



Winner
ITEA Award
of Excellence
2023

**Exceptional
Excellence**

I2PANEMA

ITEA PO Days 2023

I²PANEMA: Towards Creating Sustainable Smart Ports

ITEA Award of Excellence 2023 ceremony
13 September 2023
Franz-Josef Stewing

25
years



ITEA 4
1998-2023

Agenda

- Introduction
- Approach
- Achievements
- Conclusions

Situation around ports at project definition time (still valid ...)

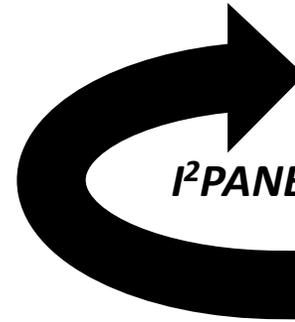
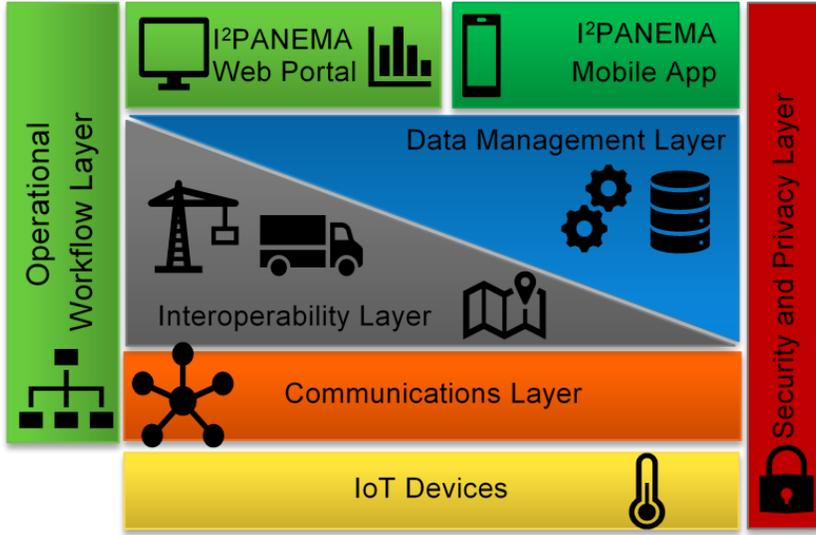
■ Challenges

- Numerous **laws** and **regulations**
- Need for reducing **emissions**
- **Digitization** of **port operations** is lagging behind

■ Barriers

- Companies around ports are **not interlinked**
- **Information** is often **missing** to analyze sources of pollution
- **Security agony**
- Prescribed **manual** and **paperwork** is still dominating

Our Approach: Starting-off from a Reference Architecture (implemented in 9 Use Cases / Business Scenarios)



