



The International Maritime Transport and Logistics Conference Towards Global Competitiveness in Maritime Industry



“INVESTING IN PORTS” The Trends, The Future



2019

SMART PORTS: A KEY TO EFFICIENT LOGISTIC CORRIDORS

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DBA GROUP



DBAGROUP

is an independent holding specialized in providing services and solutions focused on building and infrastructure lifecycle management

42

Mn SALES

360

ACTIVE
CLIENTS

480

SKILLED
PROFESSIONAL
S

8

COUNTRIES

27

YEARS OF
EXPERIENCE

DBA Group is an Italian Company listed on the AIM segment on the Italian Stock Exchange since December 2017

SOLUTIONS

Infrastructure Lifecycle Management

ARCHITECTURE & ENGINEERING

- 1 | Concept & Feasibility Study
- 2 | Architecture & Engineering Services
- 3 | Cost Analysis & Tender Documents

PROJECT MANAGEMENT OFFICE

- 4 | Program & Project Management
- 5 | Construction Management, Works Supervision, Health & Safety Management
- 6 | Testing & Commissioning

INFORMATION & COMMUNICATION TECHNOLOGY

- 7 | Asset & Process Digitization Solutions
- 8 | ICT Solutions & HW/SW Integration



SMART PORT: my idea...

- A Smart Port is a Hub to address the logistic operations of the last sea mile and the first land mile through **automated, digitized and integrated** processes
- A Smart Port is not only a set of new technologies
- A Smart Port is the **combination** of technology and **widely adopted, shared processes** collecting/distributing **data and information** to manage operations **in-to, inside and out-from** a port
- The **processes** have to be **shared** not only by operators but by the **whole community**, by **all stakeholders** public and private
- A Smart Port cannot be an **isolated** entity. It must be **integrated** with a surrounding **Smart Territory** (City, Region, Country) and with **Smart Transport Infrastructures** (Roads, Rails, Rivers)

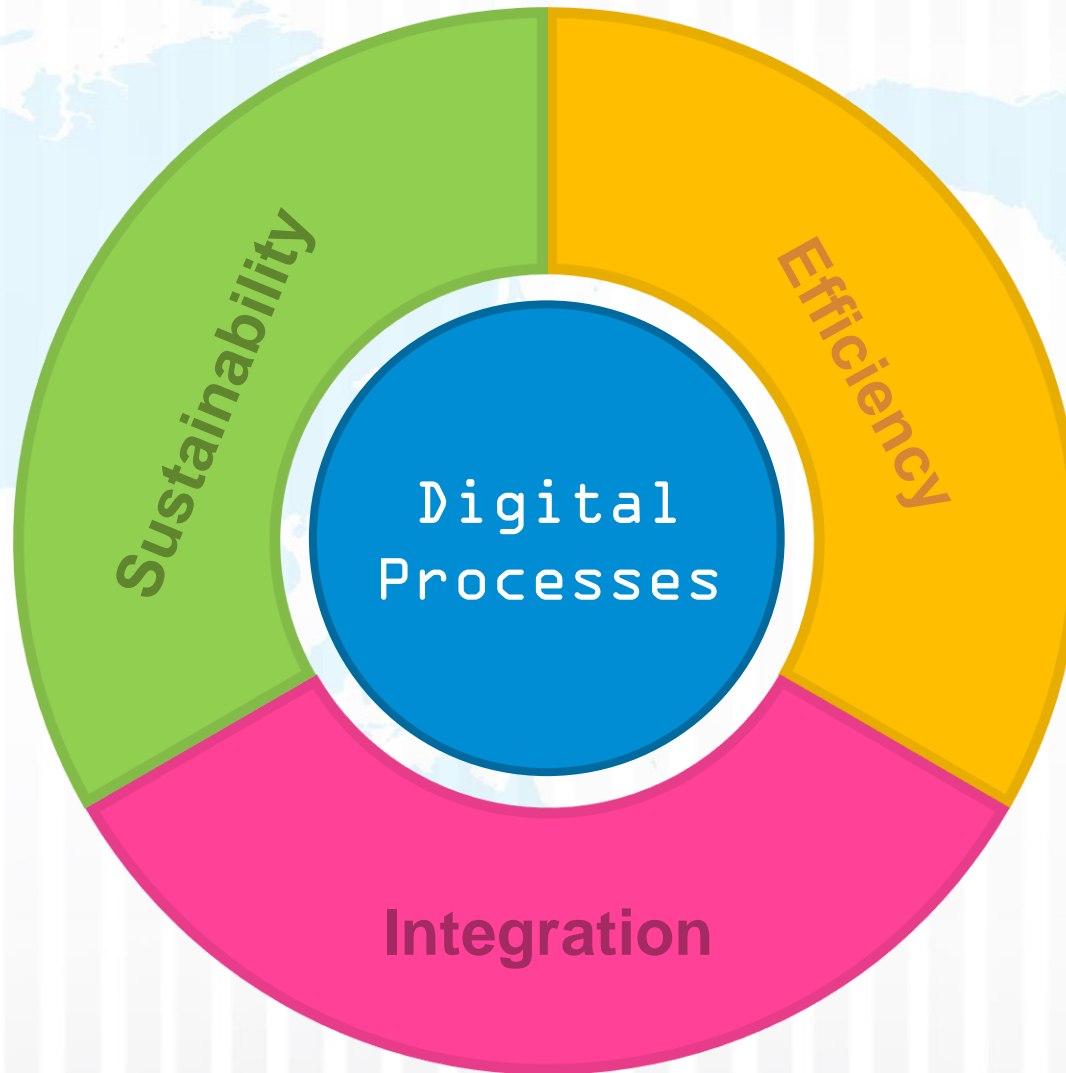
SMART PORT: typical drivers

Digital Processes (enablers)

