

ROBOTICS IN H2020

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Unit A2 – Robotics

DG CONNECT - Communication Networks, Content and Technology

EUROPEAN COMMISSION

2014-03-27 Demonstration Day
μRALP, STIFF-FLOP, CASCADE, Leuven, Belgium

Content of presentation

Context and link to Strategic programme

H2020 overview

Robotics in Industrial Leadership

Robotics in Societal Challenges

Robotics in Excellent Science

H2020 overview

Horizon 2020

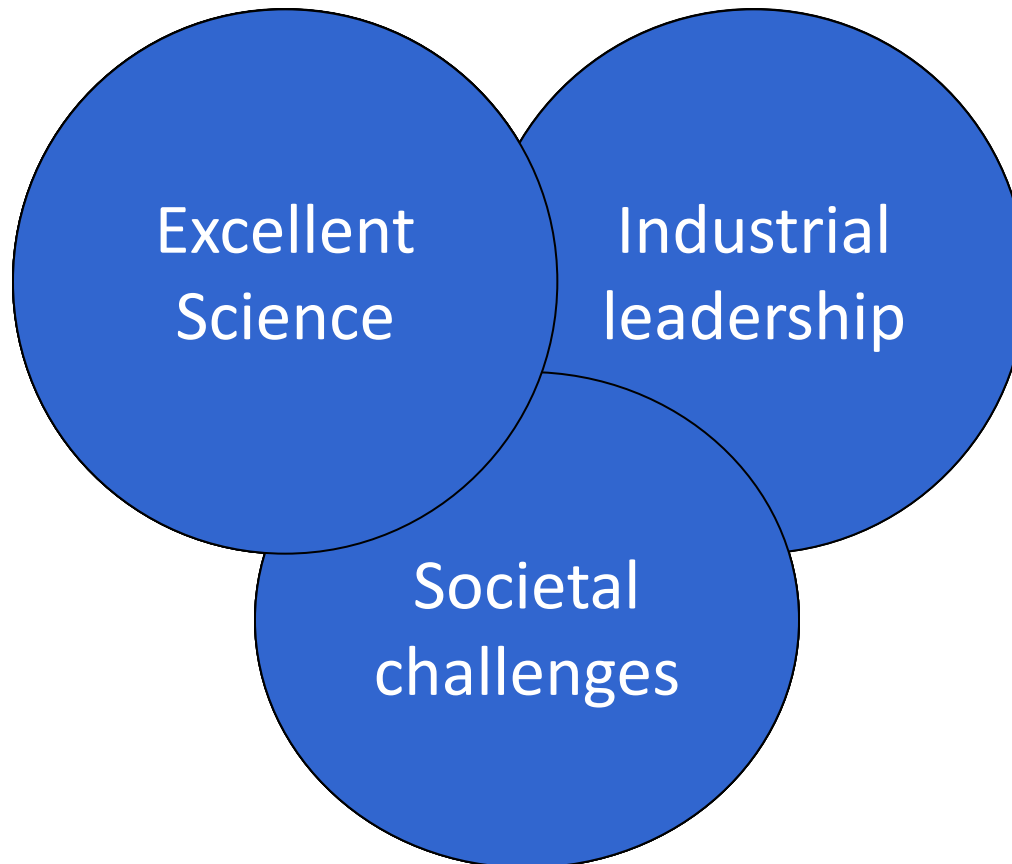
*A European Research & Innovation funding programme (2014-20)
(~77 billion Euro)*

