PORTFORWARD
TOWARDS A SMART INNOVATION FOR THE EU PORT OF THE FUTURE

Christian Blobner, Olaf Poenicke | April 23, 2021

PortForward

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PortForward
Main objectives

Smart Port Solutions
employing ICT solutions to improve information flows between ports and port communities

Green Port Solutions
Adopting green technologies to reduce the environmental impacts of port operations and save resources
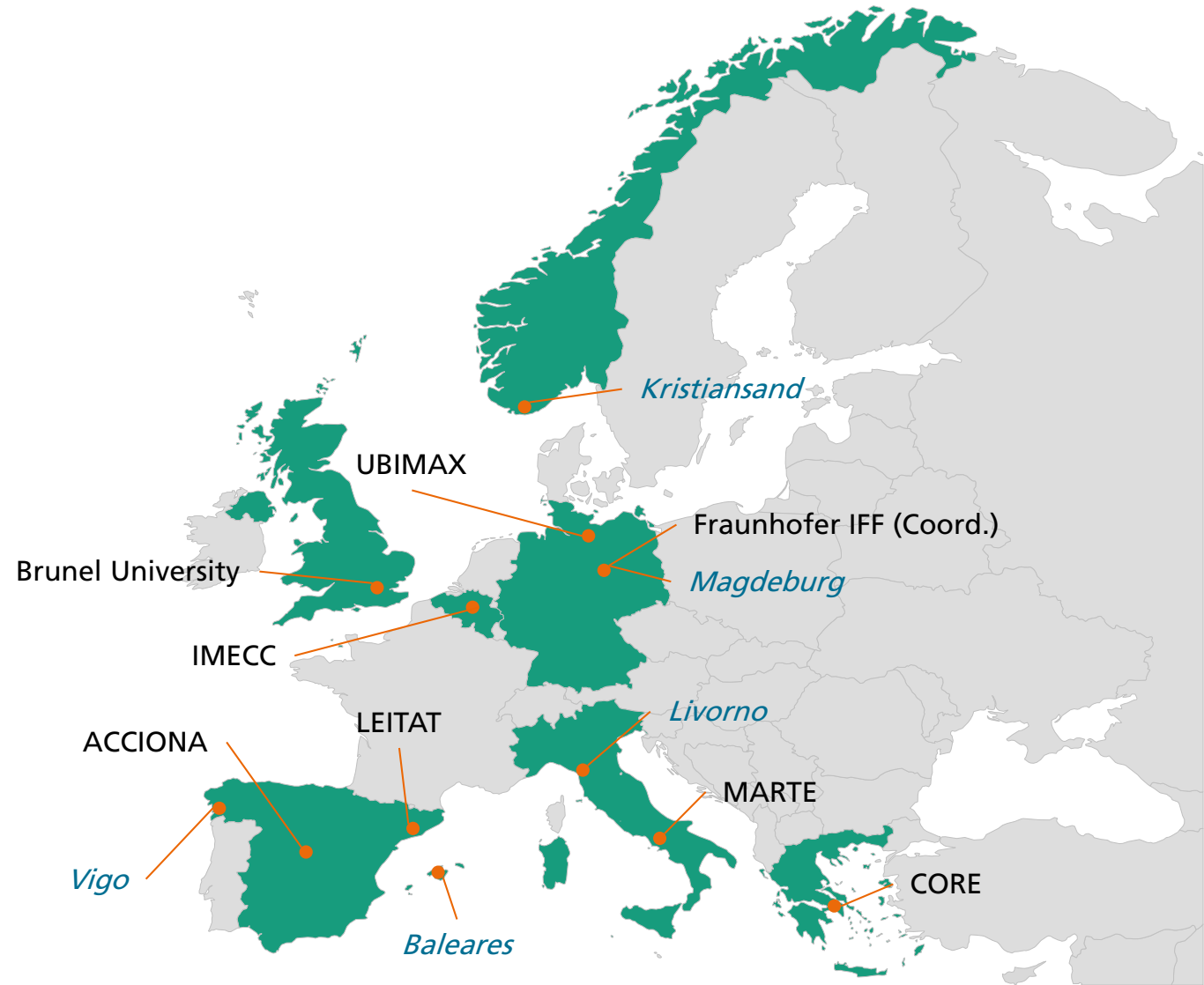
Interconnected Port Solutions
Integrating different technologies to better monitor and control freight flows