- ✓ PCS, TOS, PMS,
- ✓ Connectors

Sustainability

- ✓ Environment
- ✓ Energy savings



Efficiency

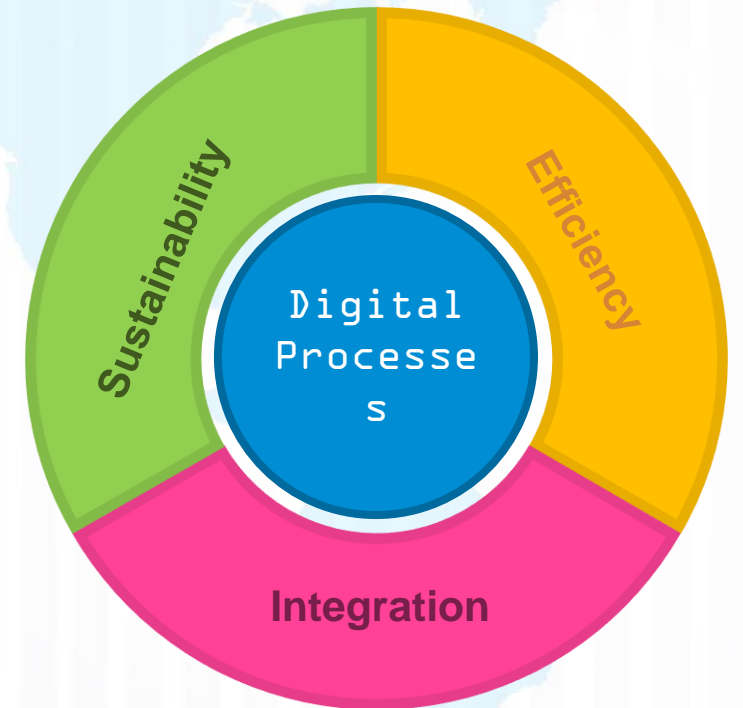
- ✓ High(er) cargo volumes, with less resources (space, equipment, gangs,)
- ✓ Short(er) transit times
- ✓ High(er) nr. of callings
- ✓ High(er) safety & security standards

Integration of all Stakeholders

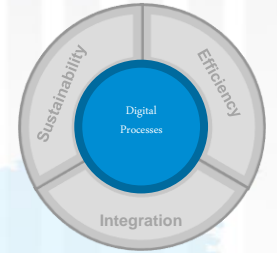
- ✓ Railways
- ✓ Forwarders
- ✓ Customs
- ✓

SMART PORT: the pillars/building blocks

1. A set of optimised and digitised processes
2. The digital **integration** of “internal” processes/entities
3. A favourable **legislation**
4. A **convinced adoption** by people

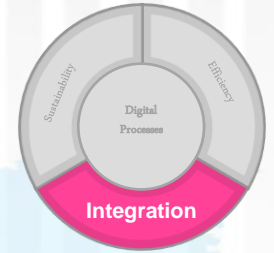


1) OPTIMISED, DIGITIZED PROCESSES



DBA Group has a very long (**20+ years, 20 ports WW**) experience in developing software applications in many different types of ports and hence acquired an experience on how to analyse, optimize and translate processes into a software

