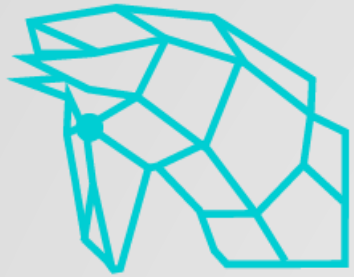


HORSE

Smart Integrated Robotics System for SMEs controlled by IoTs based on Dynamic Manufacturing Processes

I4MS DIH summer School

Conventry, 21st Septembre 2016

CEA, TCS, TNO, TUM

What are the Centres of Competence, in HORSE?

- Settings representative of manufacturing installations
- Hold robotics equipment and supplies used in production lines.

Their role?

- Aim at simplifying usage and facilitating access to robotics by European industry and especially first users SME.
- Offer expert support for advising on deployment and fast assessment of robotics solutions in manufacturing.
- Help to define, implement, assess the HORSE framework
- Used to customize the HORSE framework for Application in real settings.
- Capitalise lessons learnt and best practices.

Their scope?

- Aim at supporting the “robotisation” of industrial ecosystem in regions

HORSE Centres of Competence

Four **Centres of Competence** (CoC) across Europe

Three CoCs equipped and set up from existing facilities, equipment, experience and network,

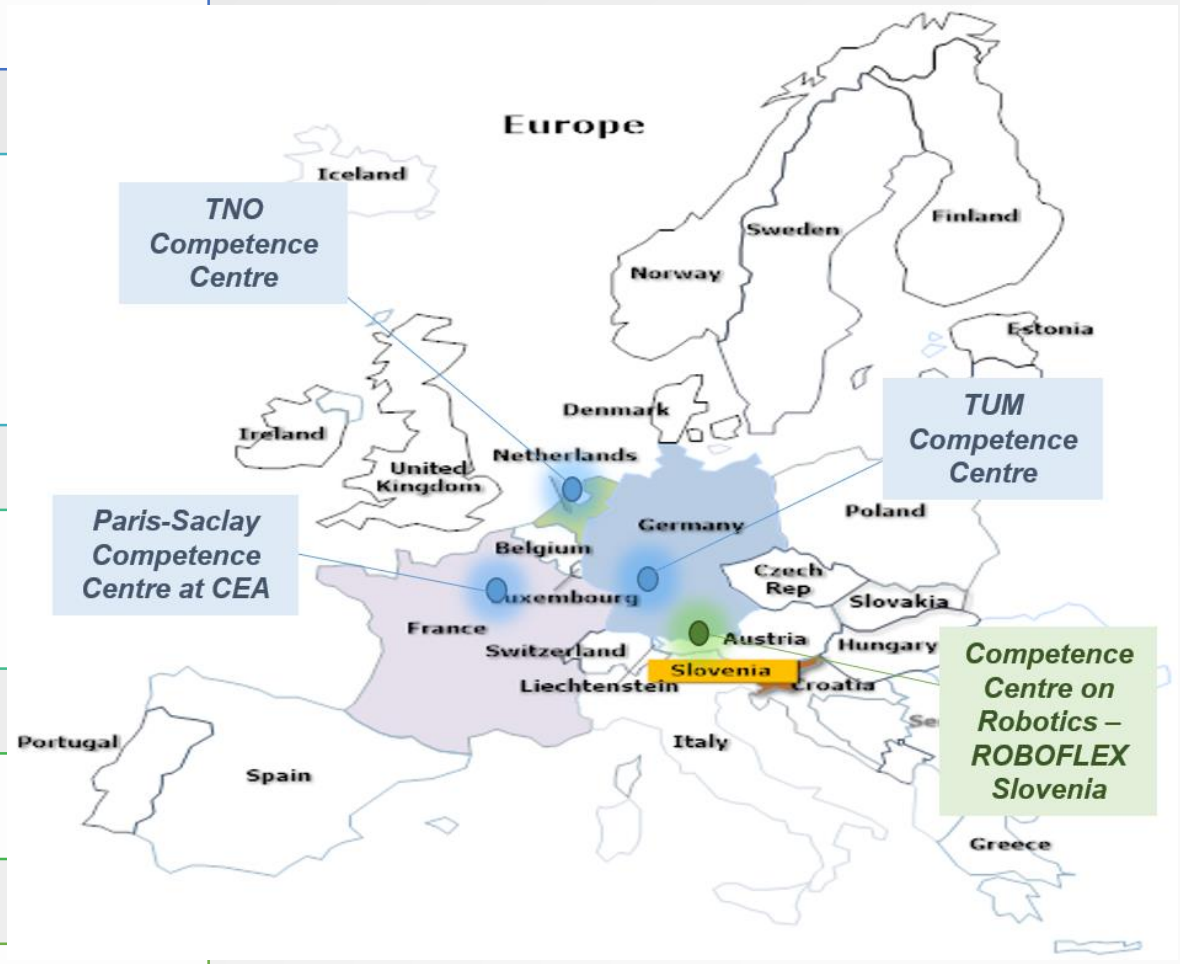
- France – Paris-Saclay, CEA,
- Germany – Munich, TUM,
- The Nederland – Delft, TNO.

