



**VTT**

## **EU influencing, partnerships and funding – machine and manufacturing industry**

**Riikka Virkkunen, VTT**

19/01/2024 VTT – beyond the obvious

# Outline

- EU influencing and exploitation – can we improve?
- European partnerships - how and why?
  - Made In Europe example
- VTT and companies together in EU projects
- SIX Mobile Machines approach

# EU influencing and Finland

*'The challenge with EU influencing in Finland is **lack of vision**' \*)*

*'Finnish competence can benefit the whole Europe **if we are timely**' \*\*)*

## Suomalaiset Brysselissa ovat...

Vähissä

- Esim Ruotsin teollisuudella kaupungissa 10x enemmän lobbareita

"Doing it yourself"

- EU-vaikuttamista ei tunnisteta strategisena prioriteettina

Suomi-keskeisiä. Mikä toimii kotona ei aina toimi muualla. Olemme liian

- Vaatimattomia
- Tuote- ja teknologiakeskittyneitä
- Prosessivetoisia
- Kiiinni suomalaisissa verkostoissa ja päätöksentekijöissä, kotimaan vaikuttamiskanavissa

## ... ja mitä sitten pitäisi tehdä?

- Investoida EU-vaikuttamiseen. Yhteiskuntasuhteet eivät kuulu takahuoneeseen
- EU-työ nähtävä keskeisenä osana yrityksen strategiaa. Ankkuroituna ylimpään operatiiviseen johtoon ja hallitukseen.
- Omistajien täytyy sitoutua EU-projektiin ja tuoda esiin yritysten ja elinkeinoelämän aktiivista roolia
- Vaikuttaminen kaikilla tasoilla. Ylätason tapaamiset keskeisten komissaarien jne kanssa kerran vuodessa.
- Kääntää ajankohtainen EU-sääntely kilpailueduksi

\*) [EK Juho Lohi-Mäkiluoma 23.8.2022](#)

\*\*\*) [EK Kaisa Soro-Pesonen 1.9.2022](#)

# EU funding and Finland

- Finnish large companies do not utilize EU funding

**Laura Juvosen kolumni: Suomalaiset suuryritykset jäävät vertailussa jämäsijoille – Eivät saa haetuksi EU-rahaa, vaikka sitä tarjolla miljardeja**

*Suomalaiset suuryritykset ovat sen sijaan – valitettavasti – vertailussa Länsi-Euroopan viimeisillä sijoilla kotiutetun rahoituksen määrällä mitattuna.*

# EU influencing and exploitation

## Challenges

- Lack of 'EU exploitation strategy'
- EU mechanisms and opportunities are unclear for many
- The given information may not reach the audience/need
- Engagement is often
  - too late,
  - reactive
  - dependent of a single person's activity
- Hit rate and the preparation process can always be improved

## Ideas for improvement

- EU influencing based on the shared vision and targets of the **ecosystem**
- Systematically build networks around the shared vision of the **ecosystem**
  - identify relevant partnerships and task groups
  - allocate resources
- EU support should be targetted on
  - **ecosystems** having good prospects to succeed
  - companies' R&D decision makers
- EU activities and actors should be made visible
- Positive examples inspire

# Areas of interventions in Clusters 4 and 5

## Cluster 4: Digital, Industry and Space

- manufacturing technologies
- key digital technologies including quantum technologies
- emerging enabling technologies
- advanced materials
- artificial intelligence and robotics
- next generation internet
- advanced computing and Big Data
- circular industries
- low carbon and clean industries
- space including earth observation and Space

## Cluster 5: Climate, Energy and Mobility

- climate science and solutions
- energy supply
- energy systems and grids
- buildings and industrial facilities in energy transition
- communities and cities
- industrial competitiveness in transport
- clean, safe and accessible transport and mobility
- smart mobility
- energy storage

# Horizon Europe (HE) partnerships

- bring the European Commission and **private and/or public partners together to address some of Europe's most pressing challenges** through concerted R&D&I initiatives.
- key implementation tool of HE and contribute significantly to achieving the EU's political priorities.
- help to avoid the duplication of investments by bringing the stakeholders together
- reduce fragmentation of the research and innovation landscape in the EU.



