

INDUSTRIA 4.0 EN EL PROGRAMA H020

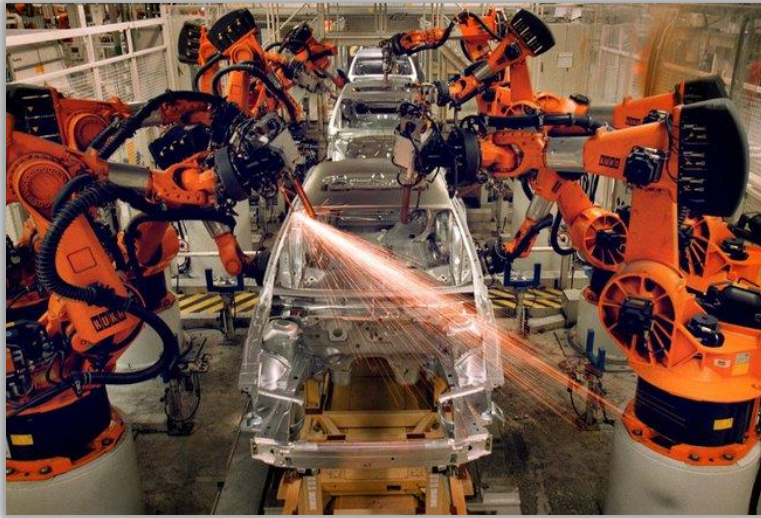
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CDTI

ICT - Horizonte2020

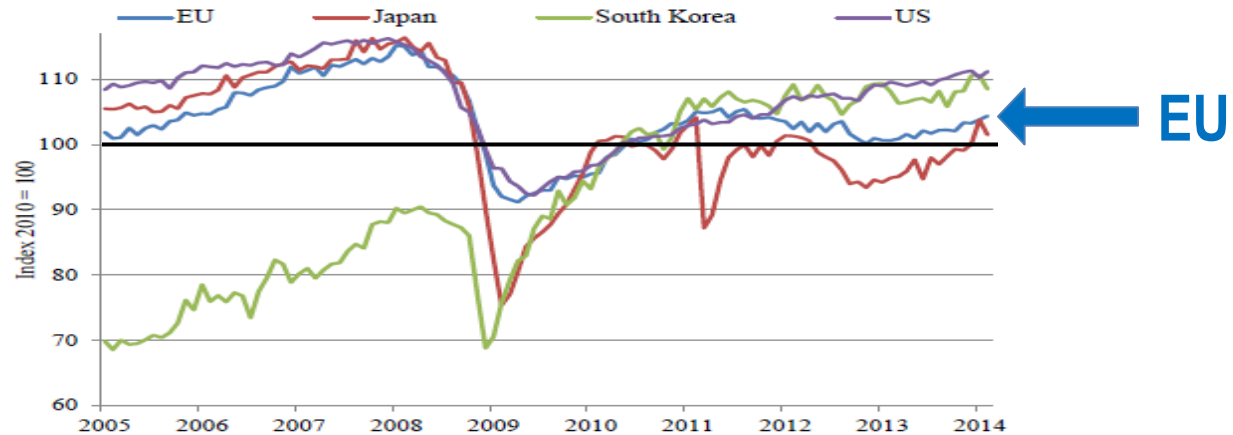
La industria Europea



Pilar económico en Europa:

- 2 millones empresas
- 33 millones empleos
- Ingresos anuales de 110.000 M€ de incremento por medio de la

DIGITALIZACIÓN



4ª Revolución industrial: Digitalización

“Digital is transforming European industry. It's changing the way we produce cars or chemicals, and how banks deliver financial services. Our challenge is to turn the 4th Industrial Revolution to our advantage, to reap the opportunities it brings.”