One CoC to be established by HORSE

- Slovenia – Celje, TCS,

Seed for the **Innovation Hubs**

A model for the deployment of Competence Centres in Europe.



Competence Centre typical services

- Places for feasibility tries, demonstration of robotics for manufacturing
- Places to find experts advises on robotics for manufacturing applications
- Places for networking with integrators and researchers, financers, public authorities, heart of the regional ecosystem
- Places for advises on IPR, market opportunities,
- Outreach, communication

Competence Centre typical equipment

- Robot for manufacturing with controllers and supervisor
- Tools for processes welding, trimming, painting, handling and grasping
- Production line equipment: conveyors, machine tools
- Equipment for user safety: sensors for detection of intrusion and posture analysis, sensitive carpets, etc.
- Simlation equipment: workbench, cave, simulator
- HORSE framework with modules (incl. Sensors, BPM, robots, etc.)

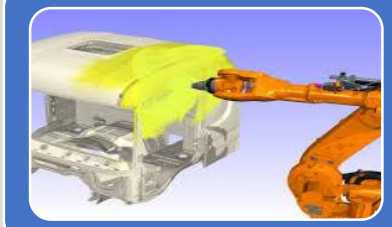
CEA Paris-Saclay Competence Center

CEA, Paris-Saclay

Robotics

Manufactuting

Examples of scenario covered



Painting

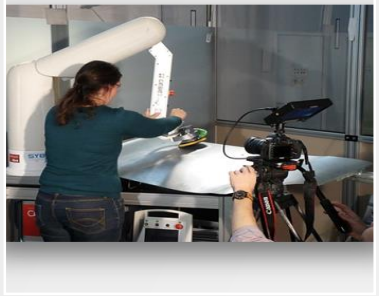
Welding

Trimming, deburring, grape separation, disking