# HE partnerships are important for industry, examples:

Name	Status	Type
<b>ADRA - AI, Data and Robotics</b>	Ongoing	Co-programmed
<b>MiE – Made in Europe</b>	Ongoing	Co-programmed
P4P – Processes for Planet	Ongoing	Co-programmed
B4P – Building for People	Ongoing	Co-programmed
CBE JU – Circular Bio-Based Europe	Ongoing	Institutionalised
KDT JU – Chips Act JU	Ongoing - Repurposing	Institutionalised
Hydrogen JU	Ongoing	Institutionalised
Batteries 4 EU	Ongoing	Co-programmed
<b>AMI2030 - Advance Materials Initiative</b>	<b>Upcoming TBD</b>	<b>TBD</b>
<b>Circular Raw materials</b>	<b>Upcoming TBD</b>	<b>TBD</b>
<b>Textile</b>	<b>Upcoming TBD</b>	<b>TBD</b>
<b>Metaverse</b>	<b>Upcoming TBD</b>	<b>TBD</b>



# How do Horizon Europe (HE) partnerships work?

- common agenda setting influencing the calls
- networking and collaboration
- feedback and source of information for actors (incl. the Commission and the member states)
- platform for bringing together national and regional initiatives
- evaluate performance
- take different forms (co-programmed, co-funded, institutional)

*Impact!*

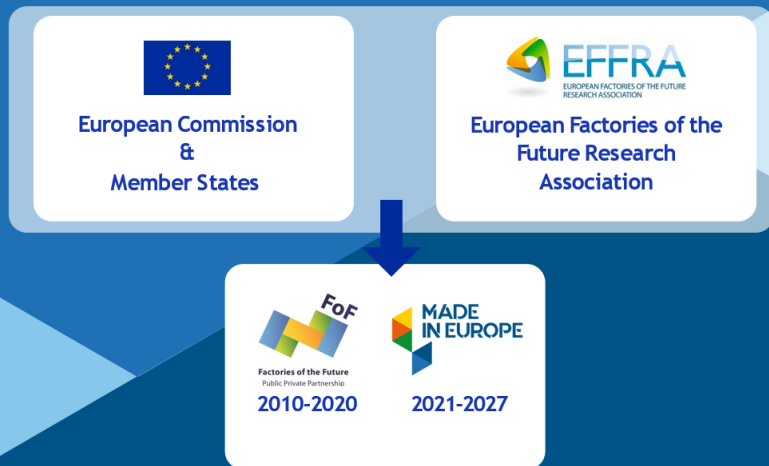
**More effectively achieve EU policy objectives** than Horizon Europe alone

# Made In Europe partnership for research and innovation on manufacturing



## (1) Influence

## (2) Collaborate



EFFRA  
Community

The manufacturing  
research &  
innovation  
community at  
European level



( [EFFRA Innovation Portal](#) )

# Made In Europe objectives

## Made in Europe General Objectives

Ensuring European Leadership & manufacturing excellence; generating new products and new markets

Achieving Circular and climate-neutral manufacturing

Mastering the digital transformation of manufacturing industry

Creating attractive value-added manufacturing jobs

## Made in Europe Specific Objectives

- Excellent, responsive and smart factories & supply chains
- Circular products & Climate-neutral manufacturing
- New integrated business, product-service and production approaches; new use models
- Human-centered and human-driven manufacturing innovation



## Operational/R&I Objectives

1. Zero-defect and zero-downtime high precision manufacturing, including predictive quality & non-destructive inspection methods
  2. Manufacturing for miniaturisation and functional integration
  3. Scalable, reconfigurable & flexible first-time right manufacturing
  4. Artificial intelligence for productive, excellent, robust and agile manufacturing chains - Predictive manufacturing capabilities & logistics of the future
  5. Advanced manufacturing processes for smart and complex products
  6. Data highways and data spaces in support of smart factories in dynamic value networks
- 
1. Ultra-efficient, low energy and carbon-neutral manufacturing
  2. De-manufacturing, re-manufacturing and recycling technologies for circular economy
  3. Manufacturing with new and substitute materials
  4. Virtual end-to-end life-cycle engineering and manufacturing from product to production lines, factories, and networks
  5. Digital platforms and data management for circular product and production-systems life-cycles
- 
1. Collaborative product-service engineering for consumer driven manufacturing value networks
  2. Manufacturing processes and approaches near to customers or consumers
  3. Transparency, trust and data integrity along the product and manufacturing life-cycle
  4. Secure communication and IP management for smart factories in dynamic value networks
- 
1. Digital platforms and engineering tools supporting creativity and productivity of manufacturing development
  2. Improving human device interaction using augmented and virtual reality and digital twins.
  3. Human & technology complementarity and excellence in manufacturing
  4. Manufacturing Innovation and change management
  5. Technology validation and migration paths towards industrial deployment of advanced manufacturing technologies by SMEs