Günther H. Oettinger

 @GOettingerEU
#4IR



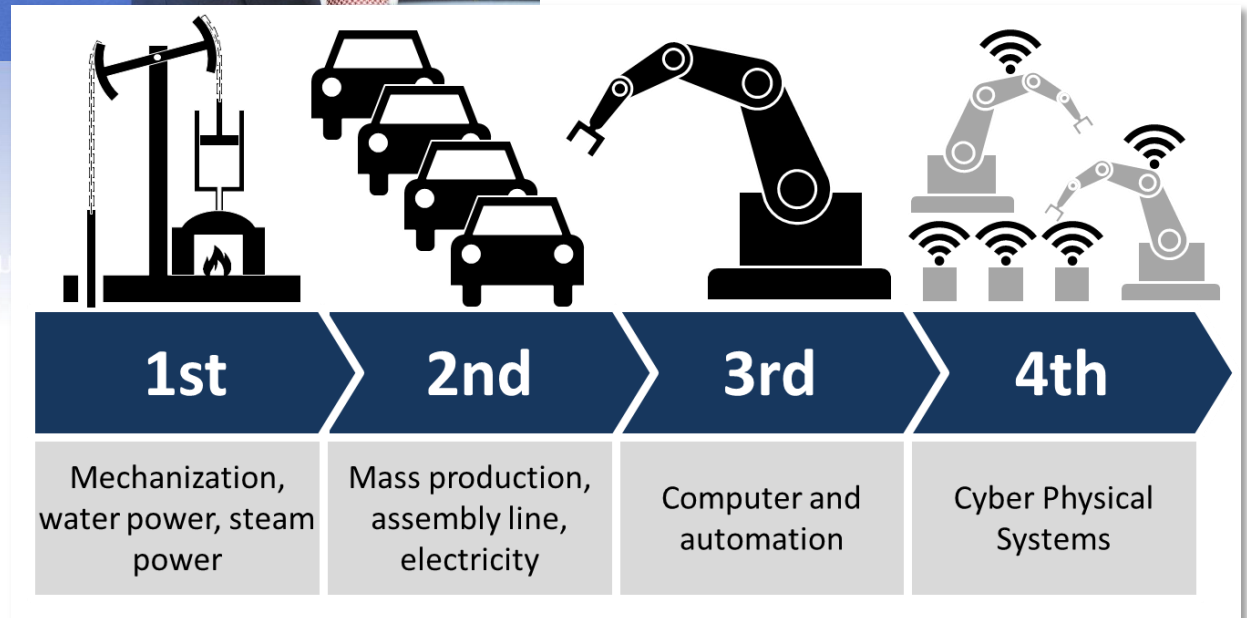
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 @GOettingerEU

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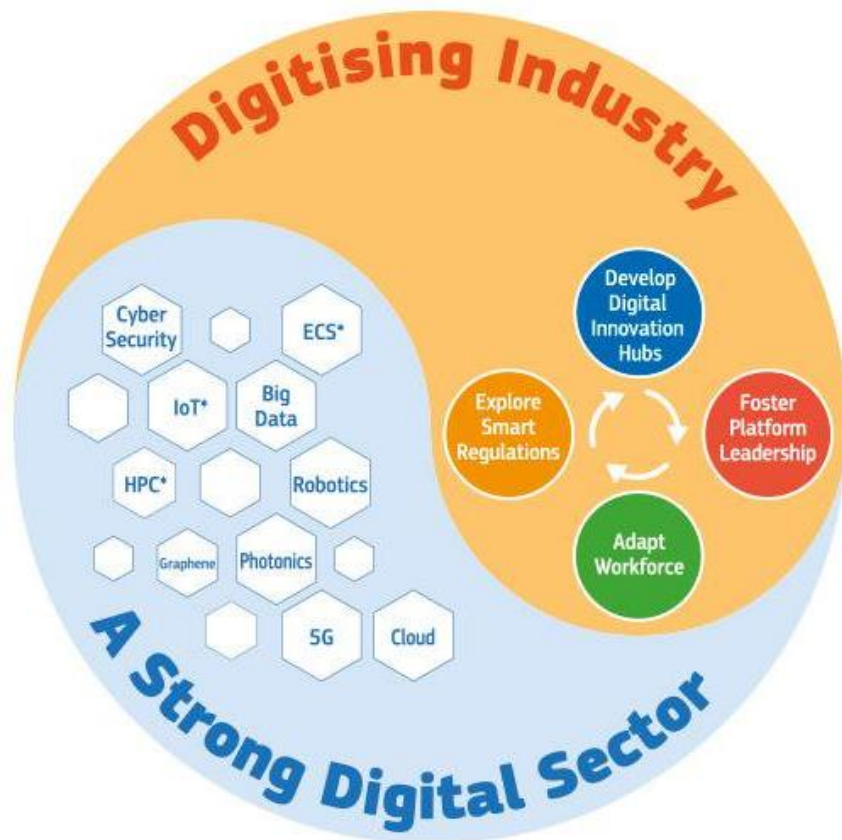
to reap the opportunities it brings

