IPCSA

International Port
Community Systems
Association

Congress - 80th Anniversary of
the Costa Rican Chamber of
Industries (CICR)

Why using a PCS ?

Hans Rook

IPCSA Ambassador

San José , Aug 24th 2023

How smart do the Caribbean and Central American ports have to become?

...existing infrastructure under pressure

...hinterland / feeder connection key assets for ports

...increases in scale and growth of cargo and passenger flows

...physical transport not in balance with logistic flow of information

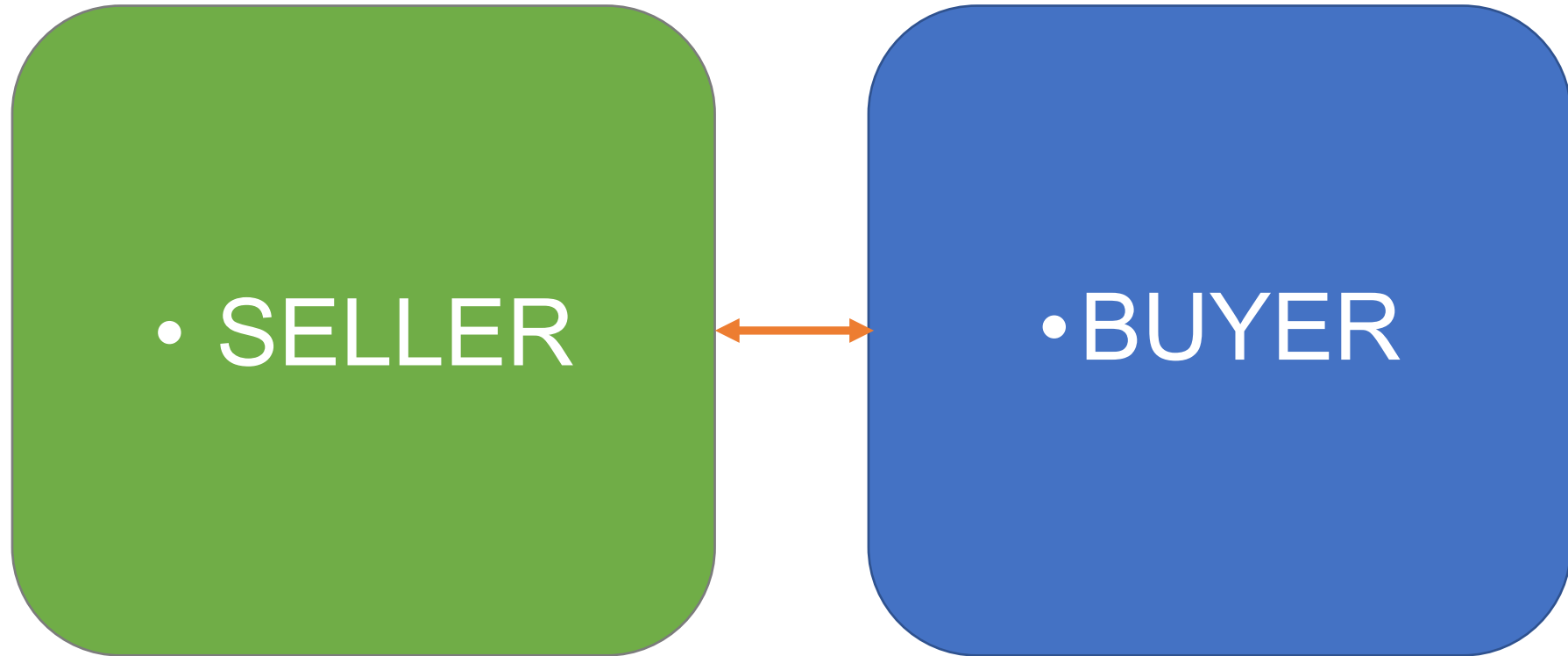...corporate social responsibility / green - sustainability

