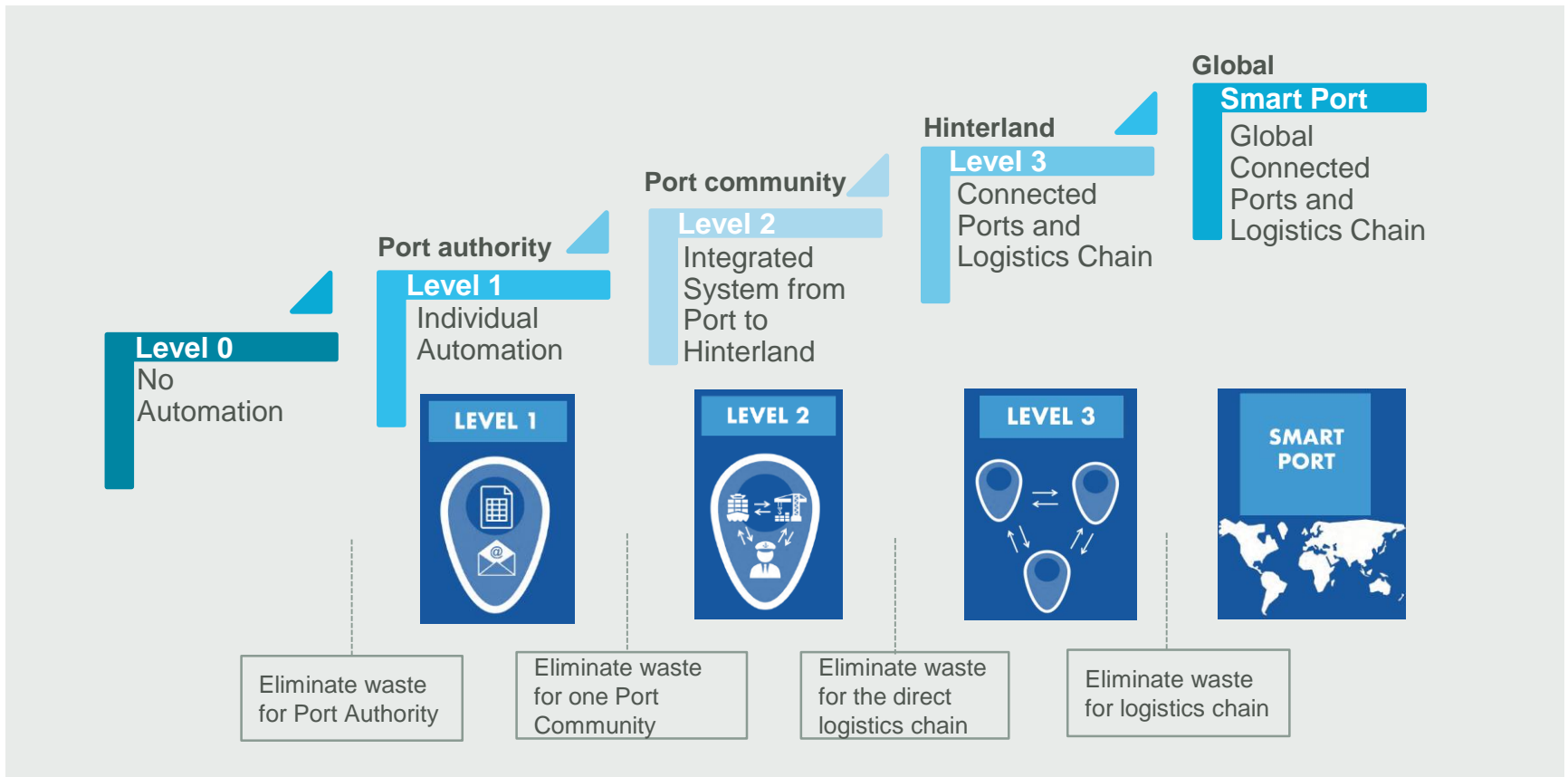
Future Port Industry



Smart Ports – Individual Level



Smart Ports – Global / Supply Chain Level

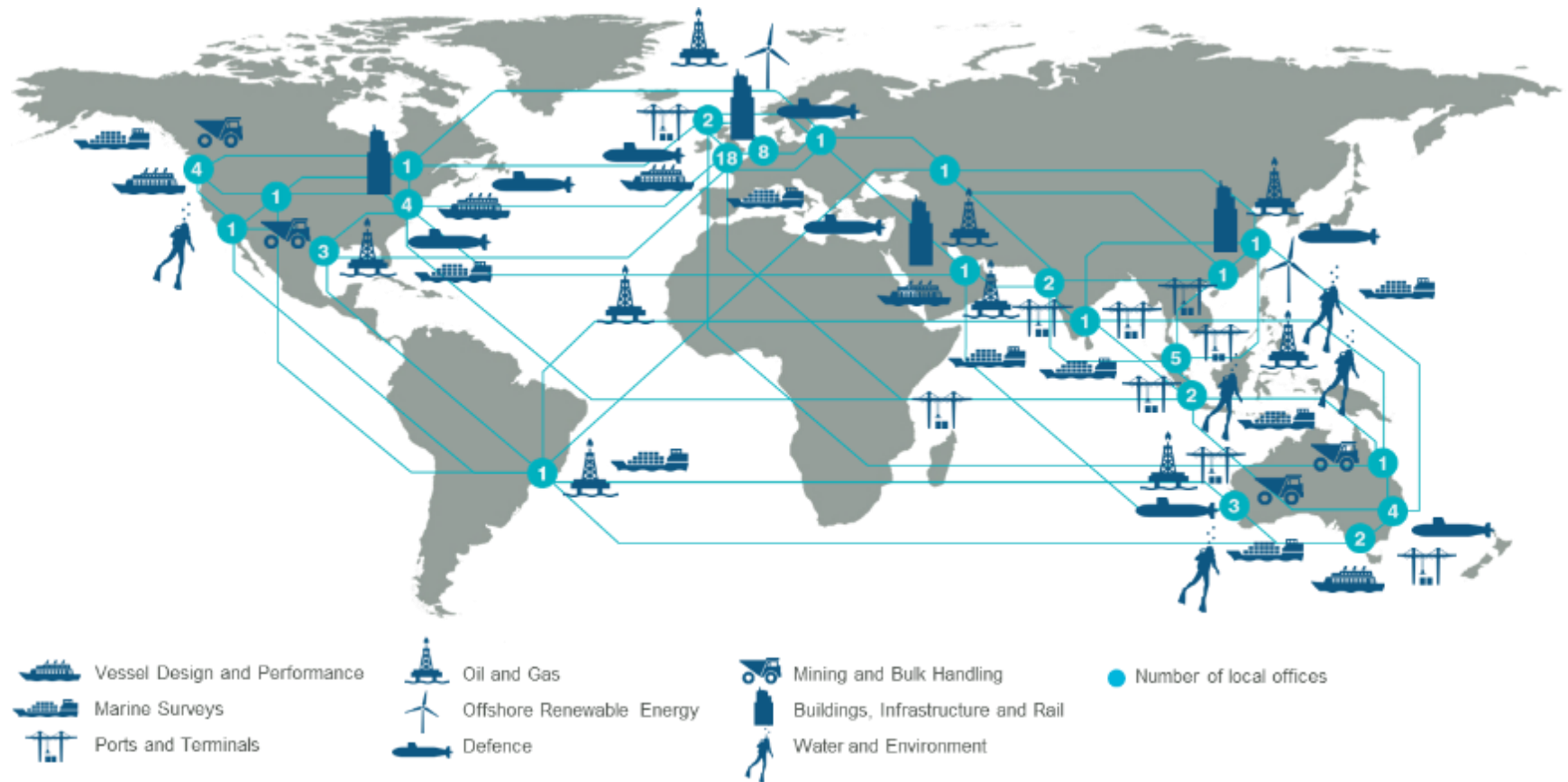