Human robot co-working, co-manipulation

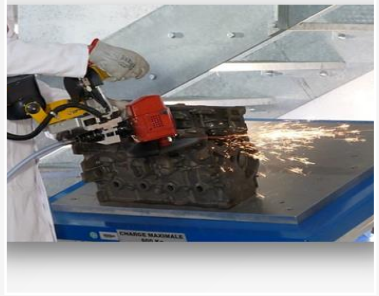
Equipment

Sybot 6X



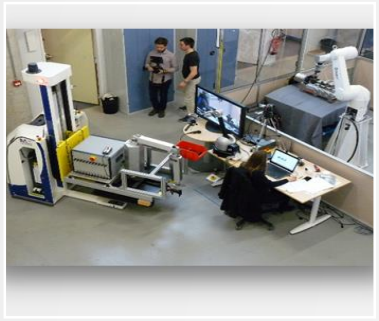
Sybot 3X

Cobomanip



A6-15

A6-15



BA systèmes

Stäubli

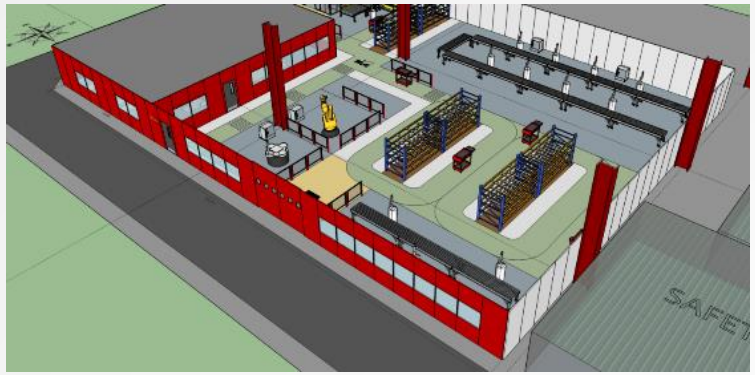
Stäubli

Eco system

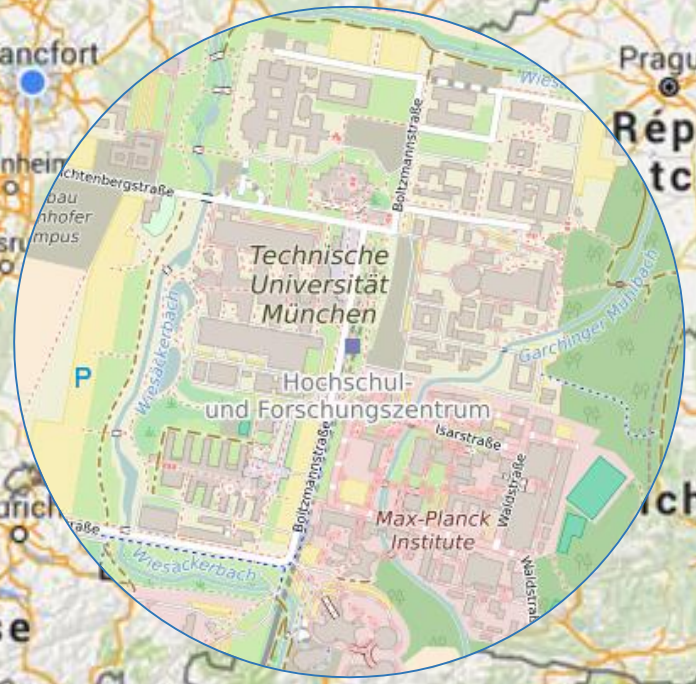
Connected to two French platforms (NFI) for ICT for manufacturing: automotive, aeronautics, ship building, etc.

FLOR, Metz, inauguration October 2016

Factory Lab, Paris-Saclay, inauguration September 2016



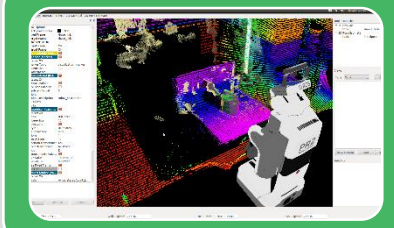
TUM, Munich Competence Center



Examples of scenario covered

Pick and Place

Sensitive Manufacturing



Environment Modelling and Perception

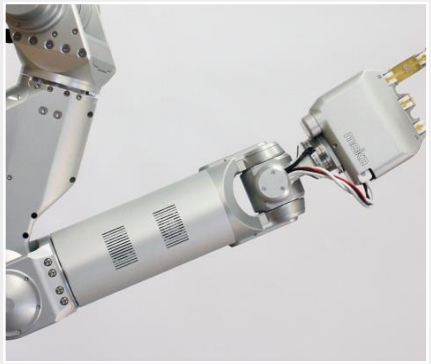
Human robot co-working

Equipment

KUKA LBR iiwa

Stäubli TX 60

Stäubli TX 40



Meka Arm

Saparo Floor

ABB IRB120

TNO, Competence Center

Pays-Bas
Dortmund
Essen
Anvers
Bruxelles
Cologne
Allema
Lille
Belgique
Francfort
Luxembourg
Mannheim
Karlsruhe
Stuttgart
Strasbourg
Jersey
Brest
Rennes
Nantes
Tours
France
La Rochelle
Limoges
Clermont-Ferrand
Lyon
Genève
Grenoble
Turin
Bordeaux
Golfe de Gascogne
Zurich
Liechtenstein
Suisse
Salzbourg
Autriche
Graz
Vienne
Brno
Slovénie
Zagreb
Trieste
Milan
Vérone
Venise
Padoue
Croatie
Bologne
Gênes
Zadar