Focus of the project is on small and medium sized ports and their specific requirements
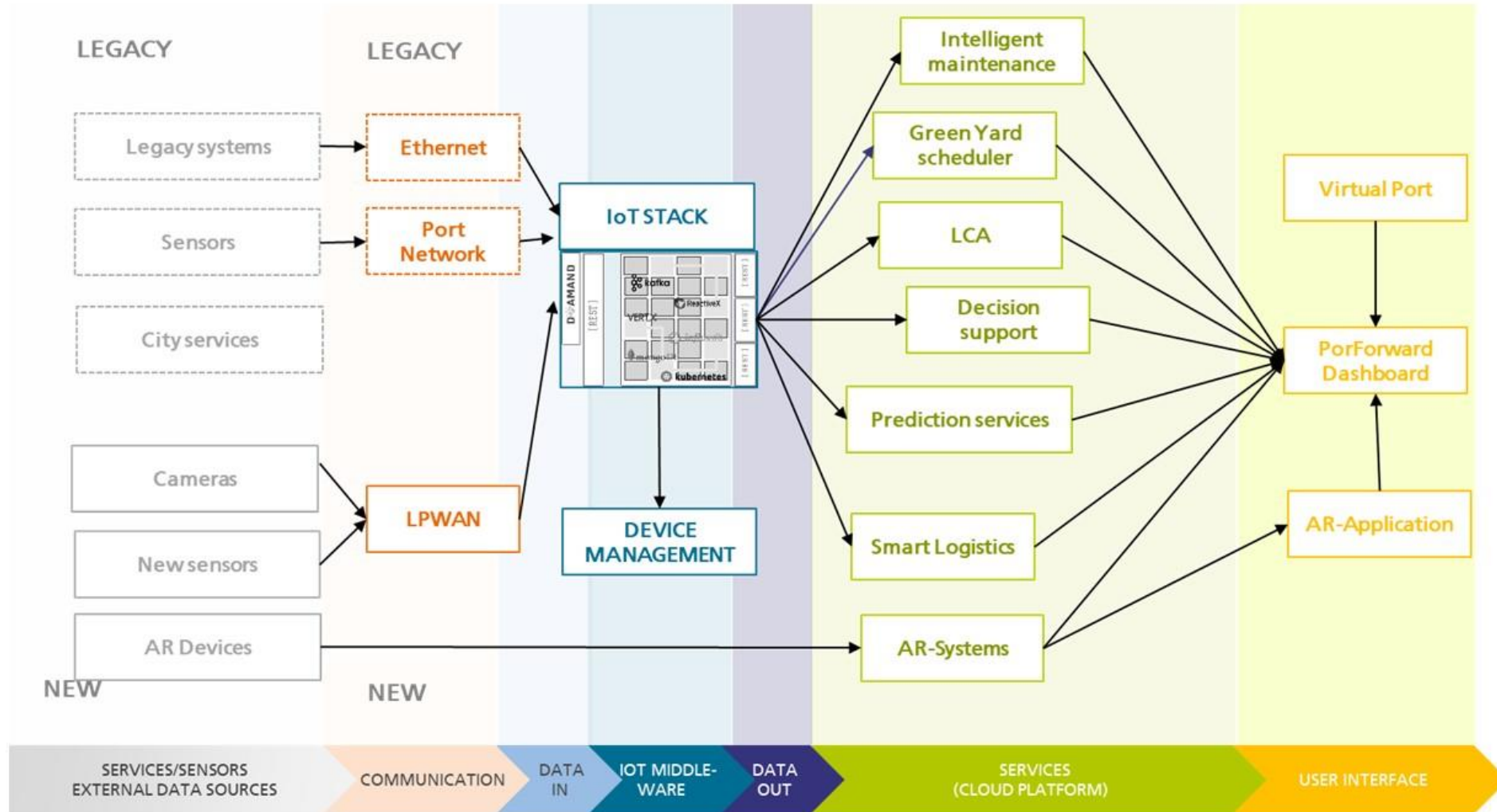
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Project overview

