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OPORTUNIDADES DE FINANCIACIÓN PARA PROYECTOS DE ROBÓTICA EN H2020

Fernando Martín Galende
fernando.martin@cdti.es
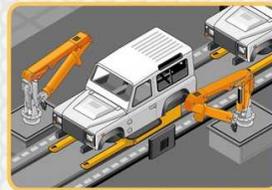CDTI
NCP de ICT en Horizonte2020

Robotics helping us, every day, everywhere

Important application areas

Manufacturing & industry
assembling cars, moving palettes & other goods

Healthcare
minimal-invasive surgery

Home care
assisting elderly & disabled people

Agriculture
pruning, weeding, spraying, monitoring & milking

Security
inspection of pressure vessels & storage tanks used in oil, gas & petrochemical industry; rescue missions

Environment
cleaning waste, water and air

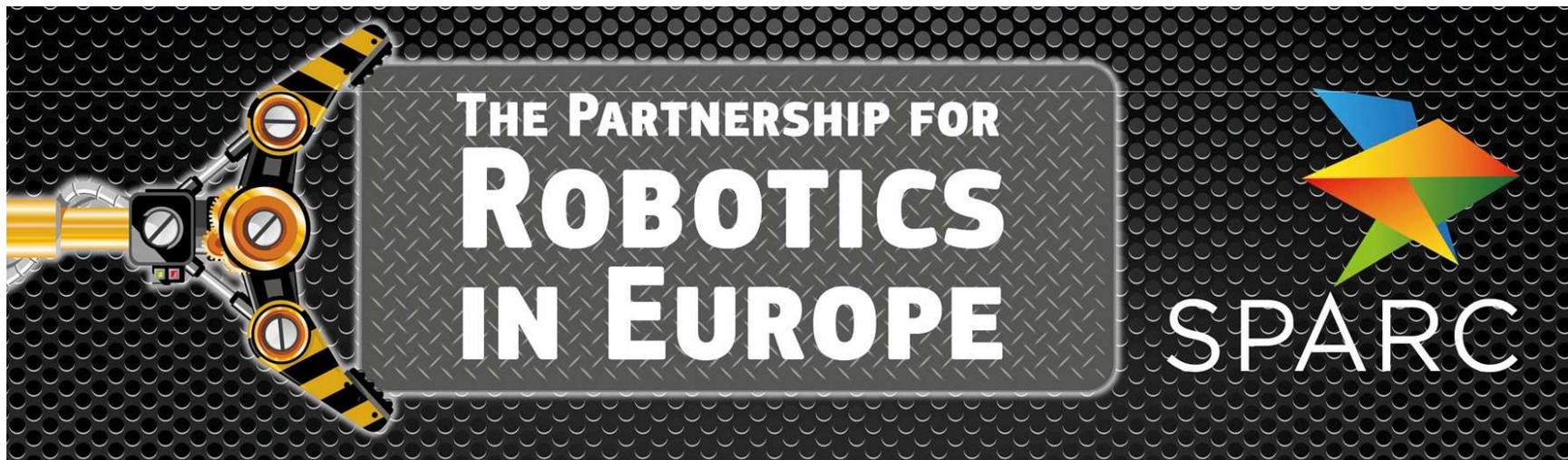**Transport**
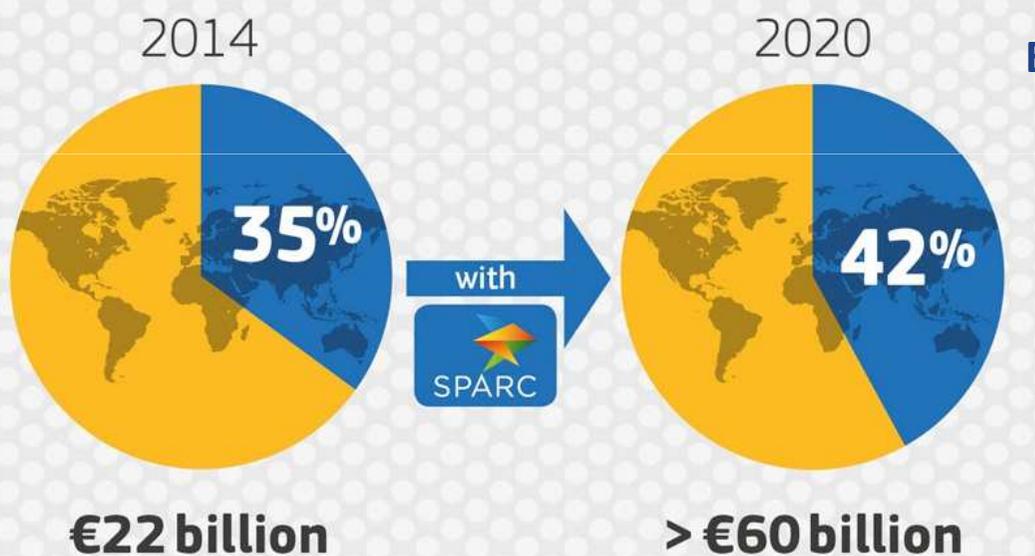autonomous vehicles such as cars & drones