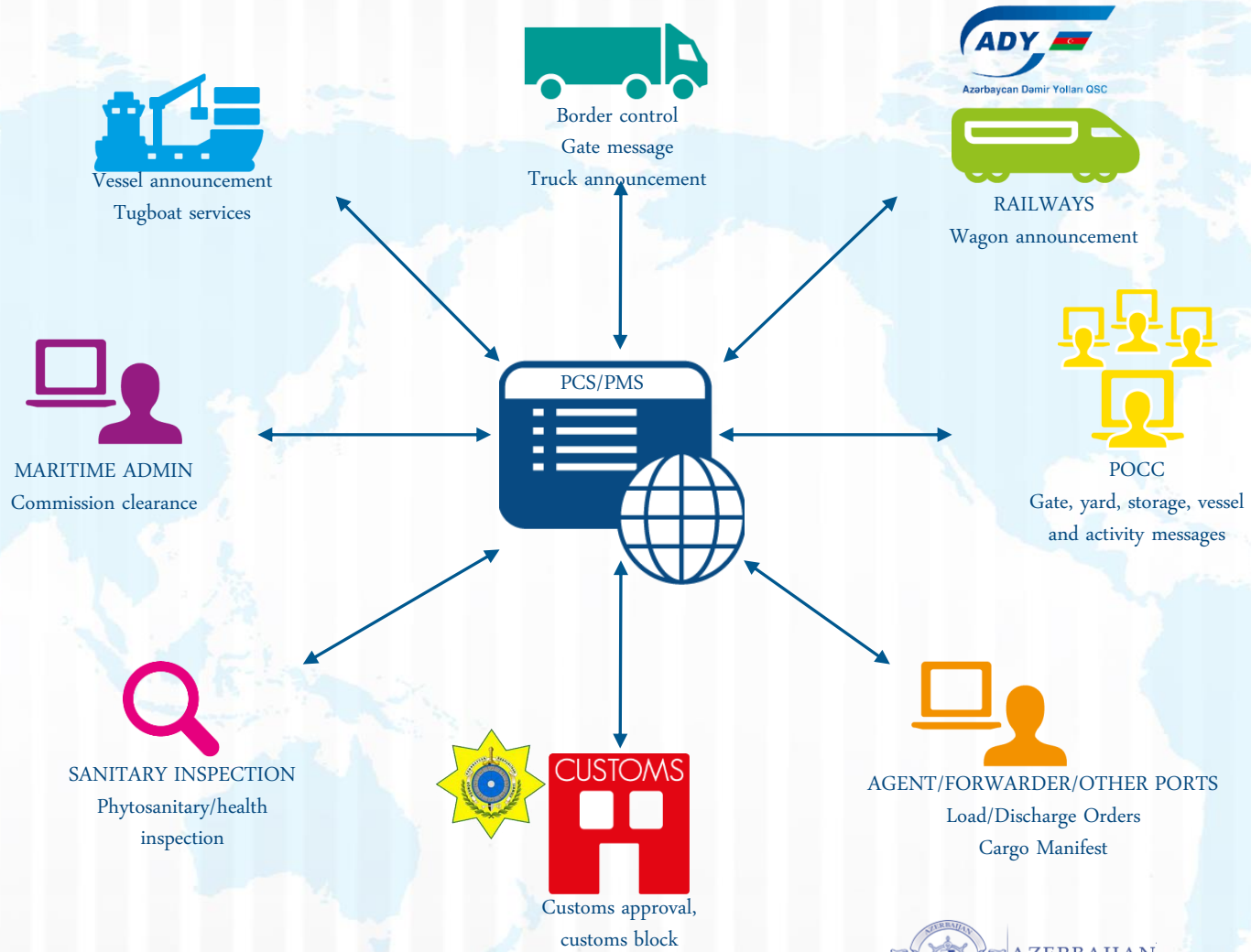
2) DIGITALLY INTEGRATED PROCESSES



PCS
Port Community System

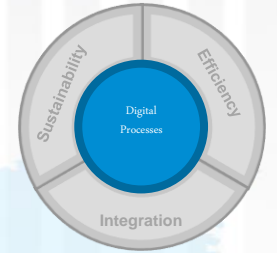
PMS
Port Management System

for **Port of Baku**

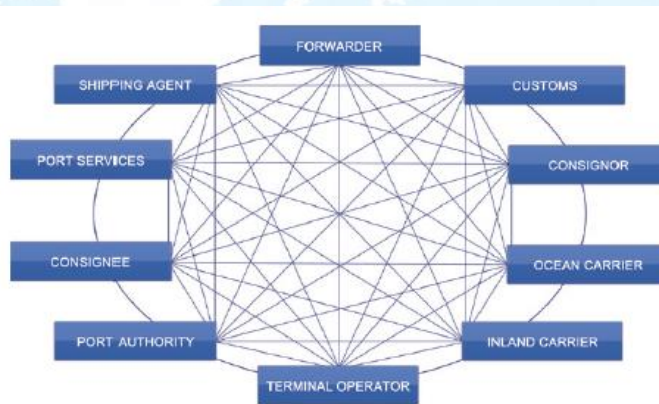


PCS: PURPOSE & BENEFITS

PCS glues together your community
and Connects it to the world



Without a PCS



With a PCS



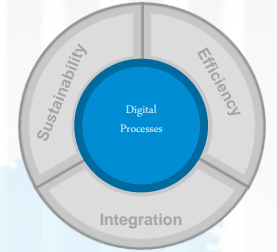
Port-Line is our PMS.

It is a web based platform to
automate and manage all operational
activities of Port Communities.

BENEFITS

- Speeds up the transit response time of goods through ports operations;
- Reduces costs to handle goods
- Speeds the response time of stakeholders to their customers;
- Reduces the usage of paper documents and forms by distributing information electronically;
- Improves track and trace efficiency;
- More efficiency, lower transit time, higher integration with third parties (e.g. Customs, Railways, ...)

PCS: MAIN FEATURES



The screenshot displays the PORT PCS interface for the 'Trucks' section. The main navigation menu on the left includes: Control Room, General Overview, Vessels, Trucks, RoRo, General Overview, Productivity Reports, Statistics Reports, Berth Management, Gate, Vessel, Vehicle, Rail, Cargo, Mutos, RoRo TOS, Planning, Billing, and Administration. The main content area is titled 'Trucks' and 'Displaying data for All ports'. It features several dashboards:

- Current truck visit status:** A donut chart showing categories: At the Gate (orange), Expected by Vessel (grey), Expected Gate Out (blue), and In Port (green).
- Current ITU status:** A donut chart showing categories: Loaded to vessel (dark blue), On Yard (red), Planned To Ground (light blue), and Ready to Leave (green).
- Truck visit per yard:** A bar chart showing visits for YRD1, YRD3, YRD4, YRD8, YRD9, YRD12, and FER.
- Current Import/Export:** A donut chart showing Export (orange) and Import (green).
- Trucks visit trend:** A line chart comparing 'Main Cargo Terminal' and 'Port of Alyat' from Jan 14, 2018, to 17.01.2018.
- Time in port** and **Itu in port** summary boxes.