- Project duration
  - July 1, 2018 – December 31, 2021 (42 Months)
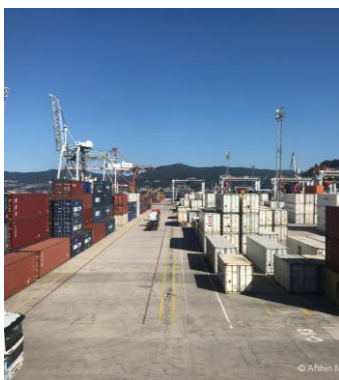
- Project Budget
  - €4,994,311

Kristiansand

UBIMAX

Fraunhofer IFF (Coord.)

Brunel University

Magdeburg

IMECC

Livorno

ACCIONA

LEITAT

MARTE

Vigo

Baleares

CORE

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But what is PortForward
A picture for a thousand words – technical architecture

How does PortForward work
Close cooperation between ports and research partners

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How does PortForward work
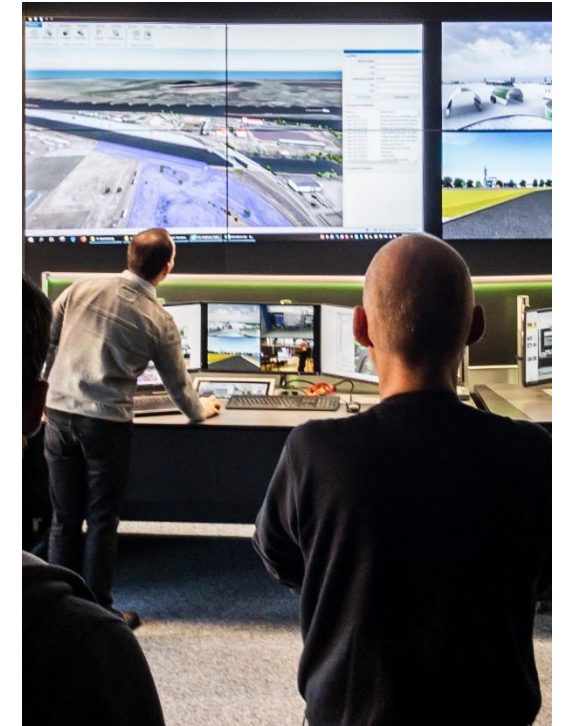## Close cooperation between ports and research partners

Area and infrastructure planning, marketing

Test and use of innovative technologies

Training, acceptance for digital transformation

Optimization and control of processes and infrastructure

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PortForward Use Cases
Green Yard Scheduler (GYS)

The GYS is a decision support system for more efficient and sustainable container terminal operations.

Project use case @ Vigo Container Terminal

Increase the container terminal **productivity**

Reduce the carbon footprint of the terminal

Integrate with the terminal operating system

Harmonise container yard operations

Terminal Operating System

Green Yard Scheduler

Yard Crane Scheduler

Container Pre-Marshalling

Container Positioning

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PortForward Use Cases
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Project use case @ Vigo Container Terminal