Entertainment
cinema & educational games

To realize the Robotics revolution in Europe

Maximizing benefit for European Economy & Society

(16/12/2015)

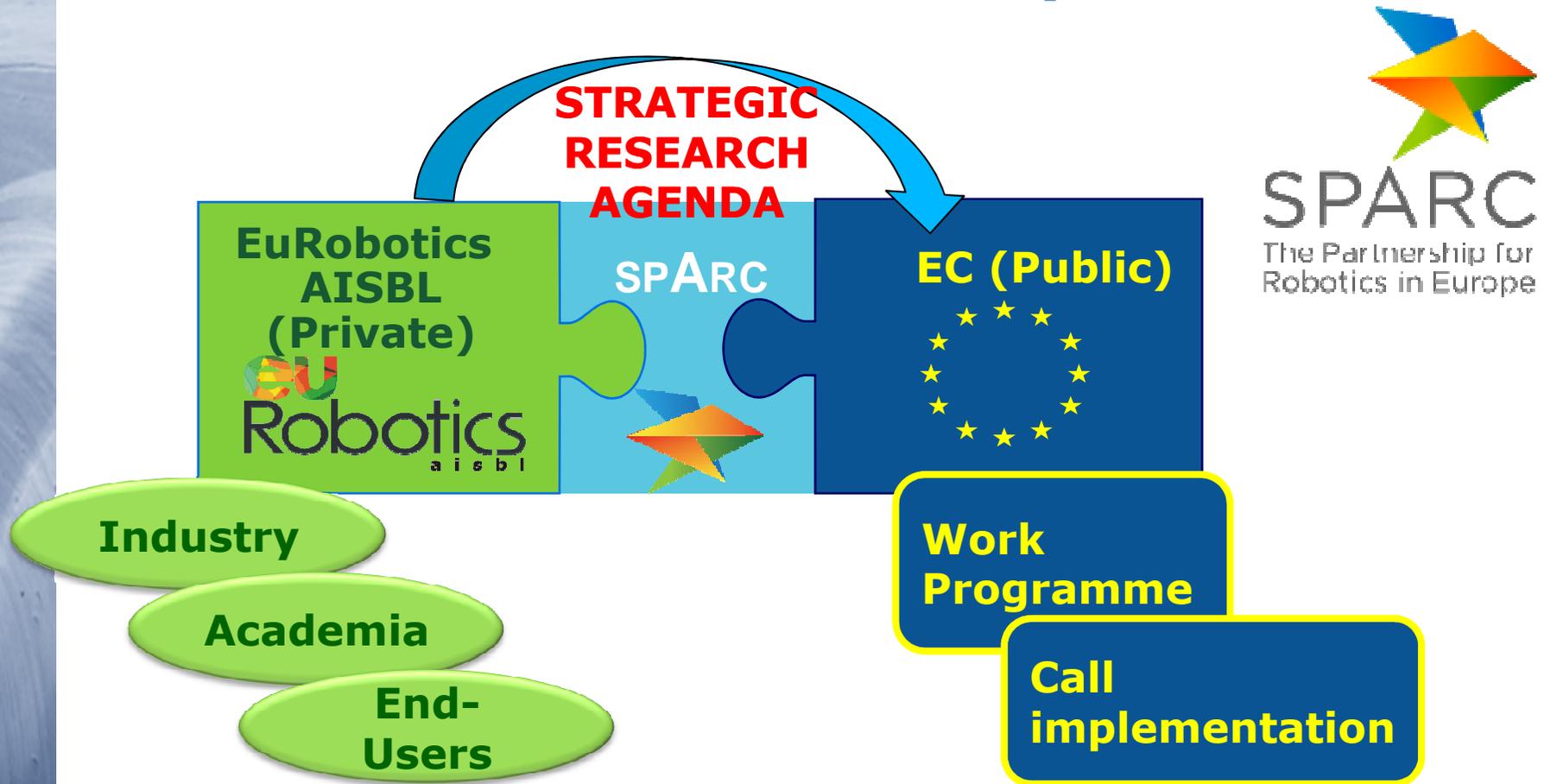# Strengthen Europe's global position in the robotics market