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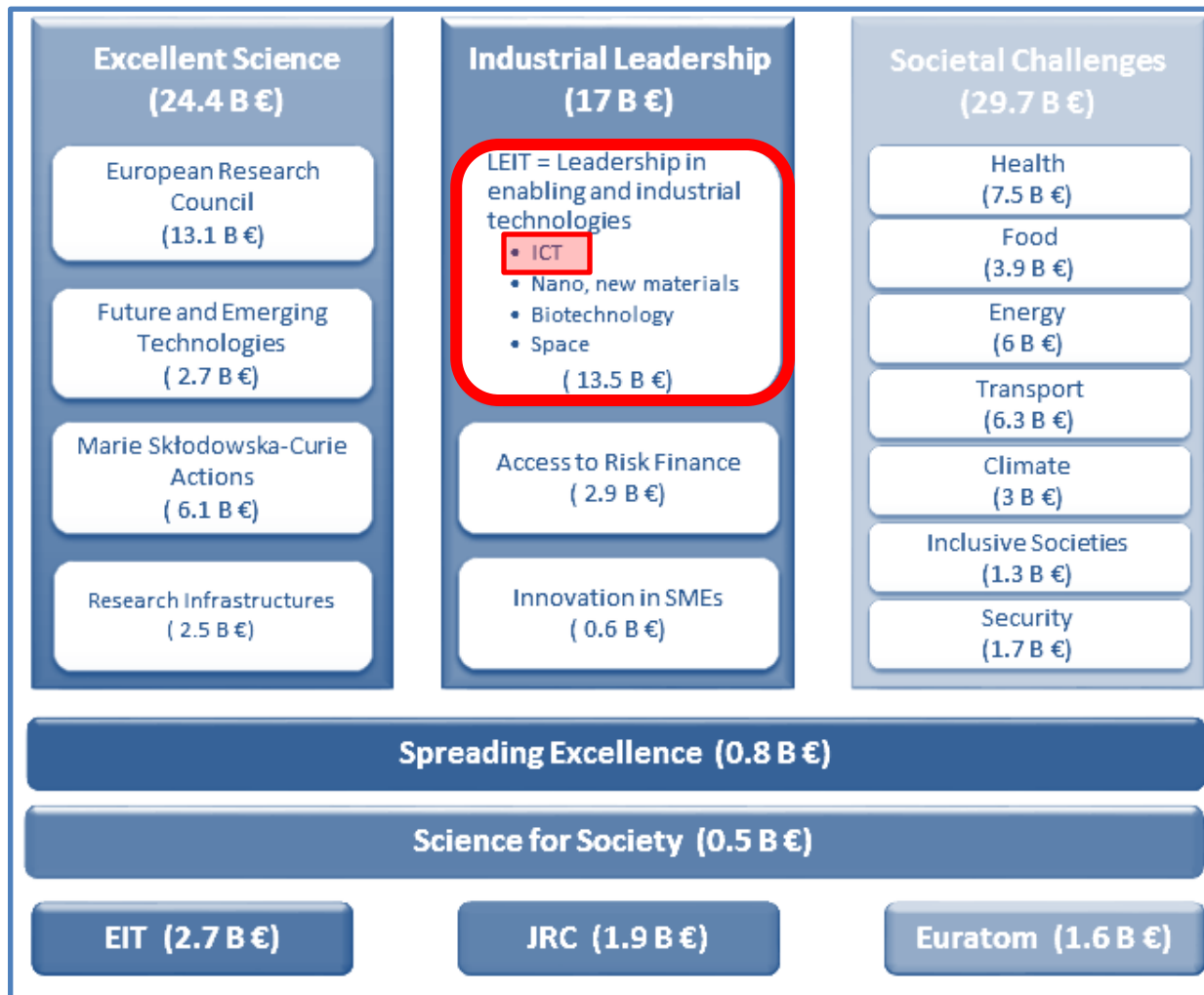
Digitising European industry

