HEU CL5 tilaisuus

# Kokemuksia EU-projekteihin osallistumisesta

19.1.20243, Pekka Yli-Paunu, Research Director

# TECHNOLOGY
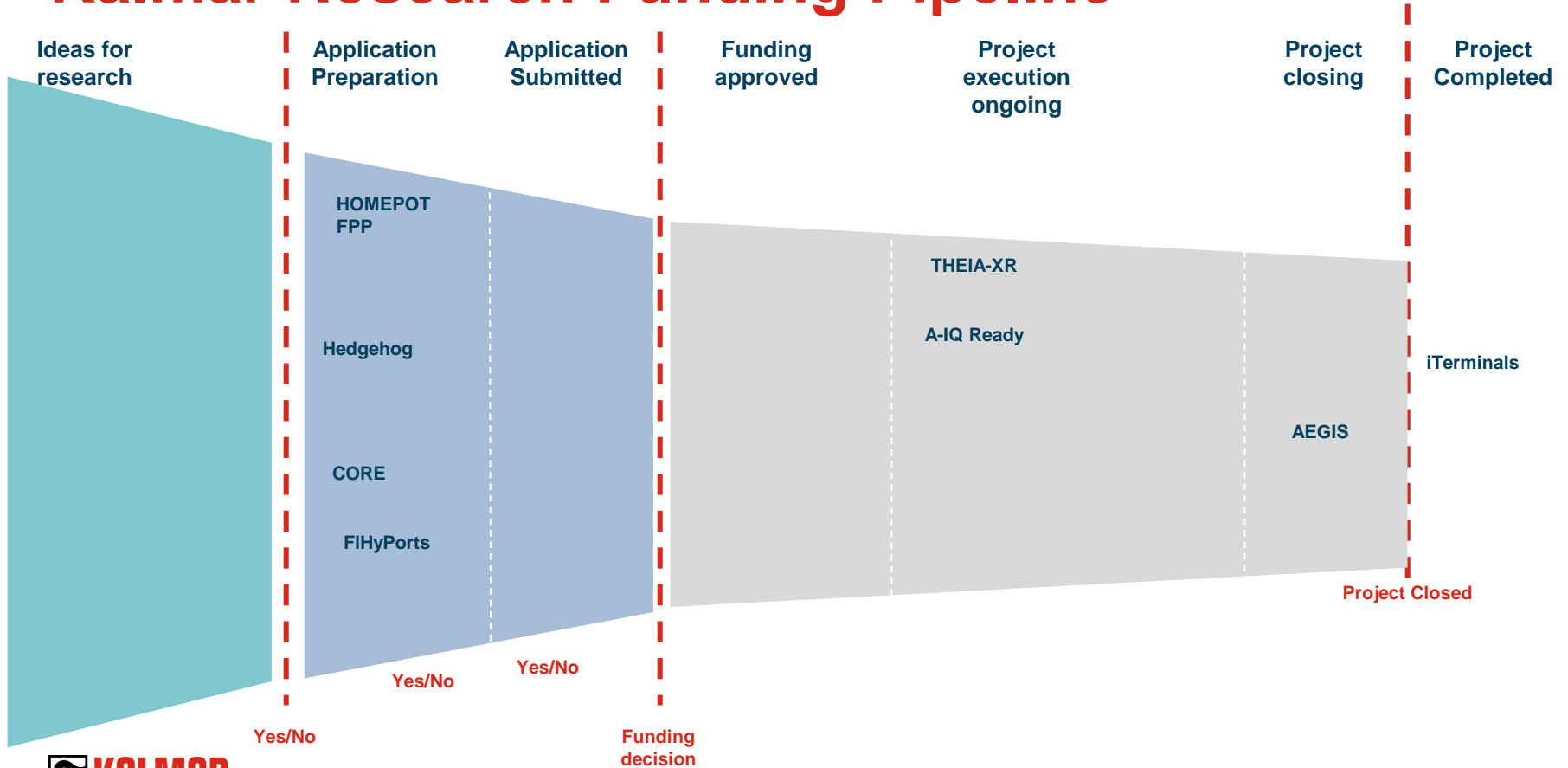
for a better tomorrow

Our Technology

# VISION

is to drive sustainable change
through innovative solutions by:

- Driving collaboration across the business and developing common technology solutions to simplify our offering for ourselves and our customers.