Examples of scenario covered

Mobile robot system for material handling from bin to racks

Augmented Reality & Operator support systems in operations and machine set up

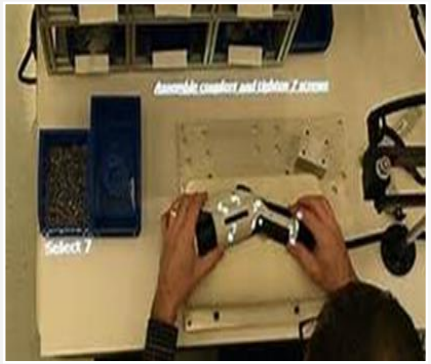
Human robot co-working & co manipulation in flexible assembly work

Equipment

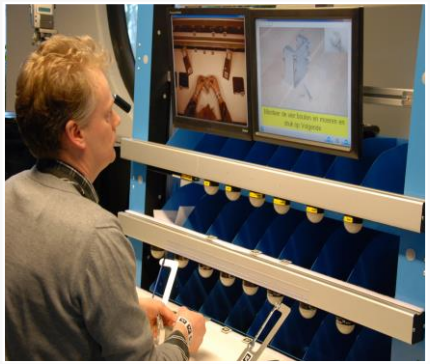
LRMate200iB

X sense movement and posture measurement systems

UR 5 robot



OPS Light Guide Systems



Augmented Reality system

Competence Center for Robotics- ROBOFLEX Slovenia

ROBOFLEX Slovenia Mission

- Organizer of the "***regional value space***" for promotion, demonstration and implementation of advanced robotics systems for the needs of manufacturing SMEs and their business ecosystems,
- Demonstrate, promote and support the introduction of advanced robotics systems and solutions in the manufacturing SMEs value chains and their business ecosystems,
- Promote, enable and support regional and international collaboration with industry-academy research and development of new robotic systems and applications,
- Development and utilization of new business models of sustainable partnering and collaboration in the areas of recognized interests,

