PortForward
Sustainable Port Operations

TRA2020 Online Seminar
»The Future of Ports«

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Online, June 23, 2020

TRA 2020 TRANSPORT RESEARCH ARENA HELSINKI

Rethinking transport
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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

Combining different modes of transport integrating of different technologies to better monitor and control freight flows

The PortForward project receives funding in the European Commission's Horizon 2020 Research Program under Grant Agreement Number 769267

PortForward

Project overview

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

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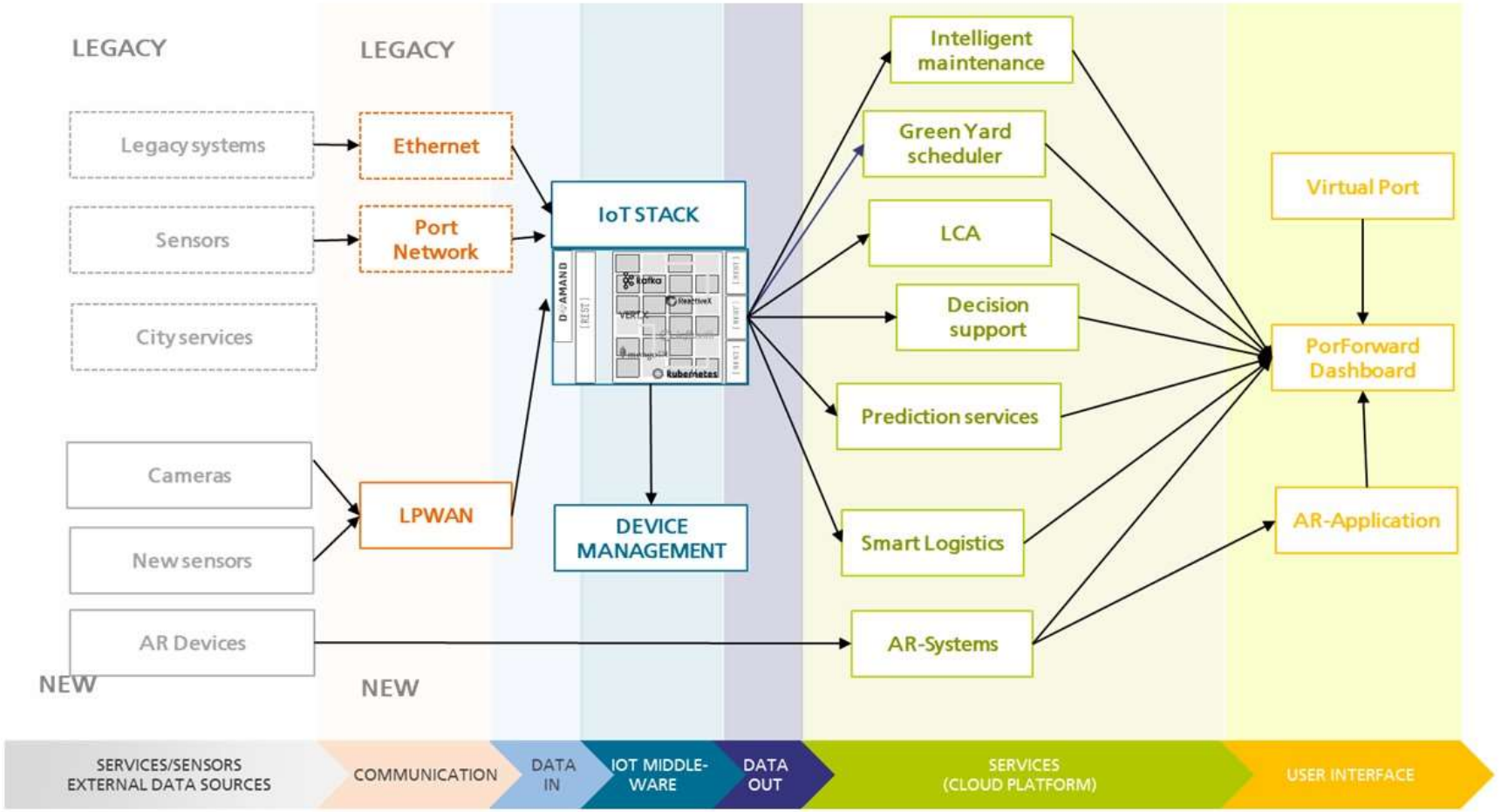
But what is PortForward

