EVENT FOLLOW-UP REPORT

PROMARES Cross border Training Seminar, held in Rijeka on July 3rd 2019.

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Event summary

Type of event	*Physical*
Location	*Rijeka, Rijeka Port Authority premises*
Date of the event	*3rd July 2019*
Time/Duration	*2,5 hours*
Purpose of the event (What was the objective?)	*The cross-border training seminar's objectives were to present an overview of disruptive technologies relevant to ICT projects for multimodal transport (from a 2019 perspective) and to present and elaborate best practices for establishing national and supranational single window systems in multimodal transport.*
Short description of the event (what happened during the event?)	*Sea transport in the Adriatic is overcoming obstacles impeding the development of the sea and multimodal cargo transport in the programme area They are primarily caused by imbalances in the development of multimodal traffic systems, poor coordination and communication between stakeholders and policymakers, and non-alignment of cross-border measures and tools, resulting in increased road traffic with negative consequences in the form of pollution, greenhouse gas (GHG) emissions, and noise pollution.* *As ports play an essential role in the transport logistics system, constituting an important factor for the growth of the economy and employment. That's why as part of WP3 Best practices analysis on ICT tools and policies for improving maritime and multimodal transport, based on EU and international experiences has been performed to allow partners in order to learn about the most recent ICT technologies that are applicable or have already been implemented and will help to improve the daily problems they face through analysis of their own systems, insight into successful and less successful practices, and experiences of ports around the world that are relevant to the programme area and truly be the most sustainable mode of transport.* *Saša Aksentijević from Aksentijević Forensics And Consulting, Ltd. external expert presented two documents during the 2nd day of PROMARES meeting in Rijeka: Overview of disruptive*

	technologies applicable to multimodal transport ICT projects: perspective mid-2019 and Best practice adoption in establishment of national and supra-national single window systems in multimodal transport
Results/Outcomes of the event (What are the takeaways from the event?)	*The event highlighted the important role of new technologies in ports unique role in minimizing the environmental and the importance of the results achieved thanks technologies adaptation funded through EU projects such as Interreg.*
Number of attendees	*16*
Type of stakeholders/target groups that were represented	*Research, Marine and scientific institution and academia, port authorities participating in the project.*

***Pictures**:*


PROMOTING MARITIME AND
MULTIMODAL FREIGHT TRANSPORT IN
THE ADRIATIC SEA
PROMARES | Aksentijević Forensics and Consulting, ltd.
Saša Aksentijević, PhD, Asst.Prof.

Agenda and PowerPoint presentation: attached

PROMARES
Promoting maritime and multimodal freight transport in the Adriatic Sea

Second Project Steering Committee Meeting
Port of Rijeka Authority - Rijeka, Riva 1

Agenda

Tuesday, 2nd July 2019	
14:00 – 14:15	Welcome speech
14:15 – 15:00	WP3 Enhancing cross-border maritime and multimodal freight transport planning capacities – *update on status of WP3 deliverables, WPL* – *each PP presents a couple of slides with the preliminary results of the draft territorial needs assessment*
15:00 – 15:45	WP4 Testing enhanced cross-border maritime and multimodal freight transport – *Outlook on pilot action future implementation, WPL* – *Each PP shortly introduces its PA*
15:45– 16:15	Coffee break
16:15– 17:00	WP1 Management – *Reporting deadlines for RP1, discussion LP*
17:00	AOB, meeting closure
19:30	Dinner

PROMARES
Promoting maritime and multimodal freight transport in the Adriatic Sea

Second Project Steering Committee Meeting

D.3.2.2. - Cross-border training seminar
Port of Rijeka Authority - Rijeka, Riva 1

Agenda

Wednesday, 3rd July 2019	
9:00 – 10:00	WP2 Communication - *Update on status of WP2 activities and deliverables*
10:00 – 11:00	Overview of disruptive technologies applicable to multimodal transport ICT projects: perspective mid-2019
11:00 – 11:30	*Coffee break*
11:30 – 12:30	Best practice adoption in establishment of national and supra-national single window systems in multimodal transport
12:30	Light lunch

PROMOTING MARITIME AND MULTIMODAL FREIGHT TRANSPORT IN THE ADRIATIC SEA

PROMARES|Aksentijević Forensics and Consulting, Ltd.
Saša Aksentijević, PhD, Asst.Prof.

2nd Project Steering Committee Meeting| Rijeka, Riva 1 | 02-03. July 2019.
Project manager: Dražen Žgaljić, PhD

D.3.3.2 – Cross-border training seminar

Port of Rijeka Authority - Rijeka, Riva 1

Agenda – 03.07.2019.

Wednesday, 3rd July 2019	
10:00 – 11:00	Overview of disruptive technologies applicable to multimodal transport ICT projects: perspective mid-2019
11:00 – 11:30	Coffee break
11:30 – 12:30	Best practice adoption in establishment of national and supra-national single window systems in multimodal transport
12:30	Light lunch

D.3.3.2 – Cross-border training seminar

Deliverables for activities D3.3.1, D3.3.2 and D3.3.3 were created according to contract stipulated on 23.04.2019. between University of Rijeka, Faculty of Maritime Studies as a client and Aksentijević Forensics and Consulting, Ltd., as a contractor.

D.3.3.1. **Cross border study** on maritime and multimodal freight transport summarizing and comparing the individual territorial needs assessment and best practices analysis

D.3.3.2. **Cross Border Training Seminar**: PP11 - Faculty of Maritime Studies Rijeka presents the analysis on the best practices on ICT tools and policies together with the most recent practices for enhancing maritime and multimodal freight transport

D.3.3.3. **Cross Border Action Plan** for enhancing maritime and multimodal freight transport containing guidelines, measures and KPIs, that is tested in the pilot actions (WP4), laying the basis for the cross-border strategy (WP5)

D.3.3.2 – Cross-border training seminar

Based on the results of the territorial needs assessments, the best practice analysis and the training session, Faculty of Maritime Studies Rijeka will draft a cross-border action plan for enhancing maritime and multimodal freight transport, containing guidelines, priority measures and KPIs, to be tested in pilot actions (WP4) and laying the basis for the crossborder strategy (WP5).

D.3.3.2 – Cross-border training seminar

Best practice analysis on ICT tools and policies for enhancing maritime and multimodal transport covering EU and international experiences contains:

1. Analysis of **best EU practice** and identified and applicable **international practice,**
2. Explanation of **stakeholder swimlanes, processes and systems** in sea and multimodal transport, defined by relationship between national – regional – supranational levels,
3. Differentiation between **administrative** and **commercial** processes related to cargo,
4. Definition of different **stakeholder interests and challenges** in integration of their business information systems
5. Description of modalities of building and integrating information systems of stakeholders' participation in sea and multimodal traffic (for example, TOS, b2b, b2c, b2g, g2c, CRM and ERP systems), and best practices in establishing NSW systems,
6. Description of **best practice** in **organization and management** of maritime and multimodal transport ICT systems,
7. Description of **potential bottlenecks** and ways ICT technologies are used to mitigate them, and
8. Clear emphasis of **digital transformation** paradigm on maritime and multimodal transport, and relevance of timely information exchange and security policy implementation in achieving information security and data privacy goals.