Global robotics market

2014 — 35% — €22 billion

with SPARC

2020 — 42% — > €60 billion

EUROPEAN MARKET SHARE in 2020
– 35% INDUSTRIAL ROBOTICS
– 65% PROFESSIONAL SERVICES
– 20% DOMESTIC SERVICE

Public–Private Partnership in Robotics

STRATEGIC RESEARCH AGENDA

EuRobotics AISBL (Private)

SPARC

EC (Public)

Industry

Academia

End-Users

Work Programme

Call implementation

→ http://sparc-robotics.eu/about/

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SRA = Strategic Research Agenda
MAR = Multi-Annual Roadmap (to be updated)
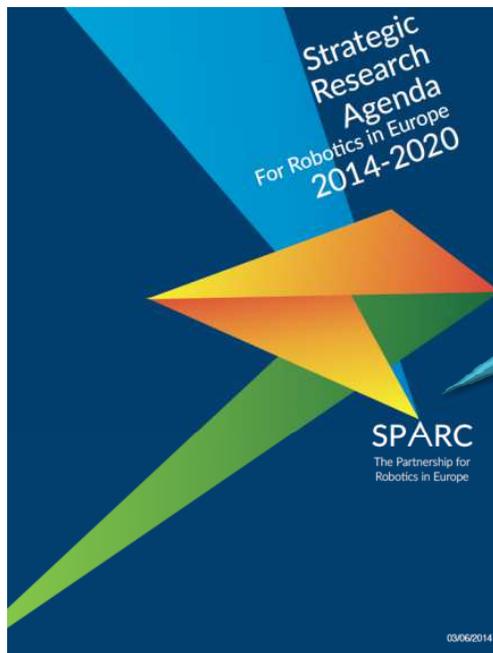
Essential reading for proposers, providing definitions and illustrative examples of the selected priorities.

→ ALL PROPOSALS ARE EXPECTED TO DEMONSTRATE THEIR CONTRIBUTION TO THIS ROADMAP.

ICT Robotics Work Programme
2016–2017

(16/12/2015)

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WP2016-17 Robotics and Autonomous Systems: Approach

Technology-driven **R&D&I to keep Europe at the cutting edge of research**

Market-driven **R&D&I to accelerate take-up and deployment, including by SMEs.**

→ New technical capabilities and system abilities

→ Move research results out of the laboratory and into the marketplace, engaging with SMEs and end-users

+

Support measures to improve market and regulatory climate: e.g. addressing non-technical market barriers

→Entrepreneurship, ethical / legal / socio-economic issues, skills and training

Robotics competitions

Robotics WP2016-17: Four topics

1. **ICT-25-2016-2017**
   Advanced robot capabilities research and take-up

2. **ICT-26-2016**
   System abilities, development and pilot installations

3. **ICT-27-2017**
   System abilities, SME & benchmarking actions, safety certification

4. **ICT-28-2017**
   Robotics competition, coordination and support

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Research & Innovation Actions