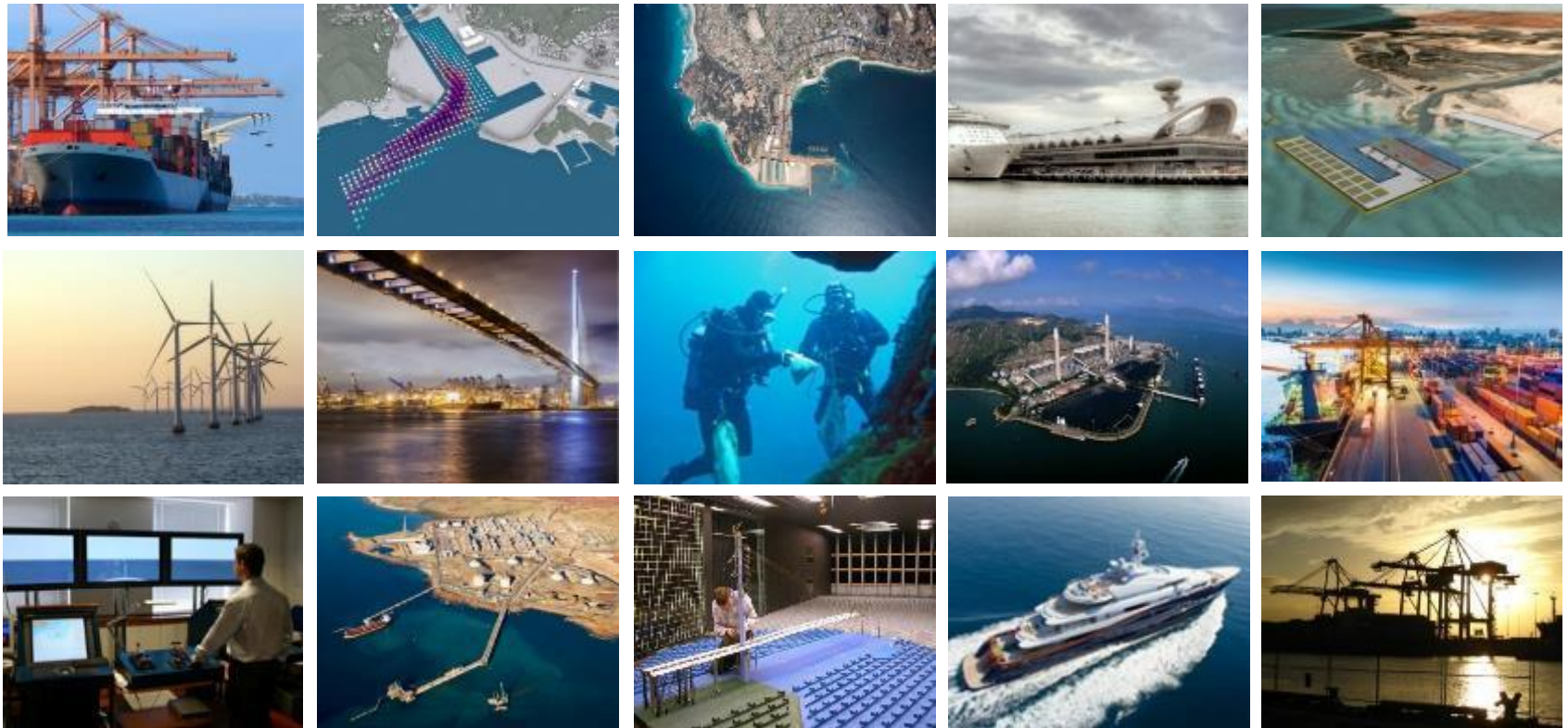
Source: Port of Rotterdam

About BMT – *Ocean Shipping, Ports & Logistics*

BMT at a glance

World-wide Capability, Local Delivery



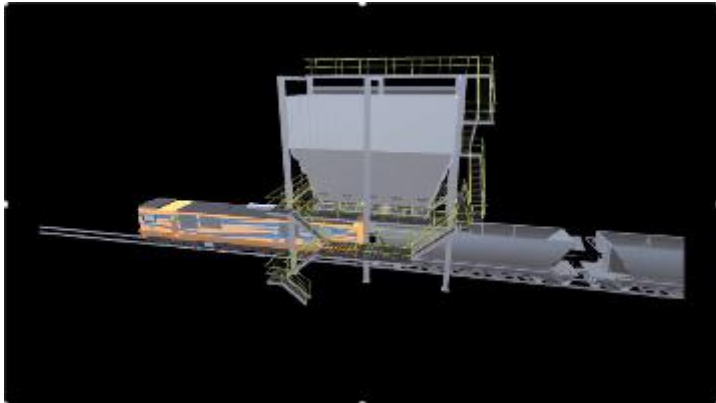