D.3.2.2 – Cross-border training seminar

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SESSION 1: Overview of disruptive technologies applicable to multimodal transport ICT projects: perspective mid-2019

D.3.2.2 – Cross-border training seminar

Harvard Business School professor Clayton Christensen, devised the theory of **disruptive innovation.**

- A technology whose application significantly affects the way a market functions
- A disruptive innovation is differentiated from a disruptive technology in that it focuses on the use of the technology rather than the technology itself.
- A disruptive innovation initially offers a lower performance according to what the mainstream market has historically demanded.
- At the same time it provides some new performance attributes, which in turn makes it prosper in a different market.
- As it improves along the traditional performance parameters it eventually displaces the former technology

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The 3 Types of Innovation: Product, Process, & Business Model

Product Innovation

1) The development of a new product, such as standard cargo container. 2) An improvement of the performance of the existing product, such as creation of 2 TEU cargo container. 3) A new feature to an existing product, such as refrigerated container.

Process Innovation

Changes in the equipment and technology used in manufacturing (including the software used in product design and development), improvement in the tools, techniques, and software solutions used to help in supply chain and delivery system, changes in the tools used to sell and maintain your good, as well as methods used for accounting and customer service.

Change in process is typically only seen and valued internally. Speaking generally, changes in process reduce costs of production more often than they drive an increase in revenue. Of the three types of innovation, process is typically the lowest-risk.

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Business Model Innovation

Whereas both product and process innovation can be incremental and moderate, business model innovation is almost always radical, risky, and transformative.

Examples:

Amazon found a new channel to the customer through technology by eliminating the traditional retail distribution channel and developing direct relationships.
The showroom concept: retail stores will become showrooms for designs that can either be ordered home or that can be bought
CargoX ('Uber for Trucks')
Cargo Sous Terrain (a Swiss infrastructure project aiming to provide underground cargo routes)

Shipwire (cloud-based enterprise platform for end-to-end management of logistics operations)

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RESULTING IMPACT OF INNOVATIONS IN LOGISTICS:

market for logistics service providers (LSPs), especially third-party providers (3PLs), will grow in size and fragmentation, as companies will focus on smaller processes and therefore require solutions to more specific problems.

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DISRUPTIVE INNOVATIONS APPLICABLE TO MULTIMODAL TRANSPORT&ICT PROJECTS

1. 3D Printing
2. 4FOLD Foldable Container
3. On-Demand Trucks
4. Unmanned Aerial Vehicles
5. Self-driving Vehicles
6. Robotics & Automation
7. Augmented Reality
8. Distributed ledger technologies
9. IoT-sensors-big data-digital twins (simulation)
10. Other concepts: digitalization, adaptive sourcing, decarbonization

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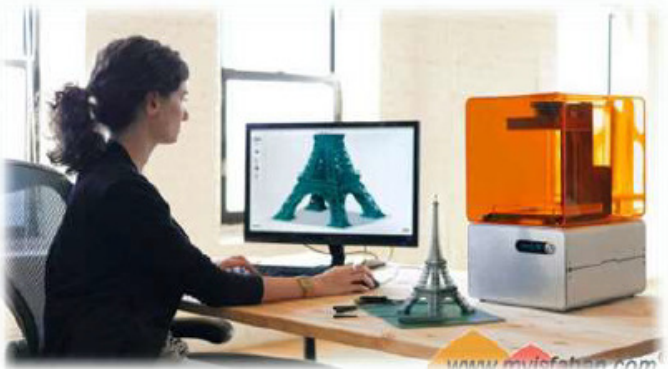
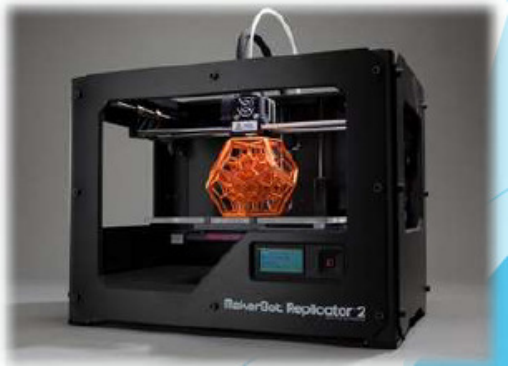
3D Printing

- Originally developed as an automated method of producing prototypes.
- It is ideal for 'mass customization' techniques.
- 3 D printing will eliminate the assembly phase and there will be huge losses for the logistic service providers as removal of storage, handling and distribution of the relevant components.





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Impacts of 3D printing on shipping and logistics

- Logistics providers can become orchestrators of complex and fragmented supply chains for raw materials and end products
- 3D printing creates new market segments and value creation opportunities (e.g., digital warehouses, trusted service provision of 3D data hosting and exchange)
- Reduce transport costs and time by creating products closer to point-of-use
- Fewer opportunities for logistics suppliers to be involved in companies' upstream supply chains, as manufacturing processes are increasingly re bundled within a single facility.
- Orders are fulfilled directly by the manufacturer, and delivered to the home of the consumer.

3D Printing on the Fly from Amazon

- Amazon has patented the concept of mobile 3D printing delivery trucks to deliver products even faster to the consumer
- When a shopper orders a selected product from Amazon, this triggers the nearest truck to 3D print and deliver the product to the consumer, effectively removing the need for any storage

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Impacts of 3 D printing on shipping and logistics

- New sector of the logistics industry would emerge dealing with the storage and movement of the raw materials which 'feed' the 3D Printers
- Service Parts Logistics sector will be affected.
- Part of the global production may shift back to wealthy countries, leading to decreased shipping volumes of goods between Asia and other continents, at the same time increasing the shipping volumes of raw materials between continents.

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4FOLD Foldable Container

- 40ft High Cube shipping container that can be folded when empty. After folding, the 4FOLD foldable container is only one quarter of the height
- Four folded containers stack into one interconnected bundle. This bundle handles like one container
- Benefits
  - Fewer restow and reshuffle movement
  - More available slots in ships
  - Reduced port stay of ships
  - Faster handling of empties
  - Reduction in emissions Reduction of traffic jams
  - Reduction of storage space