A picture for a thousand words – Technical Architecture / Value Proposition



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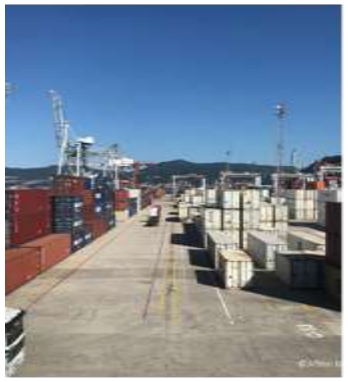
How does PortForward work

Close cooperation between ports and research partners



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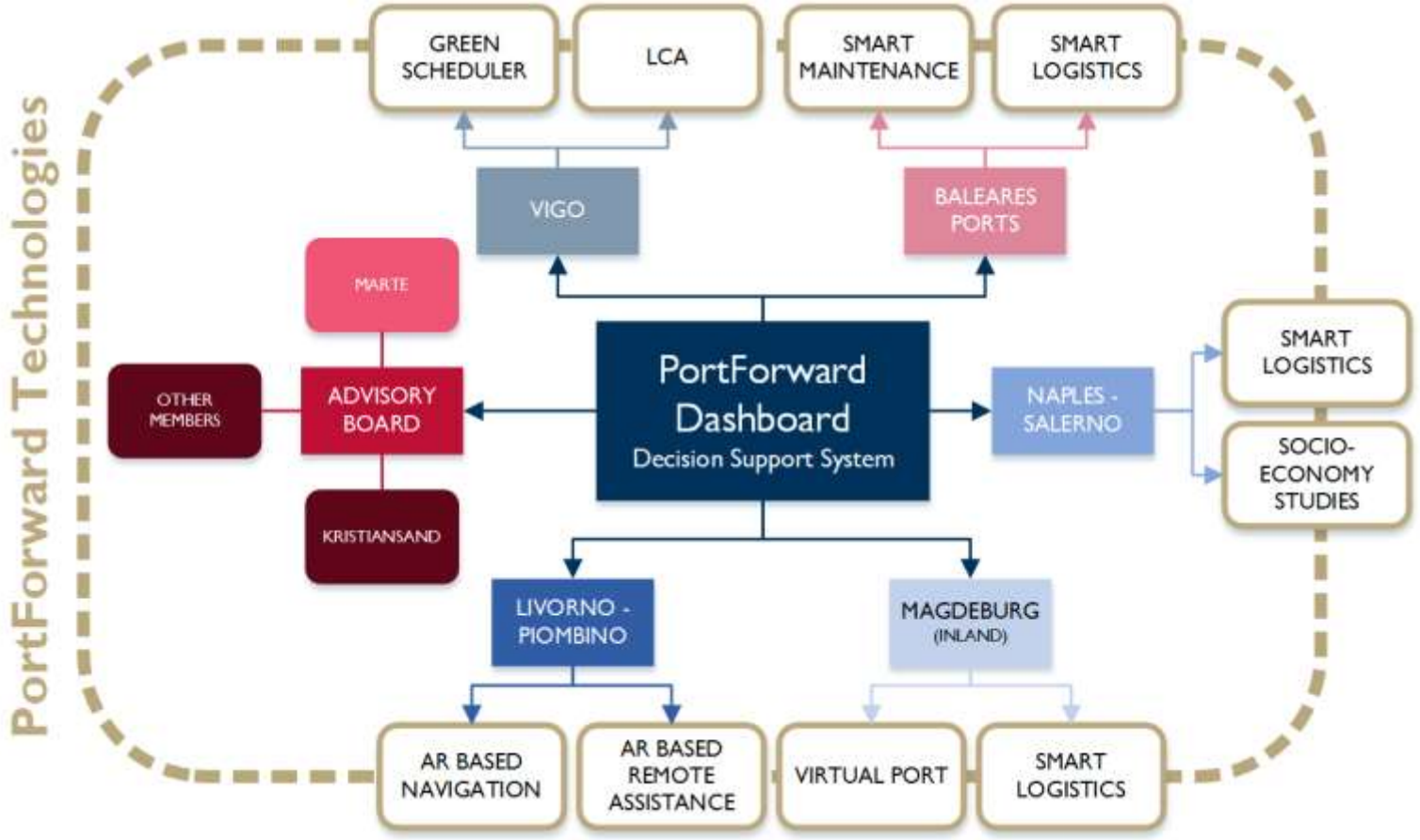
How does PortForward work