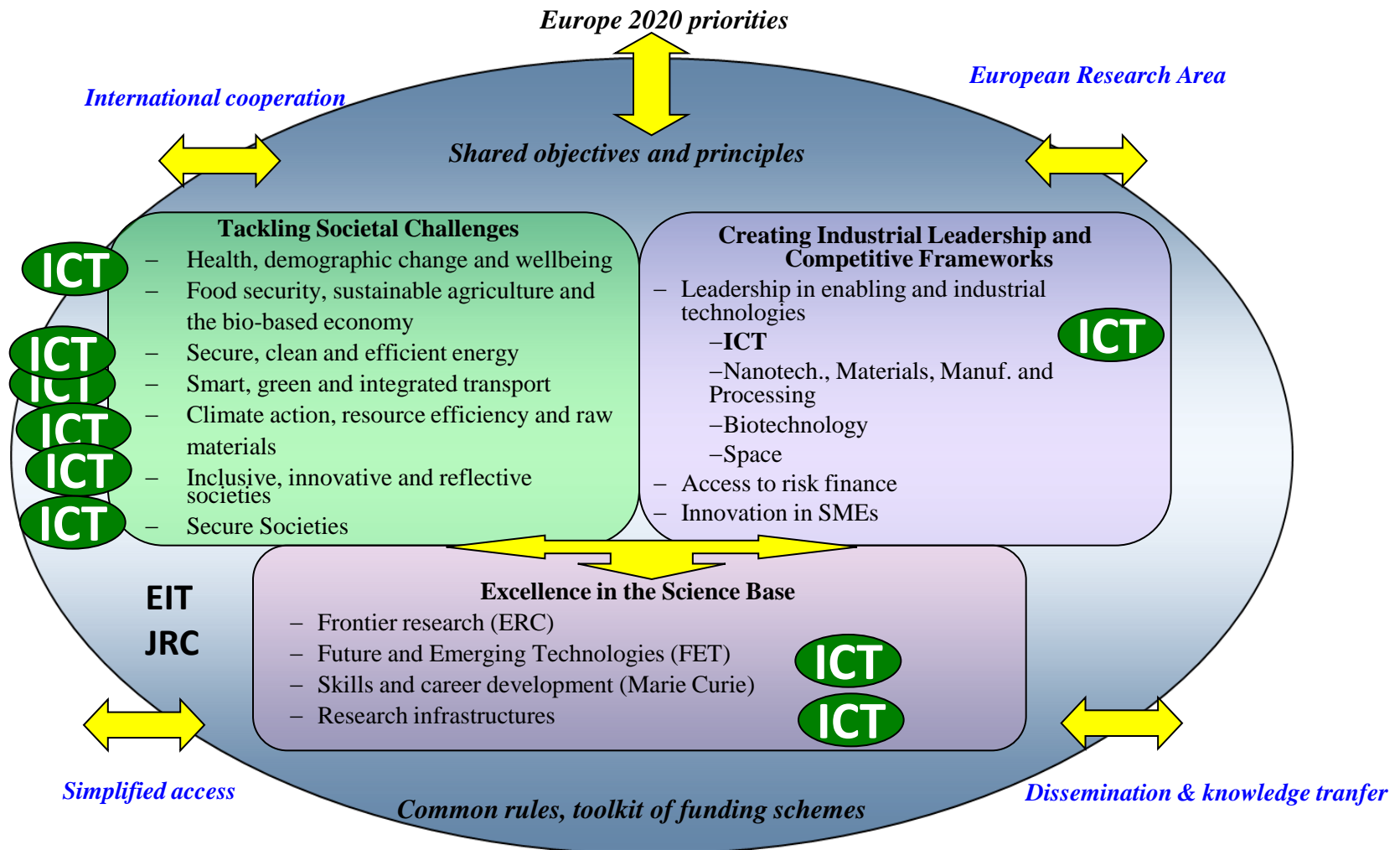
*Part of EU budget, complementing Structural Funds, education,
etc.*

*A core part of Europe 2020, Innovation Union & European
Research Area:*

- Responding to the economic crisis **to invest in future jobs and growth**
- Addressing peoples' concerns **about their livelihoods, safety and environment**
- Strengthening the EU's global position **in research, innovation and technology**

A stronger, clearer focus





What is new?

A single programme (FP7 + CIP + EIT)

Strong focus on societal challenges







More innovation

- **Reaching out to non-traditional actors**
- **More risk taking**
- **Strengthened support for high-tech SMEs**
- **More open, light & fast schemes**