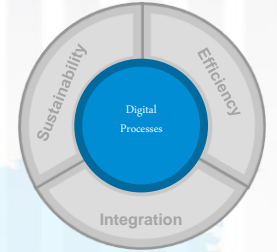
PCS is a platform integrating 3rd party software through EDI information exchange

Receives preliminary information about arriving trucks and wagons from AZ Customs or other port's system.

Offers to users an interface to announce cargo and vehicles.

Helps to find all the information related to a visit in one, easy to access location.

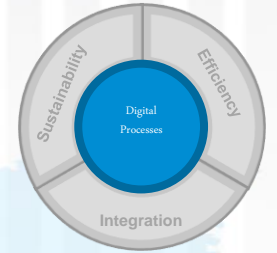
3) A FAVOURABLE LEGISLATION/ GOVERNMENTAL ENVIRONMENT



- ✓ A fully Empowered Port Authority to spread tools, rules and habits
- ✓ Simplified Goods “treatment” procedures (simplify customs procedures, allow pre-clearance at sea, ...phytosanitary inspections, clearance of hazardous goods, commission visits)
- ✓ Legal system recognising validity of Blockchain and Smart Contracts
- ✓ Free Trade Zones (favourable taxation,)
- ✓ Licensing/availability of frequencies to allow info distribution/collection coverage
- ✓ Laws imposing “greenness” (OPS, LNG, ...)



4) A CONVINCED ADOPTION IS KEY

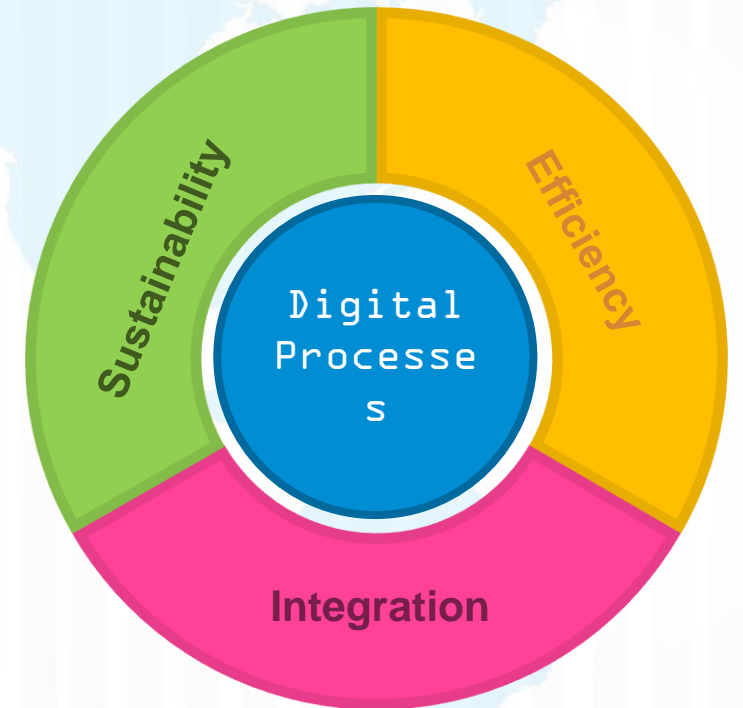


- ✓ Any digitization process not foreseeing **involving and training people** to recognise the usefulness of a technology, is doomed to fail and will fail
- ✓ Agile software development is key to processes varying over time and natural human resistance to changes
- ✓ **Adoption** of technology by people on the ground is key

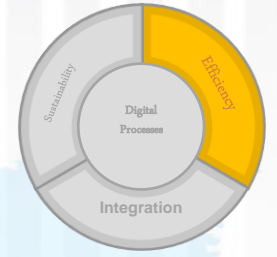


SMART PORT: necessities

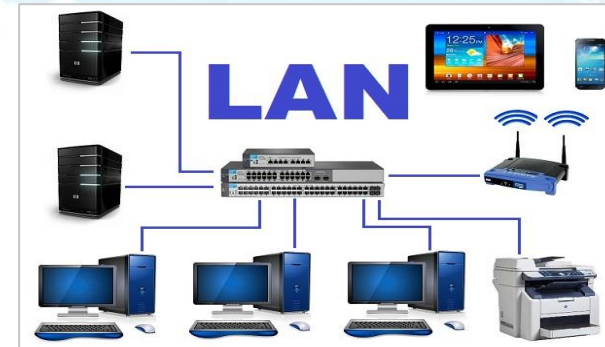
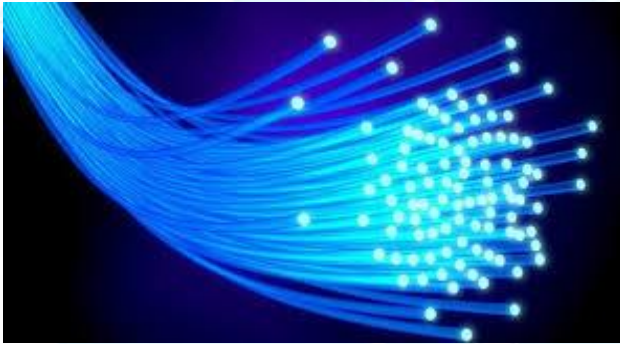
1. A set of Enabling **technologies**
2. A “helpful”, connected, sensorized port **Infrastructure** designed according to operation optimisation principles
3. **Electronic Data exchange** along the entire supply chain
4. An **environmental** friendly and **energy efficient** approach