*call topics*

# How to get involved? Made In Europe example

- Follow web pages <https://www.effra.eu/>
- Check the MIE strategic agenda and calls for interesting topics
- Connect to the current EFFRA partners in Finland
  - VTT, Tampere Univ., Aalto Univ., DIMECC, LUT, TAMK...
- Attend interesting topical meetings & offer to present
- Register to the innovation portal
  - Look for partners & innovative cases or publish your own results or challenges
  - <https://www.effra.eu/effra-innovation-portal>
- Consider membership...
  - Opportunity to influence and get information in advance
  - Access to partners only events and material
  - Get visibility to your company!

# Made In Europe – what's happening now?

## 2024 calls

Dead-line February, 7

95 M€

HORIZON-CL4-2024-TWIN-TRANSITION-01-03:

Manufacturing as a Service:

Technologies for customised, flexible, and decentralised production on demand (RIA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-05:

Technologies and solutions to support circularity for manufacturing (RIA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-01 (Two stages):

Bio-intelligent manufacturing industries (RIA)

## 2025-2027 planning

Net-Zero, Human and Resilience more than before ?

Quick response service deployment for maintaining optimal manufacturing operations using trusted AI and digital twins

Life-cycle management of manufacturing solutions and associated services for flexible, productive and sustainable manufacturing industry

Data spaces and cloud/edge solutions for responsive and robust manufacturing

Digitally enabled compliance and integration of innovative manufacturing solutions

Transformation of the factory work and organisation

Physical and cognitive augmentation of human capabilities for inclusive and socially sustainable manufacturing

Digitally enabled upskilling, qualification and job transformation

Bio-intelligent Manufacturing

# AI, Data and Robotics partnership ADRA

## General Objectives of the ADR Partnership and Adra



Secure **European's sovereignty** over AI, Data and Robotics technologies and knowhow

Establish **European leadership** in AI, Data and Robotics technologies with high socio-economic and environmental impact



Reinforce a **strong and global competitive position** of Europe in AI, Data and Robotics

# AI, Data and Robotics partnership ADRA

## Groundbreaking technological foundations in AI

- Autonomy: self-supervised, self-adaptive and self-evolving learning and computing systems beyond the human-in-the-loop.
- Performance: Breakthrough tools, methods and hardware for efficient machine learning requiring less data & computing.
- Predictability: Novel foundations in learning and computing that can pave the way to predictable behavior of AI-powered systems.

## Next generation smart embodied (robotic) systems

- Smart Mind in a Smart body – deployable, safe, easy to use, flexible.
- Self-aware and self-improving autonomous systems.

## Effective and Trustworthy General Purpose AI mitigating potential negative side effects for broad range of downstream areas

- The balancing act between regulation of GPAI models and AI value chain for effective AI systems.
- Personalized AI that interacts with individuals in both directions. Putting humans in the centre.
- AI for creative processes. Not only text and articles, but experiences, videos, images, experiences in the metaverse, etc.
- AI trained on hybrid sources of information such as design, data, human expertise and science is still a major challenge for AI.

## Interoperable and integrated framework for data ecosystems

- improve existing processes (in business, in society) & new data driven business models

R&I and tools for compliance

Green deal actions (for ADR)