<https://ec.europa.eu/digital-single-market/en/digitising-european-industry>

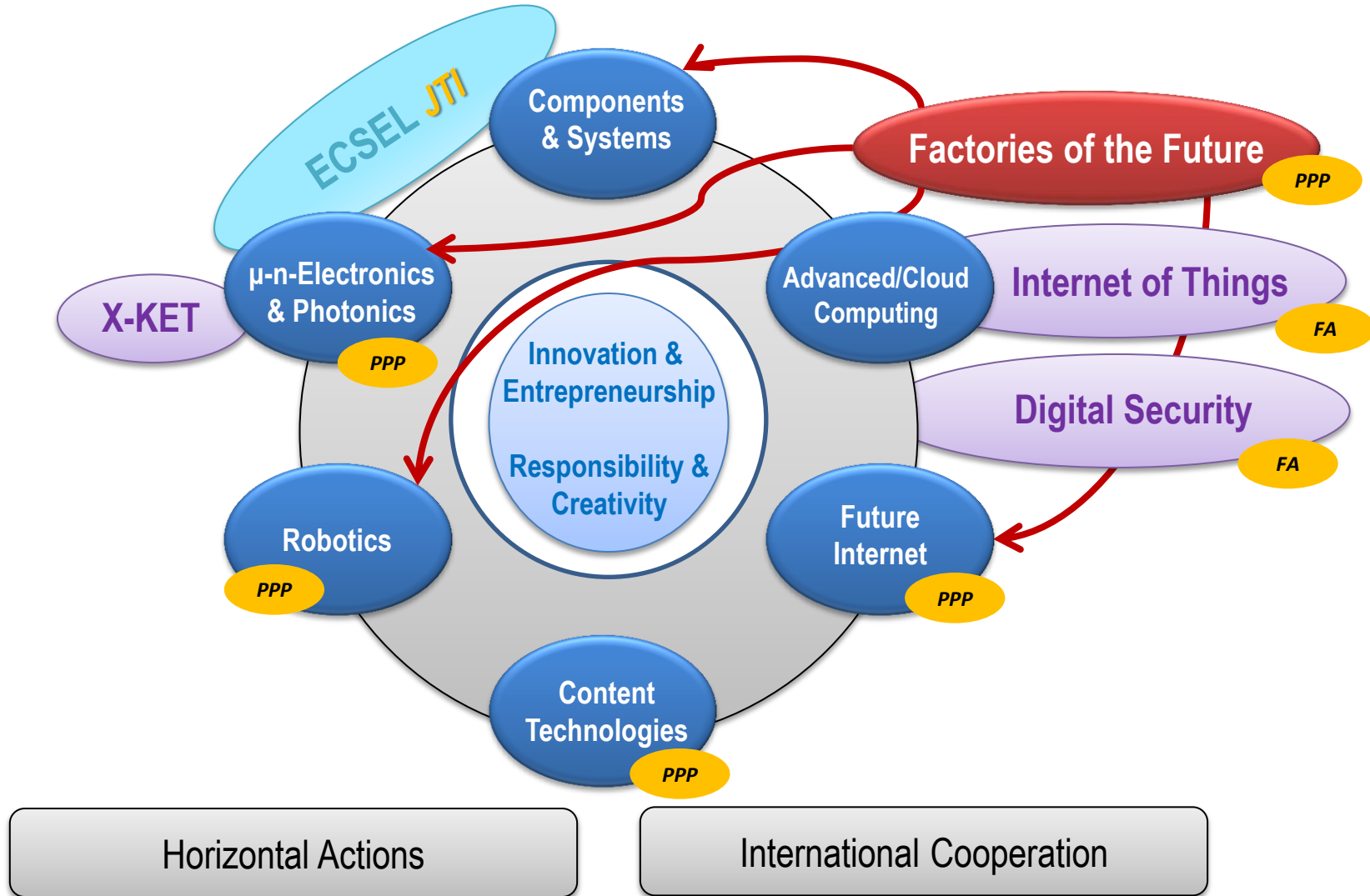


1. Digital Innovation Hubs
2. Uso Plataformas existentes:
BigData, IoT, 5G, ...
3. Estandarización y regulación
4. Mejora empleabilidad (formación)

