



FEBRUARY 5 - 6 • LOS ANGELES, CA

SMART PORTS

(INFORMATION TECHNOLOGY)

Title: Smart Ports: Key Challenges and Opportunities

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Smart Technology is everywhere

Most of us are familiar with Smart Home

- Voice control to instruct devices
- Smart climate control
- Remote control and access to devices
- Devices learn and adapt to habits...





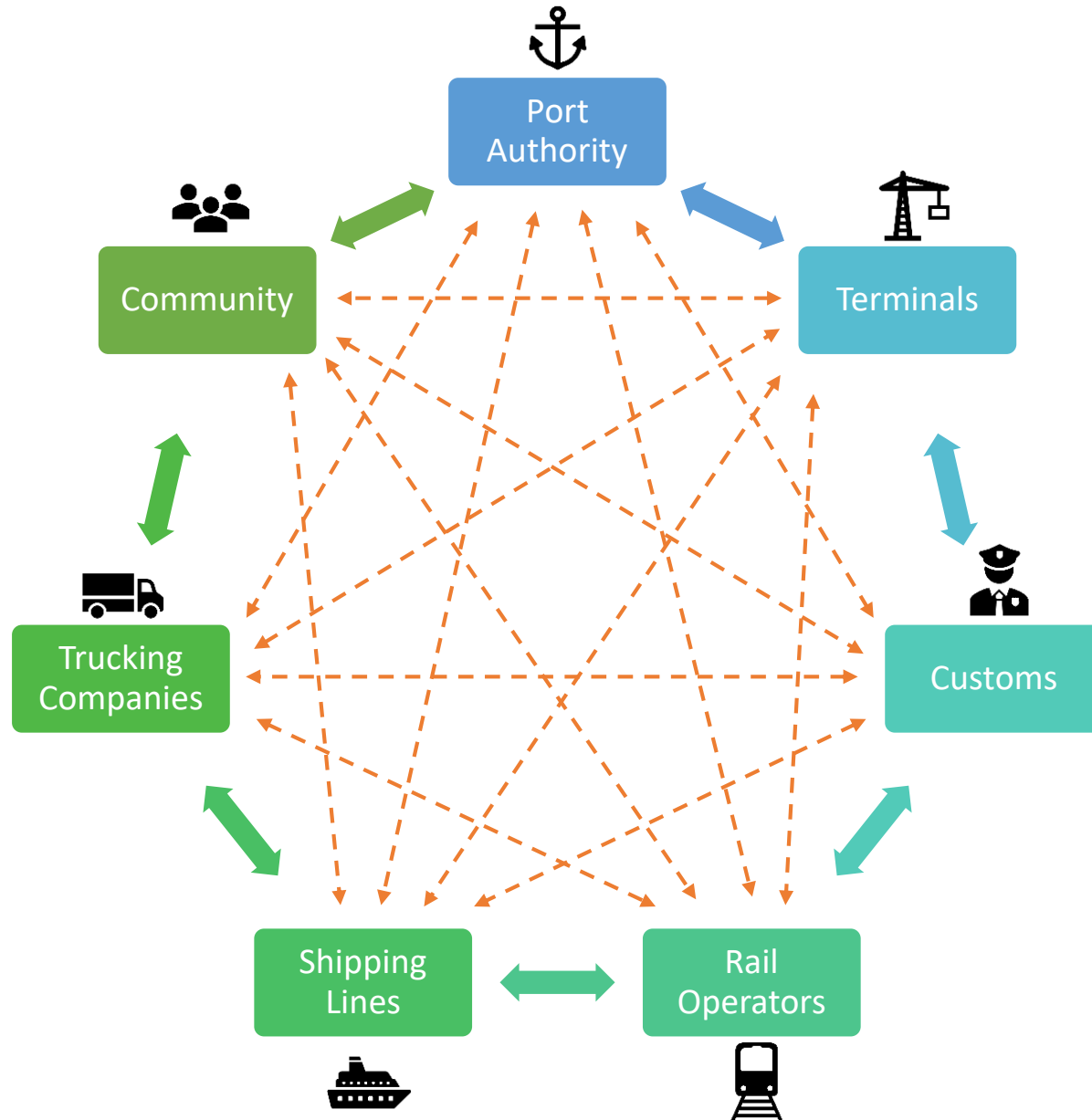
The port is a complex with many stakeholders