...IT developments

...new generation

IPCSA
International Port
Community Systems

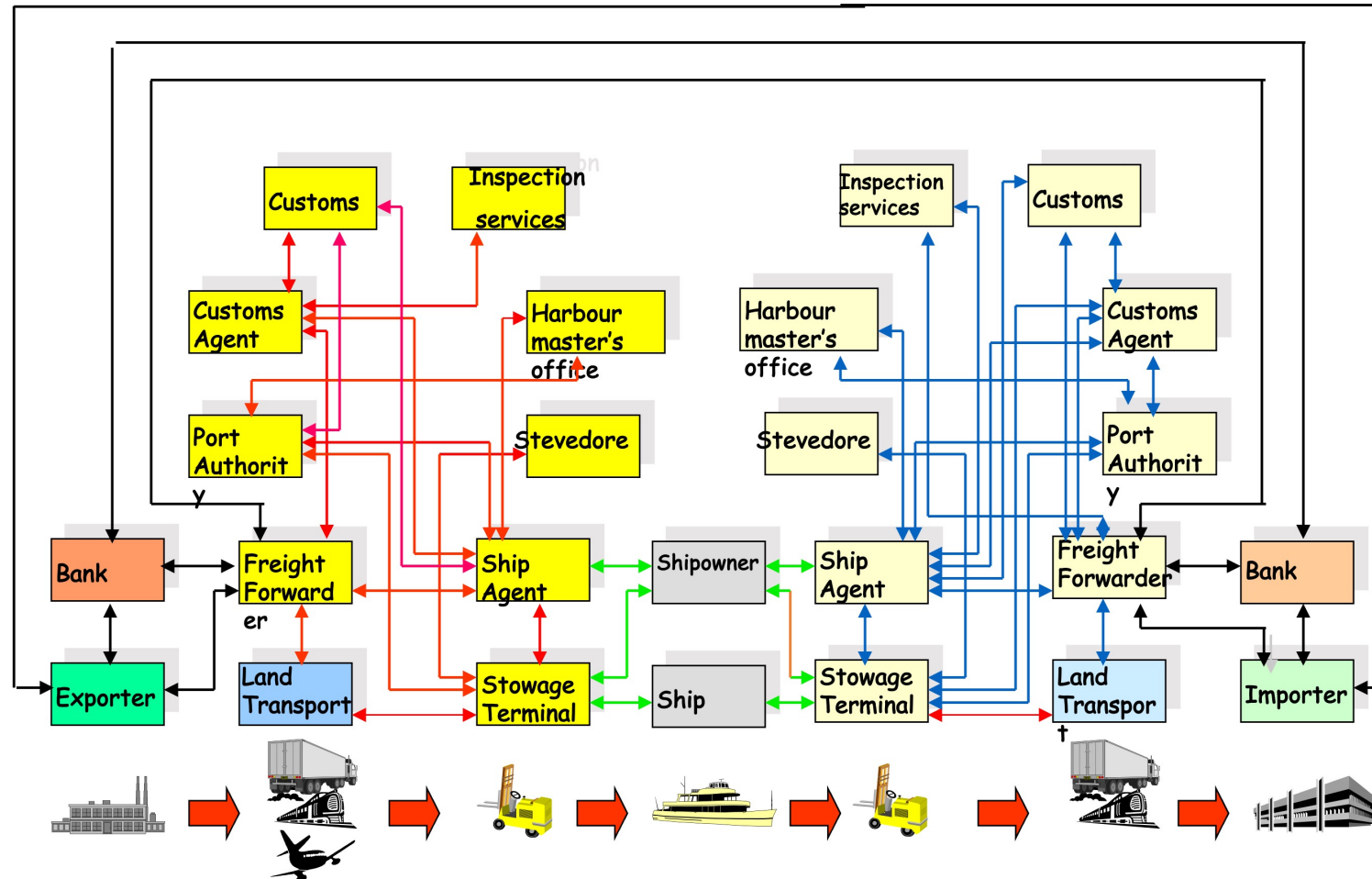# In close cooperation between market, government to achieve that your ports will become very efficient in the Caribbean and Central America area.
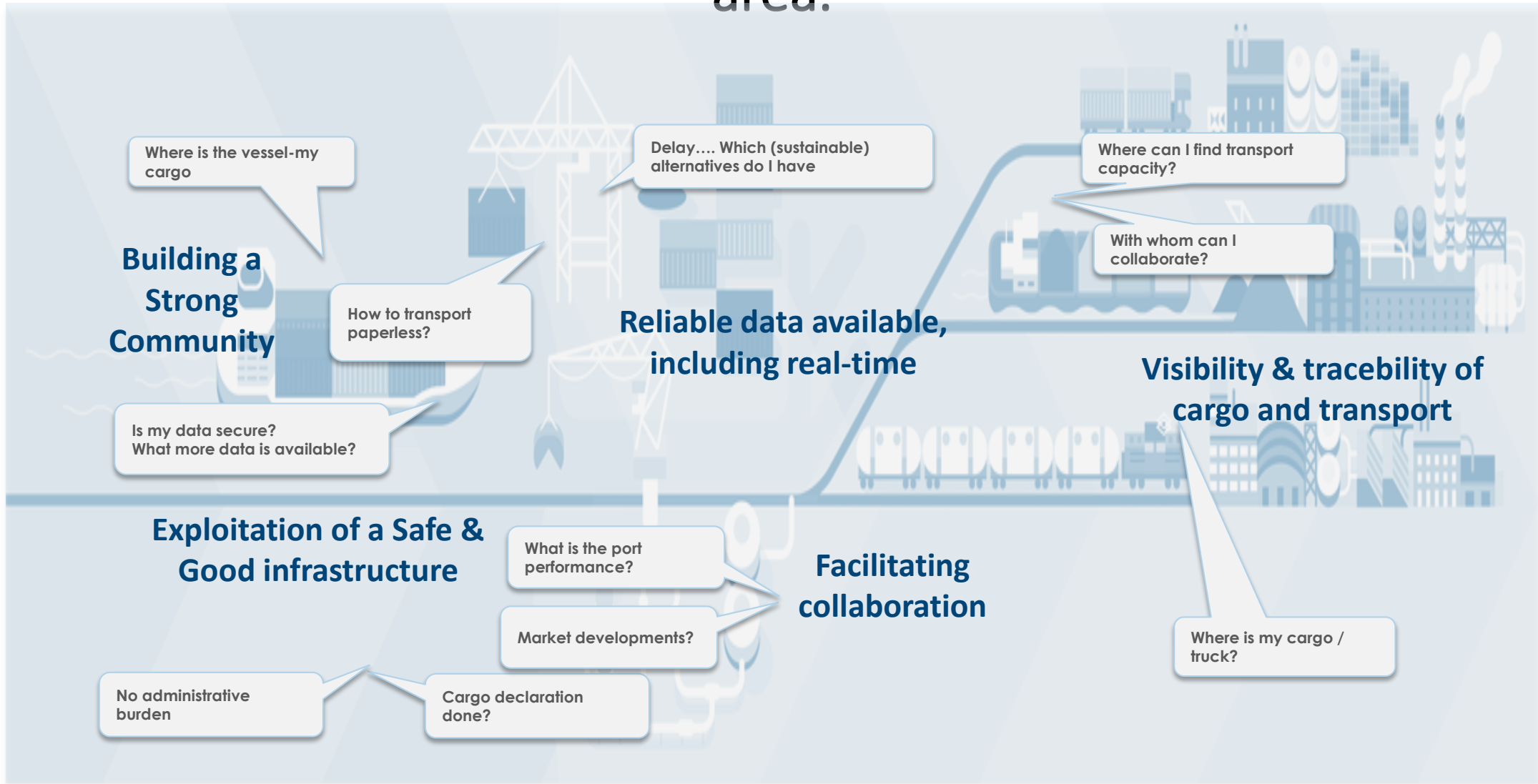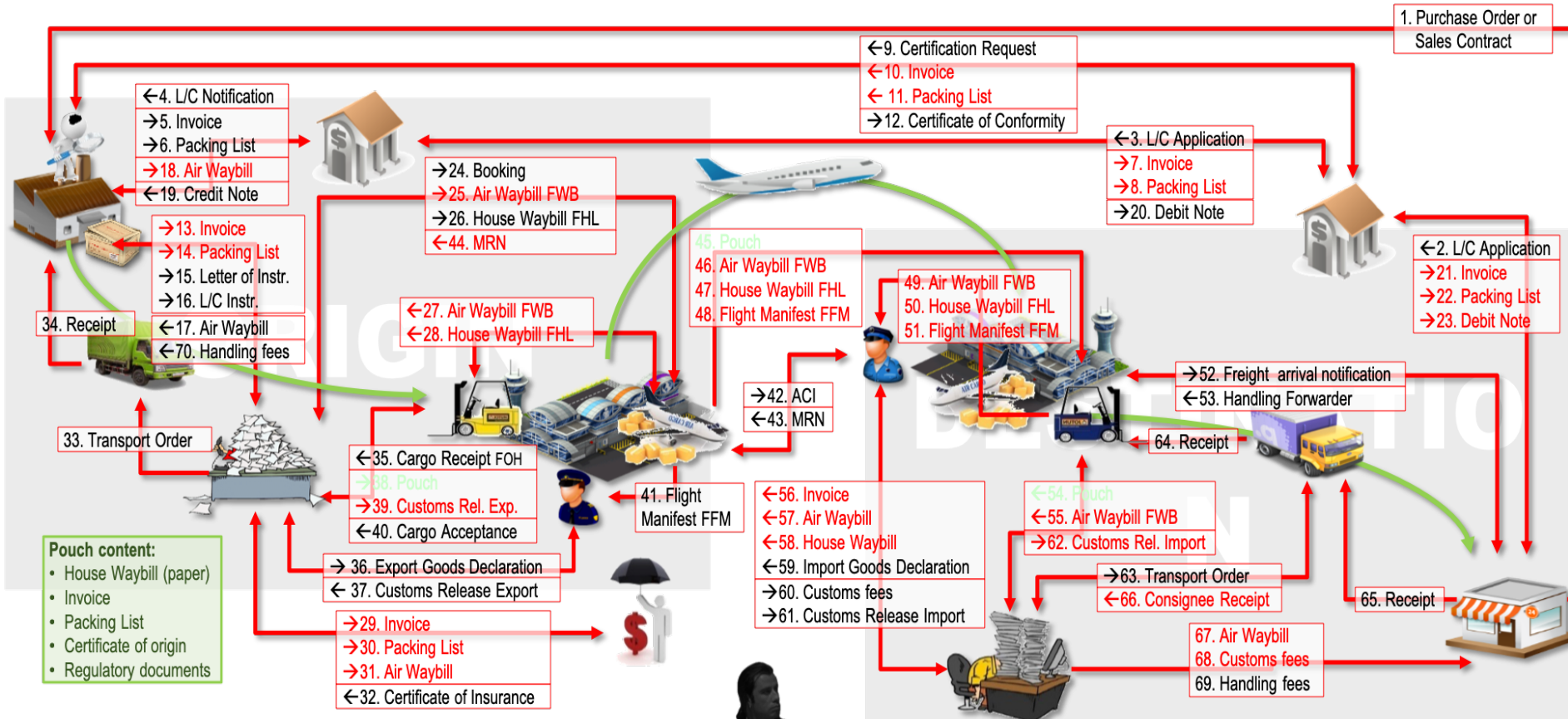
It looks so easy

Part of Logistic flow of information Seafreight

Airfreight
In trade, paper and messaging (sequential)

1. Purchase Order or Sales Contract

← 9. Certification Request
← 10. Invoice
← 11. Packing List
→ 12. Certificate of Conformity

← 4. L/C Notification
→ 5. Invoice
→ 6. Packing List
→ 18. Air Waybill
← 19. Credit Note

← 3. L/C Application
→ 7. Invoice
→ 8. Packing List
→ 20. Debit Note

→ 24. Booking
→ 25. Air Waybill FWB
→ 26. House Waybill FHL
← 44. MRN

→ 13. Invoice
→ 14. Packing List
→ 15. Letter of Instr.
→ 16. L/C Instr.
← 17. Air Waybill
← 70. Handling fees

← 2. L/C Application
→ 21. Invoice
→ 22. Packing List
→ 23. Debit Note

45. Pouch
46. Air Waybill FWB
47. House Waybill FHL
48. Flight Manifest FFM

49. Air Waybill FWB
50. House Waybill FHL
51. Flight Manifest FFM

34. Receipt

→ 27. Air Waybill FWB
→ 28. House Waybill FHL

→ 52. Freight arrival notification
← 53. Handling Forwarder

→ 42. ACI
← 43. MRN

64. Receipt

33. Transport Order

← 35. Cargo Receipt FOH
38. Pouch
→ 39. Customs Rel. Exp.
← 40. Cargo Acceptance

41. Flight Manifest FFM

← 56. Invoice
← 57. Air Waybill
→ 58. House Waybill
← 59. Import Goods Declaration
→ 60. Customs fees
→ 61. Customs Release Import

54. Pouch
← 55. Air Waybill FWB
→ 62. Customs Rel. Import

→ 63. Transport Order
← 66. Consignee Receipt

65. Receipt

Pouch content:
- House Waybill (paper)
- Invoice
- Packing List
- Certificate of origin
- Regulatory documents

→ 36. Export Goods Declaration
← 37. Customs Release Export

→ 29. Invoice
→ 30. Packing List
→ 31. Air Waybill
← 32. Certificate of Insurance

67. Air Waybill
68. Customs fees
69. Handling fees

Goods flow

Information flow

37 data items sent 70 times

2

Some figures

For each vessel call including cargo operations:

- More than 100 contact moments for each container discharged.
- More than 40 stakeholders are involved.
- Transport and logistic process requires more than 100 different documents.
- About 30 large processes for inbound and outbound cargo.