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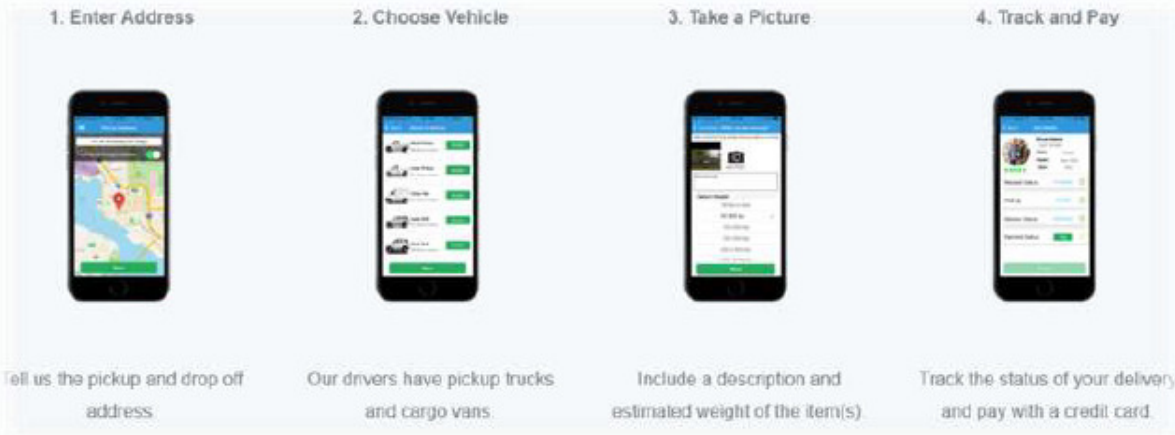
On-Demand Trucks

- On demand truck services link shippers and carriers through android and ios apps.
- This is similar to the Uber and Pickme in Srilanka, but here freight will be moved.



- Benefits

  upfront, guaranteed pricing

  Track your freight in real-time

  Ratings

CONVOY

GoShare

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Unmanned Aerial Vehicles

- **Intra logistics operations** - can be streamlined by using UAVs for intra-plant transport and for urgent supplier to plant spare parts delivery.
- **Rural delivery** - using UAVs is attractive for remote regions that have limited logistics infrastructure or are hazardous to access
- **Urban UAV networks** - last-mile delivery will be required to handle single shipments that cannot be achieved in an economical way with traditional delivery vehicles. By potentially reducing the amount of vehicle movements, UAVs can provide traffic congestion relief to densely populated cities.

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Self-driving Vehicles

- **Warehouses of the future -** autonomous forklifts,pallet movers, and swarm conveyor belt systems.
- **Outdoor logistics operations-** automate container handling at portsand the collection and loading of airfreight containers at airports. This can be achieved through self-driving carts and dollies
- **Line-haul transportation -** often involves long journeys overnight and also during rough weather conditions
- **Autonomous last-mile** solutions such as self-driving trolleys that autonomously follow a delivery person can be used to support workers as they cope with growing parcel volumes.

- Self-driving robot can deliver multiple parcels within a 5 km (3 mile) radius
- Drives on sidewalks at pedestrian speed, detects obstacles, adjusts speed/stops, and safely crosses streets

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Robotics & Automation

- **Flexible automation in warehousing and fulfilment** - will utilize perceptual and mobile piece picking robots which can intelligently sense the environment around them for navigation and safety.
- **Trailer and container unloading robots -** will assist workers with physically strenuous tasks.
- **Assistance robots for local delivery -** will be useful to meet the growing demand for convenience logistics. They could follow delivery personnel to transport heavy items, pre-sort parcels inside delivery vehicles, and autonomously deliver letters and parcels to dedicated collection points

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Augmented Reality

- **AR-powered warehouse operations** utilize smart glasses for the hands-free operation of various tasks within a warehouse such as product picking, packing, sorting,and even assembly.
- **Safer and smarter driving** can be achieved for vehicle operators by utilizing AR as the next generation of navigation and driver-assistance systems.

- **Intelligent last-mile operations** can use smart glasses for the entire delivery process. Workers equipped with smart glasses can conduct completeness checks of each shipment using object-recognition technology

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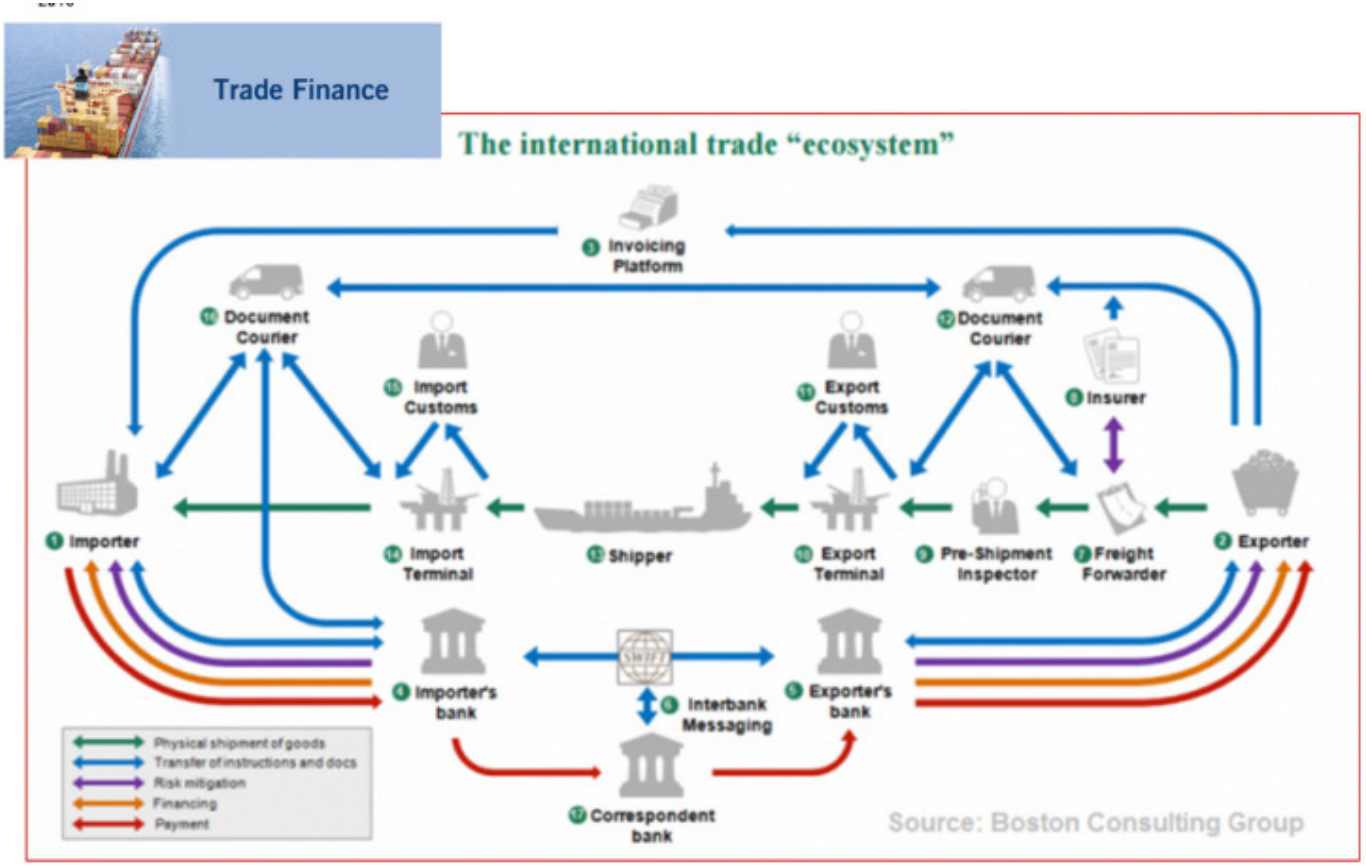
Distributed ledger technologies