A leading international design, engineering, science and risk management consultancy with a reputation for engineering excellence.

BMT Automation & Robotics Group

Know Your Operations

1. Model the existing process
2. Understand the bottlenecks
3. Automate routine tasks
4. Optimise the operation

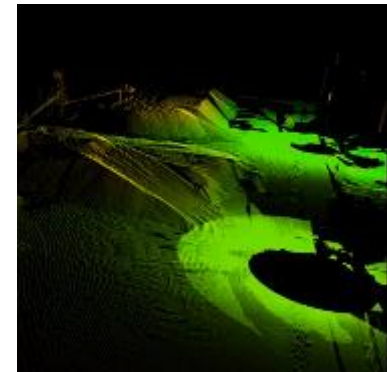
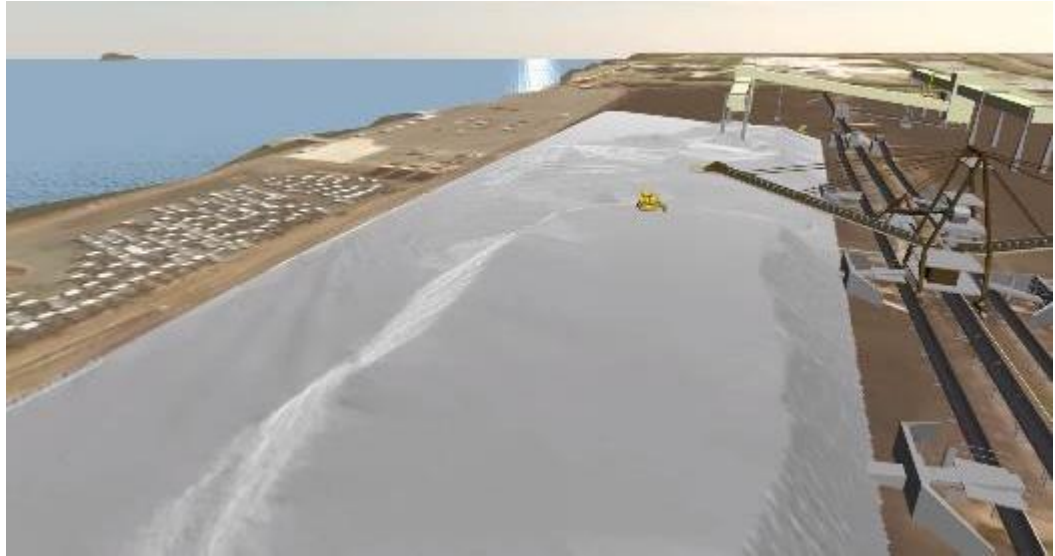