- Harmonising and synchronising technology roadmaps.

- Harnessing the power of the latest technology and sharing it with the whole business.

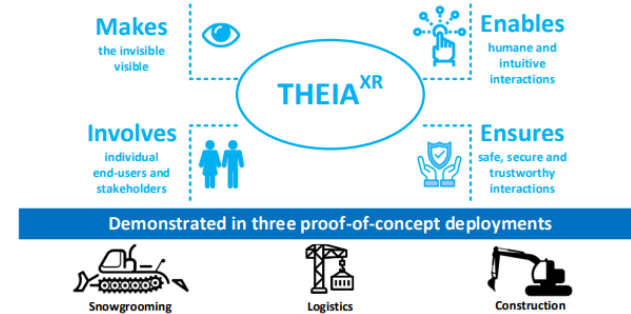- Delivering greater safety, productivity and sustainability in everything we do.

**KALMAR**

# Kalmar Research Funding Pipeline



**Ideas for research**

**Application Preparation**

**Application Submitted**

**Funding approved**

**Project execution ongoing**

**Project closing**

**Project Completed**

HOMEPOT FPP

Hedgehog

CORE

FIHyPorts

THEIA-XR

A-IQ Ready

AEGIS

iTerminals

Project Closed

Yes/No

Yes/No

Yes/No

Funding decision

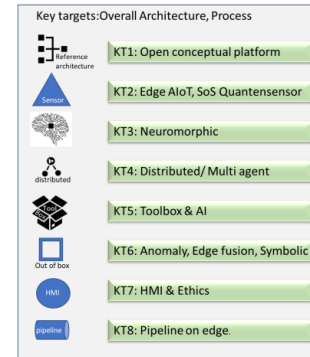KALMAR

# Research Project One Sliders

# THEIA-XR

- **Consortium: TTControl GmbH**, TTTech Computertechnik AG, Technische Universität Graz, Technische Universität Dresden, Hochschule der Medien, University of Luxembourg, VTT Oy,Creanex Oy, Haption SA, Prinoth SPA, Cargotec Finland Oy
- **Reporting periods:**
- **Scope of the whole project:** To improve human-machine interaction, there is the need for the use of transdisciplinary design methodologies to fulfil the human requirements (needs, interests, etc.) and XR technologies to extend the knowledge of the human operator to improve performance.
- **Kalmar's scope:** Use case specification and user stories.To improve UX, efficiency and safety (situational awareness) in remote control and manual machine cases Possibility to renew LiveView and to develop driver assisting features. Find new perception sensor possibilities Collaboration with high class European universities and companies
- **Schedule:** 1.1.2023-31.12.2025
- **Kalmar PM and project team: Pekka Yli-Paunu**.
- **Links:** https://drive.google.com/drive/u/0/folders/1GyF-hsNlPsA1cnmSqXqOd1igKaFghPy7



