



COREALIS Livorno Demo/Training Webinar

5G Impacts on Port of Livorno Logistics

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June 19th, 2020



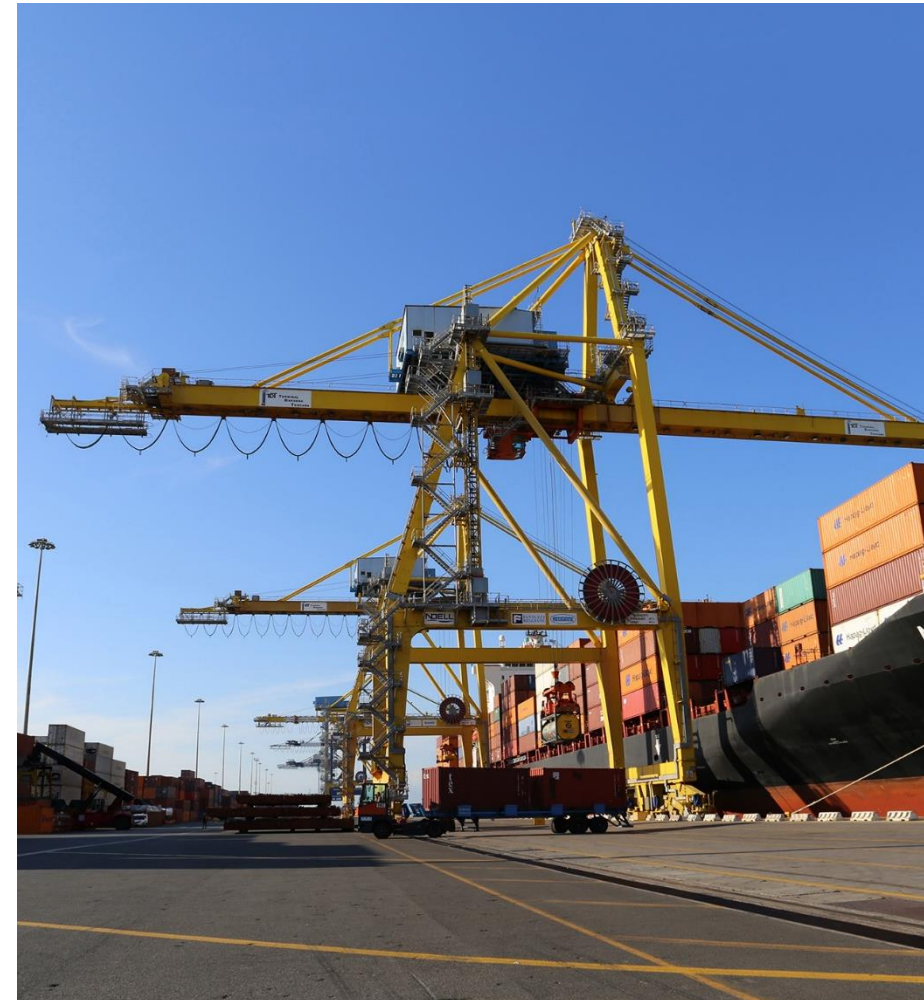
The challenges for next generation ports

- Ports are complex and busy environments
- One of the greatest challenges is how they can become more efficient, productive and sustainable
- 5G networks and digital technologies are crucial to addressing these challenges and transforming port operations

How ports realize benefits for people, economy and environment at the early steps of digital transformation?

Is it possible to forecast enabled impacts of innovative actions to guide decision making of ports to become a sustainable port of the future?

Ericsson, Port of Livorno, CNIT and FEEM developed a model and quantitative insights based on COREALIS RTPORT use cases





Sustainability in seaports

- **Adapting traditional business models** to be more cost-effective, and socially and environmentally sustainable is becoming increasingly important
- **A combination of traditional KPIs to trigger economic and risk factors in ports with a new framework** for sustainable development is needed

The 2030 Agenda for Sustainable Development sets out 17 Sustainable Development Goals (SDGs) as a global guideline for sustainability across different sectors

A smart port model with 5G as the main lever, combining SDGs related to ports processes and KPIs





5G networks

5G capabilities include:

- **Low and predictable latencies** (1 ms or less)
- **Flexible scaling** of network capacity (5G supports up to 1 Million device per Km²)
- **Reliability** of device interoperability and mobility capabilities

5G can contribute to:

- **Efficiency and productivity** (e.g. reduce transit time and terminal time of goods and vessels)
- **Reduce environmental impact**
- **Safeguard personnel conditions**





3-step methodology

The Port of Livorno, Ericsson, CNIT and FEEM have proposed a new methodology for the 'digital readiness' of ports.