Monitoring systemic changes in society because of usage of AI

## The AI, Data and Robotics partnership (2021-2030)



### The MoU signed between Adra and the European Commission 2021

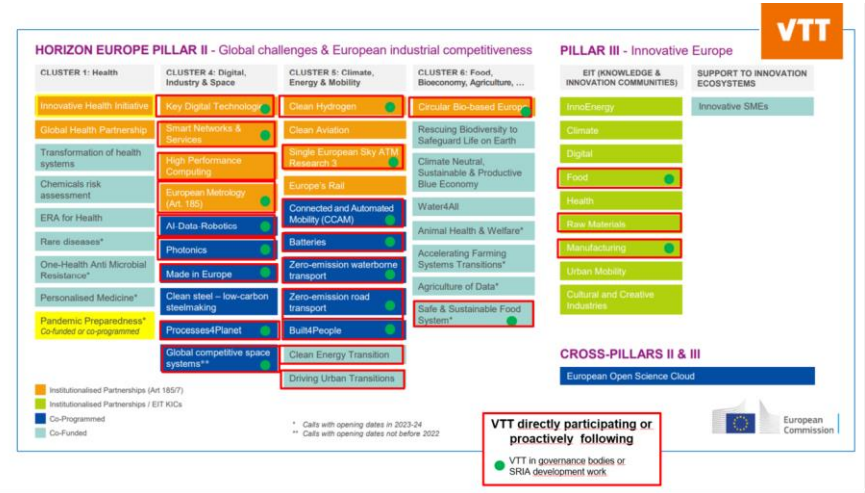
- Up to **1.3** billion euros of public investment by the European Commission (through Horizon Europe)
- Up to **1.3** billion euros of private investment through Adra

<https://adr-association.eu/>



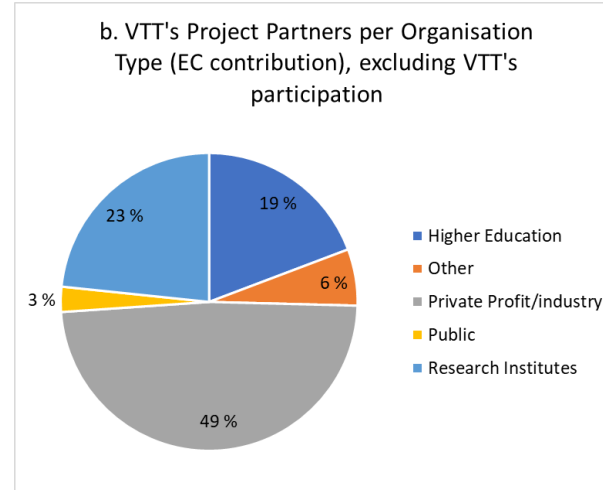
# VTT contributes to HE Partnerships because

- They shape the strategic research and innovation agenda (in pillar 2, almost 40% of the funding)
- They offer excellent collaboration and consortium building opportunities
- They are important in EU policy making



# Finnish participation and VTT's role

- VTT has partnered with over 500 industrial partners in HE projects
- In HE projects, where VTT is partner, industry plays an important role and receives substantial funding
- Three VTT spin-offs (Quanturi, Paptic, Minima Processor) are among the top 20 Finnish companies receiving HE funding
- Finnish companies are in 67% of projects coordinated by VTT



# Recent EU-funded success stories



**Demonstrating Climate-resilient Regions**  
[Regions4Climate](#)



**A circular textile ecosystem to reduce its waste by 80%**  
[tExtended](#)



**Test and Experimentation Facility for edge AI Hardware**  
[PREVAIL](#)



**Implementing a cross-border Hydrogen Valley around the Baltic Sea**  
[BalticSeaH2](#)



**Creating alternative proteins for reshaping nutrition**  
[GIANT LEAPS](#)



**Circular solutions of plastics, batteries and bio-waste**  
[TREASURE](#)



**Experimental production capabilities for quantum technologies**  
[Qu-Pilot](#)



**High-performance battery systems for transport and mobile applications**  
[NEXTBAT](#)



**Implementing an Energy Data Space**  
[SYNERGIES](#)

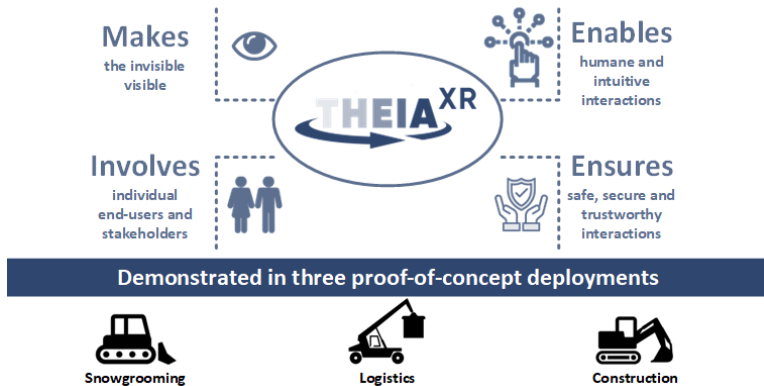


**Paving the way for autonomous vehicles**  
[Hi-Drive](#)

# THEIA<sup>XR</sup>

Making the invisible visible for off-highway machinery by conveying extended reality technologies