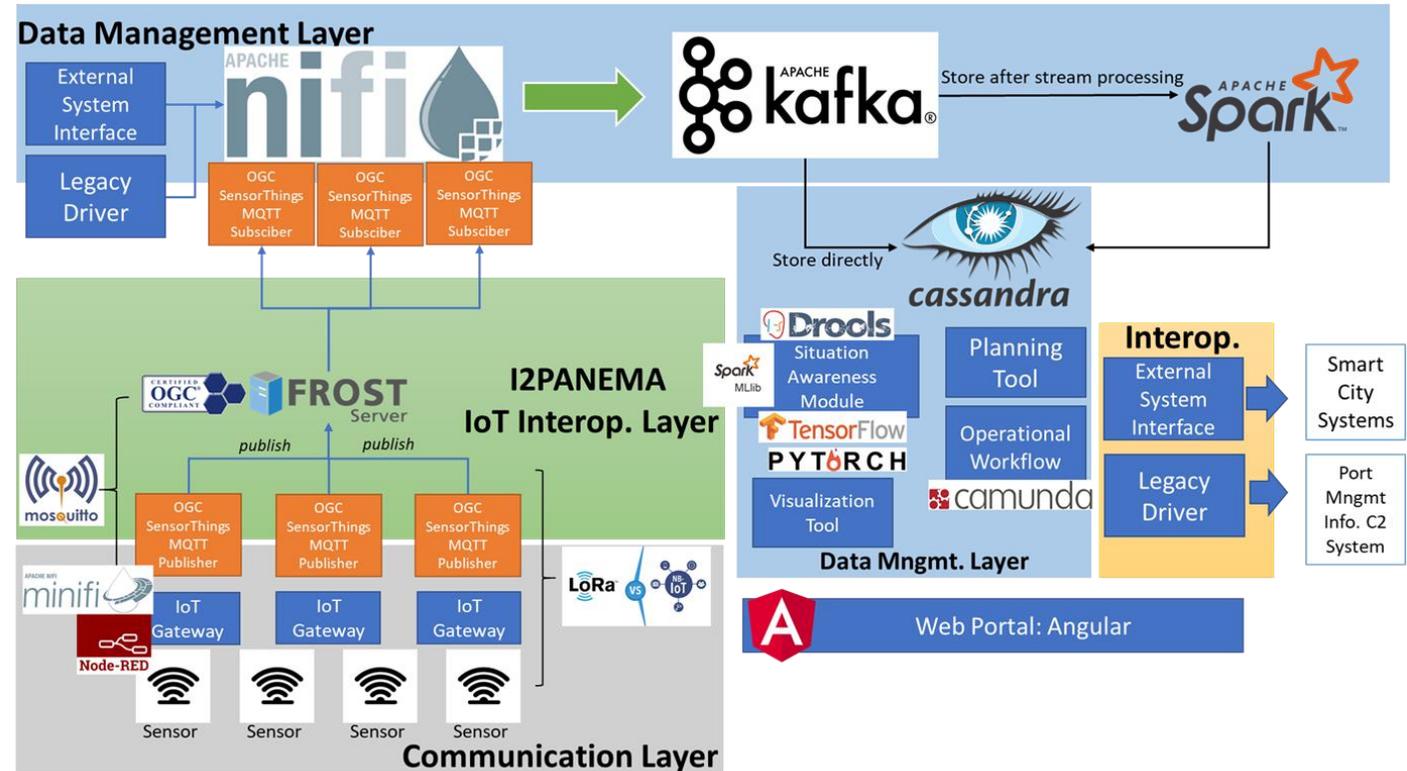
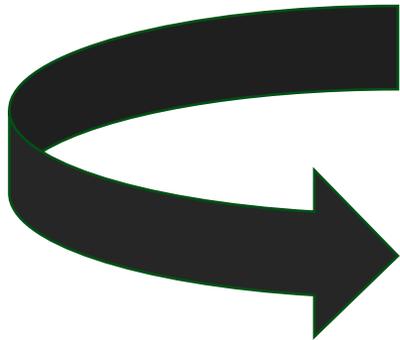
***I*²PANEMA PoC Demonstrators**



ISO/TC 8/SC 6 N 629
 date: 2021-10-11
 total pages: 1

Title: Draft SC 6 Resolution 108

SC 6 Resolution 108:
 ISO/TC 8/SC 6 agrees to propose TC 8 to move ISO 4891 from TC 8/SC 6 to TC 8 for continuous development in TC 8/WG 10, because the title and scope of ISO 4891 have been expanded from the time of NP proposal.



ITEA project *I²PANEMA*

Intelligent IoT-based Port Artefacts Communication, Administration & Maintenance

I²PANEMA has aimed to deploy the power of IoT to improve port operations, making them more **efficient** and **sustainable**, paving the way towards **(networks of) smart ports**