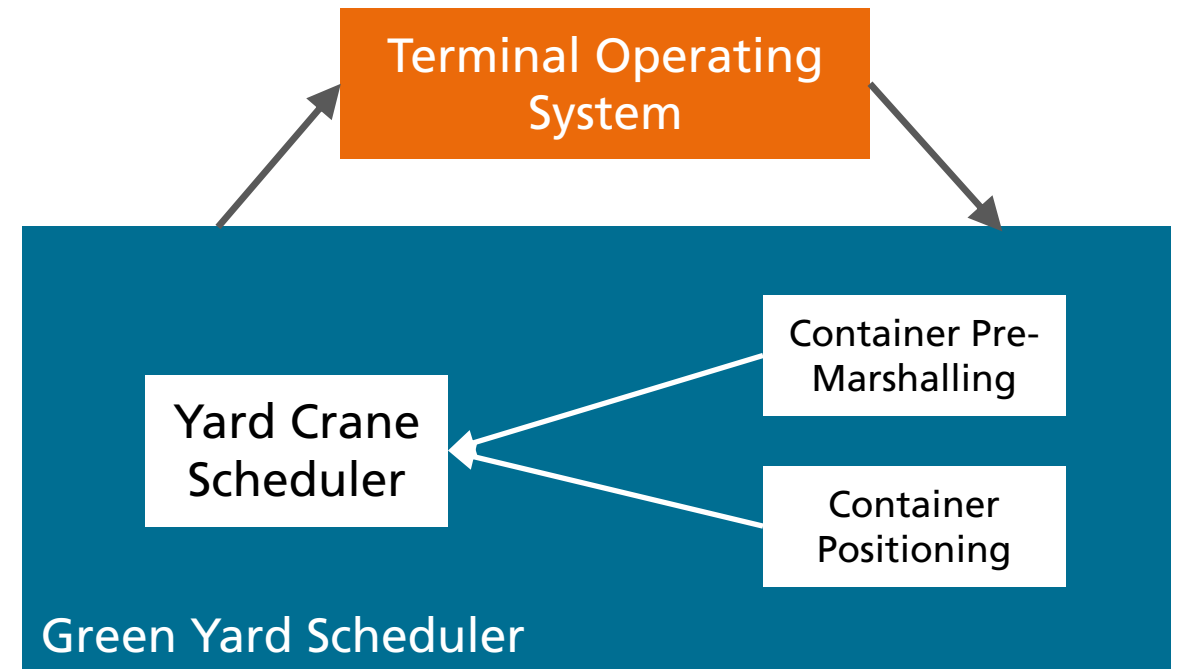**Increase** the container terminal productivity

Reduce the carbon footprint of the terminal

Integrate with the terminal operating system

Harmonise container yard operations

T5.1 SUSTAINABILITY ASSESSMENT (INITIAL RESULTS)

Carbon footprint: 45.549 kg CO_2 eq. / TEU

1	2	3	4	5
21.308 kg CO_2 eq.	14.161 kg CO_2 eq.	4.584 kg CO_2 eq.	4.048 kg CO_2 eq.	1.448 kg CO_2 eq.
47%	31%	10%	9%	3%

------------------ Focus of GYS ------------------

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PortForward Use Cases
AR-based Remote Assistance

AR-Smart Glasses are used to provide container information to terminal workers for container inspection. **Project Use Case @ Port of Livorno**

Container information and status provided by legacy system.

Terminal workers get remote information about required actions – e.g.:

- Open container

- Take picture

- Locate container

- Etc.

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PortForward Use Cases
Dynamic Storage Space Monitoring (DSSM)

The DSSM is a technical solution to monitor the occupation storage spaces in multi-purpose terminals.

Project Use Case @ Hanse-Terminal, Inland Port of Magdeburg

Multi-purpose terminals are used for storage and handling of various types of cargo – making the management of storage locations complex

A **Virtual Twin Model** of the Port is used to dynamically display the occupation of storage spaces in a **Virtual Storage Space Grid**

LiDAR sensors will be used to capture 3D infor-mation of the current state and to locate and classify stored objects for the Virtual Twin