Horizonte 2020



H2020 – Liderazgo Industrial (LEIT) - ICT



FoF - FACTORIES OF THE FUTURE (PPP)



“...development and integration of enabling technologies, such as technologies for *adaptable machines*, *ICT for manufacturing* and novel industrial handling of *advanced materials*.”

http://ec.europa.eu/research/industrial_technologies/factories-of-the-future_en.html

INDUSTRY 2020 IN THE CIRCULAR ECONOMY

Call Topics 2016

Call Topics 2017:

- **FoF – 06 /.../ 10: 85 M€**
 - **FoF-06-2017:** New product functionalities through advanced **surface manufacturing** processes for mass production
 - **FoF-07-2017:** Integration of unconventional technologies for **multi-material processing** into manufacturing systems
 - **FoF-08-2017:** In-line measurement and control for **micro-/nano-enabled high-volume manufacturing** for enhanced reliability
 - **FoF-09-2017:** Novel design and **predictive maintenance** technologies for increased operating life of production systems
 - **FoF-10-2017:** New technologies and life cycle management for reconfigurable and **reusable customised products**

- **FoF-12-2017: ICT Innovation for Manufacturing SMEs. 33 M€** **I4MS**

I4MS 1/2



I4MS

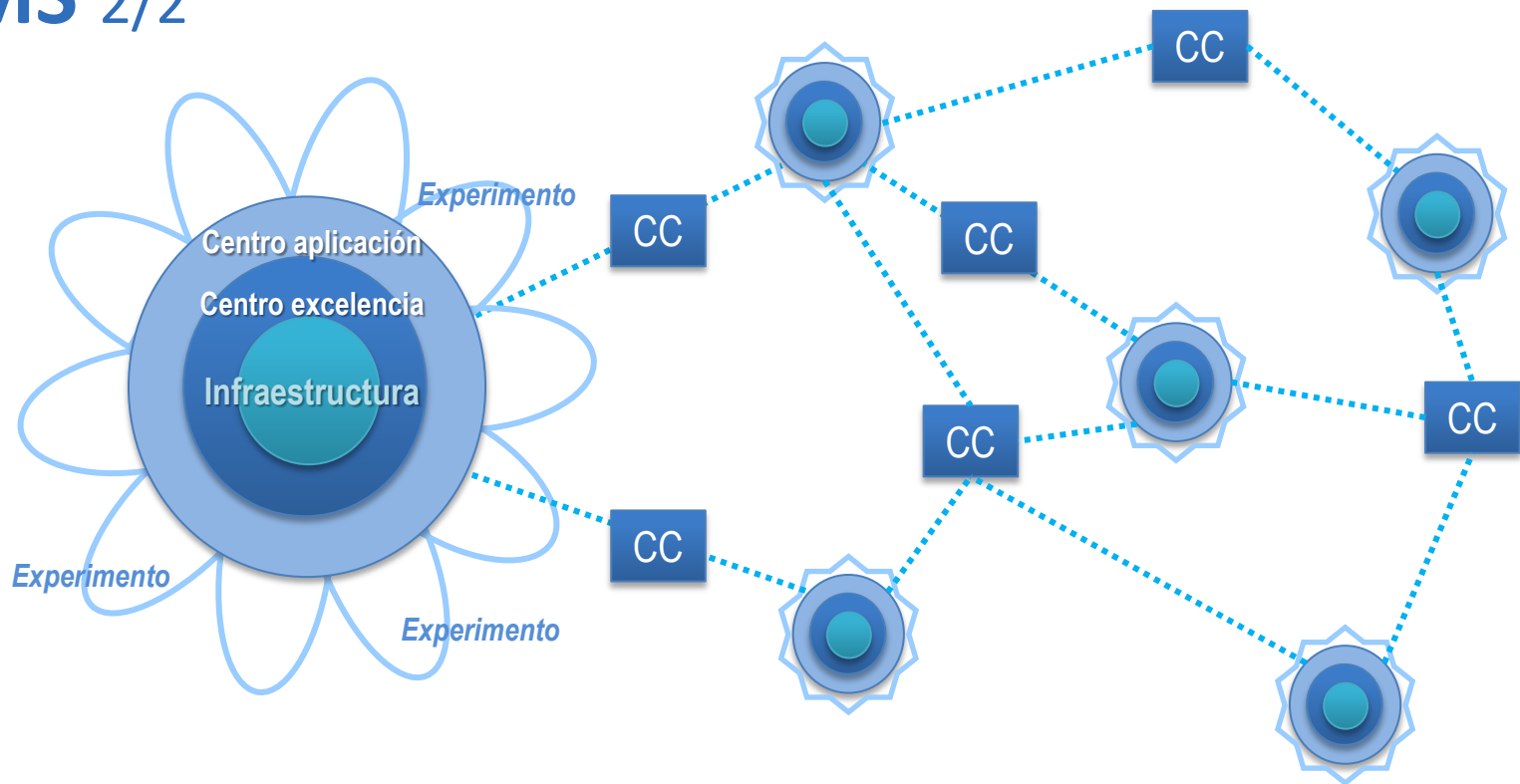
Objective:

Enhancing digital transformation in manufacturing SMEs and mid-caps

www.i4ms.eu

Phase 1 + 2:

- 75 + 35 M€ of EU funding (7 + 4 large projects)
- 40 + 30 competence centres
- 140 + 80 experiments
- 22 Members States & Ass. Countries
- Focus on **4 areas of ICT** adoption in the FoF:
 - *HPC cloud-based modelling, simulation and analytics services*
 - *Industrial robotics systems*
 - *Laser-based manufacturing*
 - *Smart sensors systems, CPS and IoT*



Centros de Competencia: Actúan como corazón de los Digital Innovation Hubs

- Facilitadores del acceso a la tecnología
- Servicio para el desarrollo de tecnologías
- “Broker” entre usuarios y fabricantes

FOF-12-2017

IA: Innovation Actions (1/2)

70% (5-8 M€)

Han de cubrir 3 aspectos:

1. Establecer una **red de Centros de Competencia** para empresas que deseen experimentar con el uso de tecnologías digitales en procesos de fabricación. Relación con *hubs de innovación regionales*.
2. Realización de un conjunto (masa crítica) de **experimentos trans-fronterizos** para adecuar las tecnologías a las *necesidades de los usuarios finales*.

“**Cascade Funding**”: 2-100 K€, Max: 50% financiación.

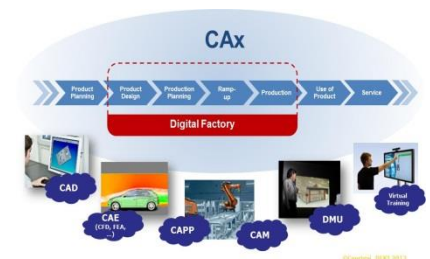
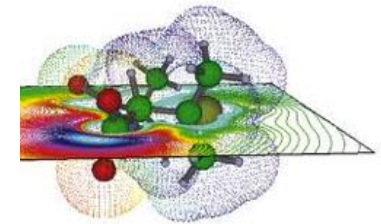
3. Alcanzar a largo plazo el establecimiento de un **mercado de servicios tecnológicos** por medio de los *Centros de Competencia* y el *eco sistema* desarrollado. Ha de servir como incentivo para atraer a los **inversores** a soportar el desarrollo de negocio de *PYMES* y empresas de tamaño medio.

IA: Innovation Actions (2/2)

70% (5-8 M€)

Tecnologías:

1. Integration of **CPS and IoT concepts** in smart production environments.
2. **Robotics systems** cost effective at lower lot sizes.
3. **HPC Cloud-based** modelling, simulation and analytics services focusing on sustained service models and real-time support.
4. **Digital design for additive Manufacturing** focusing on link between design tools and production.