Start date: Dec 1st, 2018

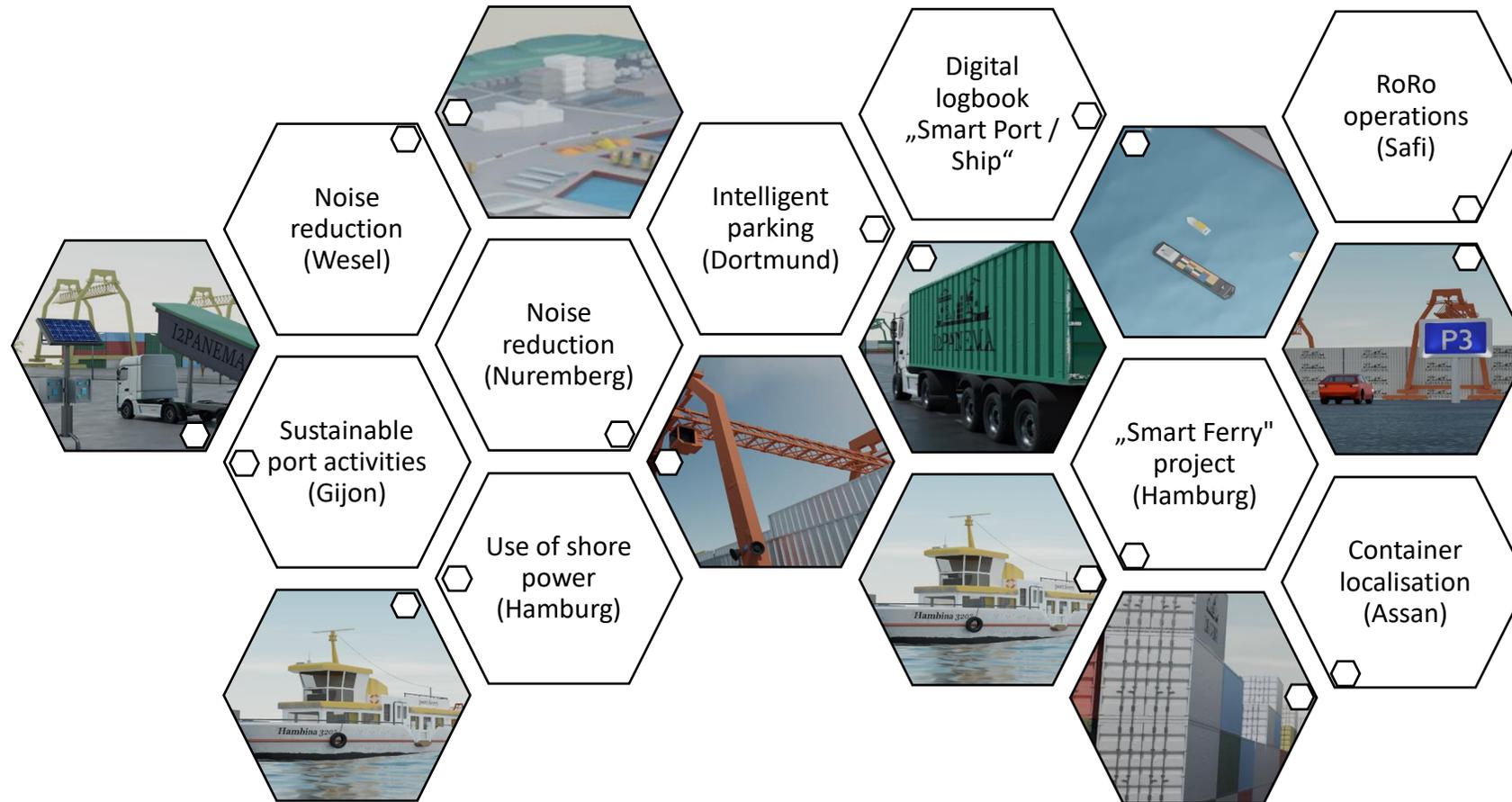
End date: December 31st, 2022

I²PANEMA website

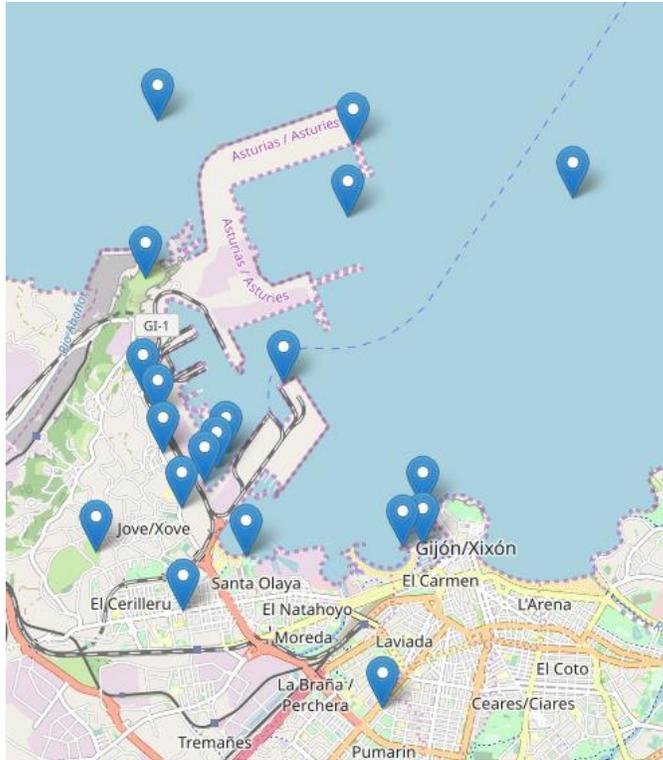
<https://itea4.org/project/i2panema.html>