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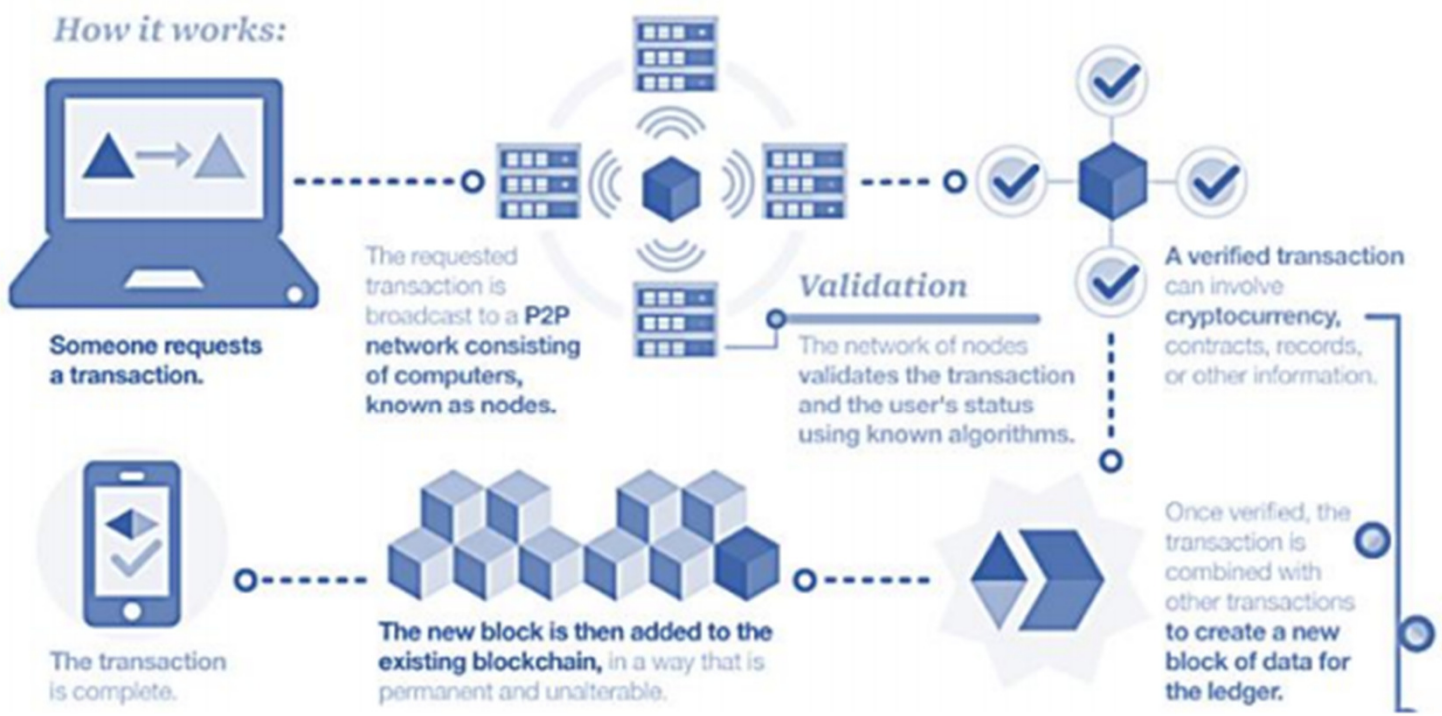

Figure 1. Blockchain explained (source: PWC[2]).

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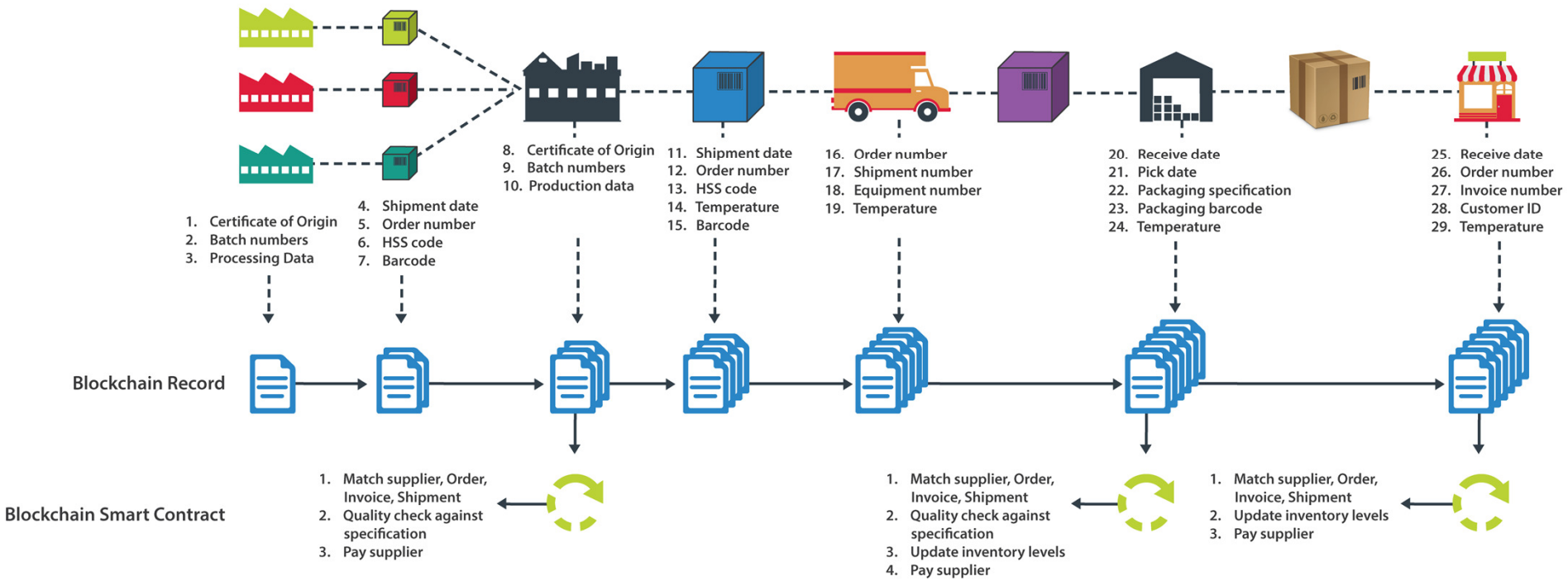

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Challenges of distributed ledger technologies in logistics:

1. All involved systems are isolated and focused only on certain objectives.
2. It is a huge challenge for IT to connect all data and implement new technologies.
3. Before DLT can be used, it must be re-architected for particular proposes.
4. Organizations need to clearly define what business operations will be based on blockchain.
5. Zero off-the-shelf (OTS) systems – June 2019.
6. Creating a culture of acceptance, organization, and standardization for its use.
7. Fad/cash out on the hype issue?
8. The speed of blockchain remains an area of concern as the technology strives to be adapted.