In most cases focus of PCS development is on containerised cargo

A PCS environment should cover all disciplines:

- Breakbulk
- Liquid and dry bulk
- Container
- RoRo
- Cruise

Need for Speed in Pandemic Days

COVID 19 is known to stay on paper for up to 4 days

All types of crowd and congestion has to be avoided to prevent spread of virus

Lockdown increases the need to get work done without visiting own or customer's offices

Reduced revenues means reducing costs without affecting services is a MUST

War on Paper has to intensify

Anything that causes crowds or congestions needs to be addressed

Employees shall be enabled and empowered to carry out work from wherever they are

Smart savings in costs are a MUST

IPCSA
International Port
Community Systems
Association

Why a Port Community System

The Reason

Keep your port competitive position in your region by
- Reduce inefficiencies in port business processes.
- Facilitate the smooth flow of electronic data.
- Integrate and achieve compliance with national and international law and regulations.
- Enhancing the logistic processes through improved data exchange and datasharing will mean fewer delays in the cargo movement.

Resulting in better performance and reduce costs.

Covid-19 impact as a booster:
- Less resistance to change to new methods of working.
- Digitalisation initiatives and projects have now become the highest priorities.
- Port Community Systems and Single Windows are critical for trade continuity and provided the resilience to carry on trading

IPCSA
International Port
Community Systems
Association

Resulting in better performance and reduce costs.

From	To
Fragmental situational awareness	Common situational awareness
Low information quality	High and reliable information quality
Lacking planning horizons	Predictable operations
Unstructured information exchange	Standardized data exchange
Sub-optimized operations	Mature collaboration culture
Unnecessary waiting times	Just-in-time operations
Low IT maturity	Enhanced IT-systems and 3rd party innovation opportunities

IPCSA
International Port
Community Systems
Association

Optimisation of information flows
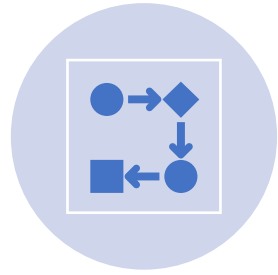
INFORMATION FLOWS ARE THE BOTTLENECK IN THE PHYSICAL FLOW OF GOODS.

SAME INFORMATION IS SHARED VIA DIFFERENT DOCUMENTS.
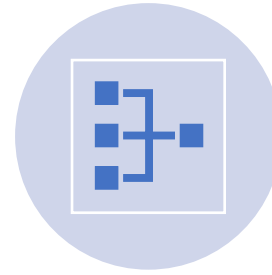
COMMUNICATION BETWEEN PARTIES IN THE LOGISTIC CHAIN IS DIFFICULT.

NEED OF HIGHER LEVEL OF SERVICE DEMANDS INTEGRATION OF SERVICES AND INFORMATION EXCHANGE.

- New technologies and PCS platforms can fulfil this.
- Optimization of information flows leads to greater efficiency.

IPCSA
International Port
Community Systems
Association

Short term economic impact

450 M € Saving annualy
63 % Digitalisation of documentary processes

Long term economic impact

427 M € sales annual increase
2564 Jobs created

Enviromental impact

13 % reduction in pollution emission.

https://piernext.portdebarcelona.cat/en/technology/port-of-barcelona-impact-of-digitalisation-study/

IPCSA
International Port
Community Systems
Association

Port Community System (PCS)
Part of the critical infrastructure of the ports

The direct and indirect impact of the PCS on your economy are massive.
- Economic Savings
- Increment in commercial activities.
- Reduction CO2

Digitalisation generates added value
- Transparency & reliability with customers
- Reputation towards customers

Port Community System
as part of the port infrastructure

Smooth cargo and passenger flow in and around the port absolutely depends on the smooth and efficient flow of information.

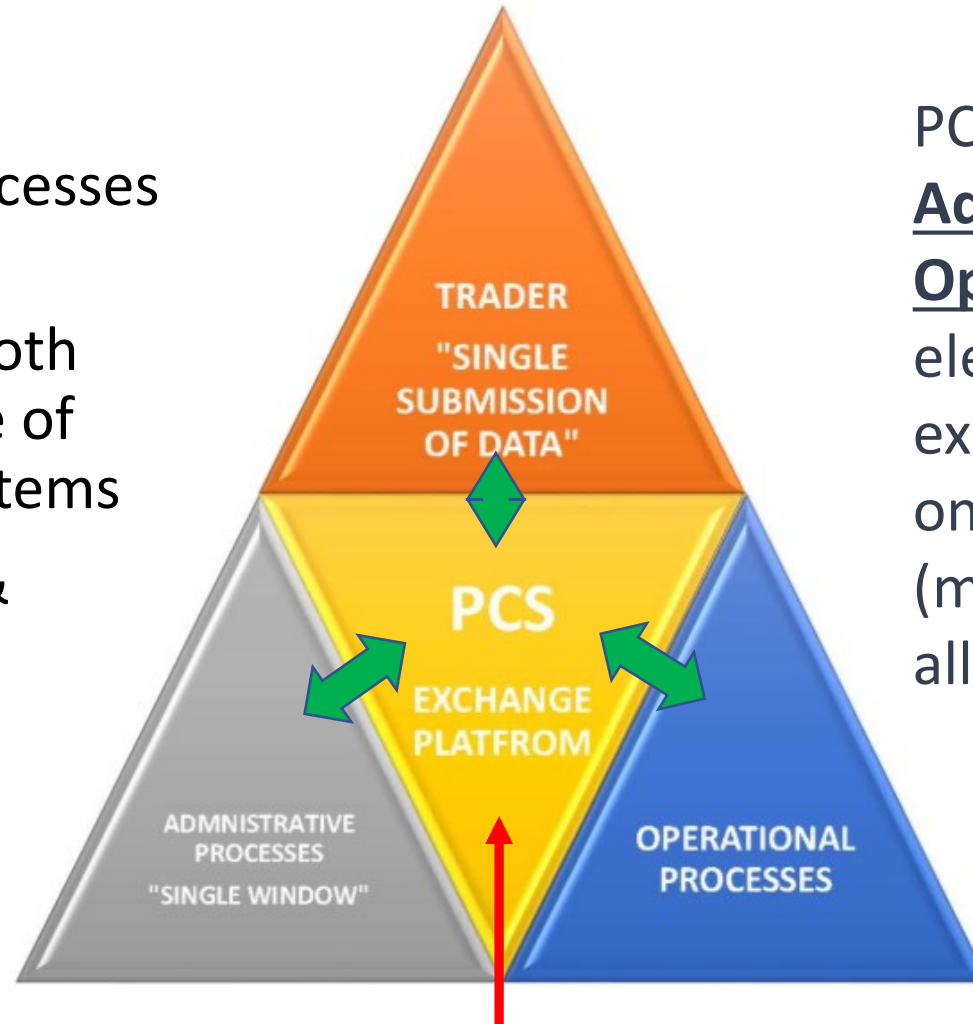Port Community systems are the perfect enablers for supporting multiple system to system interoperability.