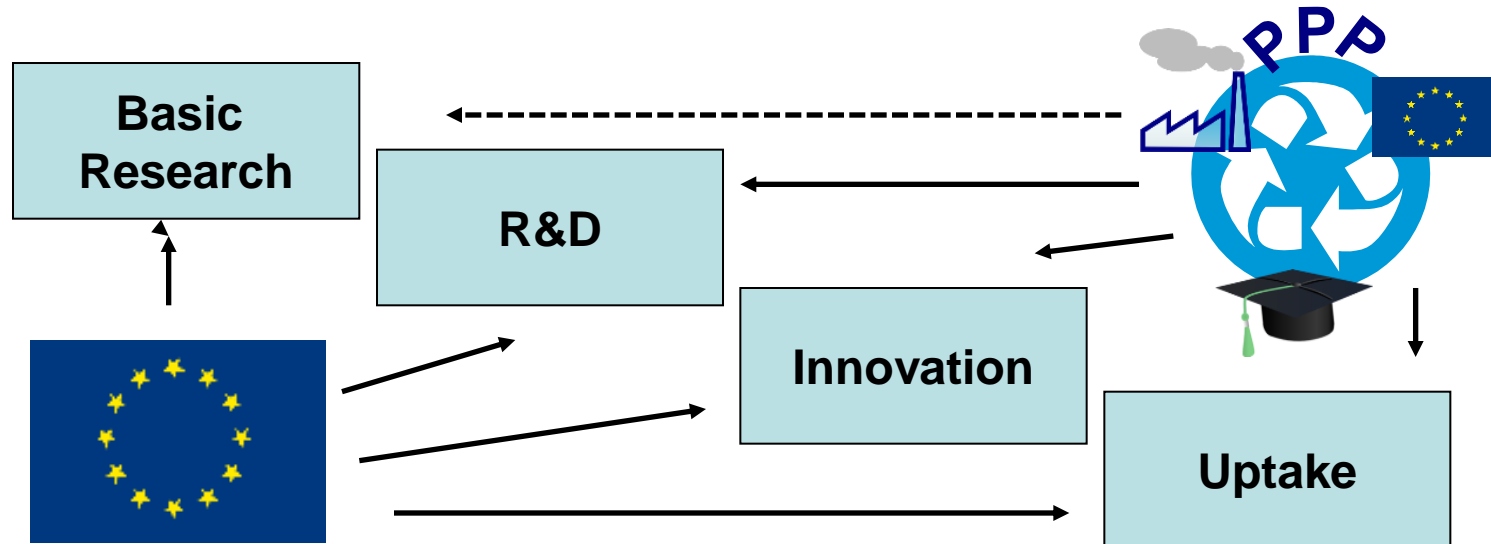
A strategic programming approach

- Work programme preparation based on guidance obtained from a strategic programming exercise
- To increase impact of the funding, and a more integrated approach
- Work programmes with a 2 year-duration
- Leitmotif of the first work programme is the **economic crisis and the path to sustainable growth** - Horizon 2020 can make a significant contribution to this effort
- 'key drivers' used to identify areas on which resources and effort will be focused for maximum impact
 - focusing on sustainable competitiveness, innovation and growth;
 - measures to leverage engagement of industry, including SMEs;
 - access to finance;
 - developing new knowledge and contributing to skills;
 - deployment of enabling technologies;
 - measures to address the research and innovation divide;
 - supporting strong partnership with Member States; and
 - strategic approach to international cooperation.

EU Robotics programme in FP7 (2007–2013)

APPLICATION SCENARIOS ▶	ROBOTIC WORKERS	ROBOTIC CO-WORKERS	LOGISTICS ROBOTS	ROBOTS FOR SURVEILLANCE & INTERVENTION	ROBOTS FOR EXPLORATION & INSPECTION	EDUTAINMENT ROBOTS
SECTORS ▼						
INDUSTRIAL	<ul style="list-style-type: none"> • More than 100 on-going projects today • With over 700 partners • FP7 – Robotics: ~500 M€ funding 					
PROFESSIONAL SERVICE						
DOMESTIC SERVICE						
SECURITY						
SPACE						

Towards Horizon 2020: Public-Private Partnership (PPP) in robotics



European Robotics PPP

Private Partner - euRobotics aisbl

- Development of research & development & innovation agenda
- Suggesting call topics, priorities, funding profile