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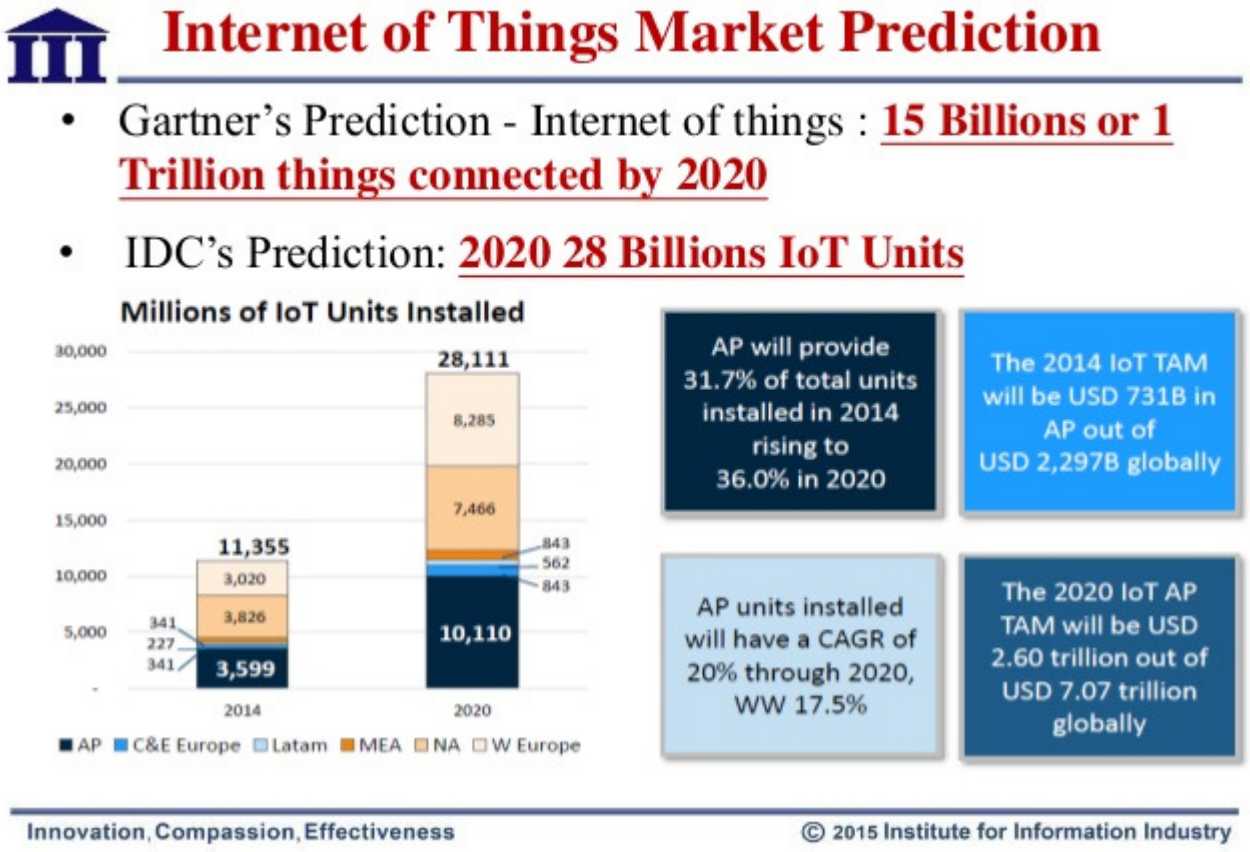
IoT – sensors – big data



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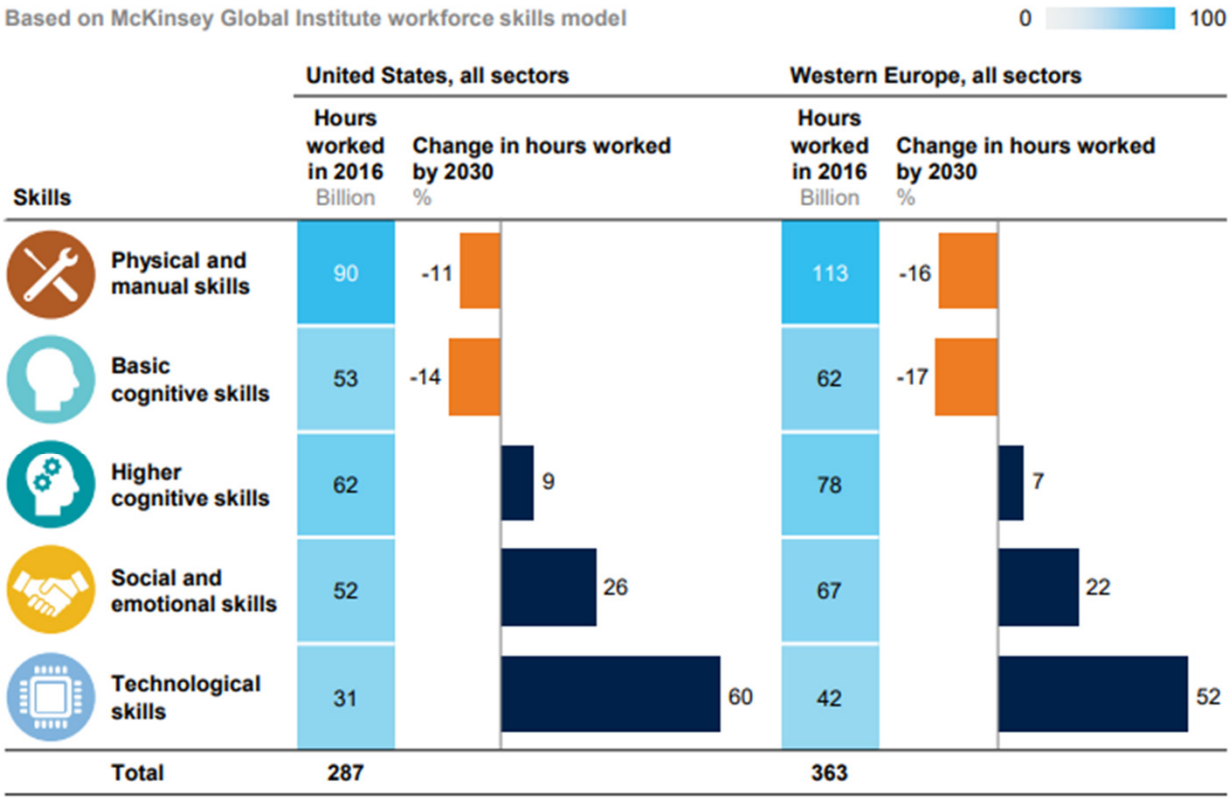
Automation and AI will accelerate the shift in skills that the workforce needs.