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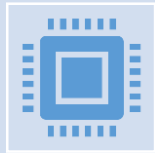
Smart Port is about Collaboration





Steps to Collaboration

The application of **smart technology** provides opportunities to port **digital transformation** which facilitates **Multi-sector secured and efficient Collaboration**



Smart Technology

-All devices communicate through an internet of things network



Port Digital Transformation

-Connection of multiple networks to create a digital infrastructure



Collaboration

-Cross-Sector connections between Port, Terminal, Rail, Truck etc. for optimum decision making



Existing ICT solutions are in silos

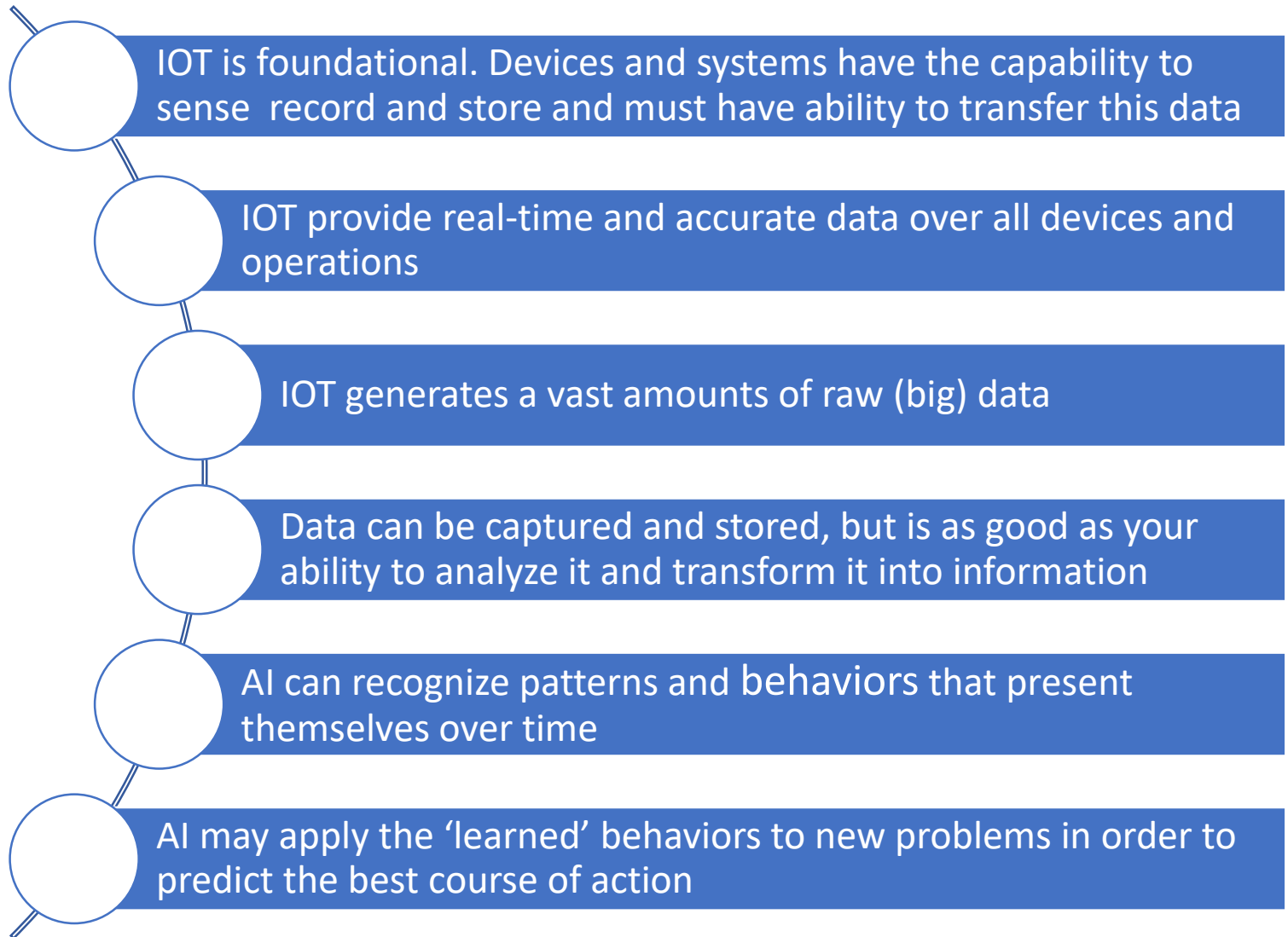
Many technologies are already in place:

- Terminal operating systems
- Gate operating systems
- Port Community systems
- Security and surveillance systems
- EDI platforms
- Traffic control systems
- Industrial automation systems
- Sensor technologies

But most of the systems mainly operate in silos



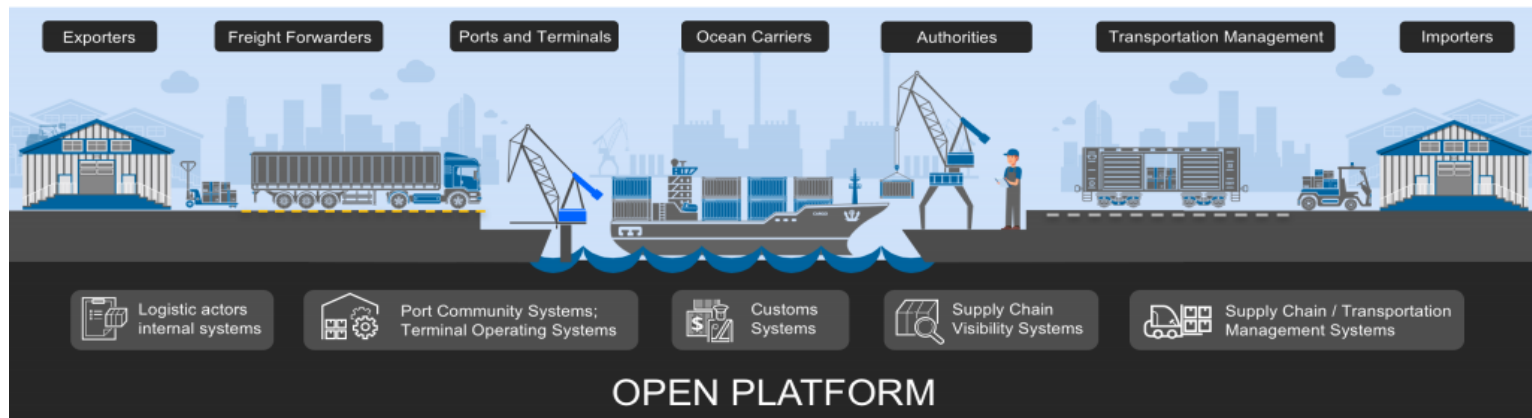
IOT, Big Data and AI are enablers





Role of Block Chain

- Block chain technology promises more transparent information pipe line
- It may help to create a common reliable data source
- It may reduce administrative processes and paper pushing