Use case oriented approach



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Use Case Vigo - Green Yard Scheduler

What is the Problem, we are looking at

Reorder containers in the storage yard to eliminate relocations during peak hours

Assign slots to inbound and outbound containers in the storage yard

Determine the allocation and scheduling of terminal operations to yard cranes

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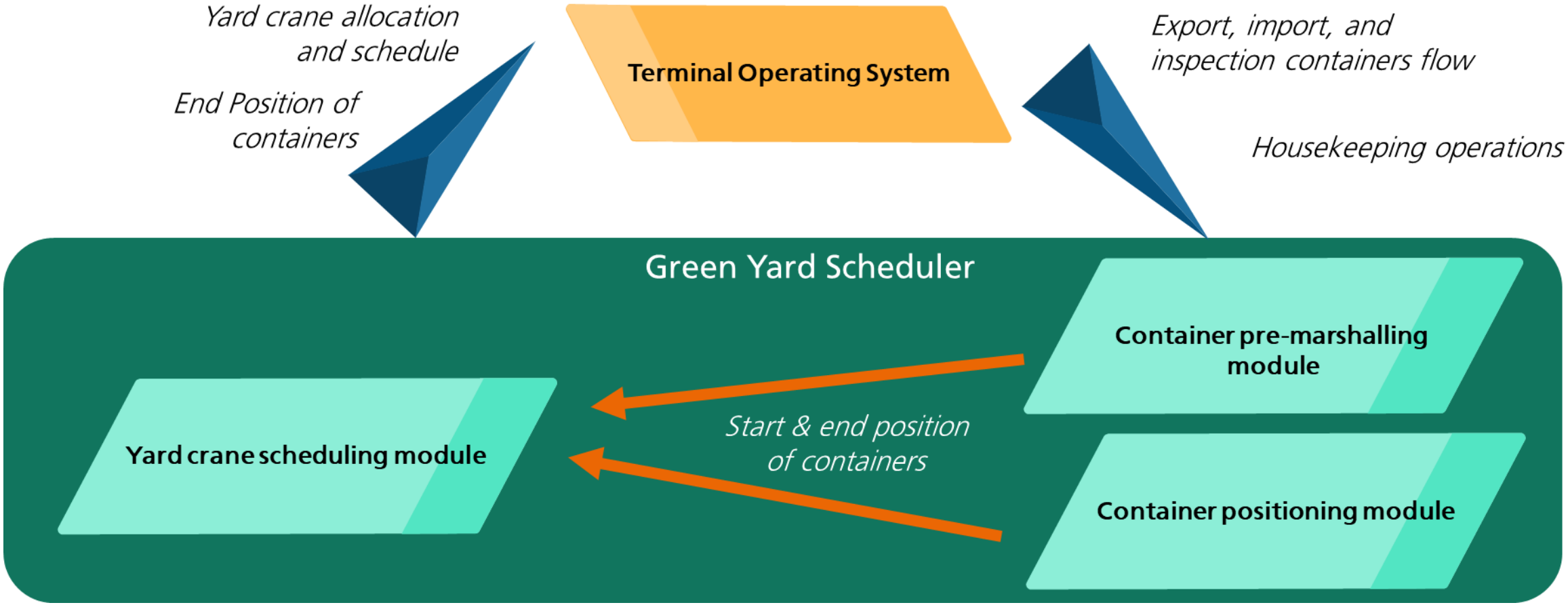
Use Case Vigo - Green Yard Scheduler