Based on McKinsey Global Institute workforce skills model



NOTE: Western Europe: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom. Numbers may not sum due to rounding.

SOURCE: McKinsey Global Institute workforce skills model; McKinsey Global Institute analysis

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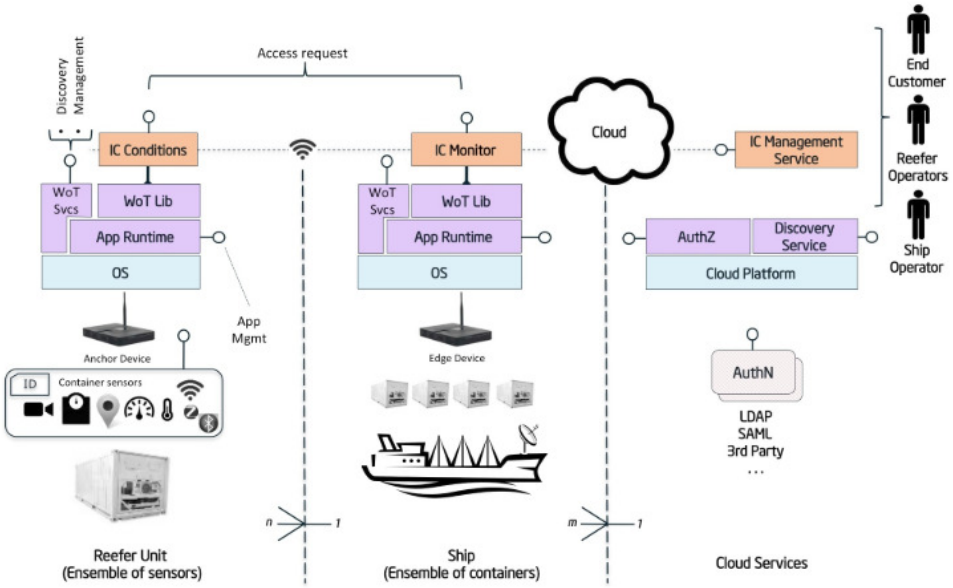

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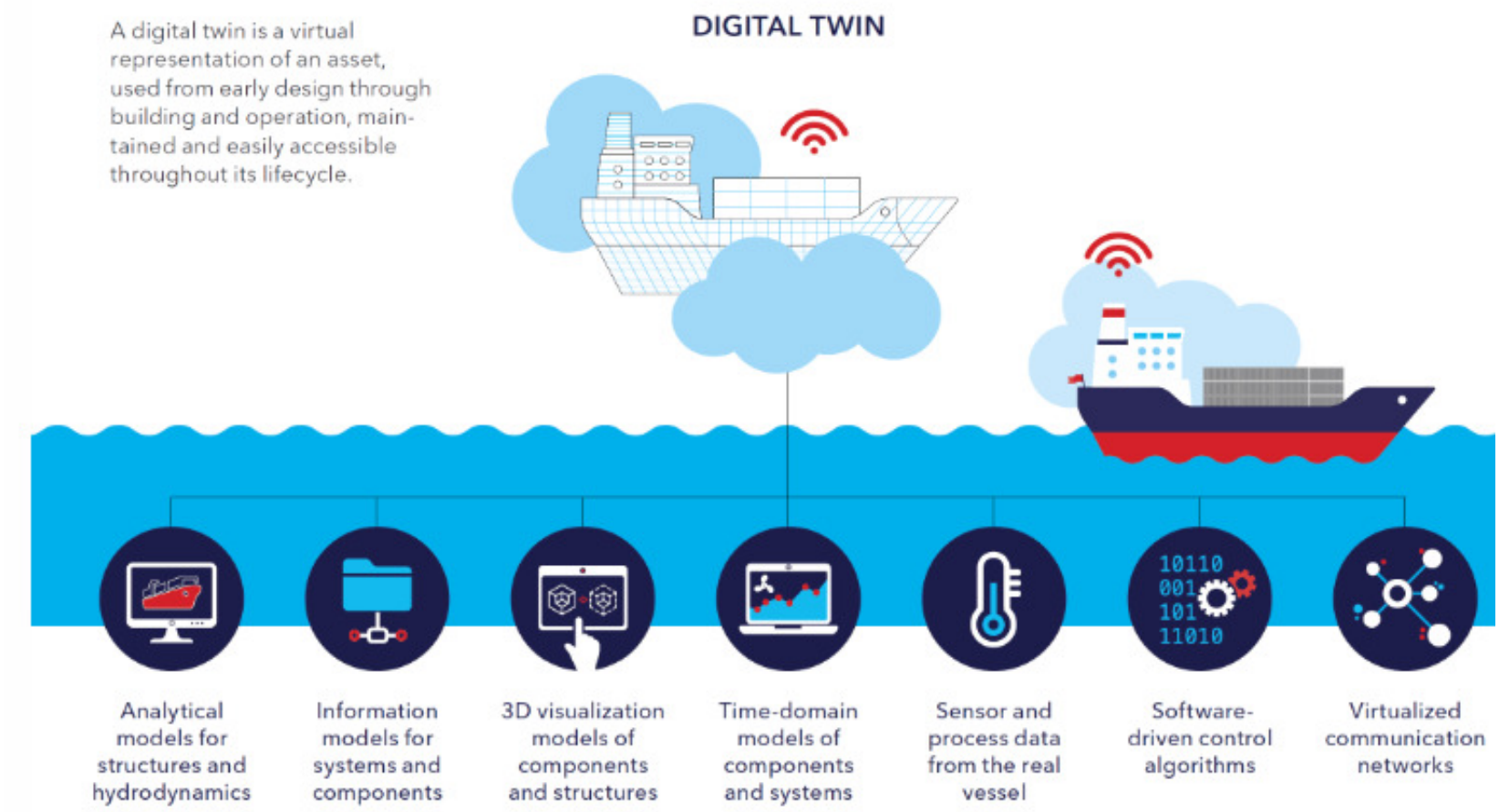

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SESSION 2: Best practice adoption in establishment of national and supra-national single window systems in multimodal transport

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PMIS (Italy) – URNET (Italy) – LogIS (Port of Venice) – NSW and MNSW (CIMIS, Croatia)

National PCS initiative (Croatia) – Port of Ploče PCS (Croatia) – Single Window (Republic of Korea)

MNSW (The Netherlands) – NACCS (Japan) – SafeSeaNet Norway – MAINSYS and SeaMen control systems (Israel)