Regular meetings

structured dialogue

Public Partner

- Implementation of R&D&I agenda

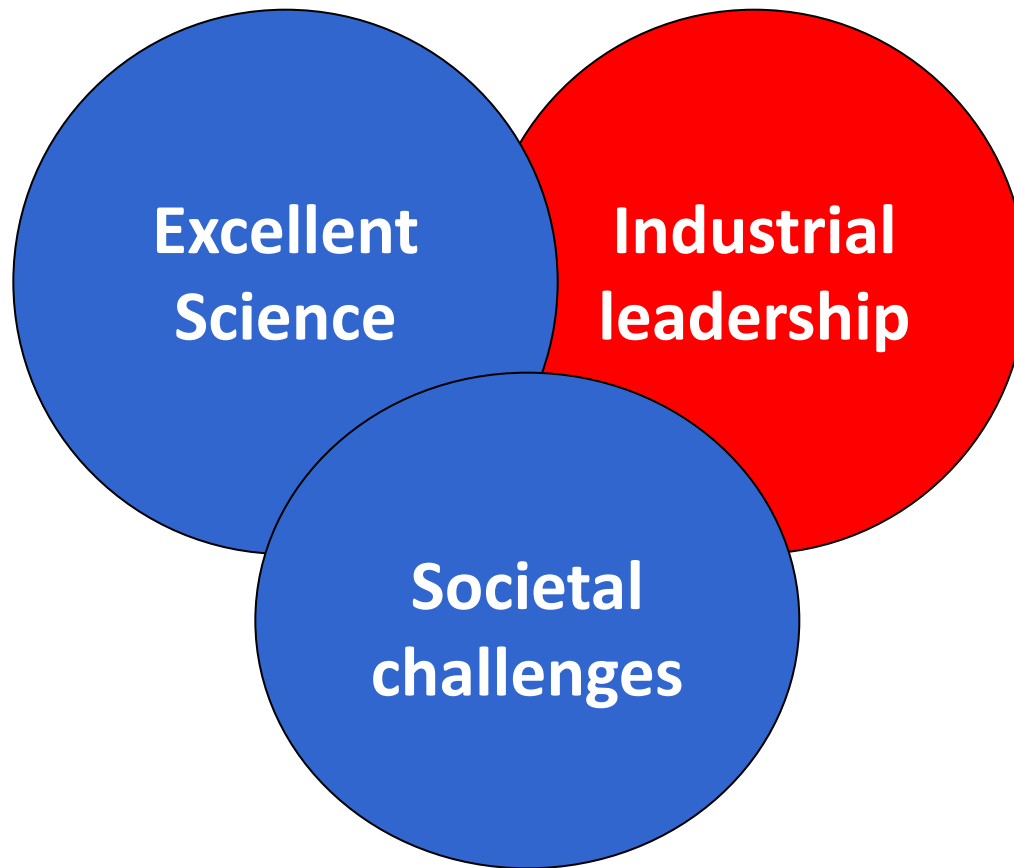


CLEAR SEPARATION OF ROLES

Private Partner => Strategy

Public Partner => Implementation

H2020



ICT in Industrial Leadership

1. *Components and systems*
2. *Next generation computing*
3. *Future Internet*
4. *Content technologies and information management*
5. **ROBOTICS**
6. *Key Enabling Technologies: Micro- nano-electronics and photonics*



Horizon 2020 – LEIT – Call1 – ICT23

CHALLENGE 5: ROBOTICS Roadmap-based R&D&I in Robotics - 1st Call Deadline: 23 April 2014	<ul style="list-style-type: none"> • TYPE of ACTIVITY • % fund. • Size 	74M€
ICT23.a - Research & Innovation Actions PRIORITY Market domains: <i>manufacturing, commercial, civil, agriculture</i> RTD: advance key technologies for the priority domains + system development + shared resources and assessment	R&D - 100% Small/Large	57 M€
ICT23.b - Technology transfer - Robotics use cases Industrial and service sectors	INNO. - 70% Small/Large	12 M€
ICT23.c - Pre-commercial procurement in robotics Public safety / environment and infrastructure monitoring	INNO. - 70% Large	5 M€

Horizon 2020 – LEIT – Call1 – ICT23

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ICT24.e - Community building and Robotic competitions	Coordination Action	4M€



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ROBOTICS in LEIT

ICT Horizontal and Cross-Cutting Activities

CC.1 - Platforms for **Connected Smart Objects**

Integrating the future generation of devices, network technologies and other evolving ICT advances

***Smart Environments** enriched through the deployment of **wearable** hardware and the **next generation of robots**, in particular consumer and domestic service robots.*

For citizens at home, at work and while on the move and for new services

Robotics elsewhere in LEIT

ICT 29 2015: Internet of Things and Platforms for Connected Smart Objects – covers multiple devices including robots

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ICT 34 2015: ICT contribution to pilot for co-investments by business angels in innovative ICT firms – including robotics

ICT 37 2014-2015: Open Disruptive Innovation Scheme (SME instrument)

Advanced Manufacturing & Processing

FoF 6 – 2014: Symbiotic human-robot collaborations for safe and dynamic multimodal manufacturing systems

FoF 9 – 2015: ICT Innovation for Manufacturing SMEs (I4MS), including "Highly flexible and near-autonomous robotics systems (application experiments)".