Bringing Sustainability into the equation



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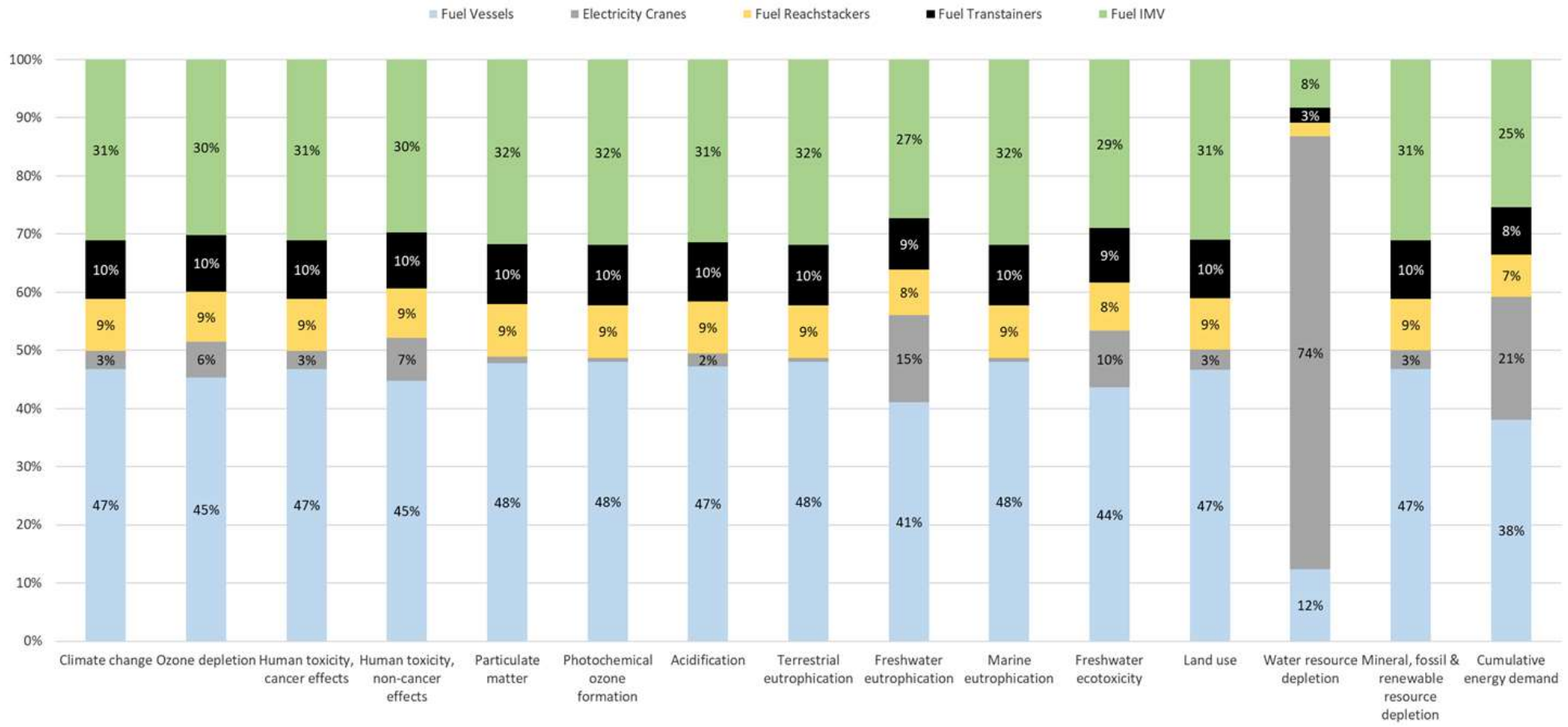
Use Case Vigo - Green Yard Scheduler