1) ENABLING TECHNOLOGIES



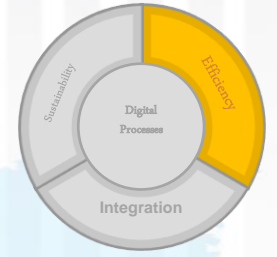
- Basic **Connectivity** and **ICT Infrastructures** like e.g.
 - Fibre, WiFi, 3-4-5G, Data Centres, LAN-WAN Internet connectivity



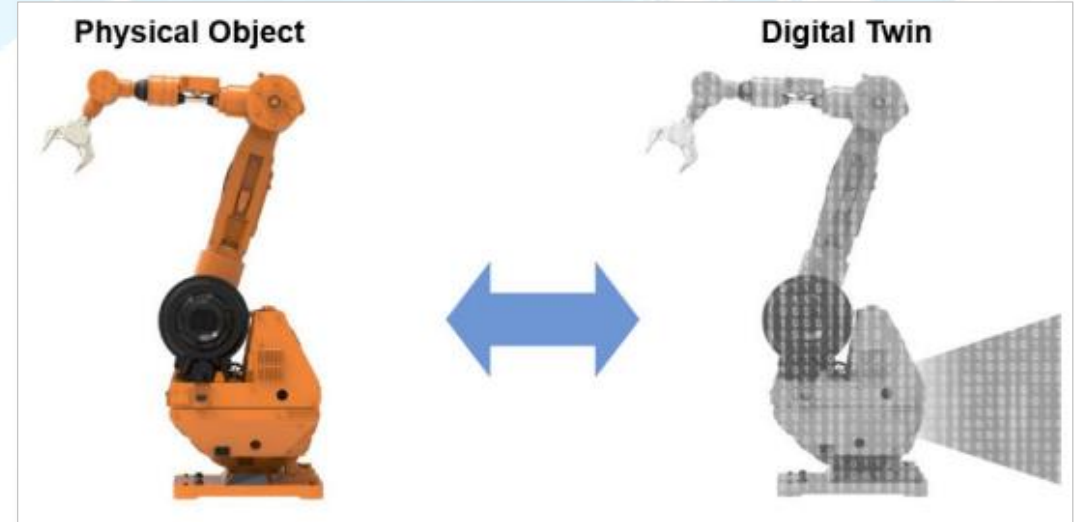
- **Operations** related technologies like e.g.
 - Automation in cranes (RMG), vehicles (AGV), land side yard automation, HH and VM devices



1) ENABLING TECHNOLOGIES



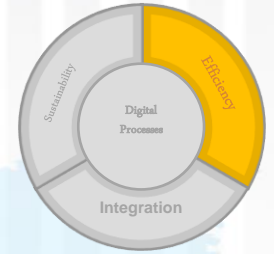
- Virtual and Augmented Reality, 3D sw and hw / Voice activated commanding / Digital Twin



- 3D printings (metal)

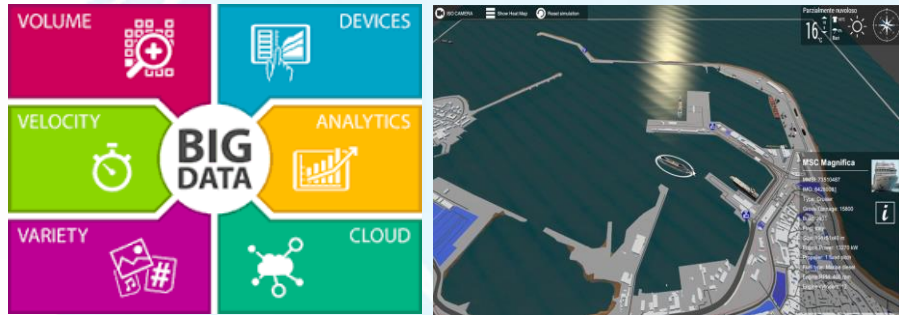


1) ENABLING TECHNOLOGIES



- **Big Data** handling technology to store and **DSS** algorithms, **Machine Learning** and **AI** to use collected information to analyse and optimise KPIs in different ports, use collected statistical data to “**predict**” and to better organise

3D isometric representation



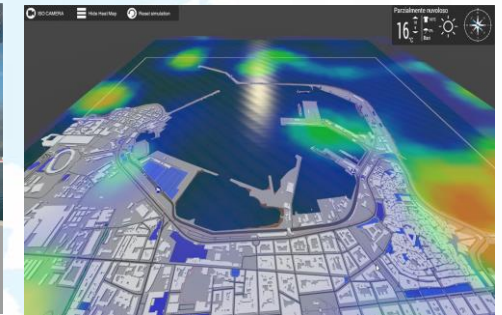
Distributed sensors



Different views



Pollution prediction



- **IoT** sensors, tracking - tracing technologies like e.g.
- **RFID/GPS/SIGFOX/LORA**