Overview Business Scenarios “I²PANEMA”



Sample *I²PANEMA* Business Scenario

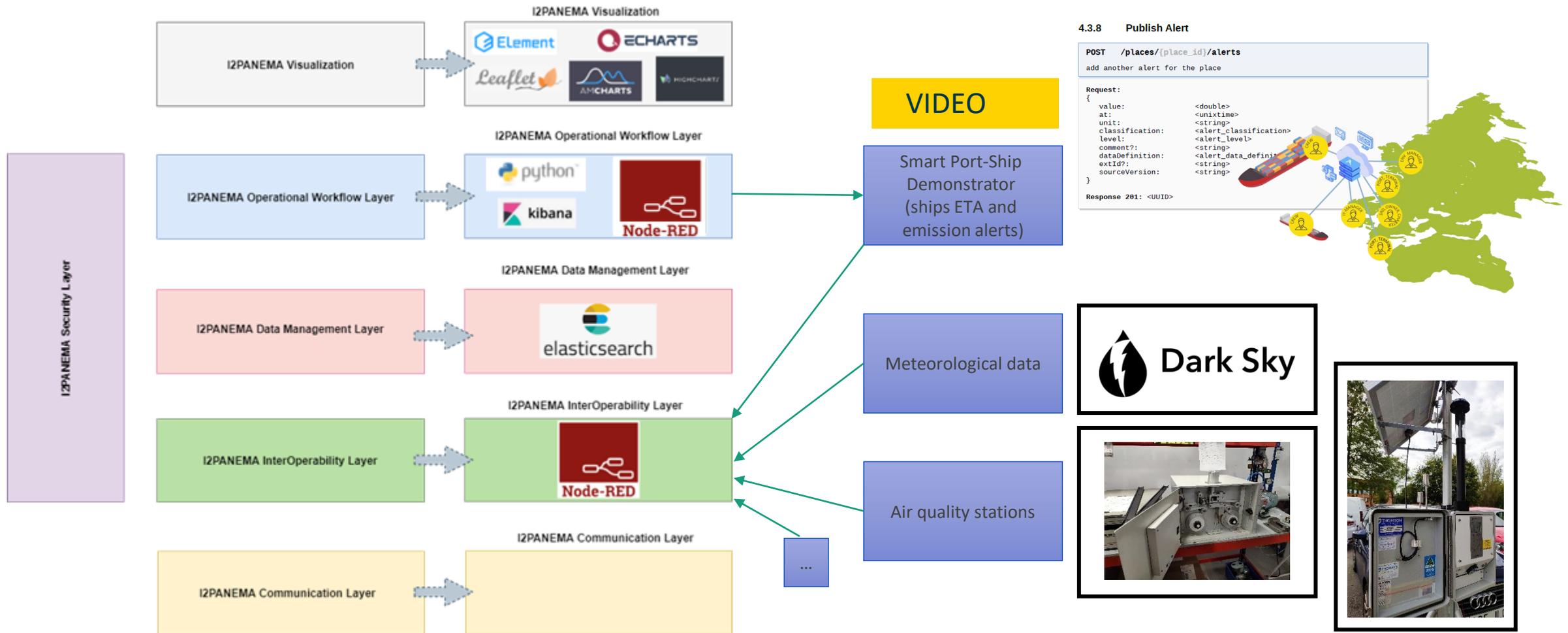


Environmentally sustainable port operations, Port of Gijón/Spain

- Real-time measurement system of environmental indicators
 - alarms connected with external systems
 - reduce dust clouds generated by solid bulks operations