One source of data used by the many stakeholders that need the data for their daily operations

IPCSA
International Port
Community Systems
Association

PCS – A Trade Facilitation Tool

A PCS:

- Links administrative processes to operational ones

- Thus re-using data for both purposes and the re-use of existing Information Systems

- Creating Transparency & reducing trade burdens

- Can also act as a Gateway into a Single Window

TRADER
"SINGLE SUBMISSION OF DATA"

PCS
EXCHANGE PLATFROM

ADMNISTRATIVE PROCESSES
"SINGLE WINDOW"

OPERATIONAL PROCESSES

PCS thus link **Administrative** and **Operational** procedures electronically via the exchange of messages and on an end to end basis (machine to machine) with all stakeholders.

Port Community Systems as single submission portal
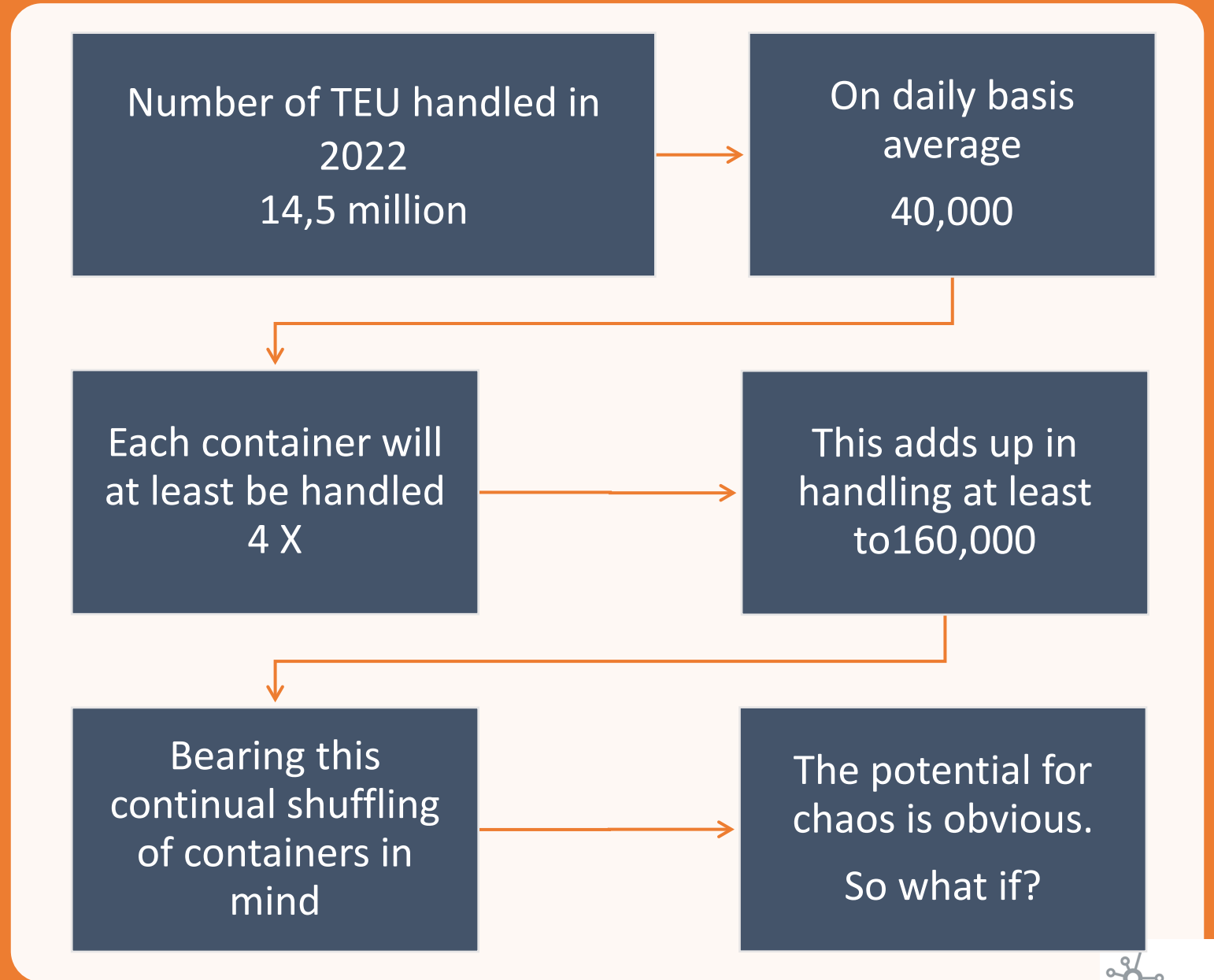(UNECE recommendation 37)

IPCSA
International Port
Community Systems
Association
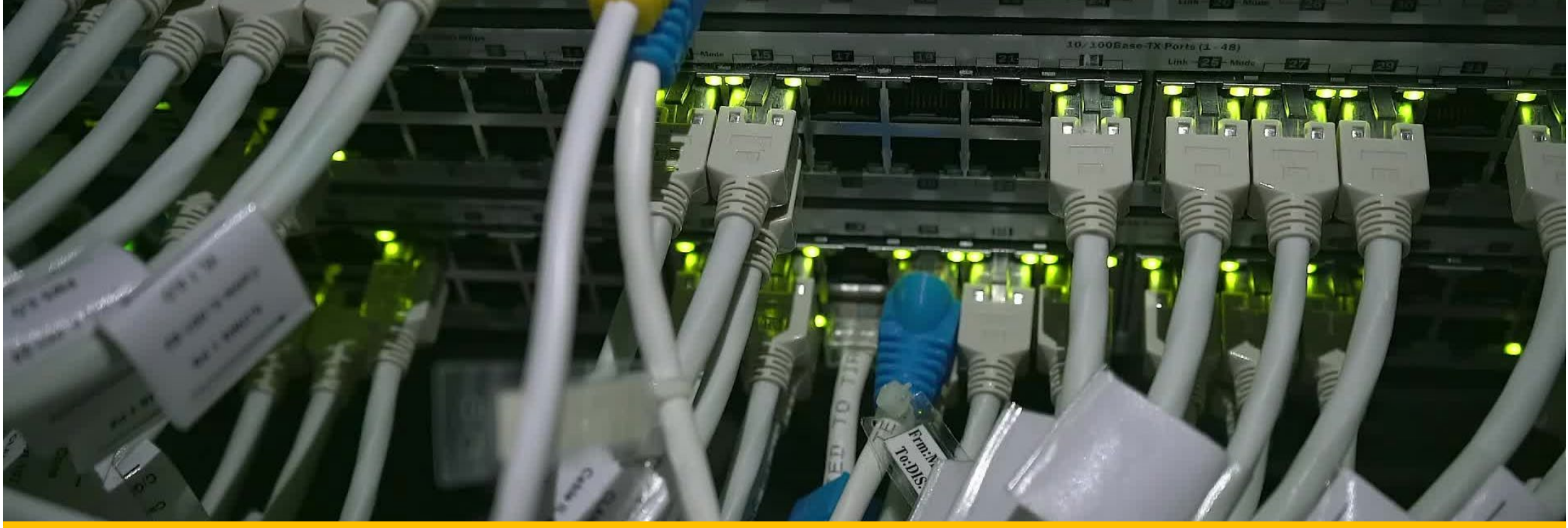
What about interoperabilty

- Machine to machine communication.
- Standardization and harmonization of data.
- Use of batch data by EDI (EDIFACT / XML)
- Use of API's

IPCSA
International Port
Community Systems
Association

Welcome to Rotterdam – Europe's' biggest port

Number of TEU handled in 2022 14,5 million	On daily basis average 40,000
Each container will at least be handled 4 X	This adds up in handling at least to160,000
Bearing this continual shuffling of containers in mind	The potential for chaos is obvious. So what if?

IPCSA
International Port
Community Systems
Association

Chaos? But it all works!

- How?
    - Smooth flow of containers depends on smooth flow of information.
    - Not only within the terminal operating systems but transparancy to many stakeholders involved.

    - Without efficient system to system communication report handling of these enormous quantities would be impossible.
    - This applies not only for Rotterdam, but for all ports globally, big, medium or small.

PCS and SW enable delivery of real time data for efficient processes. Interoperability is key

- Without system to system communication

- Without interoperability

- Without using international standards in exchange of transport related logistic data.

It would not have been possible as stated in many case studies, to

Reduce delays from

months to weeks, from weeks to days and from hours to minutes.

All achieved by providing one clear, real time version of the truth in seconds to all parties involved.

Port Community Systems in combination with Single Window systems deliver extraordinary reductions in handling time, port operations and costs.