Developing the LCA Baseline Scenario – Environmental Indicators first



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Use Case Vigo - Green Yard Scheduler

Developing the LCA Baseline Scenario

Carbon footprint: 45.549 kg CO_2 eq. / TEU

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%**

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Use Case Vigo - Green Yard Scheduler

Preliminary calculations and simulations

01 Container pre-marshalling

Energy savings can be achieved without disrupting the operational efficiency of the terminal

4-6% energy reduction

02 Container positioning

The performance- and sustainability-oriented objectives conflict with each other

13-34% energy reduction in expense of soaring reshuffles

03 Yard crane scheduling

The performance- and sustainability-oriented objectives conflict with each other

Up to **38%** energy reduction in expense of greater delays

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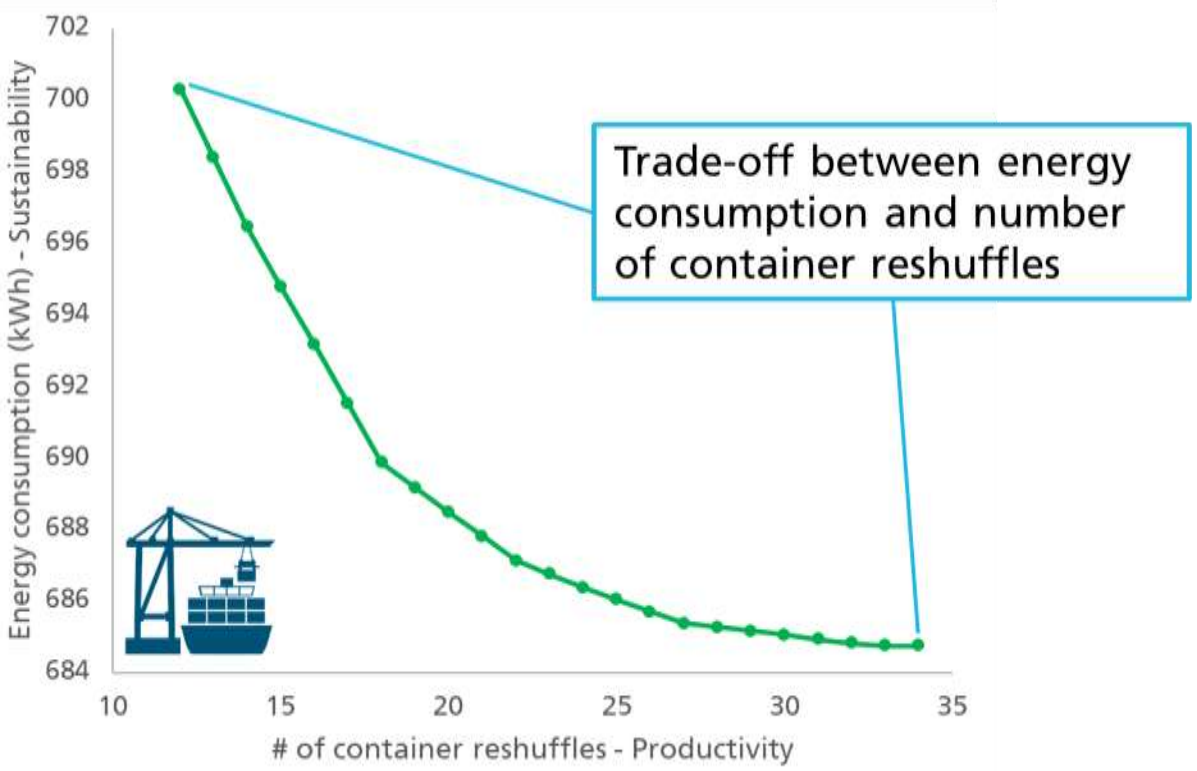
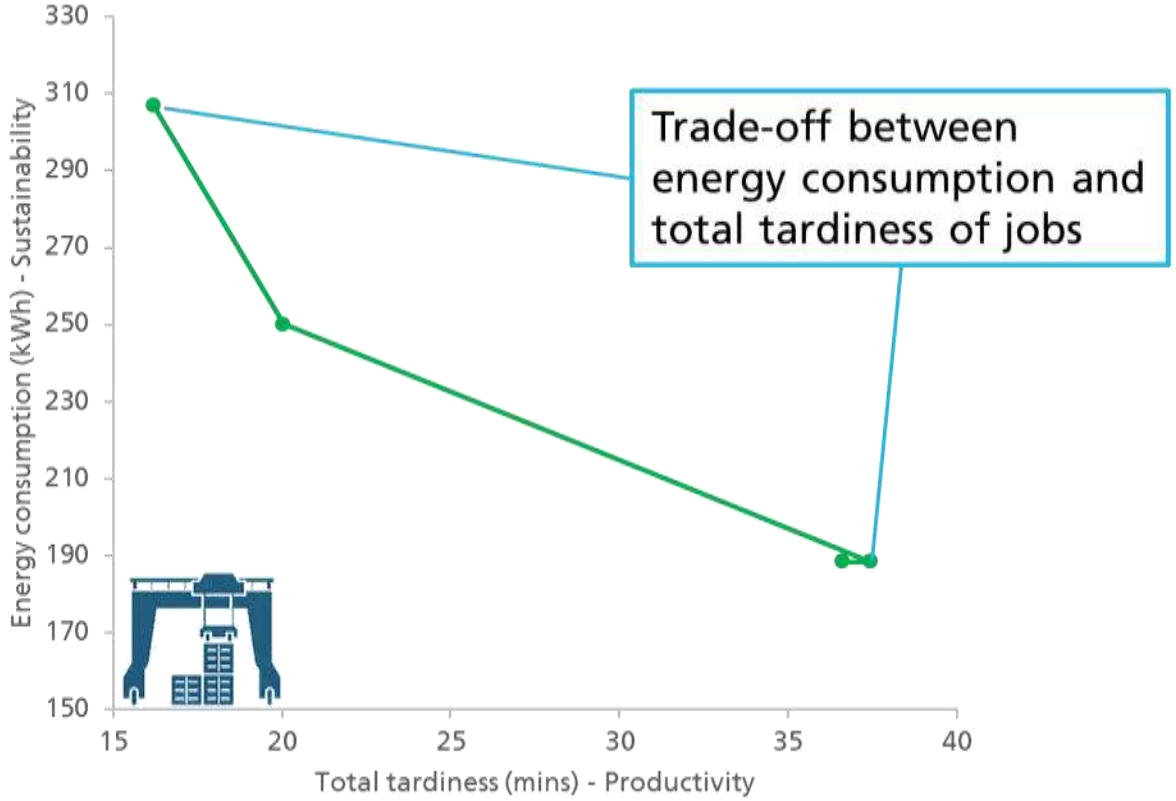
Use Case Vigo - Green Yard Scheduler

Trade offs are necessary based on strategic direction





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More information

The PortForward website

Visit us at:

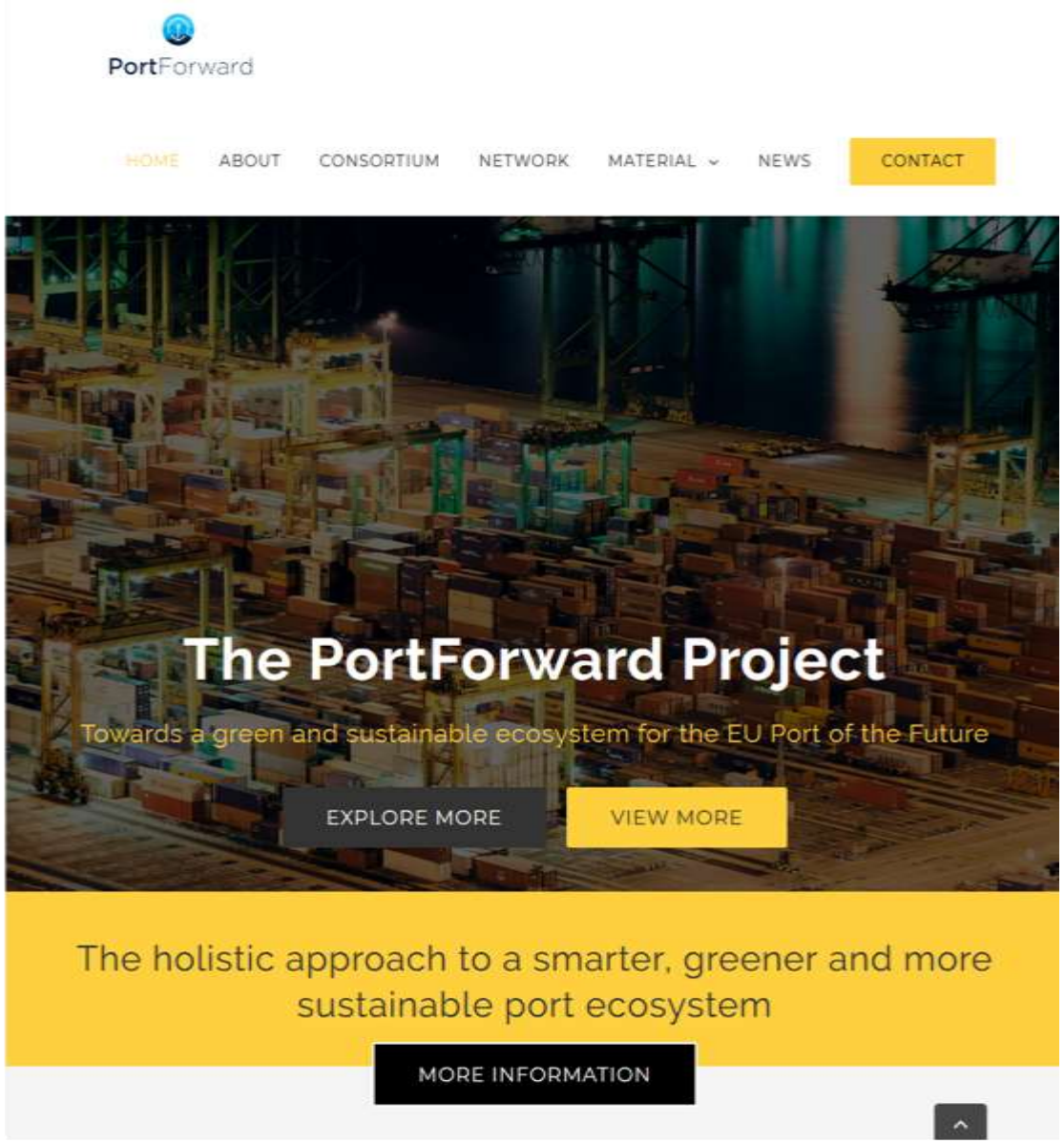
www.portforward-project.eu

Social media:

portforward-project

@portforward_eu

Get the latest project news, access to project dissemination materials and public deliverables.



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PortForward
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