TYPE	2016	2017
RIA	**OPEN** **Step change in prioritised techno**	**OPEN** **Step change in prioritised techno**
RIA	**Dependability** **Social Interaction Ability** **Cognitive Ability**	**Advanced perception** **Decisional autonomy** **Increasing dependability** **Self-verifying & Self-correcting systems**
RIA	**Multiple-actor systems**	**SME-based research** **Benchmarking**

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Innovation Actions

TYPE	2016	2017
IA	▪ **OPEN: end users driven**	▪ **OPEN: end users driven**
IA	▪ **System Development technology** ▪ **Pilot installations - robot testing**	▪ **Shared facilities for safety certification**
PcP		▪ **Smart city**
CSA		▪ **Non-technical barriers to robotics take-up** ▪ **Standard & Regulation** ▪ **Community support and outreach** ▪ **Competitions**

H2020 ICT-25-2016-2017

Advanced robot capabilities research and take-up
2016: Call closes: 12/04/2016

RIA – 2016 - 15M€

a. Open, generic technical advances:
all topics and disciplines
Cross-cutting domains
Project size: 2-4M€

b. Step changes in capabilities:
systems development, HRI,
mechatronics, perception,
navigation and cognition
Project size: 2-4M€

IA – 2016 - 15M€

c. End user-driven application development
Areas with high market potential
>TRL5*
non-tech output: operating parameters &
reduce commercial risks
Project size: 2-4M€

*Technology readiness level 5: validated in a relevant environment

d. End user-driven innovation actions v. market
entry barrier
Technical capability / system ability gap
Project size: 2-4M€

!!! Identify center of gravity (RIA: a. or b. / IA c. or d.)

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(16/12/2015)

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H2020 ICT-26-2016

System abilities, development and pilot installations
2016: Call closes: 12/04/2016

RIA – 2016 - €24M€

a. Prioritised Abilities:
   Dependability
   Social interaction
   Cognitive
Project size: 2-4M€

b. Multiple-actor systems – end user driven
   robustness, different environments, autonomy, service level gains
Project size: 2-7M€

IA – 2016 - €18m

c. System development technology
   Tool chains and building block appli.
Project size: 5-8M€
Min 50%: Financial Support to Third Parties (50-250k€ each)

d. Pilot installations for robot testing End-user driven / real world conditions / shared facility + support
Project size: 7-10M€
Min 60%: Financial Support to Third Parties (50-150k€ each)

Background documents, events

o WorkProgramme: http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-leit-ict_en.pdf

o SRA & MAR - http://sparc-robotics.eu/about/
o MAR being updated for the call

o Q&A document (continually updated) to be published later on the Participant Portal

o SPARC Brokerage Day, Expo Building, Brussels, 18 November 2015
   o Info on www.eu-robotics.net and www.sparc-robotics.net

o Follow news on:
http://ec.europa.eu/digital-agenda/en/robotics

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Additional relevant topics

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Additional topics in other WP parts

1. **SFS-05-2017**
    Robotics Advances for Precision Farming

2. IoT-01-2016 Large-scale pilots
    Pilot 5: Autonomous vehicles in a connected environment

3. FOF-12-2017
    ICT Innovation for Manufacturing SMEs (I4MS)

4. PERASPERA PSA: COMPET-4-2016

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SFS-05-2017: Robotics Advances for Precision Farming

"high levels of precision in modern farming by the smart use of robotics"

"develop and demonstrate new robotics technologies in real-world scenarios such as automated mobility around irregular farmland areas, accurate sensing on crop and livestock conditions, and dextrous manipulation of farmed produce"

"prioritise technologies such as selective harvesting, more targeted weed reduction or environment friendly fertilization, and/or livestock management, based on better planning and targeted intervention, using sensors (local and aerial, even maybe earth observation satellite).
This will also allow the tagging of agricultural produce or livestock for better traceability and subsequent **big data processing**, optimizing the whole agricultural process"

7 M€ en la convocatoria que cierra el 14 de febrero de 2017 (2-4M€/proyecto)

Específico para el sector agroalimentario en colaboración con el robótico.