Makes the invisible visible

Enables humane and intuitive interactions

THEIA XR

Involves individual end-users and stakeholders

Ensures safe, secure and trustworthy interactions

**Demonstrated in three proof-of-concept deployments**

Snowgrooming　　　Logistics　　　Construction

# A-IQ Ready

- **Consortium:AVL List,** Mercedes Benz AG, Ideas & Motion, IMA, Politecnico Di Torino, TTTech, Unikie, Vaisto, Virtual Vehicle Research, VTT, Friedrich Alexander Universität, TU Graz, TU München, TH Rosenheim, HS Offenburg, Ostbayerische Technische Hochschule, Brno University of Technology, AIT RES, EDI RES, Teraglobus, Montanuniversität Leoben, SAFELOG SAFELOG, Universität zu Lübeck, Institut National de Recherche, Varroc, Sleep Advice Technologies Srl, Innatera Nanosystems, Università di Modena e Reggio Emilia,Mantsinen  Group, Bundesministerium Landesv, Universidad Politechnica de, ARQUIMEA Centro de Investig, NVISION, AVL Research and Engineering Turkey, IObundle Lda, INESC TEC, XFAB, Huawei, Tekne SRL, PUMACY PUMACY, SYMATE GmbH, University of Alcalá, TTTechAuto Germany GmbH, SCALIRO GmbH, Synopsys Netherlands BV. Silicon Mobility, Kouvala Innovation Oy, KINNO, Metsä Fiber
- **Reporting periods:**
  **Kalmar's scope:** Semi-closed industrial sites are the key emerging domain to apply connected and automated vehicle technology. The motivation includes increased productivity and continuity of operations, while the safety challenges are more manageable than on public roads, since only trained personnel with safety equipment are allowed to work at the site, and the driving speeds are often modest. -> on-board SW platform with safety features. Capability to operate in mixed traffic.
- **Kalmar PM and project team: Pekka Yli-Paunu**.
  **Schedule**: 06/2020 - 11/2023
- **Links:** https://drive.google.com/drive/u/0/folders/1_ROkfHl0bzdyw1e6RIgApb5mGKhF4q2-



Key targets:Overall Architecture, Process

| | |
|---|---|
| Reference architecture | KT1: Open conceptual platform |
| Sensor | KT2: Edge AIoT, SoS Quantensensor |
| | KT3: Neuromorphic |
| distributed | KT4: Distributed/ Multi agent |
| | KT5: Toolbox & AI |
| Out of box | KT6: Anomaly, Edge fusion, Symbolic |
| HMI | KT7: HMI & Ethics |
| pipeline | KT8: Pipeline on edge. |

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# AEGIS



- **Consortium: Sintef,** DFDS, ISE - Institute for Structural Lightweight Construction and Energy Efficiency GmbH, Technical University of Denmark, Aalborg University, Grieg Connect, Kalmar, MacGregor, Trondheim Port Authority, Port of Aalborg, Port of Vordingborg.
- **Reporting periods:** M18 and M36
- **Scope of the whole project:** Advanced, Efficient and Green Intermodal Systems - a project where autonomous ships meet automated ports.
- **Kalmar's scope:** Terminal development with advanced, safe, flexible and green automated terminal design concepts and scenarios.
- **Kalmar PM and project team:** Pia Vuorela, Antti Kulpakko / Robotics team, Christopher Saavedra, Hannu Santahuhta, et al
- **Schedule**: 06/2020 - 11/2023
- **Links:** https://aegis.autonomous-ship.org/ https://drive.google.com/drive/folders/14qBwUxdM1P1STBdrUf-sqec5vRpU937k