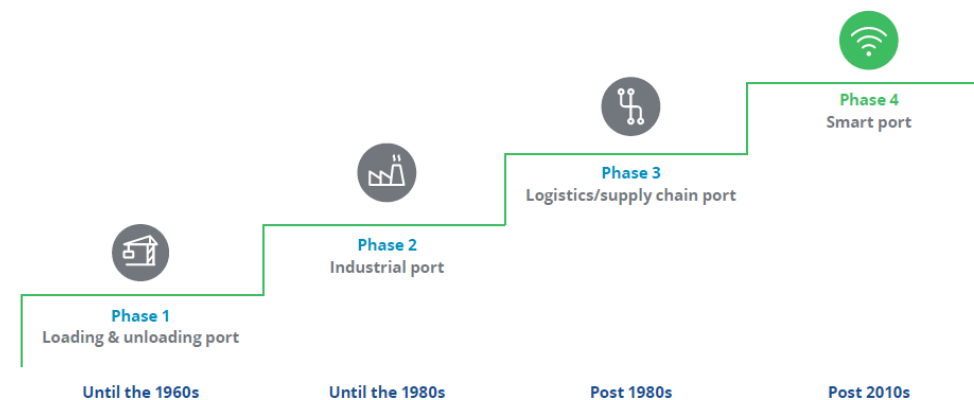


(source: Maersk Line)



Smart Port – Role of the port

- Look at the business model of a port as a platform that creates efficient goods movement.
- The Port develops the civil infrastructure to meet their objectives of providing efficient goods movement and environmental requirements:
 - Highway network
 - Rail network
 - Channels with appropriate depth and turning basins
- The port uses policies to provide efficiencies and environmental requirements
- The port can now develop a smart port platform and infrastructure for the stake holders to use data generated by IOT and collected through other data sources to improve the efficiencies of the goods movement and reduce the impact to environment



Smart port is the 4th generation in port development (source: Deloitte)

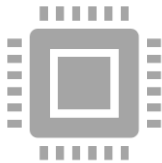


Smart Port- New Business

Data is driving the new business opportunities on various levels:



Data providers – providing a semi-finished product



Data brokers – providing analytics using multiple sources



Innovators – using data from other sources to enhance their own solutions



Integrators – using data from other sources to create a new solution or platform



Smart Port Opportunities



Smart Port Opportunities

Optimize Traffic Flows

Examples

- Vehicle booking system integration – Planning at port level and no longer at terminal level
- Vehicle monitoring and feedback – Real time status monitoring to track progress and adapt planning
- Traffic flow optimization – use combination of real-time data and VBS data to optimize traffic flows



Smart Port Opportunities

Energy efficiency

Example:

- Balanced equipment charging –
Manage charging of equipment to
shave peak demand
- Vessel speed optimization based on
berth availability



Smart Port Opportunities

Maintenance Management

Example:

- Sensor technologies to monitor status of equipment. Preventive Maintenance and spare part management more centralized



Smart Port Opportunities

Sustainability

Example:

- Increase terminal and asset utilization. Smart ports plan to significantly increase throughput in same footprint and same or even reduced emissions.



Overcoming Challenges



Overcoming Challenges

Competition

- In a port there are typically multiple actors that are competing with each other. Sharing data requires trust and a firm belief that it benefits each individual company

Trust, Privacy and Cybersecurity:

- Integration heightens the requirements for cybersecurity in order to detect and respond to threats



Overcoming Challenges

Value proposition

- What is the strategic goal for the port the become a smart port

Digital Infrastructure

- Modern Big data architecture and/or data lakes to store the data while keeping it accessible. Includes a robust wireless infrastructure that provides near-real time data communication

Diversity

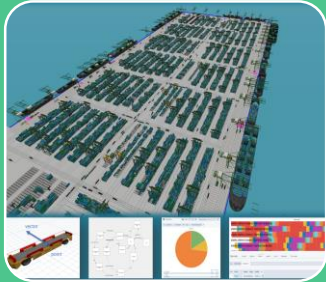
- Activities in a port are diverse, different types of operations, equipment, logistics and technologies are in place today



Smart Port



The path goes from Smart Technology to Port Digitization to Collaboration



Opportunities are in making real-time comprehensive information available to make better decisions



Relationships and trust are built through people not machines



Smart Port

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Thank You

