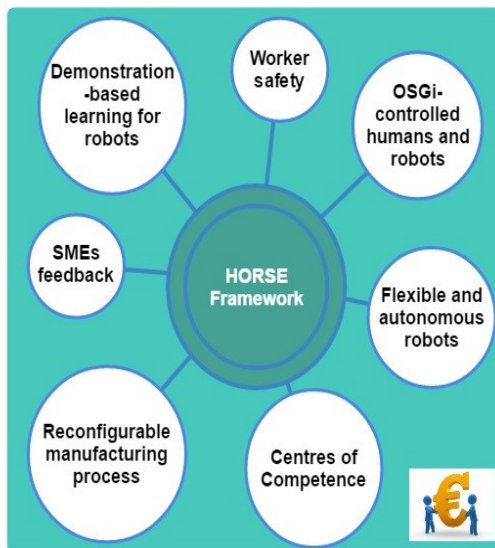


HORSE generic model enables flexible and versatile production lines and customization to large variety of applications.

It provides **flexibility** for fast configuration and take-up, improvement of **quality** and **safety** of the operator. It serves the entire value chain and proposes concepts for **robotics systems servitisation and product operation**.

Scientific research and lessons learned will result from HORSE. The value of the HORSE consists of **financial, infrastructure and expert support** that foster its future adoption through COCs and open calls in such a way to motivate experimentation.



HORSE framework has a multi-fold focus contributing to **flexibility of the production**, improvement of quality, and as an important aspect, safety. **Safety of the human worker as well as reduction of health risks** through physical support by the robotized equipment will contribute to better overall manufacturing processes.



Smart Integrated Robotics System for SMEs  
controlled by Internet of Things based on  
Dynamic Manufacturing Processes



This project has received funding from the European Union's Horizon 2020 research and innovation programme



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HORSE project Group



# Smart Integrated Robotics System for SMEs controlled by Internet of Things based on Dynamic Manufacturing Processes

**HORSE** aims to bring a leap forward in the manufacturing industry proposing a **new flexible model of smart factory** for the collaboration of humans, robots, AGV's and machinery to realize industrial tasks in an efficient manner. **HORSE** fosters technology deployment towards SMEs including:

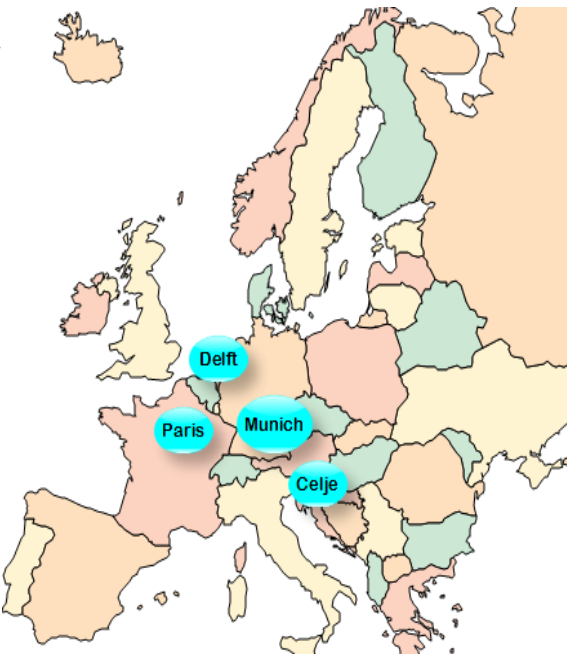
- ♦ methodological and technical framework for easy adaptation of robotic solutions .

♦ infrastructures acting as clustering points for applications in factories.

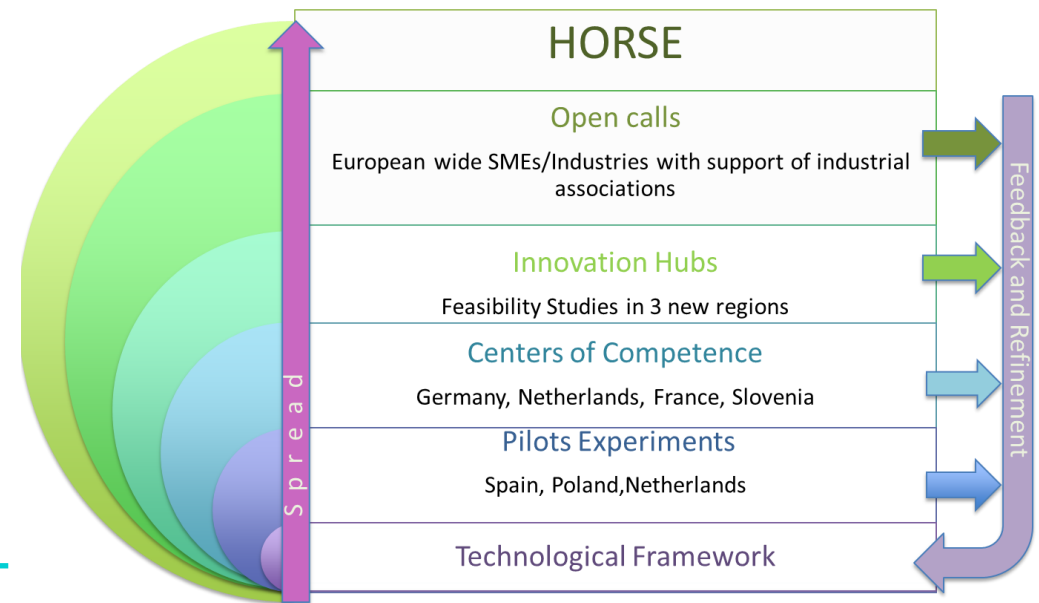
Framework and infrastructure to be driven and validated by leading manufacturing organisations (**Pilot Experiments**) in 3 countries.

The suitability and transferability to further applications will be validated with new factories to be recruited by an **Open Call mechanism in Q3 2017**.

**HORSE** infrastructures will be established in Centres of Competence (CoCs) in four locations across Europe. This will simplify usage and facilitate access to robotics to regional industries and research centers for experimentation. These CoCs can become the future regional Innovation Hubs. Thus HORSE as an I4MS project, promotes the EC initiative to support the European leadership in manufacturing through the adoption of ICT technologies.



**HORSE** proposes a comprehensive set of activities to **speed up adoption** of emerging manufacturing technologies of highly flexible and near-autonomous robotics systems.



**HORSE** framework incorporates:

- Integrated, **process-oriented management model** (BPM) for the high-level control of the production line, automatic resource allocation and dynamic reallocation as necessary.
- The **IoT** paradigm and OSGI-based architecture for remote control of production resources (humans, robots) in the same manner.
- Technologies enabling autonomous and effective cooperation

**supervision control modes** for a variety of robotic co-workers: co-operative robots (cobots) and "third hand" robots for diverse manufacturing applications, innovative **hybrid position/ force control for Intrinsically safe flexible robots, demonstration based robot programming** for easy and flexible teaching of new tasks by non-robotics experts.

- A **Multilayer safety approach** addressed at **robot** as well as **system. level**.