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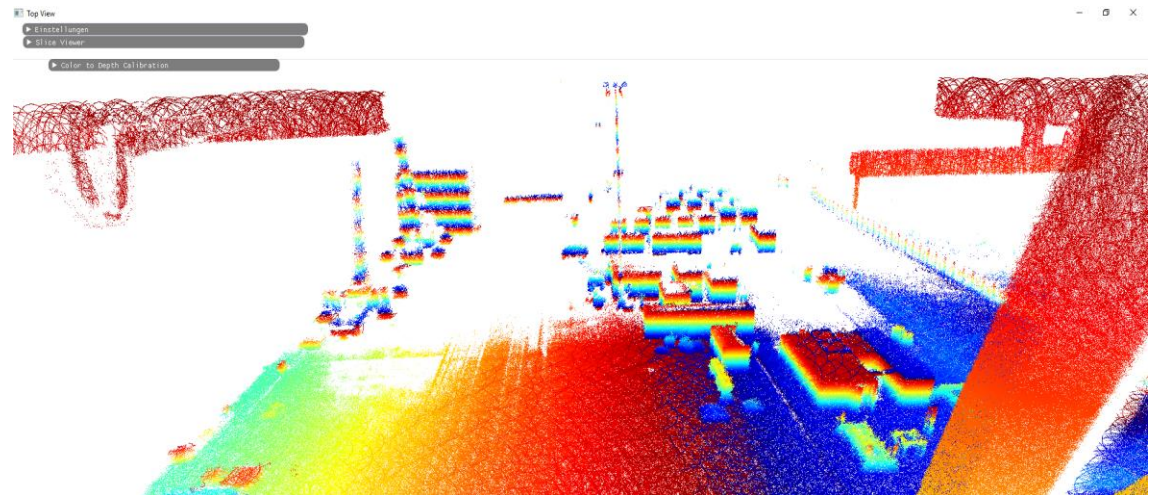
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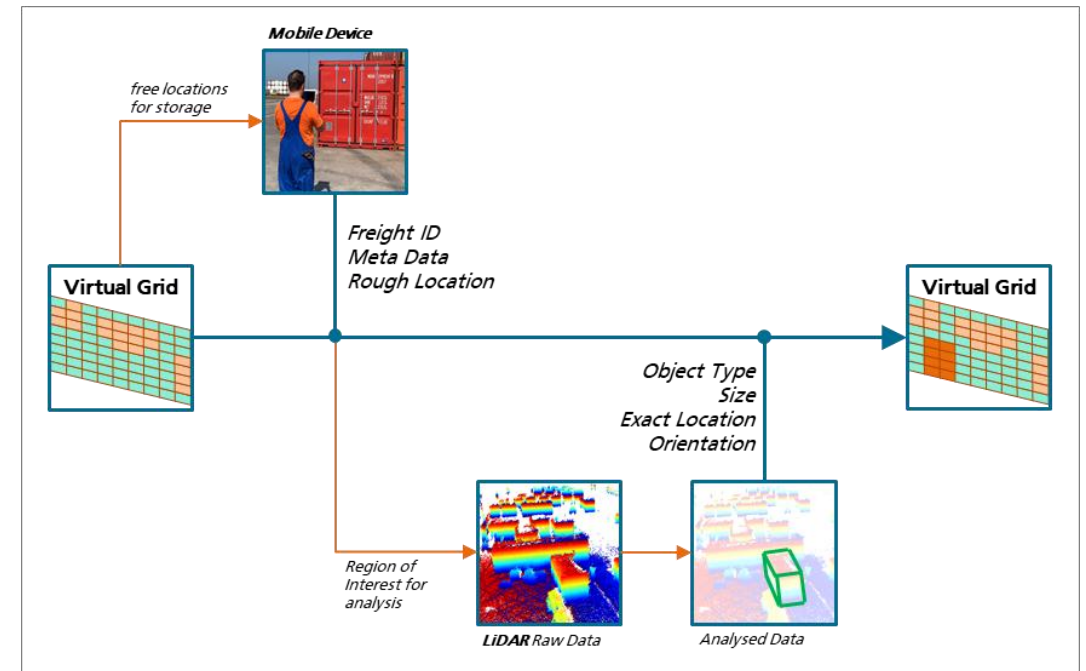