1) ENABLING TECHNOLOGIES

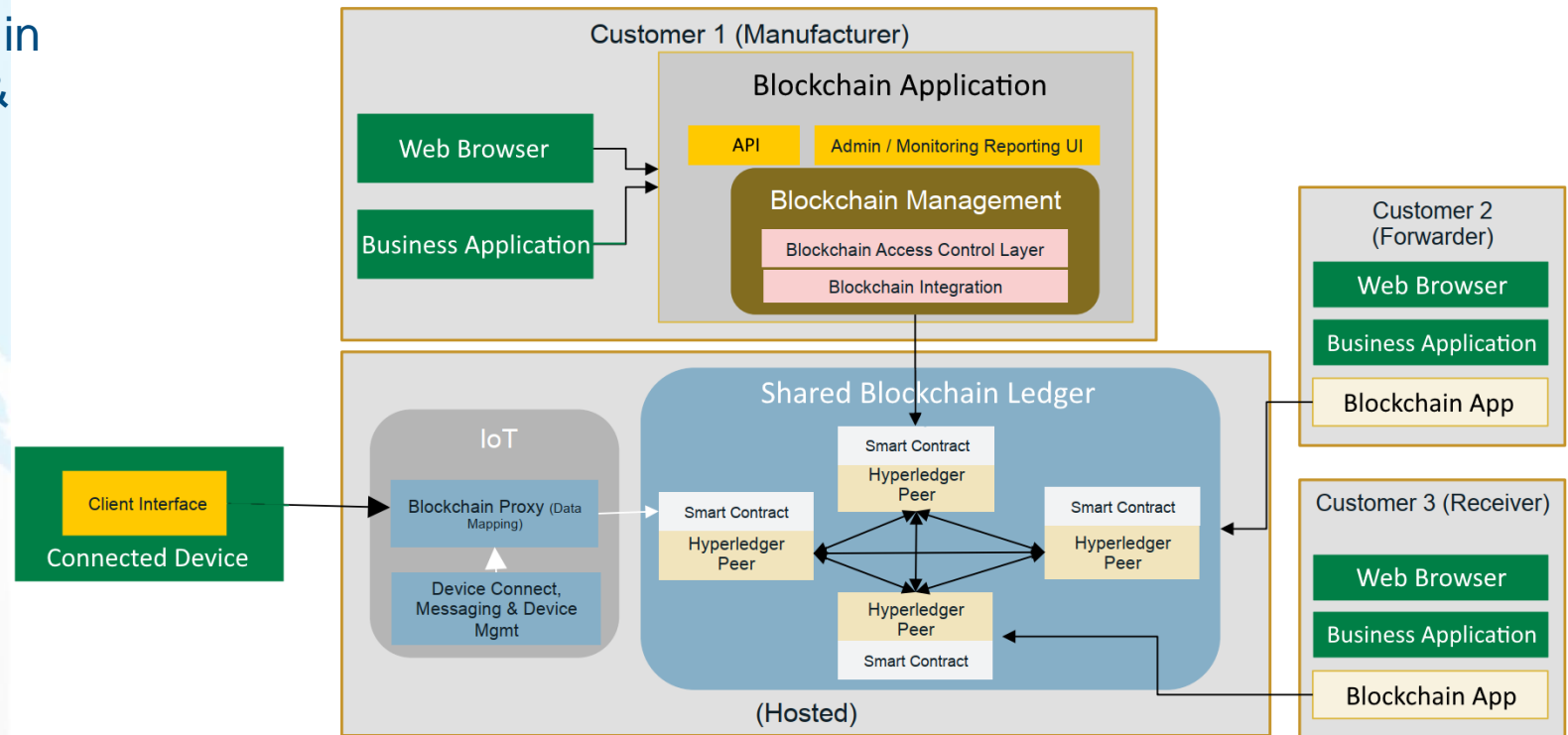
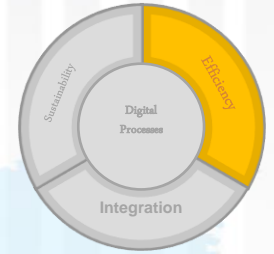
Blockchain for Business

Shared Ledger: Append-only distributed system or record shared across business network

Smart Contract: Business terms embedded in embedded in transactional database & executed with transactions

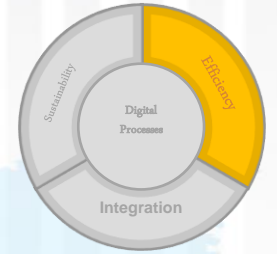
Privacy: Ensuring appropriate visibility and security; authenticated & verifiable

Consensus: all parties agree to network network verified transactions



1) ENABLING TECHNOLOGIES

Blockchain Maritime Use cases



Bill of Lading: electronic equivalent of BL with document trail visible to visible to everybody involved, with no delays and zero chance of loss, theft or damage

Cargo Tracking: distributed ledger of cargo movements with visibility of visibility of cargo's last location and time to process in various transport phases



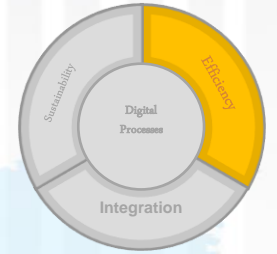
Insurance: faster method of insurance agreements and claim settlement settlement

Certificates: transparent and verifiable method for management and insight and insight of certificates of origin and phytosanitary status of cargo