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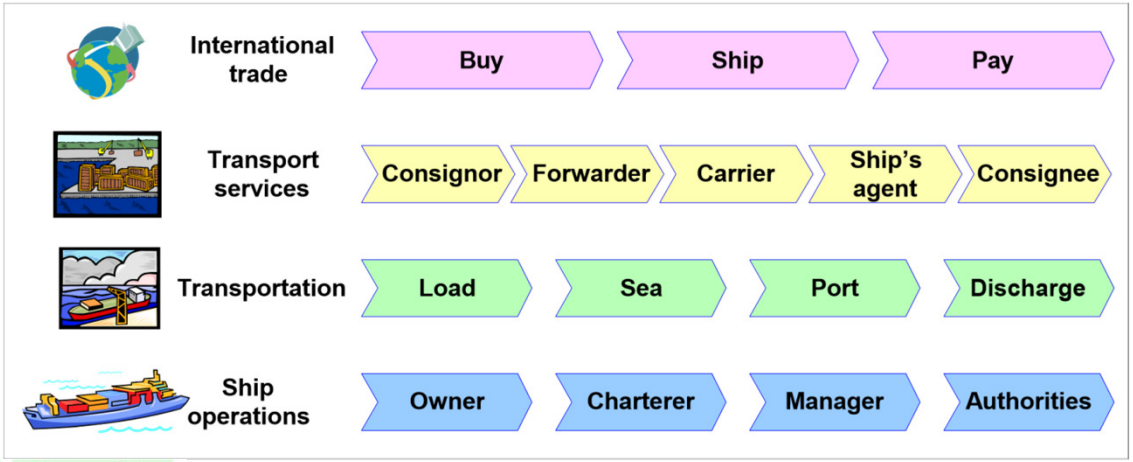

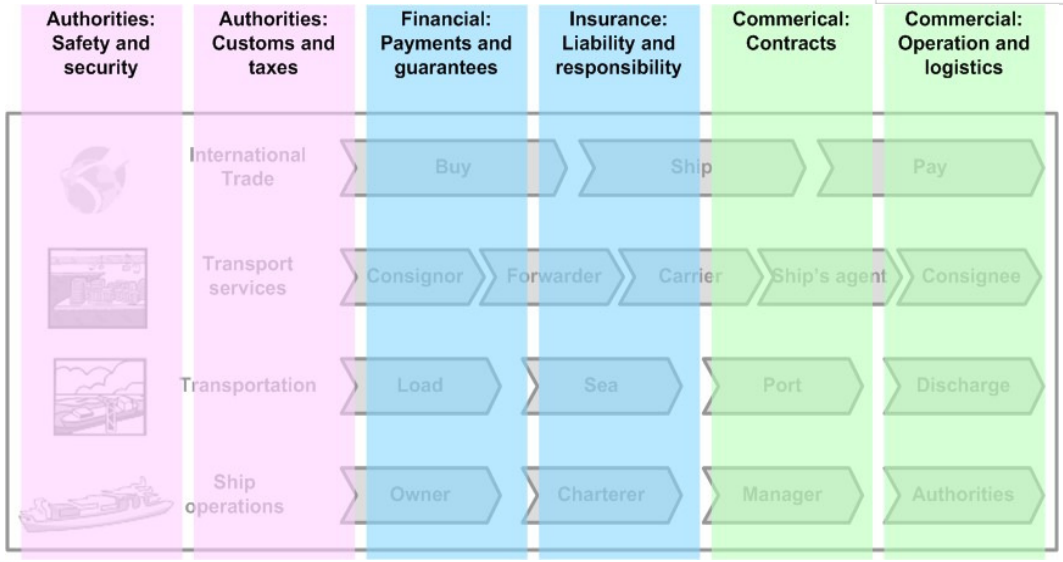

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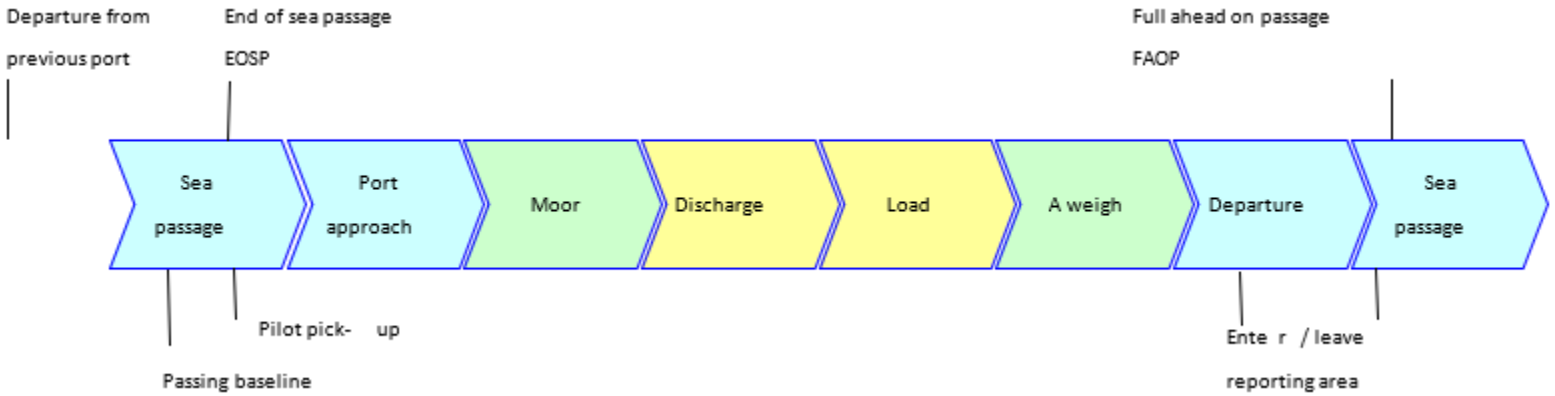

- *Passing point:* When the cargo ship enters national waters, usually with some reporting requirements to the coastguard, navy or police,
- *End of sea passage* (EOSP): Used in transport contracts, when the ship decelerates from transit speed,
- *Pilot pick-up*: Often at EOSP.
- *Enter/leave ship reporting area (*VTS (VTMIS) area)
- *Full ahead on passage* (FAOP): Where transit to the next port begins.

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Most single window and total logistics chain systems will in the future have to be aligned with significantly increased requirements of the proposal for a Regulation of the European Parliament and of the Council establishing a European Maritime Single Window environment and repealing Directive 2010/65/EU (COM(2018)0278 – C8−0193/2018 – 2018/0139(COD))

On 17.5.2018 the Commission published a proposal for a European Maritime Single Window environment, repealing Directive 2010/65/EU on reporting formalities for ships. This initiative is part of the Third “Europe on the Move” Package, which delivers on the new industrial policy strategy of September 2017

At present, maritime transport operators must fulfil a wide range of legal reporting requirements each and every time a ship makes a port call. There are over two million annual port calls made in the EU. Reporting formalities for ships making a port call in the Member States are currently set out in Directive 2010/65/EU – the Reporting Formalities Directive (RFD). The directive aims to simplify and harmonise administrative procedures in maritime transport by introducing a single window for reporting formalities for ships.

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The problem for operators is that the reporting requirements are not yet harmonised, either between the different areas that need to be reported within a Member State or between different Member States. This results in a large administrative burden on the operators with the Commission estimating that staff in the shipping sector currently spend an annual total of about 4.6 million hours on reporting.