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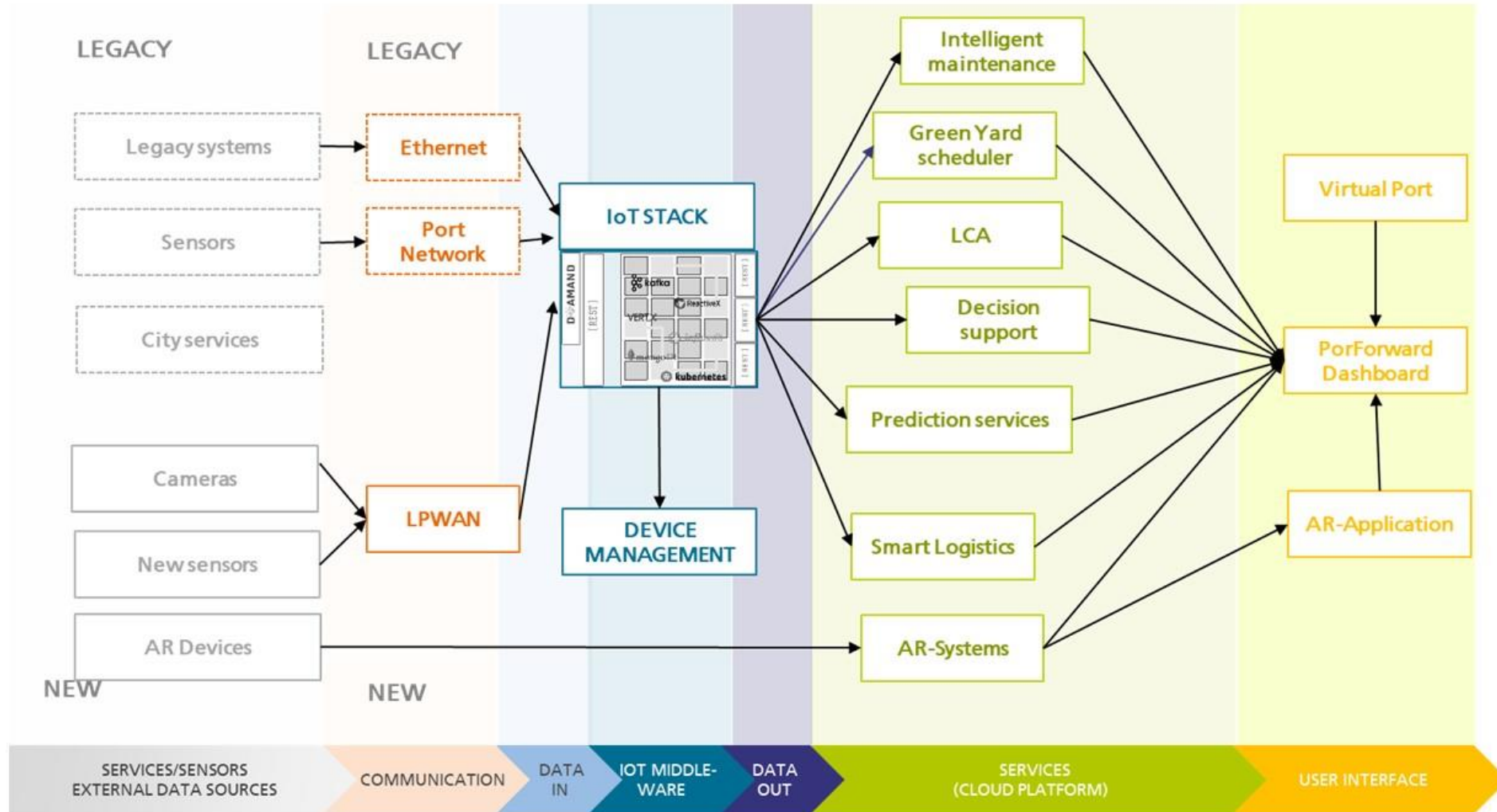
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More information
The PortForward website