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IoT for autonomous vehicles in a connected environment

Paving the way to **deployment** up to **FULL AUTOMATION***

1.OBTAINED VIA Optimal combination of **Autonomy & Connectivity**

- **Local** information & intelligence = **autonomy** (of individual vehicles)
- → **Essential for SAFETY in REAL ENVIRONMENT**: mixed traffic with legacy vehicles, lost connection, pedestrians, etc.

- **Distributed** information & intelligence = **IoT**

→connectivity for **improved** performance: adding redundancy, prediction & longer term planning, higher level scene understanding, etc.

2.ALLOWING Innovative IoT services: driver out of the loop

Foster deployment in real traffic

Sustainable pilots & Permanent installations

– Requires commitment from the pilot hosts, authorities, etc.

Demonstrate Technical performances in real environment

– Dependability (incl. safety), robustness and resilience, usability

Address non-technical aspects

– Maximise added value to users
  - scenario: urban, highway, dedicated lanes or mixed environment, etc.
– User acceptance and User behaviour
– Economic, legal, regulatory and ethical issues

Core technologies include

- Reliable and real-time platforms managing mixed criticality car services
  - Integration of State of the Art embedded components (advanced sensors, components, actuators)
  - Advanced sensors and Internet information sources
- Efficient navigation
  - In car embedded (sub)systems for autonomous navigation, real-time up-dates on road, transport conditions, pattern recognition
- Improved decision-making algorithms
  - Beyond advanced driver assistance systems
  - Optimisation of local and distributed information and intelligence
- Interconnectivity between vehicles, vehicle to infrastructure communication
  - Communication and network technologies (e.g.: 4G, IEEE 802.11p and LTE-V)
  - Mobile IoT - Interconnectivity V2V & V2I
- Supported by an open service platform
  - Access to all in vehicle embedded information sources
  - Data gathering from car surrounding information
  - In view of providing value-added apps e.g. intelligent maintenance

20 M€ en la convocatoria que cierra el 12 de abril de 2016

Additional topics in other WP parts

1. SFS-05-2017
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2. IoT-01-2016 Large-scale pilots
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3. **FOF-12-2017**
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4. PERASPERA PSA: COMPET-4-2016

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ICT for Manufacturing SME (I4MS)

I4MS is the initiative promoted by the EC to support the European leadership in manufacturing through the adoption of ICT technologies.

I4MS aims at promoting leading edge technologies, developed in FP7 large ICT projects, in the following areas:

- **Robotics**
- HPC cloud based simulation services
- Laser based applications
- Intelligent sensor-based equipment

http://i4ms.eu/

33 M€ en una nueva convocatoria que cierra el 19 de enero de 2017

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ICT for Manufacturing SME (I4MS)

Seven ICT projects are associated to the I4MS proposing mature technologies, but not yet available in the market, in the mentioned areas:

- FORTISSIMO, CloudFlow, CloudSME (HPC simulation)
- APPOLO, LASHARE for (Laser based applications)
- INTEFIX (Sensor-based equipment)
- **EuRoC (Robotics)**