Critical Technical Services



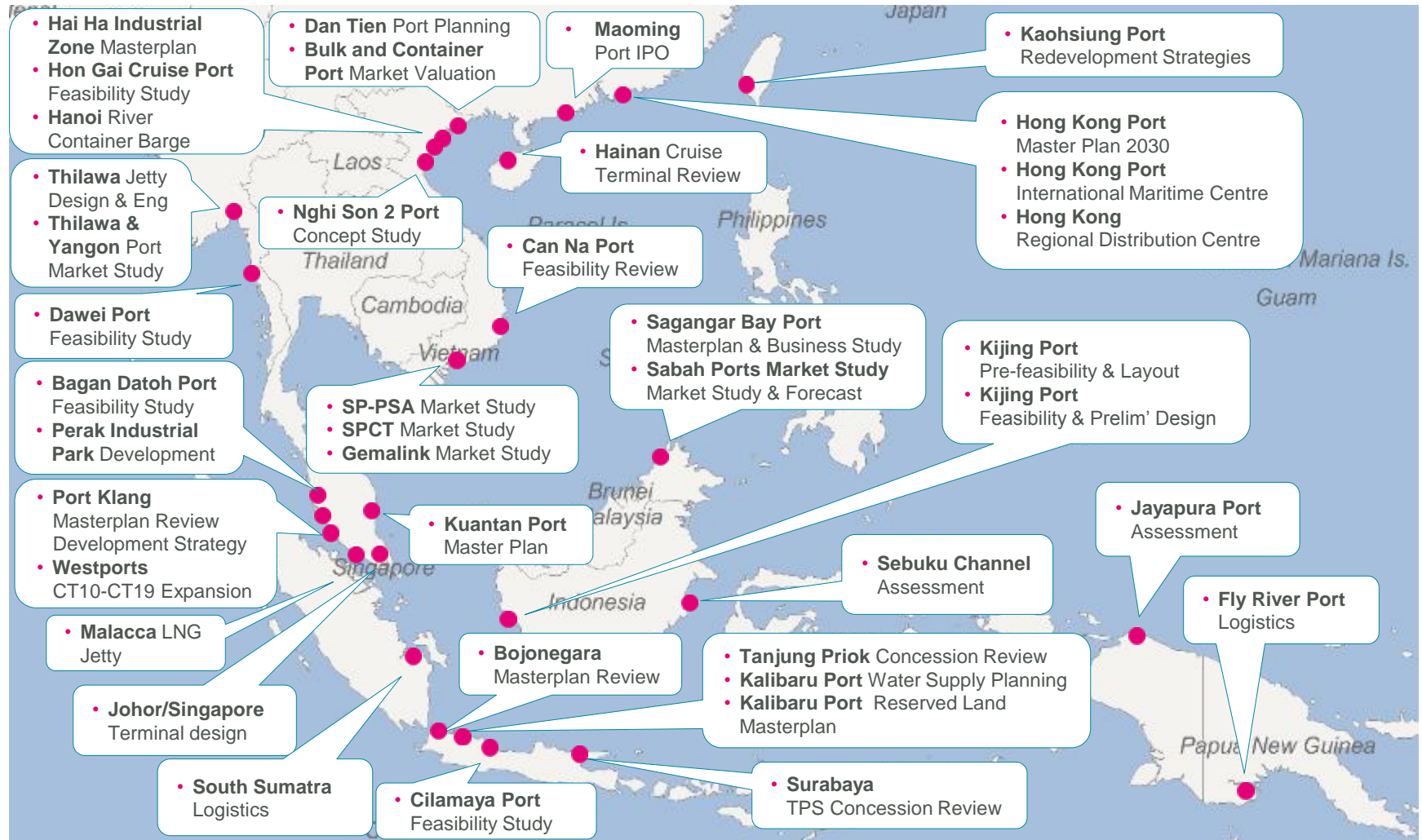
BMT Automation & Robotics Group

- Vessel & rail handling for bulk cargo (also for stockpiling and blending)
- 3D scanning and data algorithms
- Synchronised Virtual Modelling (SVM)
- Remote operation centres



Why BMT

BMT has direct and extensive **International** and **Southeast Asia** experience in the **ports, shipping** and **logistics** sectors



BMT Serves the Leading Players in Different Sectors

Operators & Service Providers



Investors & Developers



Organisation & Government





Thank You!!

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