FoF 11 – 2015: Flexible production systems based on integrated tools for rapid reconfiguration of machinery and robots

Robotics elsewhere in LEIT

Space

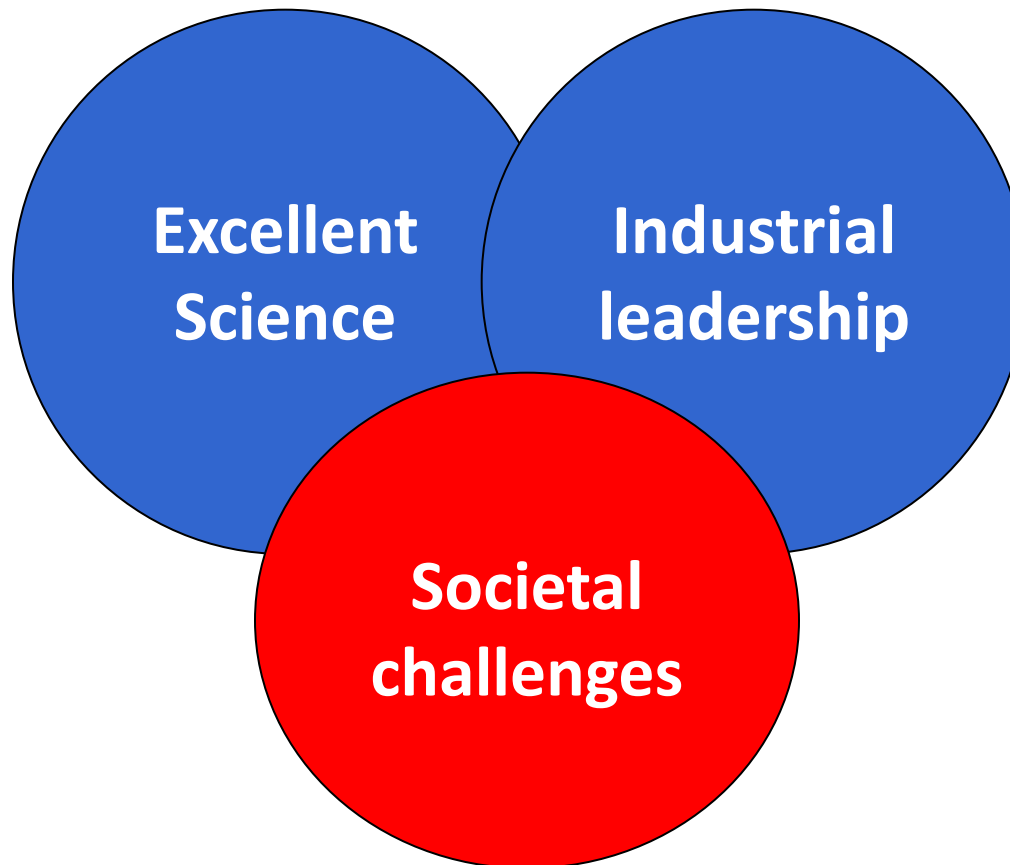
COMPET 4 – 2014: Space Robotics Technologies (incl. robotics)

COMPET 6 – 2014: Bottom up space technologies at low Technology Readiness Level (incl. robotics)