http://i4ms.eu/

33 M€ en una nueva convocatoria que cierra el 19 de enero de 2017

Additional topics in other WP parts

1. SFS-05-2017
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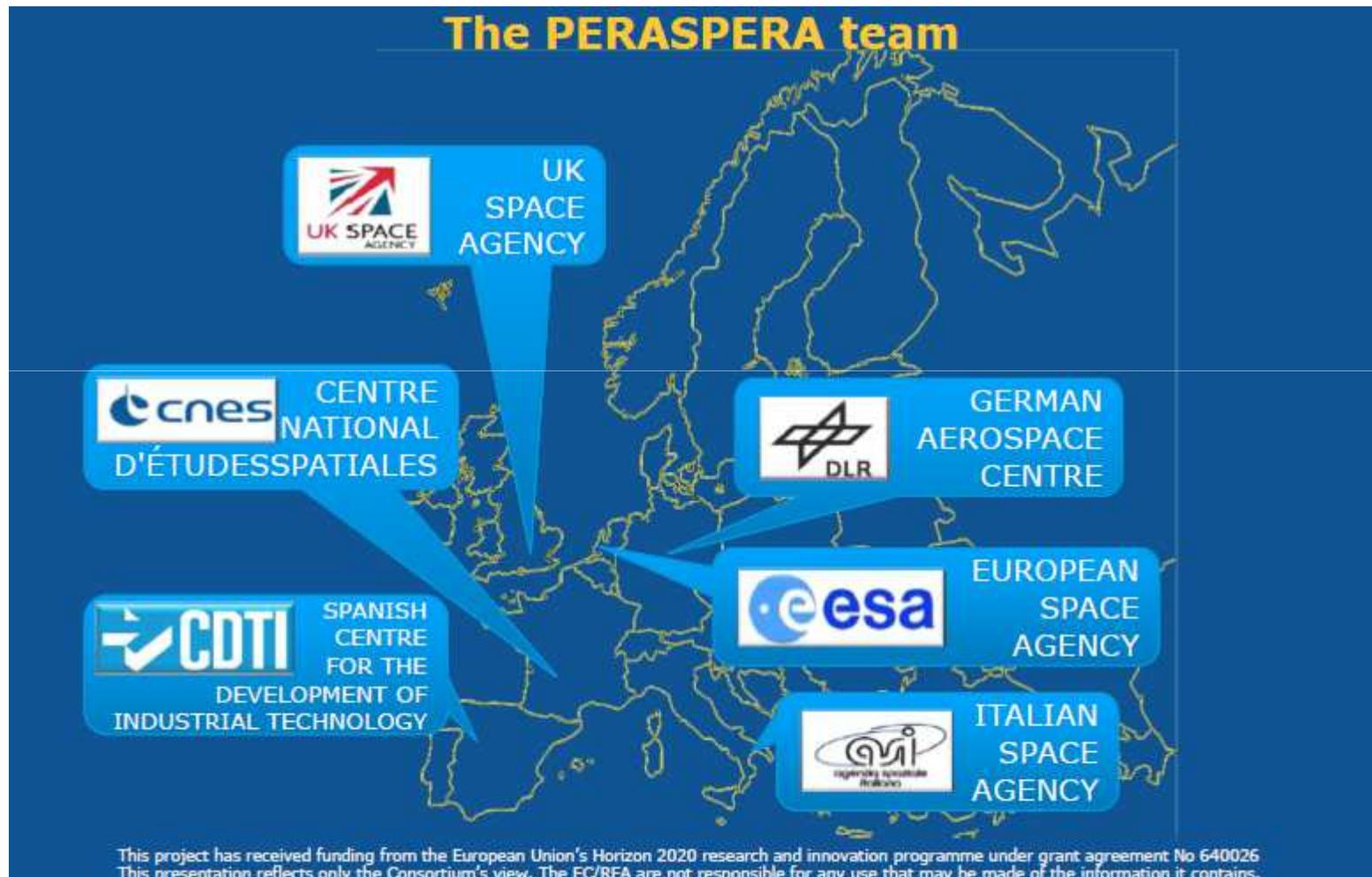Industrial

PERASPERA
Programme Support Activity

• The project "PER ASPERA (ad ASTRA)" (Latin meaning "Through hardships to the stars") aims at developing an integrated master plan (a.k.a. roadmap) of activities and associated activity descriptions, for a Strategic Research Cluster (SRC) in **Space Robotics Technology**.

• The roadmap will be implemented within the SRC through **operational grants**, which will be recommended by PERASPERA and issued by the European Commission.

http://robotics.estec.esa.int/h2020-peraspera/

https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2241-compet-4-2016.html