Sustainability

We distinguish 3 levels

- Means of transport (battery, hydrogen driven, hybrid cars)
- Type of fuel (LNG, Hydrogen, Electricity power)
- Logistics.

IPCSA
International Port
Community Systems
Association

What value can a PCS offer?

HOW DOES THE
PORT COMMUNITY SYSTEM
MAKE A DIFFERENCE
ON A YEARLY BASIS?

MORE EFFICIENT USE OF WORKFORCE

100 MILLION FEWER EMAILS
SEND ONE MESSAGE AND COMMUNICATE WITH THE ENTIRE PORT

30 MILLION FEWER PHONE CALLS
BETWEEN ALL PARTIES IN THE LOGISTICS CHAIN

10 KM OF STACKED PAPER SAVED
EQUALS 110,000 TREES
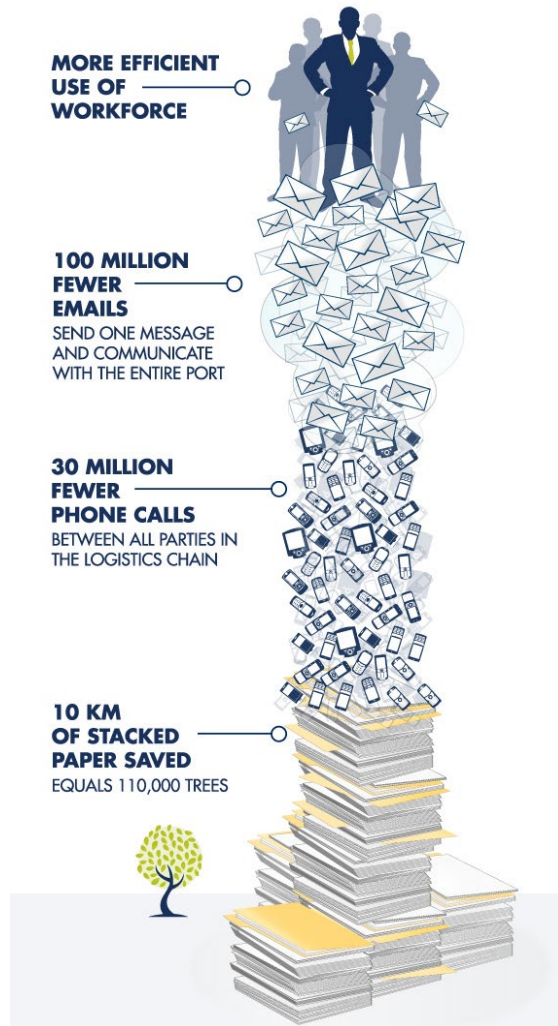
- Single window for all declarations and major business communications in the port

- Ease of doing business with limited investment

- Enabling customer productivity:
    - Reducing paper administration.
    - Less traffic through the port area (electronic data exchange).
    - Improving data quality.
    - Better use of assets.
    - Increasing throughput efficiency & service levels.
    - Higher utilisation and shorter turn-around times.
    - Less dwell time to collect and deliver cargo.
    - Multimodality.
    - …….

IPCSA
International Port
Community Systems
Association

- **Example PCS Marocco**

Annual gains of making Import document paperless

212 500 trees

331 250 000 litres of water

37 500 m³ of trash

51 250 000 kWh of electricity

37 500 barrel of petrol

8 000 000 kg

IPCSA
International Port
Community Systems
Association
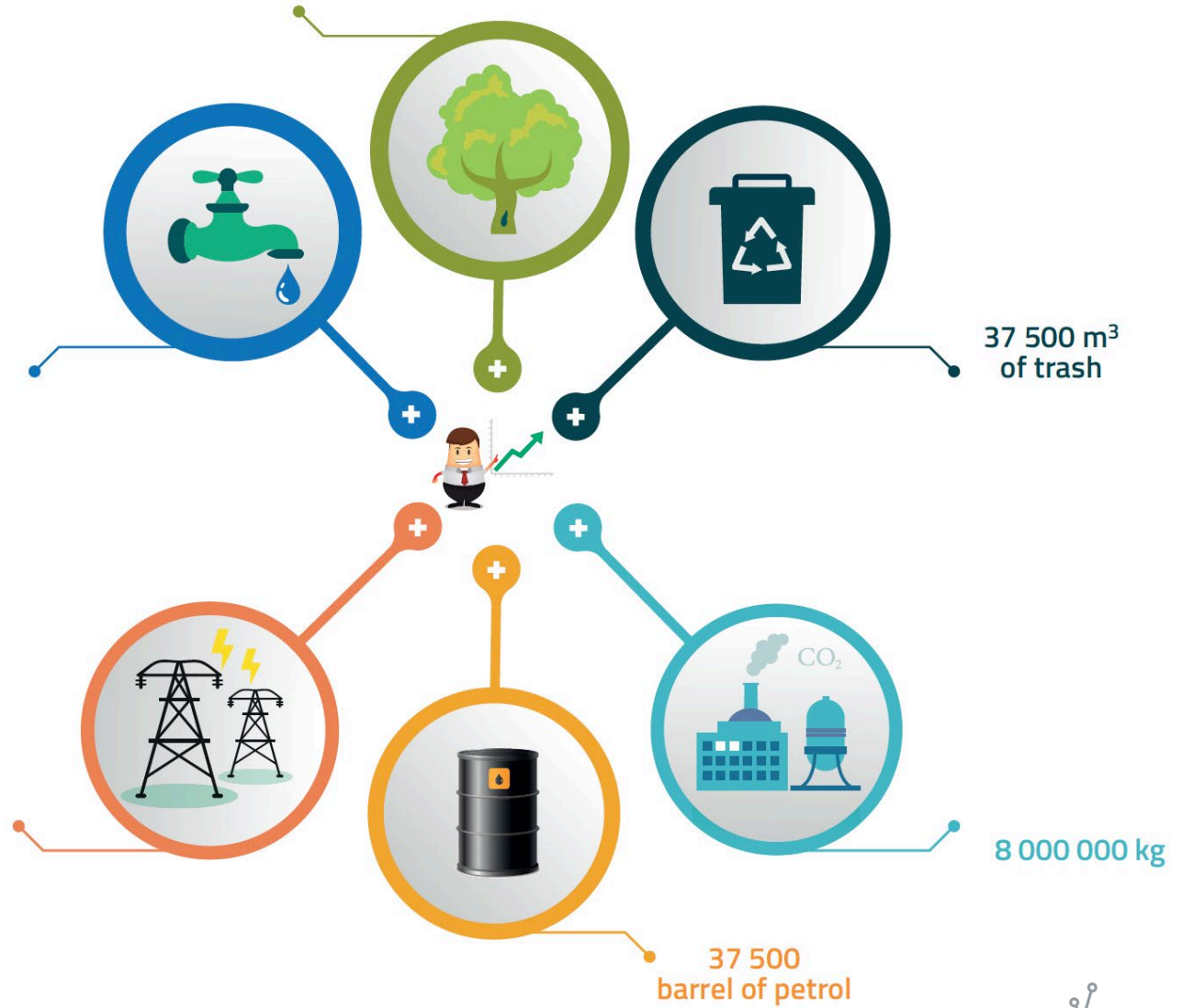
Security

- 3 types of security
  - Cyber security
  - Port security
  - Cargo & means of transport security

Cyber security

- 85% of companies and private persons have been attacked or hackers tried to block systems / retrieve sensitive data

How to prevent and in this respect the role of a port community system.

- ISO 27000, 27001 give guidelines on protection.
- ISO 31000 3-days risk management courses.
  - an international standard that provides businesses with guidelines and principles for risk management from the International Organization for Standardization.

Role Port Community Systems

- Do only accept data submitted via secure encrypted data lines
- Port Community Systems are part of the port infrastructre, while the port is part of the municipality.
- Create an ISAC group. ISAC - Information Sharing and Analysis Center

Port security

- PCS operators facilitate the data distribution and exchange between vessel and/or their agent and the Port Authority according to the ISPS guidelines.

ISPS:

- The International Ship and Port Facility Security Code (ISPS Code) is a comprehensive set of measures to enhance the security of ships and port facilities, developed in response to the perceived threats to ships and port facilities in the wake of the 9/11 attacks in the United States.

Each port facility must have an International Ship & Port Facility Security certification.

IPCSA
International Port
Community Systems
Association

Cargo and means of transport security

The decision to inspect cargo / means of transport is not a direct issue for PCS.