... and more usage cases to come in the future

2) "HELPFUL" CONNECTED, SENSORIZED INFRASTRUCTURES

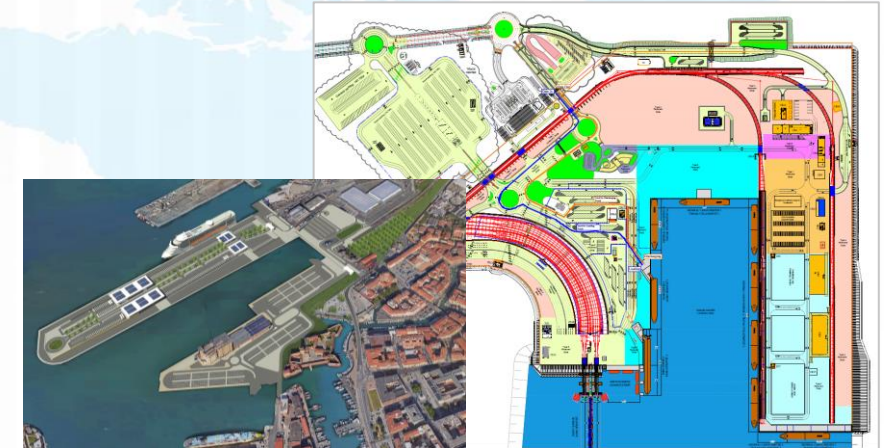


Automated Gates IN-OUT Trieste, Baku, Koper, Ploce

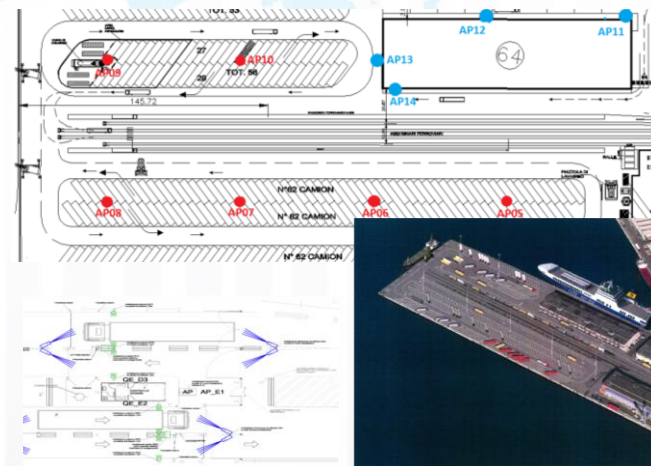
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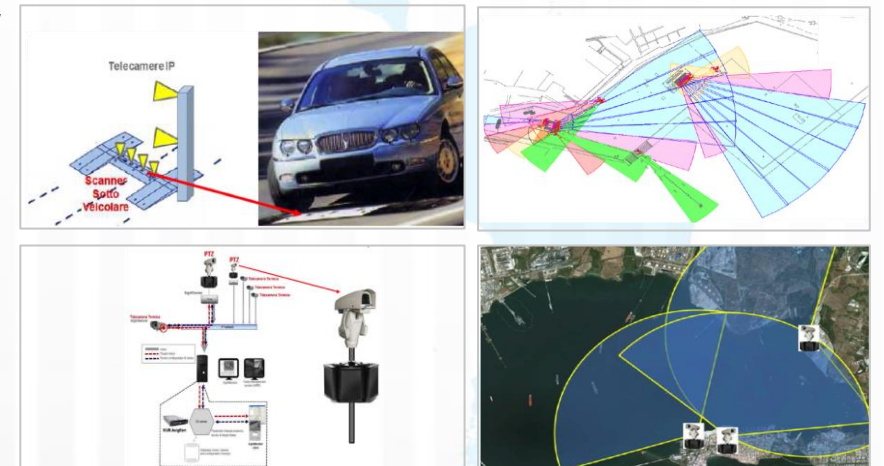
Masterplanning Livorno



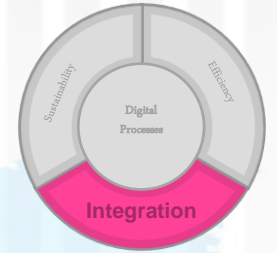
Optimised Connected Yard Trieste



Security Augusta




3) INTEGRATION



EDI messages


UN/EDIFACT

United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport





Created in 1987, UN/EDIFACT is a standardized language for data exchange, providing:

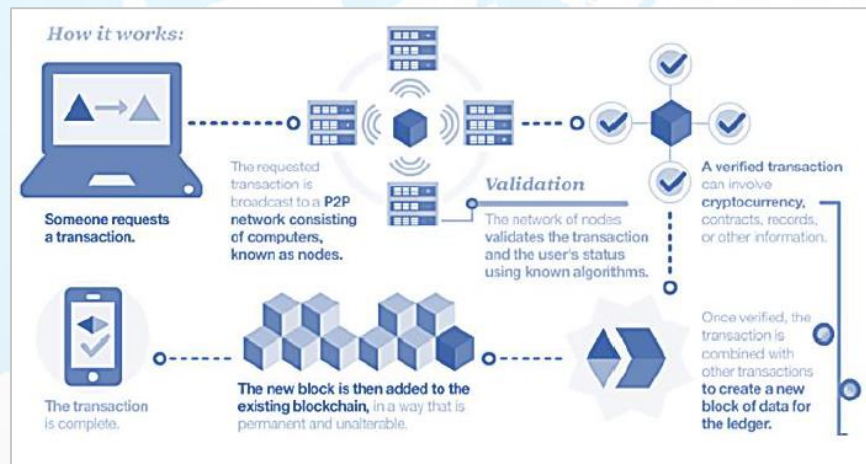
- a set of **syntax rules** to structure data
- **standard messages** which allow multi-country and multi-industry exchange
- an interactive **Electronic Data Interchange protocol (i-EDI)**