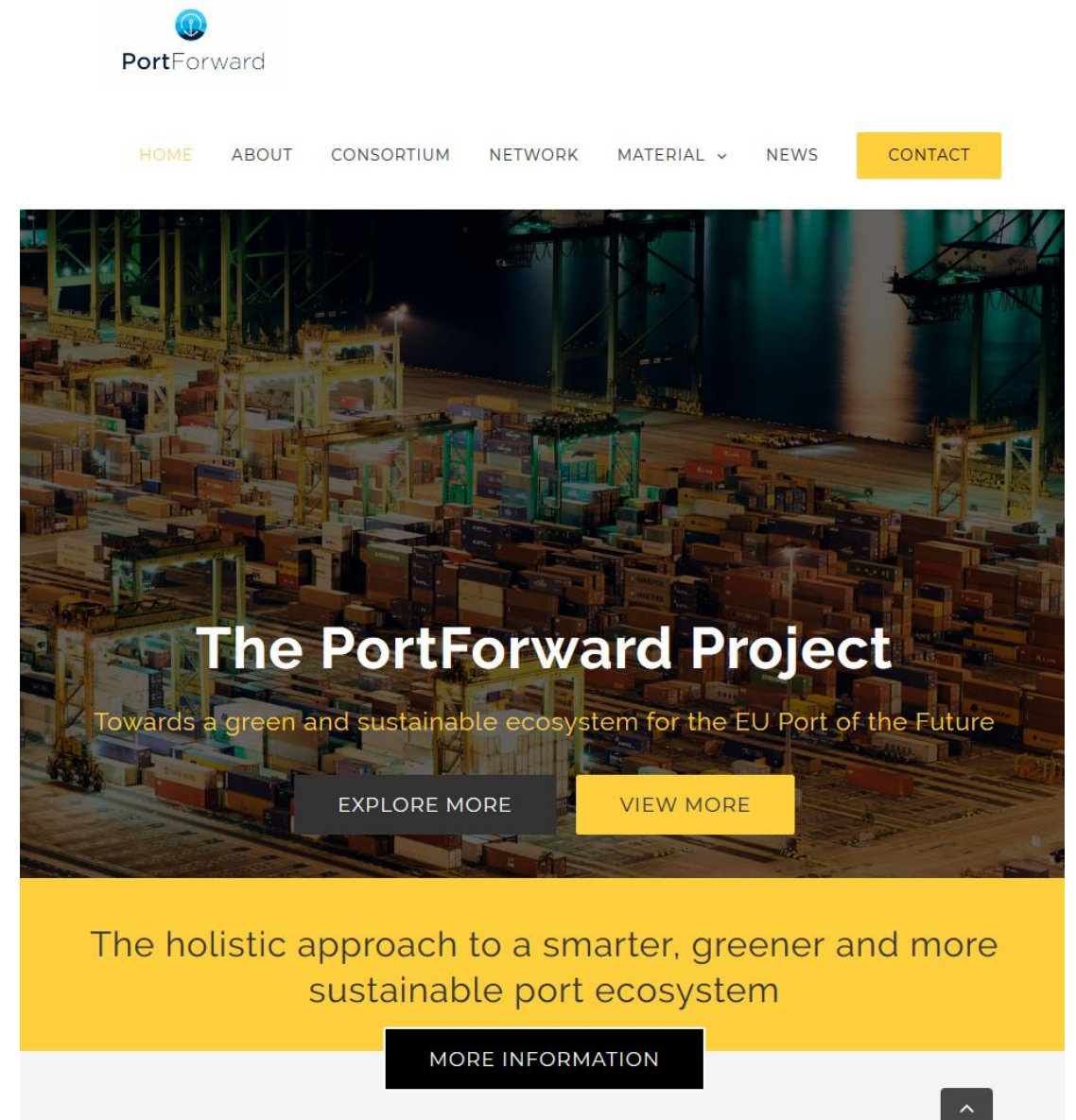Visit us at:

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