The proposed 'European Maritime Single Window environment' (EMSWe) would bring together, in a coordinated and harmonised way, all reporting obligations associated with port calls. This would be achieved by retaining the current system of NMSWs but introducing a European reporting 'gateway' above or on top of national systems (the EMSWe). This technical interface would be based upon a common software module developed by the Commission that would provide harmonised user interfaces, procedures and data formats. The Commission labels this approach a 'one-stop-shop for reporting' and states that it will allow for the more efficient (re)use of data between national authorities (for example customs and border agencies).

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1. EMSWe links existing NSWs together via a common IT solution developed at EU level
2. Harmonizes interface in terms of data format and codes
3. Existing NSWs are routers collecting the data from maritime transport operators and distributing them
4. EMSWe does not process the data other than translation and quality checks; final processing is done by data recipients
5. Member states will receive the same software package and have to make their NSW compatible with ih
6. Competent national authorities have to provide proper connections with data recipients, and thez have to make their systems interoperable with the updated NSW
7. Members states need to provide an online support website

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8. Reporting data set lists all information elements requested by national party of port operators when a ship calls at a port
9. NSWs should be able to accept the entire EMSWe data set without modifications
10. Member states can disregards irrelevant information but could not ask for additional data
11. Member states have to ensure that declarants are asked to provide information once per port call and the date is made available or reused
12. EU Commision recognizes it will not be possible to submit customs entry summary declaration through NSWs.
13. Data reuse needs to be enabled (EMSWe ship database, common location and hazardous material database)

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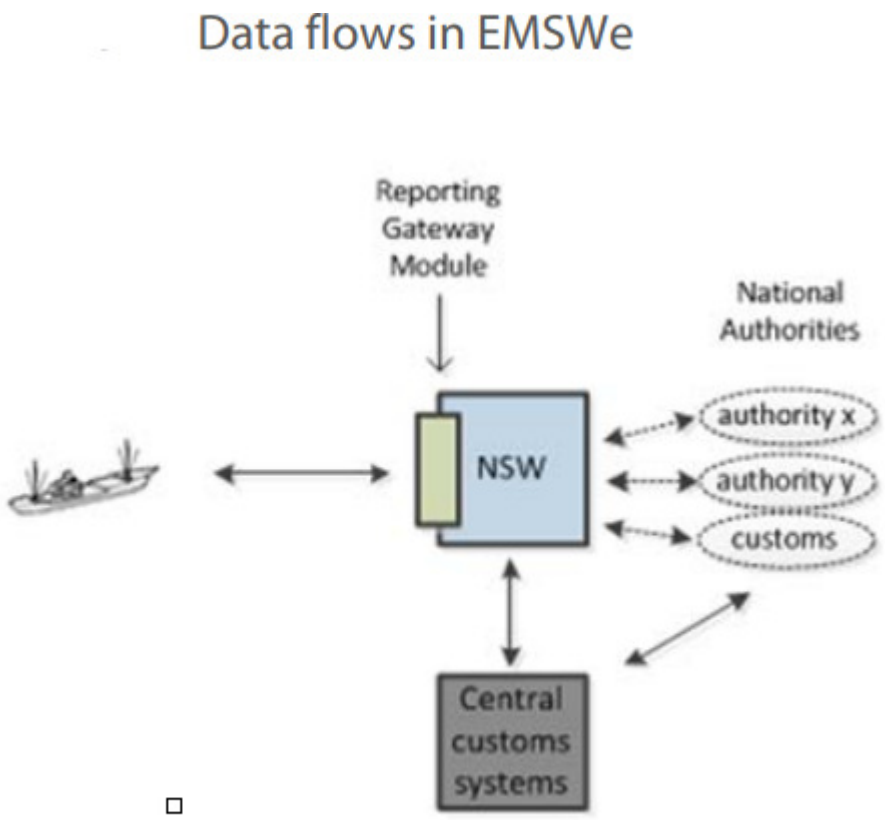

Source: European Commission, 2018.

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Port coordination - Port Call Synchronization and the concept of “just in time arrival” of vessels and related planning of port logistics. Capability to receive estimated time of arrival of the ship, to evaluate ships time of arrival against port and port actors availability, to agree upon improved arrival time for ship, to send recommended time of arrival of the ship, to receive estimated time of departure of the ship,to receive planned time of departure of the ship, to evaluate ships time of departure against port and port actors availability, to agree upon improved departure time of the ship, to send recommended time of departure.

Standards:

1. STM REQ 1.0 Capability to connect and act within security domain SeaSWIM and Maritime Connectivity Platform (MCP),
2. STM REQ 1.1 Capability to receive Voyage Plans in RTZ format according to IEC61174:2015 and S-421 standard on Port Call Synchronization, and
3. STM REQ 1.2 Capability to compose and send recommended time (RTA) and ETA using the Schedule in RTZ format according to IEC61174:2015 and S-421 standard.

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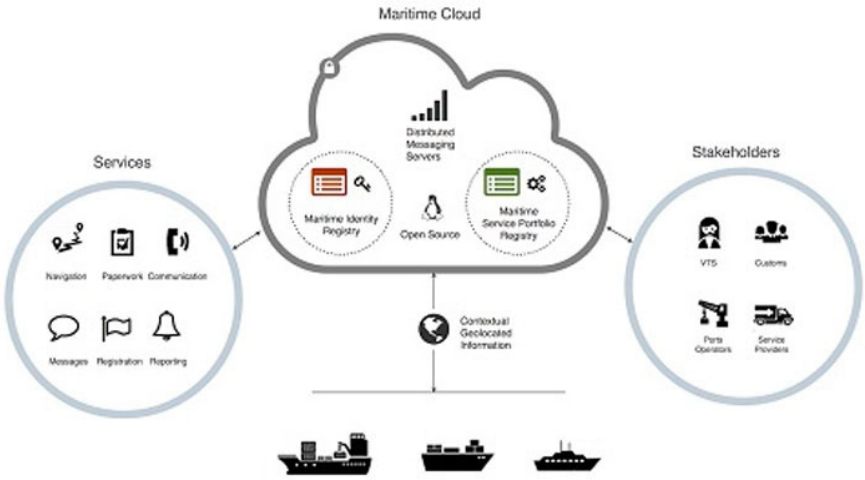
IPCSA
International Port Community Systems Association

UNITED NATIONS

The International Port Community Systems Association (IPCSA), of which MGI is a member, has been granted special consultative status at the United Nations, an important achievement which underlines the critical role that Port Community Systems play in global trade facilitation.

Special consultative status for IPCSA was confirmed by the UN's Economic and Social Council (ECOSOC) at its coordination and management meeting, on the recommendation of the Committee on Non-Governmental Organizations.

This status enables IPCSA to actively engage with ECOSOC and its subsidiary bodies, as well as with the United Nations Secretariat, programmes, funds and agencies; the consultative relationship also enables ECOSOC or one of its bodies to seek expert information or advice from organisations such as IPCSA with special competence in a subject matter.



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PROMARES|Aksentijević Forensics and Consulting, Ltd.
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THANK YOU FOR YOUR ATTENTION