Via the PCS the necessary data can be distributed to the necessary government agency for control and inspection.

However in most ports the centres of inspection are spread over the port area.

This means a lot of traffic from and to the various inspection portals in case required.

Inspection portals like Customs, veterinary, phyto sanitary, etc.

PCS Operator can in 1 window show the various inspections required. For the customer it means a one-stop shop for all their information.

Situation in Rotterdam

- Customs has from the start of the development of the PCS been involved in the process design.

- Their support have been (and still is) of vital for a perfect handling of the cargo flow.

- Also in Rotterdam the various inspection portal were spread over the port area.

- In 2009 a covenant has been signed by the various government agencies to collaborate in enhancing the inspection procedures., whereby the Customs has been in charge.

State inspection terminal

Positive stimulus

- The swift and efficient handling of cargo forms a positive stimulus for logistics service providers, shippers and other companies working in the Rotterdam port area.

- PCS is invaluable in transparancy about status of the various inpections results.

https://www.portofrotterdam.com/en/services/port-customs/state-inspection-terminal

https://youtu.be/4TkScrEuoZo

IPCSA
International Port
Community Systems
Association

Role IPCSA in the process from
Port centric
to
Cross border

Not about the critical role
on port level

but from

Port centric approach
to
Cross border

- IPCSA created a unique cross-border data exchange platform globally.
- Between Port Community (PCS), Single Window operators (SW) and Port Authorities (PMS).
- Facilitate mechanisms for contractual and operational arrangements between these parties.

- It is not a Data Platform.

Enabling IPCSA members:

- Vessel-voyage and cargo track & trace information.
- Easy and secure data exchange between trusted, neutral third-party platforms. (PCS, SW, PA)
- Increase of reliable and timely information along the supply chain.

https://notn.ipcsa.international

NETWORK
OF TRUSTED NETWORKS | Connecting and sharing data globally between ports and cross border

IPCSA
International Port Community Systems Association

Communication between Caribbean ports (PCS, SW, PMS)

Evolution in Port Community
From data exchange platforms to business intelligence systems

Started late 70-ties

Data exchange platforms

Network of PCS platforms

Intelligence systems

1979-2020

2014-2020

2018-2025

- Data standards
- Neutrality & Trust

- Global implementation

- Authentication & authorization
- Data integrity

- Business intelligence
- Artificial intelligence

2030?

IPCSA
International Port
Community Systems
Association
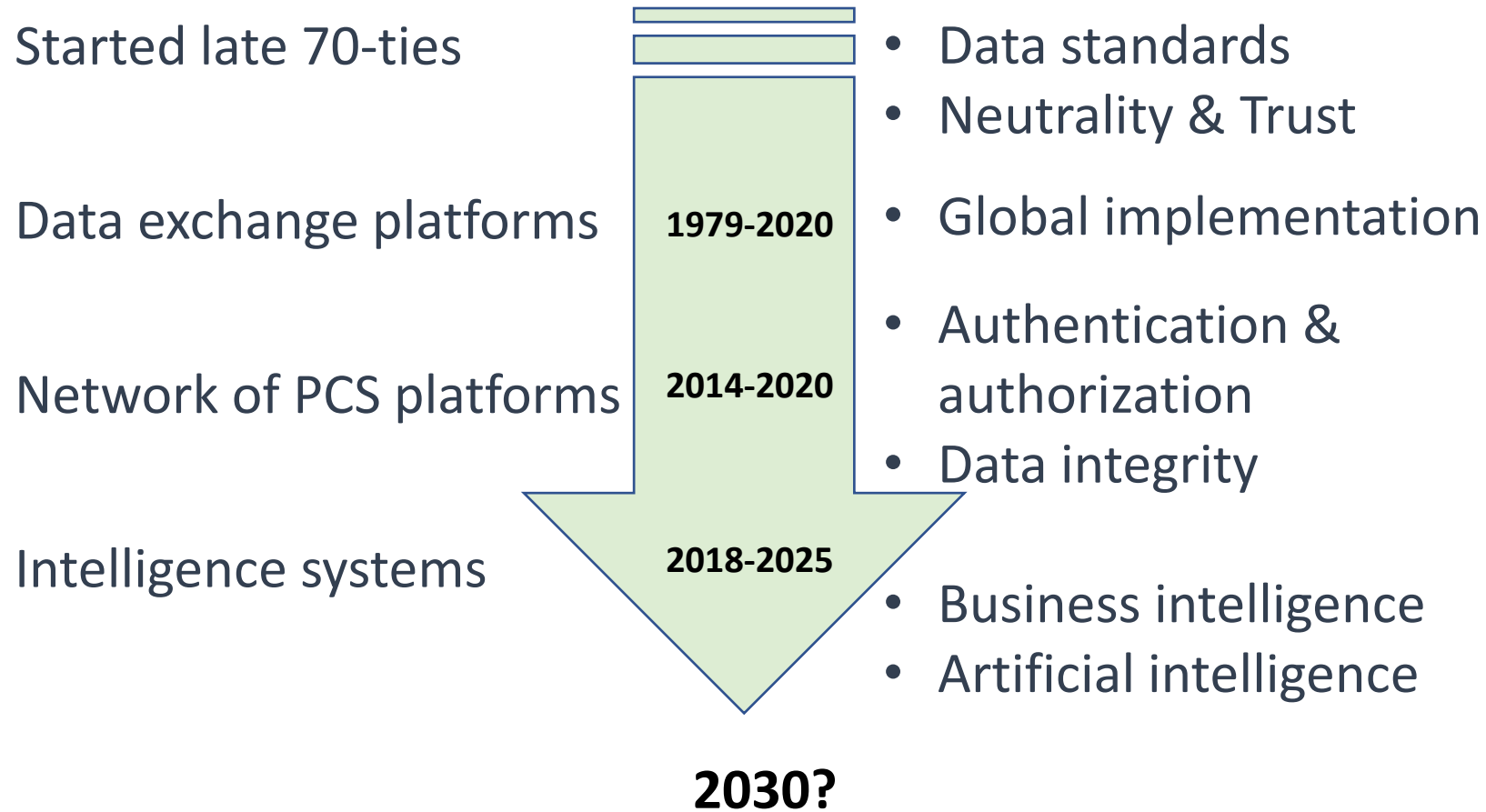
Ports Digital Evolution
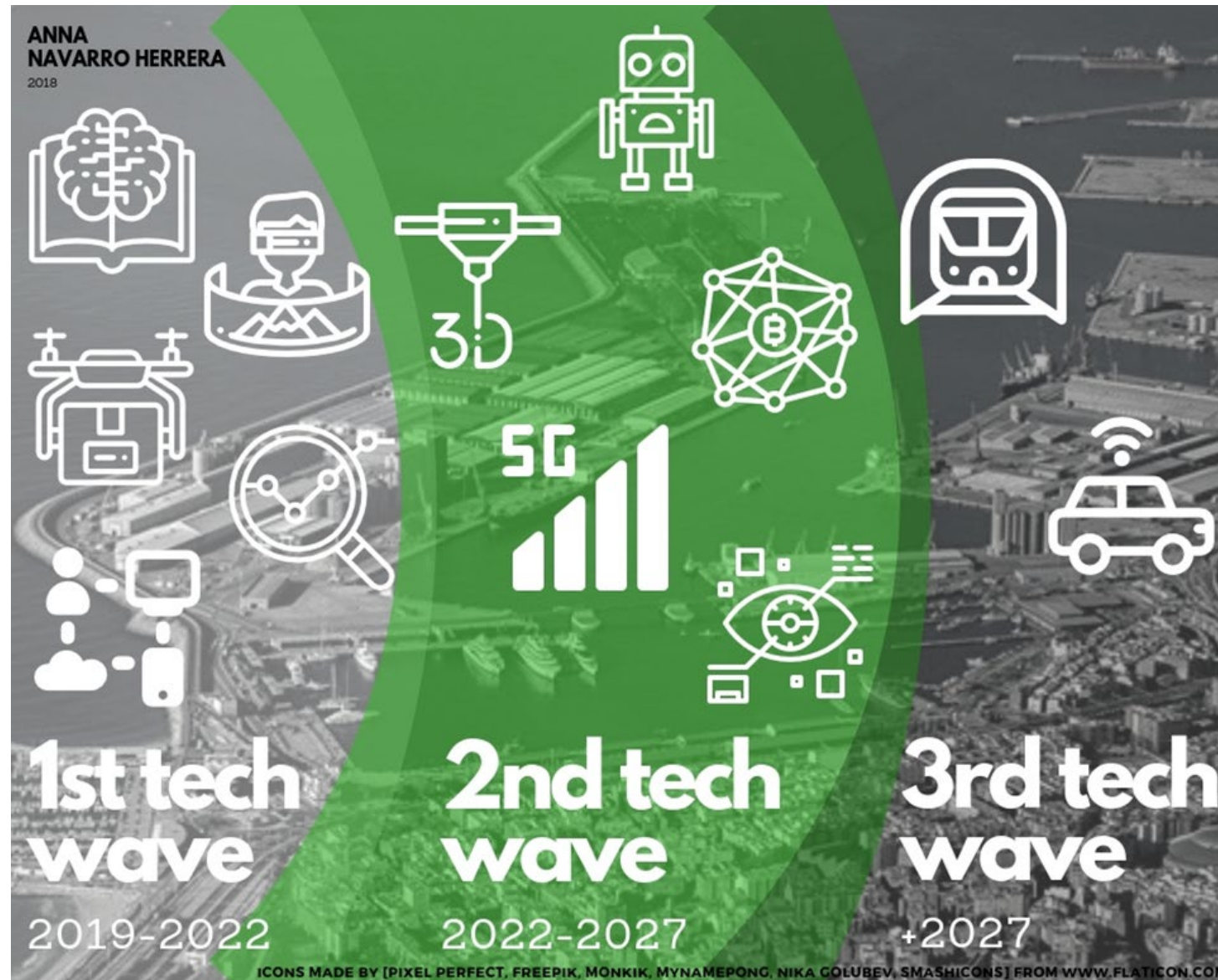
Reference: Study by Anna Navarro, Port of Tarragona, 2018