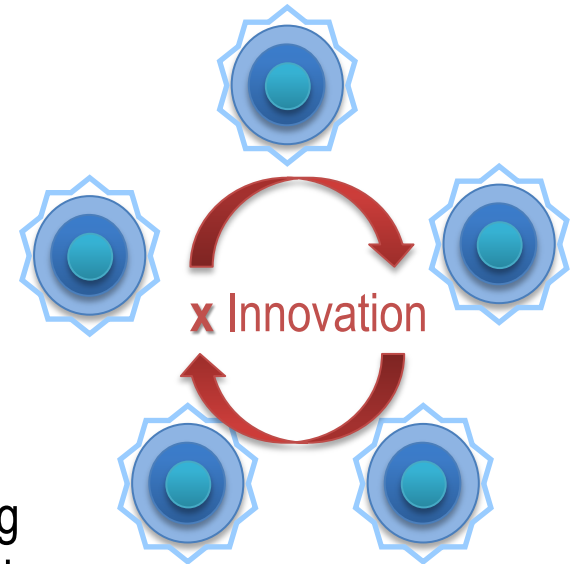


CAS: Coordination and Support Action

100% (1 M€)

Scope: To advance the I4MS Ecosystem

1. Single **portal** for newcomers
2. **Sharing** of best practices
3. **Dissemination**
4. **Brokering** between users and suppliers
5. **Identifying new ICT technologies** that can benefit from I4MS scheme
6. Levering **further investment** (mapping and matching competences in and *between regions* & linking up with *regional/national initiatives*)



FOF-12-2017

Impacto

Aportar objetivos medibles

- Exploration of new application areas for advanced ICT in manufacturing: **attract** a significant number of **new users**, in particular SMEs and Mid-caps
- More innovative and **competitive technology suppliers**, in particular SMEs
- More **competitive European service providers** through provisioning of new types of services and strengthening the presence on local markets.
- Creation of a self-sustainable **ecosystem** of competence centers, users and suppliers covering a large number of **regions** and their smart **specialisation**
- A critical mass of pan European **experiments** covering the whole **value chain** to demonstrate innovative and sustainable business models

Otras convocatorias H2020

FoF:

- **FoF-09-2017:** Novel design and predictive maintenance technologies for increased operating life of production systems.

ICT:

- **ICT-04-2017:** Smart Anything Everywhere Initiative (Embedded, Low energy computing, μ -Electronics. Large area electronics in SMEs. , “*cascade funding*”).
- **ICT-15-2017:** Big Data PPP: Large Scale Pilots.
- **ICT-25-2017.c:** Advanced robot capabilities research & take-up.
- **ICT-27-2017.b:** System abilities, SME & benchmarking, safety certification (For SMEs, “*cascade funding*”).
- **ICT-30-2017.b:** Photonics KET (Incubator for SMEs, “*cascade funding*”).

OTROS:

- **H2020-NMBP:** Procesos productivos en general
- **Clean Sky 2 (JTI)** : Fabricación en aeronáutica

RESULTADOS FoF-11-2016

Digital Automation (1/2)

FoF-11.a Research & Innovation Actions (RIAs): 51 M€ (49 prop.):