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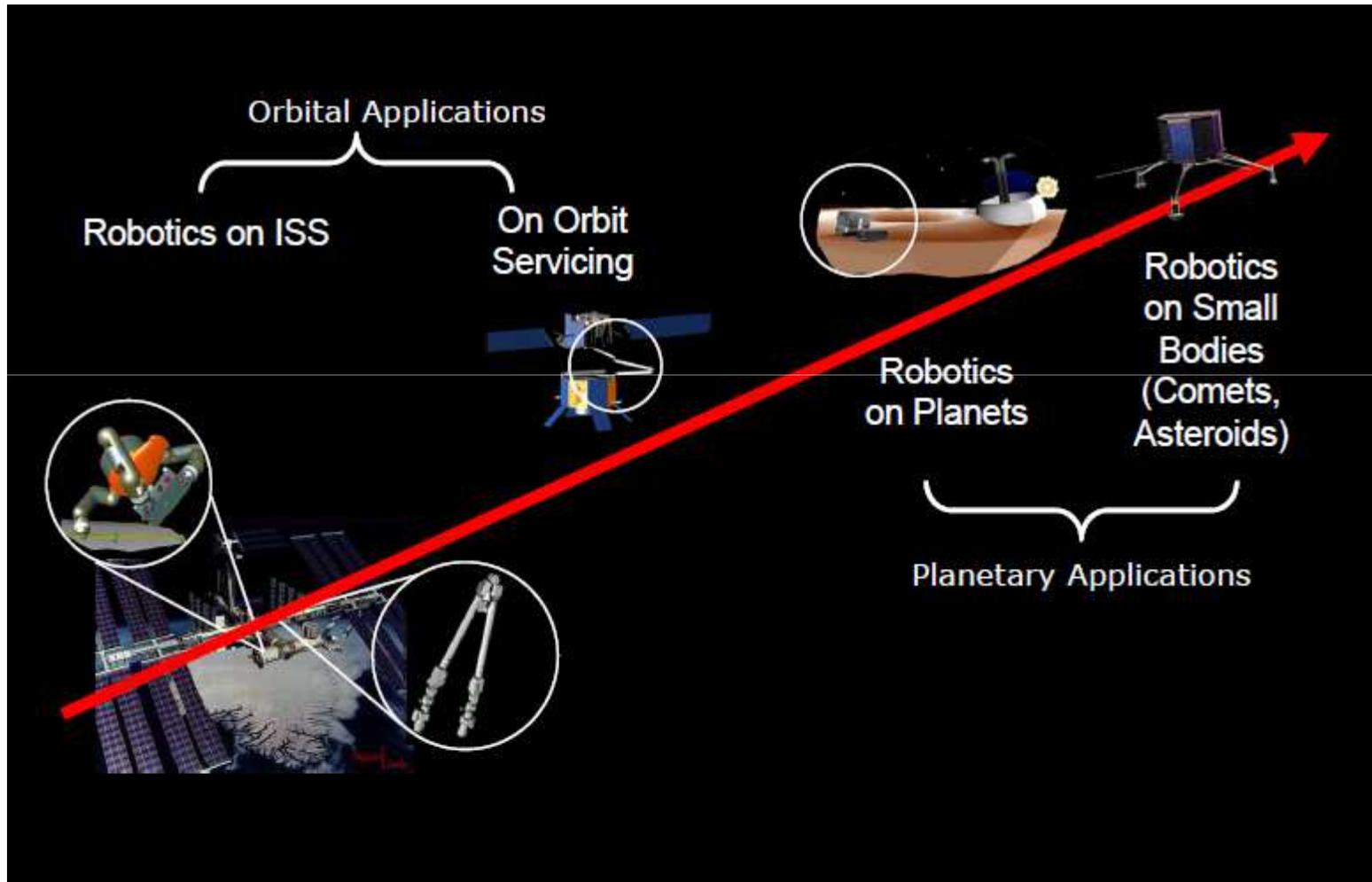(16/12/2015)

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PERASPERA
Programme Support Activity

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Recomendaciones Generales:

- La competencia es muy alta, no dudar en dar un enfoque original y creativo a nuestras propuestas para "llamar la atención" del evaluador.

- Garantizar en todo momento el encaje en los objetivos del topic y la presencia industrial que garantice una correcta validación en el sector requerido.

- Dar la importancia debida a los aspectos de aproximación al mercado, estandarización, planes de negocio y explotación, etc. en las Acciones de Innovación. Intentar maximizar la percepción del Impacto.

- Siempre conviene saber qué se financió antes para plantear correctamente objetivos ambiciosos.

- Dejarse ayudar.

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Personas de Contacto en CDTI:

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MUCHAS GRACIAS

http://eshorizonte2020.es/