Port Digital Evolution
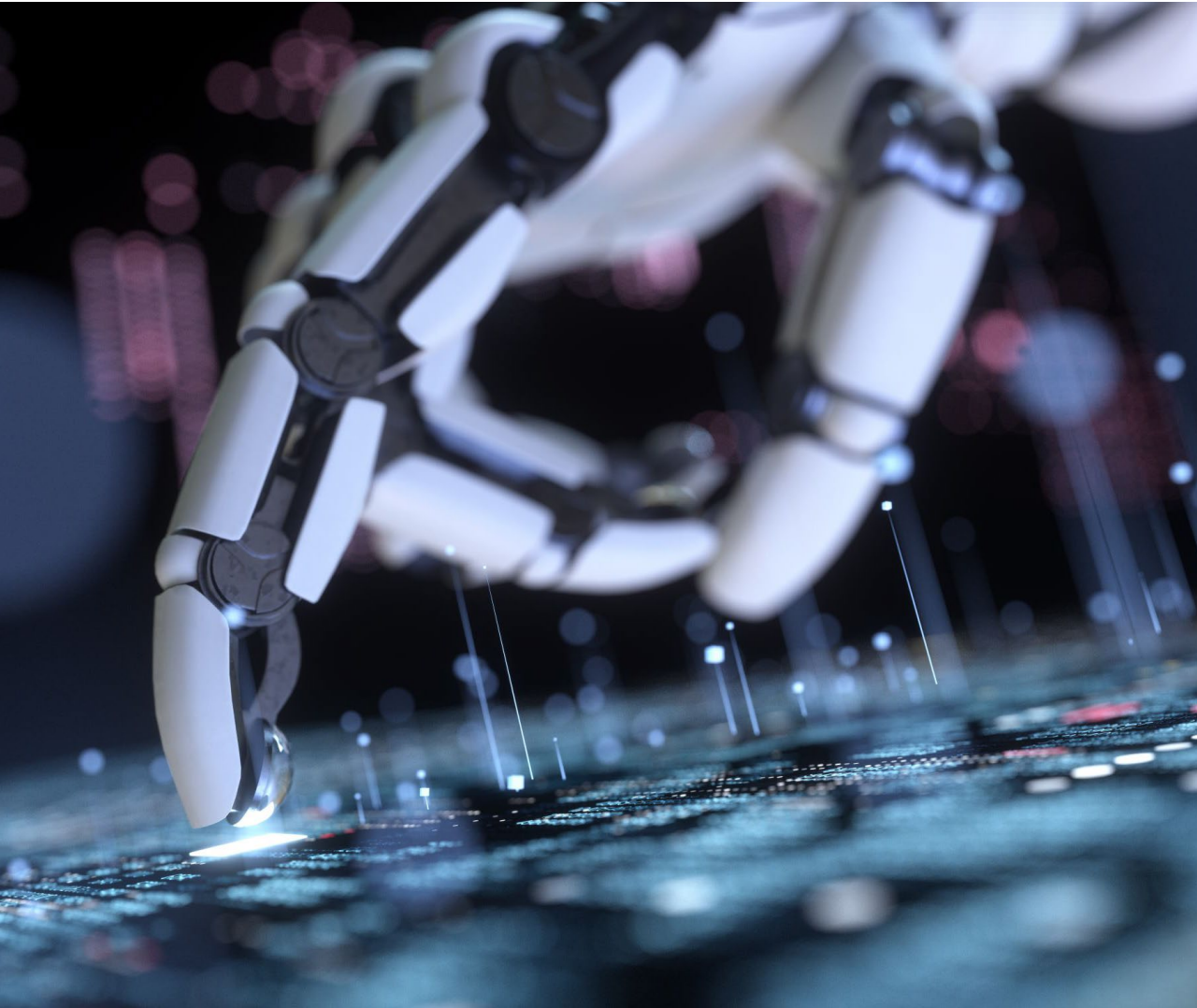
Challenges

- Fast pace of new technologies ?

- Too much hype not enough practice ?

- What Standards ?

- How will data be used and who owns it ?

- How to futureproof Ports against increasing speed of change of technologies ?
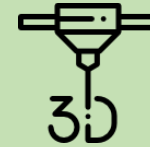
12
technologies

Drones	Autonomous vehicles	Hyperloop
Internet of things	3D printing	Blockchain
Robots	Augmented reality	Virtual reality
5G	Big Data	Machine Learning
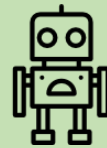
Study made in 2019

Techs currently in Ports

Drones 28%	**Autonomous vehicles** 48%	**Hyperloop**
Internet of things 44%	**3D printing**	**Blockchain** 40%
Robots	**Augmented reality**	**Virtual reality**
5G 12%	**Big Data** 60%	**Machine Learning** ??