1

Identify relevant Sustainable Development Goals

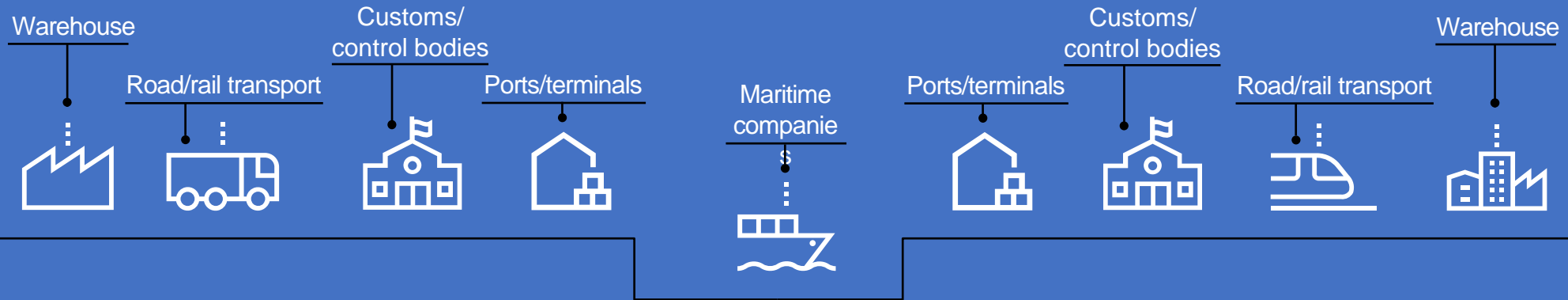
2

Identify and map the port processes where technology may bring transformative impacts

3

Technology assessment to highlight the impact of the selected technology on port processes

Port of Livorno processes





5G benefits to Livorno port processes

Qualitative analysis

THE RELEVANT PORT PROCESSES:

- Warehouse management
- Gate-in/gate-out procedures
- Container terminal operations
- Verified gross mass management
- Ship practices
- Goods practices
- Control operations
- Cargo multimodal transportation

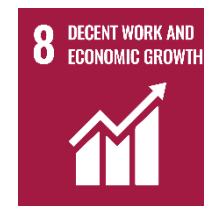
THE RELEVANT FOCUS AREAS:

- Automation
- Transport and logistics
- Environmental sustainability and safety
- Cybersecurity
- Smart port for a smart city

5G can enable 65 direct and indirect benefits

if applied to the port processes in relation to the SDGs:

- 15 in automation
- 32 in transport and logistics
- 13 in environment sustainability and safety
- 5 in smart port for a smart city





5G benefits to Livorno port processes

Quantitative analysis: COREALIS case

€2.5M

Optimizing vessel berthing can lead to a 20 percent average cost reduction per year, which is approx. EUR 2.5 million.

20—25%

Gantry and quay cranes controlled remotely through 5G telecommunication, increasing productivity by 20-25 percent

8.2 %

An 8.2 percent reduction in associated CO2 emissions per container operation terminal

Cuts in operating and amortization costs

Faster ship turnaround and freight release through port gates, due to precise detection

Reduction of movements and associated fuel consumption in cargo handling





Conclusion

Piloting technologies in a real port environment

demonstrates innovative solutions and new models from an operational, efficiency and sustainability perspective

The technology assessment is an important tool for decision-makers and public bodies entrusted with port governance

5G networks represent a critical infrastructure for ports' innovation and sustainability

Port of the Future report

by COREALIS partners Ericsson, Port of Livorno, CNIT and in collaboration with FEEM

<https://na.experiences.ericsson.net/c/ericsson-port-of-the-1?x=N4gZz1>





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THANK YOU FOR YOUR ATTENTION



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This project has received funding from the European Union's horizon 2020 research and innovation programme under grant agreement No. 768994