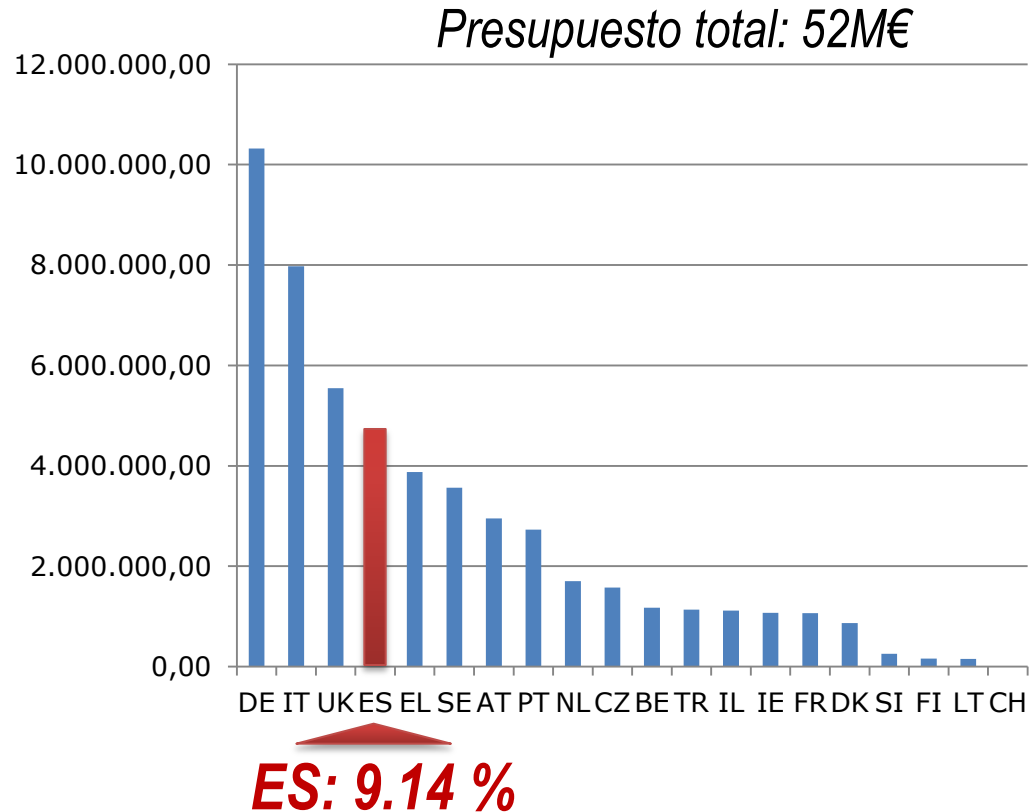
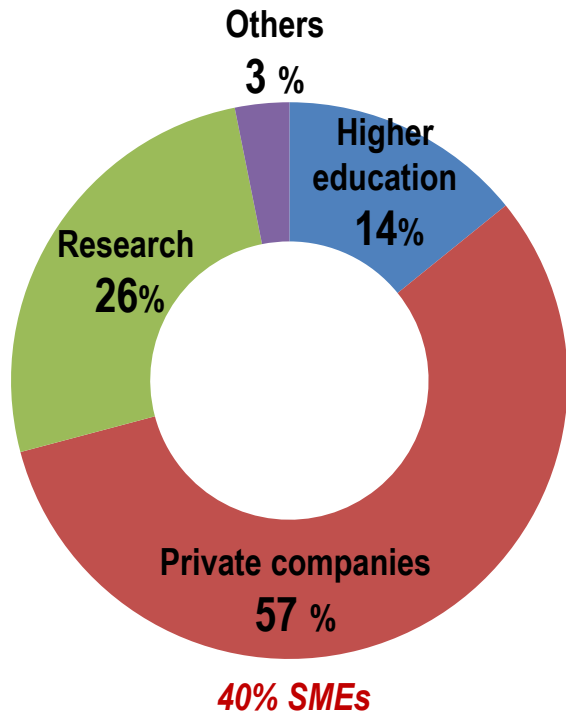
- *Collaborative manufacturing and logistics: 4 proposals*
- *Novel architectures for factory automation: 5 proposals*

FoF-11.b Coordination & Support Actions (CSAs): 2 M€ (1 prop.):

- *Industrial scenarios for connected factories*
- *Digital integration and interoperability of manufacturing systems and processes*
- *Consensus building: standardisation, security and business models*

RESULTADOS FoF-11-2016

Digital Automation (2/2)



Conclusiones

- La **participación española** ha sido aceptable.
- Las propuestas están en línea con el documento de “**Digitisation of European Industry**”
- Hay una gran variedad de actores involucrados, con un elevado **peso de la industria**.
- Desde el CDTI **podemos ayudar**.



Personas de Contacto en CDTI:

Leadership in Enabling and Industrial Technologies: ICT & Other



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MUCHAS GRACIAS

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<http://eshorizonte2020.es/>