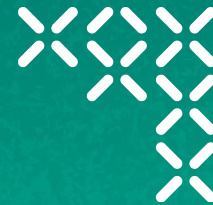
- eXtended Reality applied to operating environments (cabin-based and tele-operational) to make the invisible visible to the human operator
- XR interaction concept and design principles that facilitate a human friendly and intuitive design of XR interaction in industrial applications
- a transdisciplinary co-design methodology to design and develop multimodal XR information presentation and interaction solutions



# EU influencing SIX Mobile Machines Cluster 19.1.2024



# Joint roadmap to successful twin transition



Global players ...



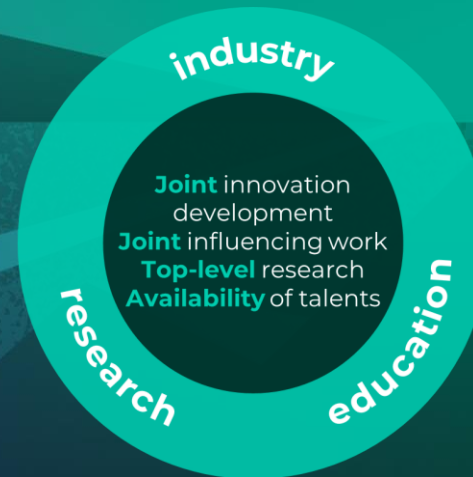
... creating the future  
together.

## 2020 DRIVERS

- Resilient operations
- Sustainable productivity
- Accessible data and knowledge
- Proven sustainability

### Themes

Autonomous operations & drive solutions	Control systems for intelligence	Connected and communicating	Electrified
Data intensive lifecycle services	Enabling new value from data	Human in the loop	



## 2030

- World's best place for developing mobile work machines
- Unseen value from digitalization and sustainability



# Example: SIX Mobile Machine EU influencing long-term plan

*The goal is to significantly increase EU project and international activities of the Mobile machine industry*

## *SIX Mobile machines*

Topics identified jointly by SIX companies that can be implemented in the European collaboration

### **Innovation roadmap:**

- Electrification
- Digitization of mobile machines
- Human factors

Common influencing message

White paper

## *Influencing channels*

National support groups

European partnerships

Direct communication with the commission

Networking

Industrial associations

Visibility

## *Impact*

Research agenda

Work programs

Funding instruments

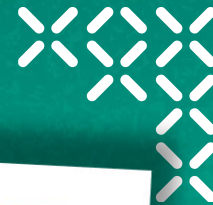
RDI Projects

Co-operation

Business



# EU influencing position paper main messages



The machine and mobility sector are in a major Green and Digital transition leading to considerable needs for technology development:

- Phasing out of fossil fuels offers the NRMM manufacturers of Europe an opportunity to advance in the competition by developing novel electrified NRMM
- Digital technologies and data provide effective means to increase productivity, sustainability and safety, both at NRMM and system level.

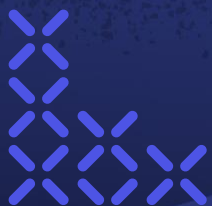
Mobile machines play a major role in the value chain of transportation, construction and mining, agriculture, ports and forestry

There is a need to address the R&I investments of the mobile machine industry in the next Horizon Europe Strategic Plan for 2025-2027 as part of Cluster 4 and 5 through Battery Europe, Clean Hydrogen, The AI, Data and Robotics Association and Waterborne.