IPCSA
International Port
Community Systems
Association
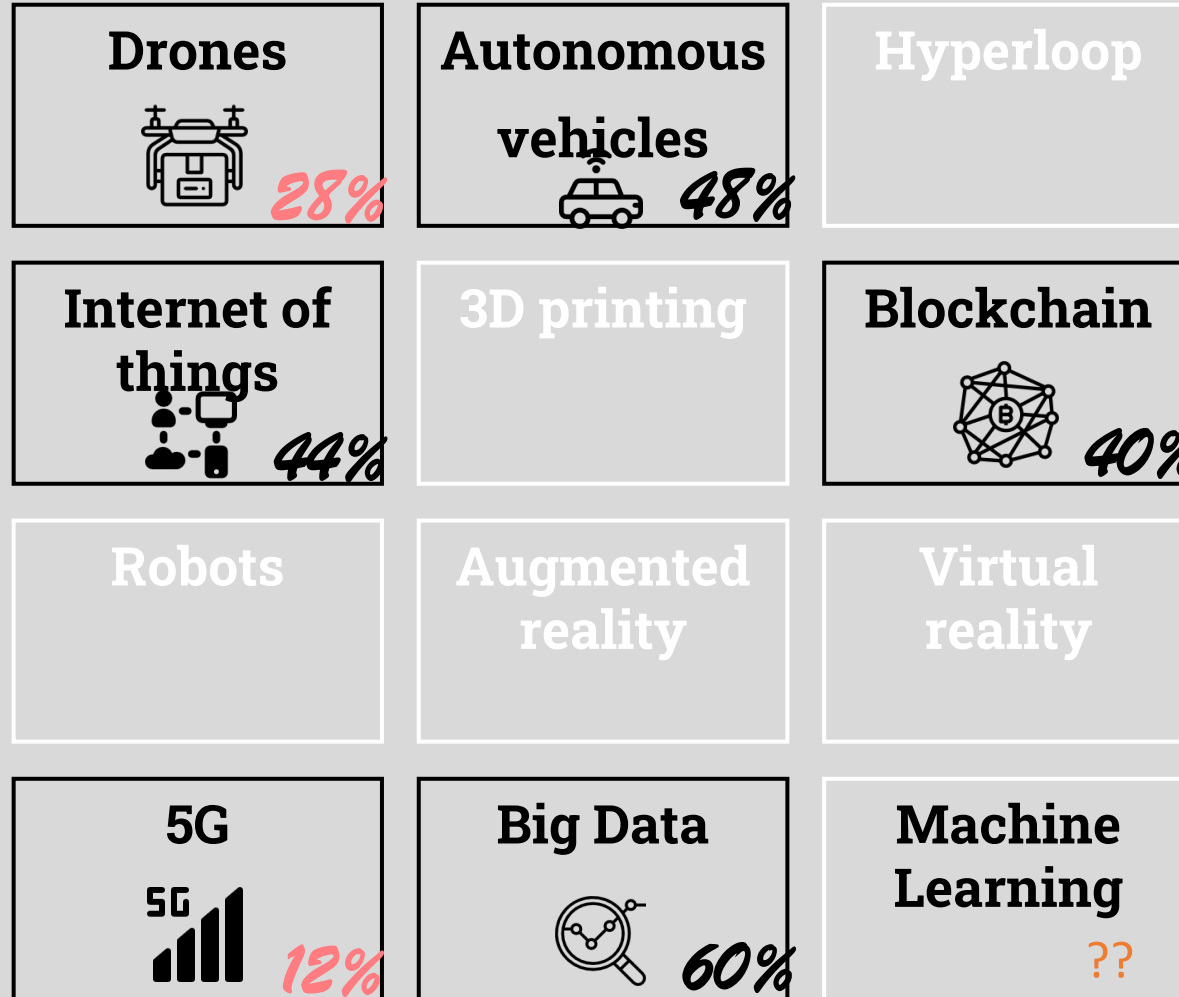
Port Community System (PCS) - Benefits

VALUE CREATION

It provides greater reliability, more efficiency and total transparency and traceability of the goods throughout the port logistics chain.

JUST IN TIME

Information according to business needs, in real time, correctly (without errors) and accurate

COMPETITIVENESS

It allows generating indicators and measuring the quality of the service, allowing to improve the positioning and competitiveness of the port system.

NEUTRALITY AND SECURITY
It provides greater security and confidentiality to the Port Community

**STANDARDIZATION AND OPTIMIZATION**
From the logistic-port processes, it homogenizes the procedures while simplifying the procedures.

REDUCTION OF TIME AND COSTS
Reduction of times in sending and receiving data, reduction of processing times and decision making with higher quality and faster. Cost reduction in the administration and management of cargo circulation.

RESILIENCE

It must respond in an agile and flexible way to the demands of a market that is increasingly demanding information and quality.

IPCSA
International Port Community Systems Association
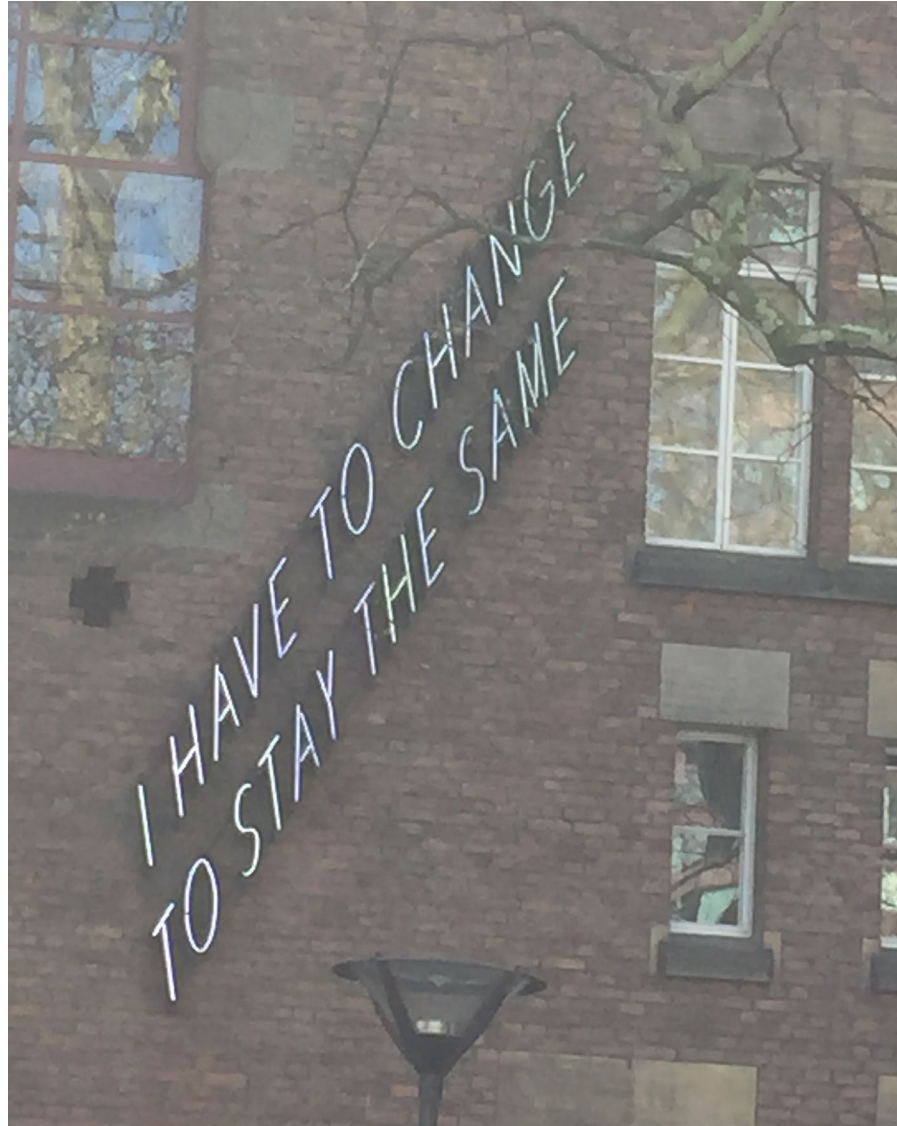
To end this presentation
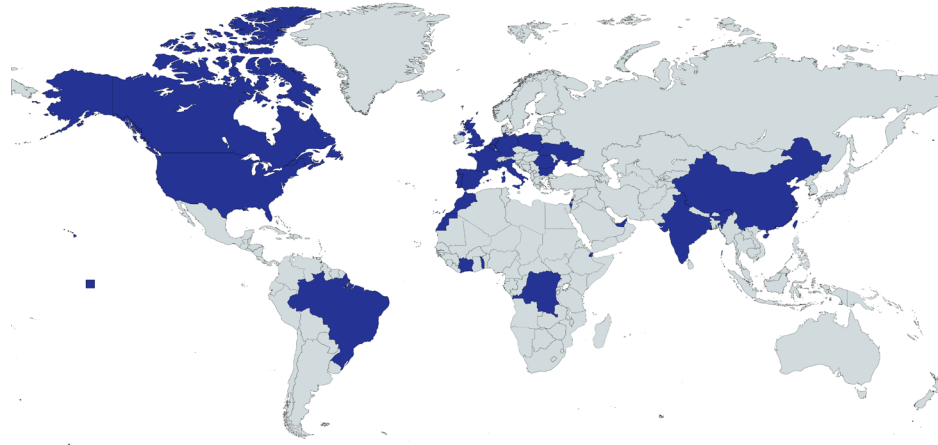

You have to change to stay the same.

I am sure you did already.

Look at the use of smartphones and notepads these days.

Think that 99% of the audience makes use of these devices.

So you did change, but you are still ……

IPCSA
International Port
Community Systems
Association

It will be a pleasure to collaborate with Caribbean & Central American Port members to support the area with our expertise.

www.ipcsa.international

Javier Gallardo	Chairman	javier@ipcsa.international
Nico de Cauwer	Secretary General	nico.decauwer@ipcsa.international
Inga Mortona,	General Manager	inga.morton@ipcsa.international
Hans Rook	Ambassador	hans.rook@ipcsa.international