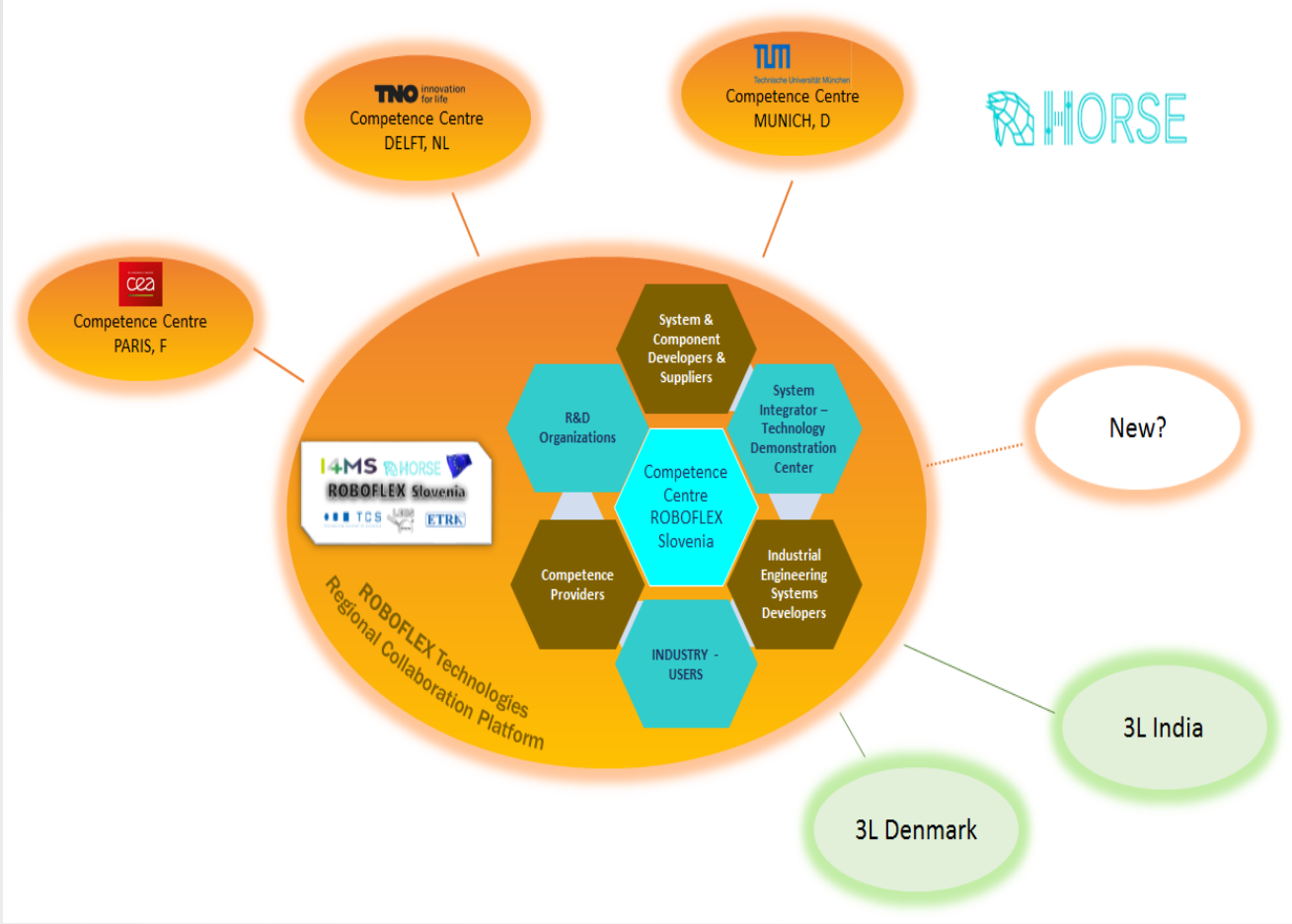
ROBOFLEX Slovenia Vision

The vision of ROBOFLEX Slovenia is to be a regional ***"one-stop shop service"*** with the support of the EU network of Competence Centres, and ***focusing on advanced flexible collaborative robotic systems for the needs of manufacturing and service SMEs***.

Competence Centre ROBOFLEX Slovenia As Virtual - Partnering Organization

Competence Centre ROBOFLEX Core Partners:

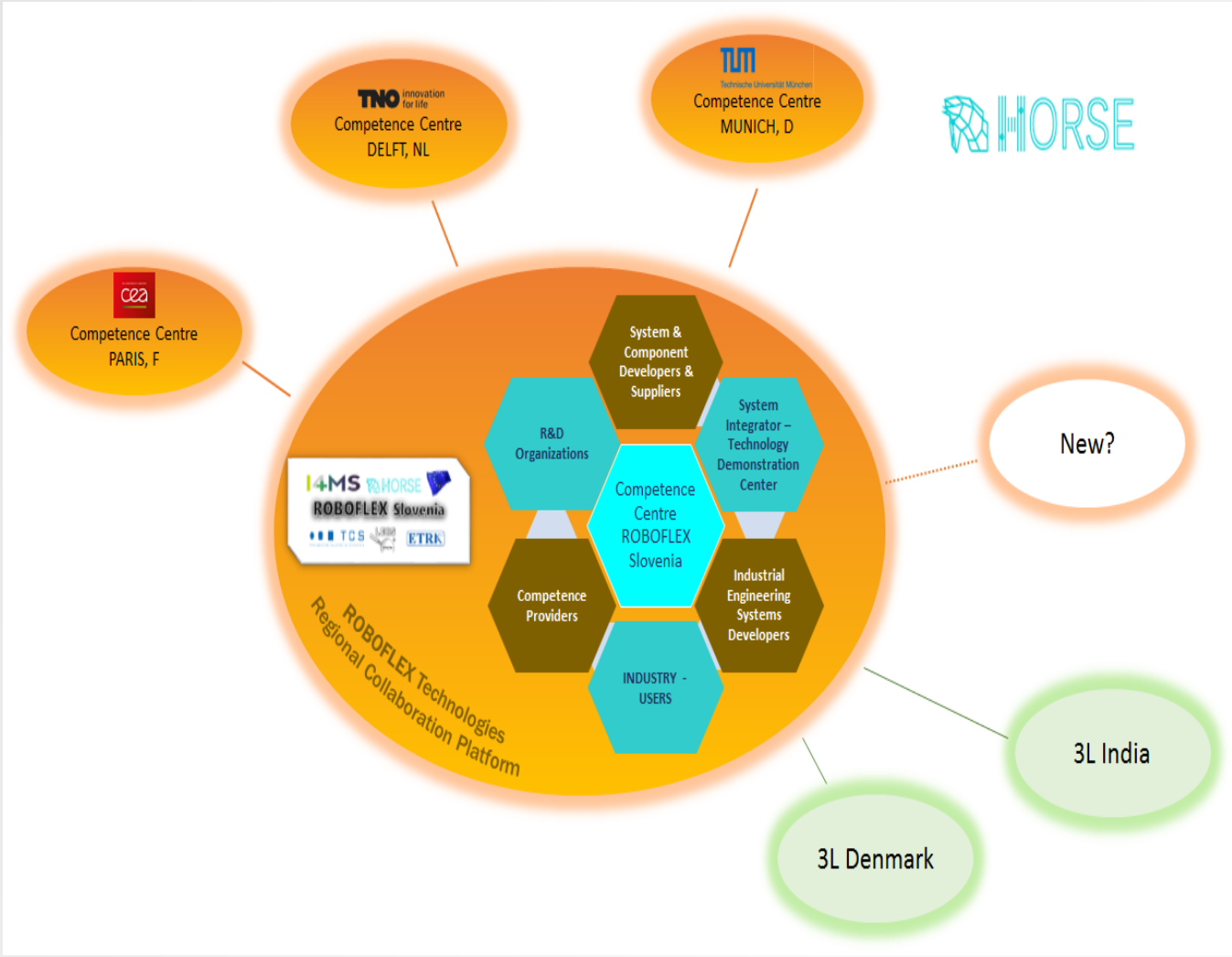
1. **C-TCS Institute** – legal representative of the Toolmakers Cluster of Slovenia (TCS)
   Role:
   - Legal representative of the Competence Centre ROBOFLEX Slovenia,
   - Network of manufacturing, R&D organizations and industrial clusters,
   - Project office services
2. **Company ETRA Ltd** – robotic systems developer and integrator
   Role:
   - Operator of the ROBOFLEX demonstration centre
3. **INTESO Group** – legal representative of the international virtual living laboratory **LENS Living Lab**
   Role:
   - Developer and coordinator of the regional ROBOFLEX Technologies collaboration platform,
   - Collaboration with the LENS Living Lab portfolio of existing technology platforms (Smart Machines & Systems, ICT, logistics, laser additive manufacturing, new business models and emerging competences),
   - ICT systems and services



Partners of the ROBOFLEX Technologies Collaboration Platform

Collaboration Platform Partners:

1. **ROBOFLEX Core Partners** – collaboration platform co-organizers and enablers,
2. **Robot Companies –** regional and international robotic systems developers and integrators,
3. **Service Companies** – providers of supporting services (technical and non-technical) needed for the successful implementation of robotics systems in the industrial environment,
4. **Manufacturing Companies** – advanced users (early birds), technology promoters, demonstrators and co-developers,
5. **R&D Organizations** – providers of R&D services, new technologies and industry strategic or project partners (present partners: Faculty of Logistics and Faculty of Mechanical Engineering from the University of Maribor),
6. **Competence Development Organizations** – developers and providers of lifelong education, training and HR services,
7. **Network of the HORSE Competence Centres** – outsourcing and partnering in the initiation and implementation of R&D projects
8. **Regional Digital Innovation Hubs (DIHs)** – partnering on the agreed areas of collaboration,
9. **International Partners of the Virtual Living Laboratory LENS Living Lab** – searching and exploiting potential application and collaboration opportunities with members from other complementary technology platforms



Potential financing ideas

- Services based
- Sponsoring by big organisation
- Membership approach
- Public and private financing. Ie. alignment with other initiatives

Contact us

www.horse-project.eu

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HORSE project Group