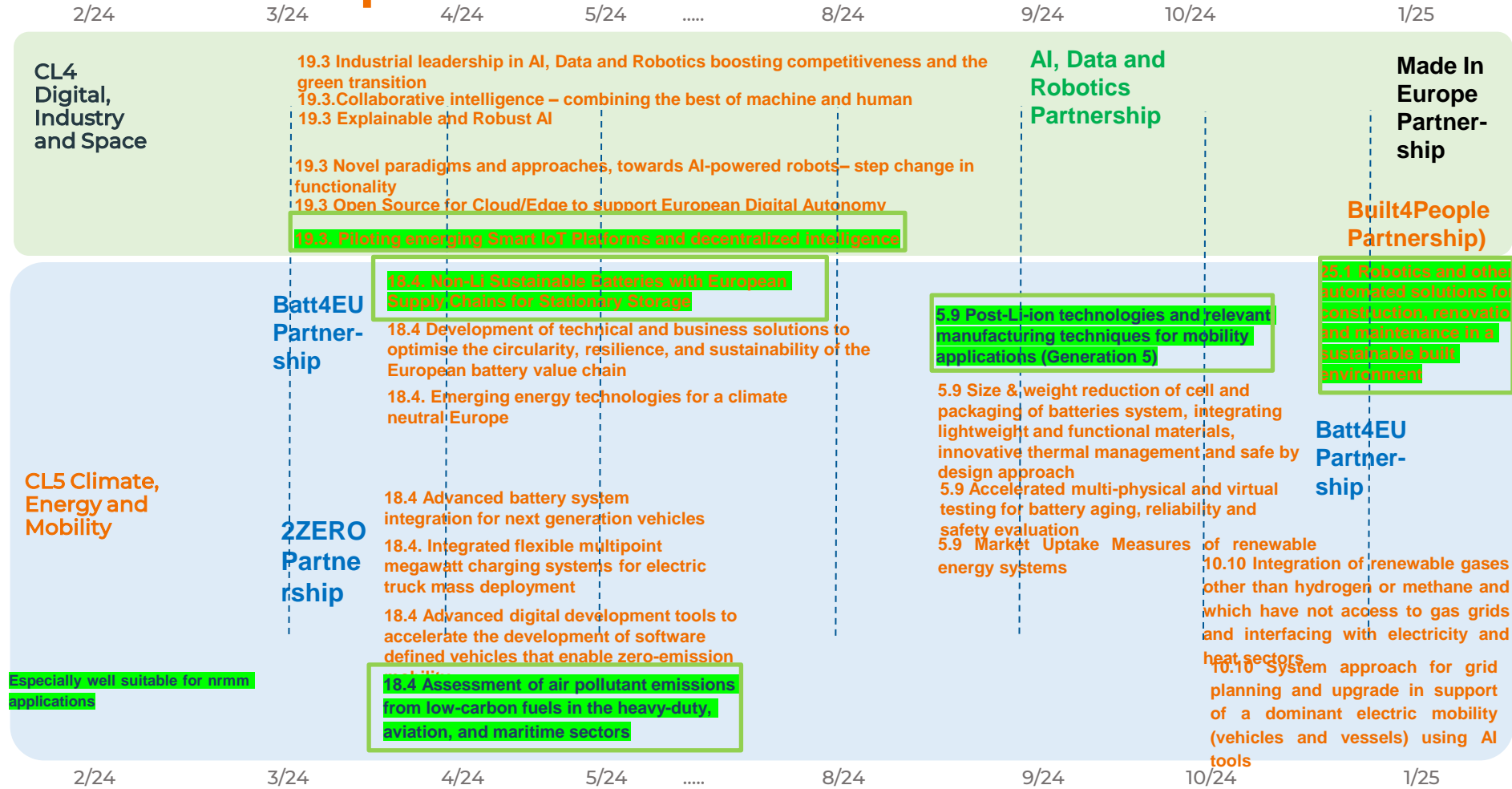
The global market size of mobile machines in 2020 covering the different industrial sectors:

- Construction and mining 136 B\$
- Agriculture 90 B\$
- Port handling equipment 30 B\$
- Forest harvesting 9 B\$.





# Horizon Europe selected calls 2024



# Summary

- There is room for improvement in the Finnish participation in the EU activities
- EU partnerships to get engaged and influence
- Ecosystems with shared agenda are promising for succesful EU exploitation
- VTT can
  - influence on future calls (align with Finnish companies' needs)
  - help select strategic topics fit for EU funding
  - advise on right networks & partners (and funding instruments)
  - practical help
- Be in time!

**VTT highly ranked in European Research ranking \*)**

**TOP 1**  
VTT is the single largest EU funding recipient in Finland

**190 Finnish companies**  
in VTT's 508 H2020 projects

## OUR PURPOSE

We bring together people,  
business, science and technology,  
**TO SOLVE THE WORLD'S  
BIGGEST CHALLENGES,**  
creating sustainable growth,  
jobs and wellbeing.

Riikka.Virkkunen@vtt.fi

@VTTFinland

@VirkkunenRiikka

[www.vtt.fi](http://www.vtt.fi)