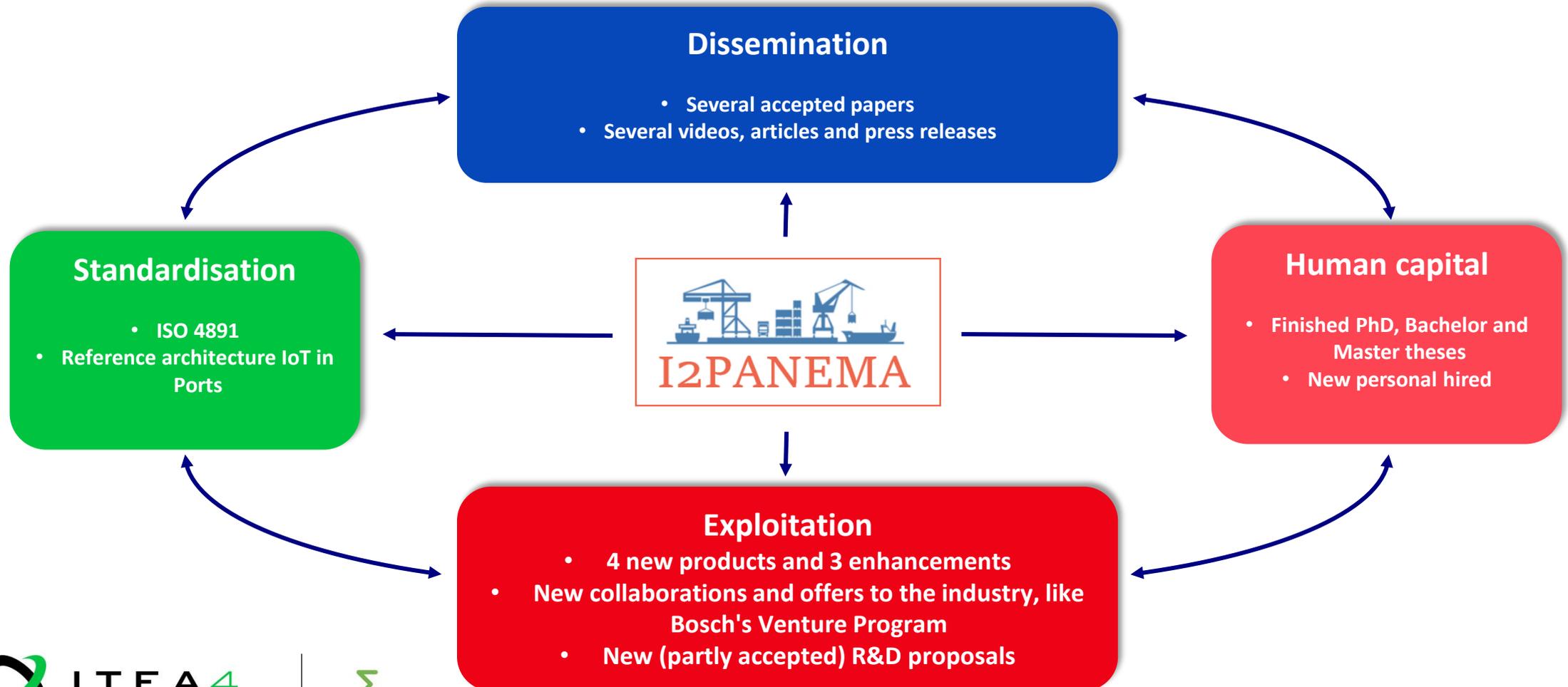
KPI: Reduction of air emission threshold violations (by dust clouds)

Incarnation of Architecture for Port of Gijón Business Scenario



Achievements (1)

- Container Localization' integrated with VTEK's TOS VPORT, Türkiye
- 'Real-time environmental indicators enhanced with predictive alarms', Prodevelop, Spain
- 'NB-IoT Service', Turkcell, Türkiye
- Reference prototype implementation of the 'Smart Logbook application' according to the ISO 4891 standard, NautilusLog, Germany



Achievements (2): CNA Innovation Award 2021 “Intelligence for Transport & Logistics”

Anti-Noise Control system won the innovation price of 2021



Achievements (3):

New ISO Standard 4891 - Smart Applications for Ships

- NautilusLog has already been working on standardisation since **2017**, on a national SPEC 80007, which was brought into *I²PANEMA*
- **2019-12**: Official Vote for an ISO Standard
- **2021-10**: For further development, the ISO 4891 also needed consensus and more experts to be convinced and involved: So we started a resolution
- **Summer 2023**: Voting Closed, Awaiting final Approval



Conclusions



- with *I²PANEMA* steps towards the creation of smart ports could have been made
- ISO Standard 4891 will contribute to the digitization of port operations
- project activities will be continued by follow-up projects, such as the ITEA 4 project *Optimal-LOADS*

Thank you
for your attention