UN/EDIFACT is used by **100,000** traders in the retail sector alone

Block Chain Technology



Shunting optimisation



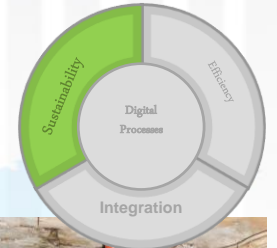
Customs



Cyber security



4) ENVIRONMENT AND ENERGY



DBA DSS: Pollution monitoring and prediction (water, air, noise)
Bari

3D isometric representation



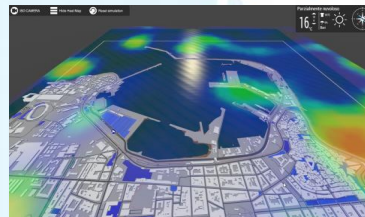
Different views



Distributed sensors



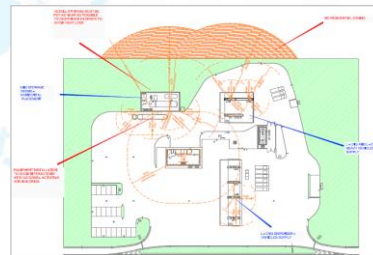
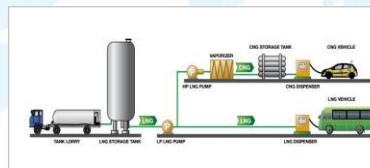
Pollution prediction



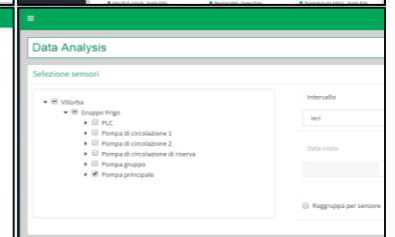
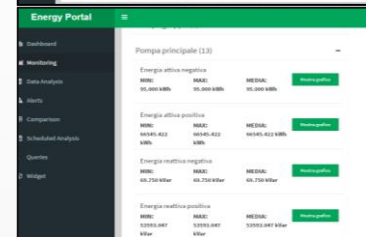
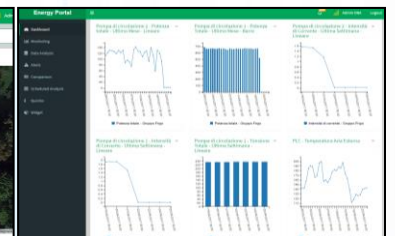
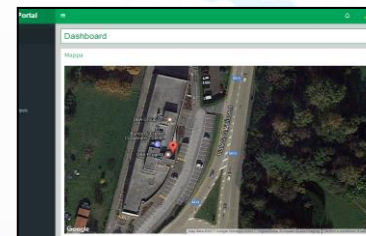
Cold Ironing
OPS
Genova



LNG
La Spezia

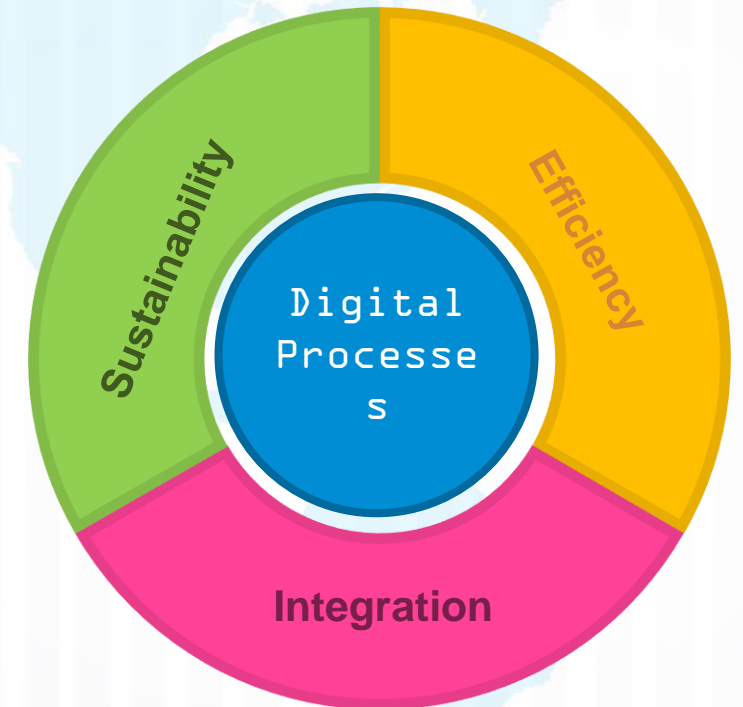


DBA SET: Energy,
water, waste
monitoring and savings



CONCLUSIONS

- ✓ **Digitise all Processes** through a PCS to collect data, share information and integrate all already existing systems
- ✓ **Automatize Terminals** (General Cargo, Container, RoRo, RoPax...)
- ✓ **Sensorize (IoT and Big Data) and analyse (BI)**
- ✓ **Be sustainable (Environment and Energy)**



This is
no small
project.

That's why we're doing it.

GROUNDUP
VISIONARIES

THE HARVARD COMPANY



WE'RE READY
FOR YOUR
PROJECT

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