# iTerminals 4.0

- **Consortium: Fundacion Valenciaport**, Terminal Link, Konecranes, Hyster-Yale, PSA, ZPMC, Bollore, Pro Develop, RBS, Kho Management BV
- **Total budget / funding (%):** 1 064 k€ / 530 k€ (50 %)
- **Reporting periods:**
- **Scope of the whole project:** Intends to pilot implementation of the standards developed by the TIC4.0.
- **Kalmar's scope:** Telemetry pilots for Antwerpen (2xSC), Montoir (2xRS), and Dunkirk (2xRS) and adaptive safety pilot (SC operation under STS) at Tampere Test Yard
- **Kalmar PM and project team: Pekka Yli-Paunu,** Lauri Malmi, Tomi Krogerus, Jani Rotola-Pukkila, Tomi Koivulahti, Jesse Manu
- **Schedule**: 01/2020 - 12/2022
- **Links:** https://iterminalsproject.eu/
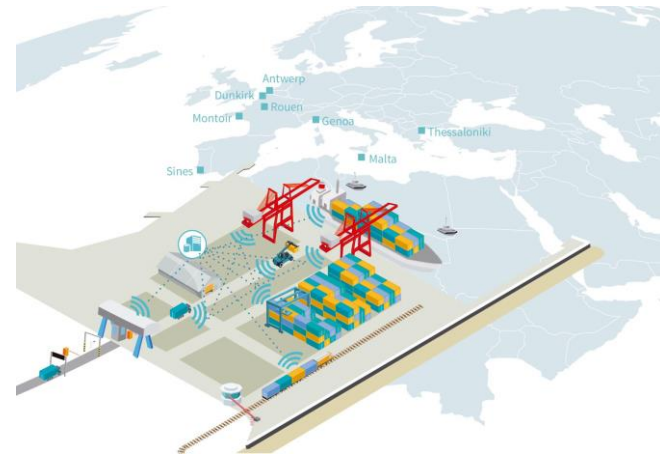


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# Proposed Research Project One Sliders

# CORE

- **Consortium: LUT (Lappeenranta University of Technology),** Idener, Irida Labs, Ponsse, EPEC, Robotnik, Port of Aalborg, Kalmar…
- **Reporting periods:** To be advised
- **Scope of the whole project:** Novel paradigms and approaches, towards AI-powered robots – step change in functionality
- **Kalmar's scope:** Robotic load handling (Reachstacker)
- **Kalmar PM and project team:** SST
- **Schedule**: 01/2024 - 12/2026
- **Links:** ???
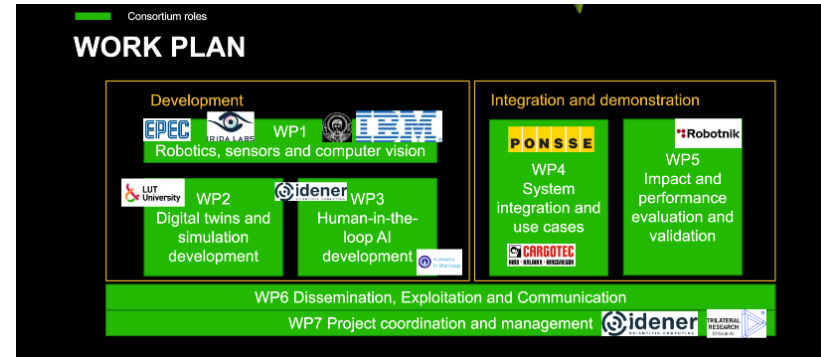
# FIHyPorts

- **Consortium: ??**, ????

- **Total budget / funding (%):** ?? k€ (?? %)

- **Scope of the whole project:** Activating a long-lasting Hydrogen economy within and beyond the Flemish sea ports through the development of a highly visible large-scale Hydrogen Valley.

- **Kalmar's scope:** R&D for 10 dual fuel SC machines (Hydrogen + Diesel)

- **Kalmar PM and project team:** N.N.

- **Schedule**: ??/2024 - ??/2027

- **Links:** https://drive.google.com/drive/folders/1OitTD2vfwxTafjIfyegtGYrVWnsloaYI

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# Summary

# Why EU Projects?

- Money for research, innovation and development to accept the business risk
- Opportunity to find, co-work, co-develop with the best academic and industry expertise
- Opportunity to collaborate with our customers, solving their problems together
- Contribute to future industry business environment including standards and regulations
- Opportunity to validate the product or solution to market fit phases
- Build international R&I networks, value chains and commercial channels
- Get access to find top notch IP such as knowhow, access to corporate data lakes and test facilities

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# Must have

1. Strategy fit
2. Roadmap fit
3. Resources guaranteed
4. Strong use case
5. Realistic plan (budget & schedule)
6. Good consortium
7. Top management support

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