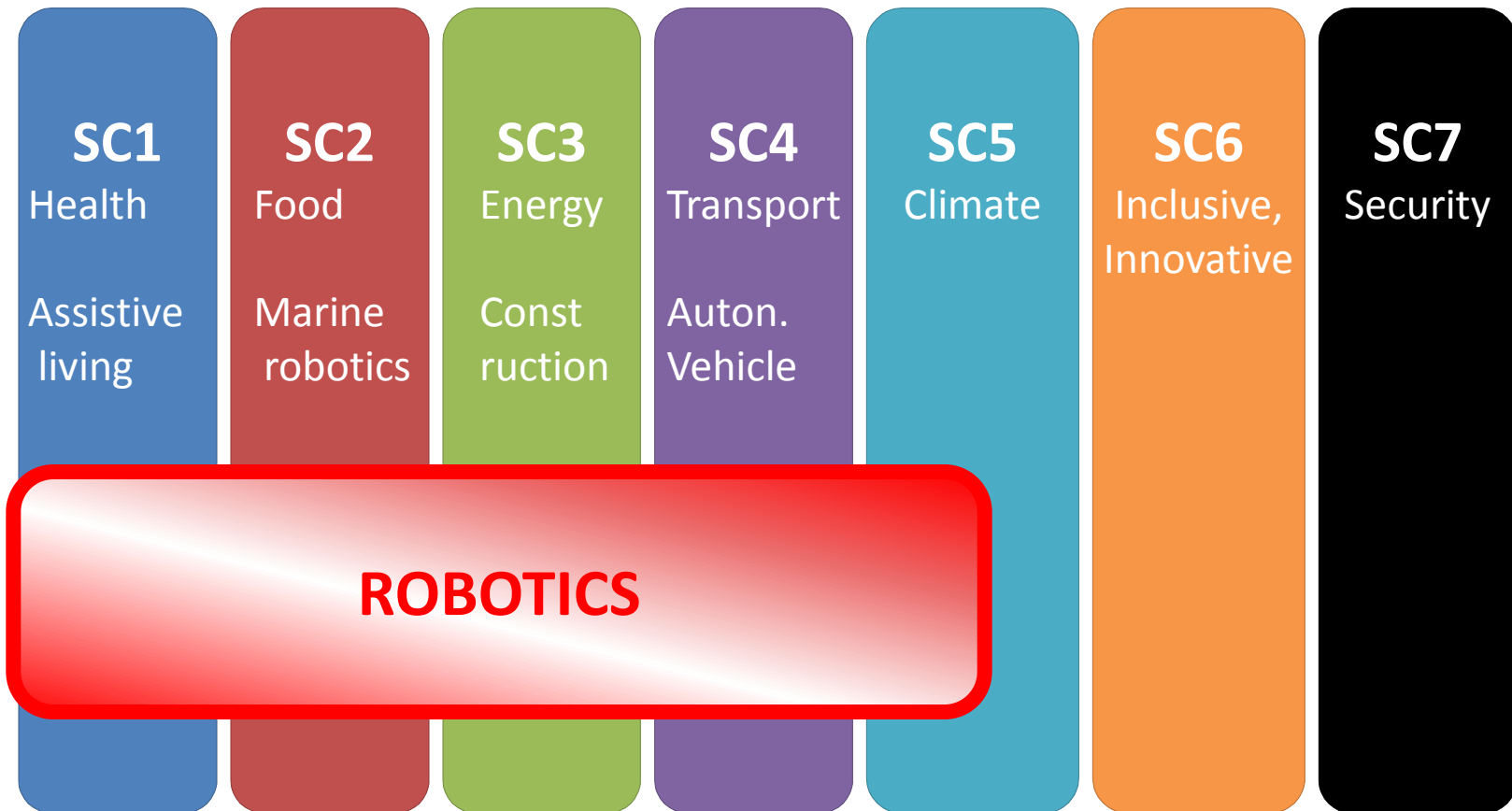
COMPET – 9 2014 Technology Demonstrator projects for exploration (incl. robotics)

COMPET 3 – 2015: Bottom up space technologies at low TRL

H2020



H2020 Societal Challenges: Where is Robotics in the Workprogramme?



ROBOTICS in SC

Societal Challenge 1 – Health

*3b **Service and social robotics** in support of active and independent living*

- New solutions which can provide significant **support** in improving **physical** and **cognitive** functioning

SC 1 Health, demographic change and wellbeing	
•PHC 10 – 2014 : Development of new diagnostic tool and technologies: in vitro devices, assays and platforms	48*
•PHC 19 – 2014: Advancing active and healthy ageing with ICT: Service robotics within assisted living environments	24,6
SC 2 Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy	
•Blue Growth BG-5-2014: Preparing for the future innovative offshore economy- <i>including robotics / ROVs</i>	2*
•Blue Growth BG-6-2014: Delivering sub-sea technologies for new services at sea - <i>including robotics / ROVs / AUVs</i>	16*
•Blue Growth BG-7-2015: Response capacities to oil spills and marine pollutions - <i>including the use of specialised vessels and underwater (autonomous) vehicles</i>	8*
•Blue Growth BG-9-2014: Acoustic and imaging technologies – <i>including mobile platforms</i>	10*
SC 3 Secure, clean and efficient energy	
•EE 1 – 2014: Manufacturing of prefabricated modules for renovation of building - <i>including automated/robotised tools for construction</i>	8*
SC 4 Smart, green and integrated transport	
•MG.3.6-2015 Safe and connected automation in road transport - <i>automated and progressively autonomous driving applications –remark: The callis targeting automation in alignment with the Vienna Convention of Road Traffic</i>	23*



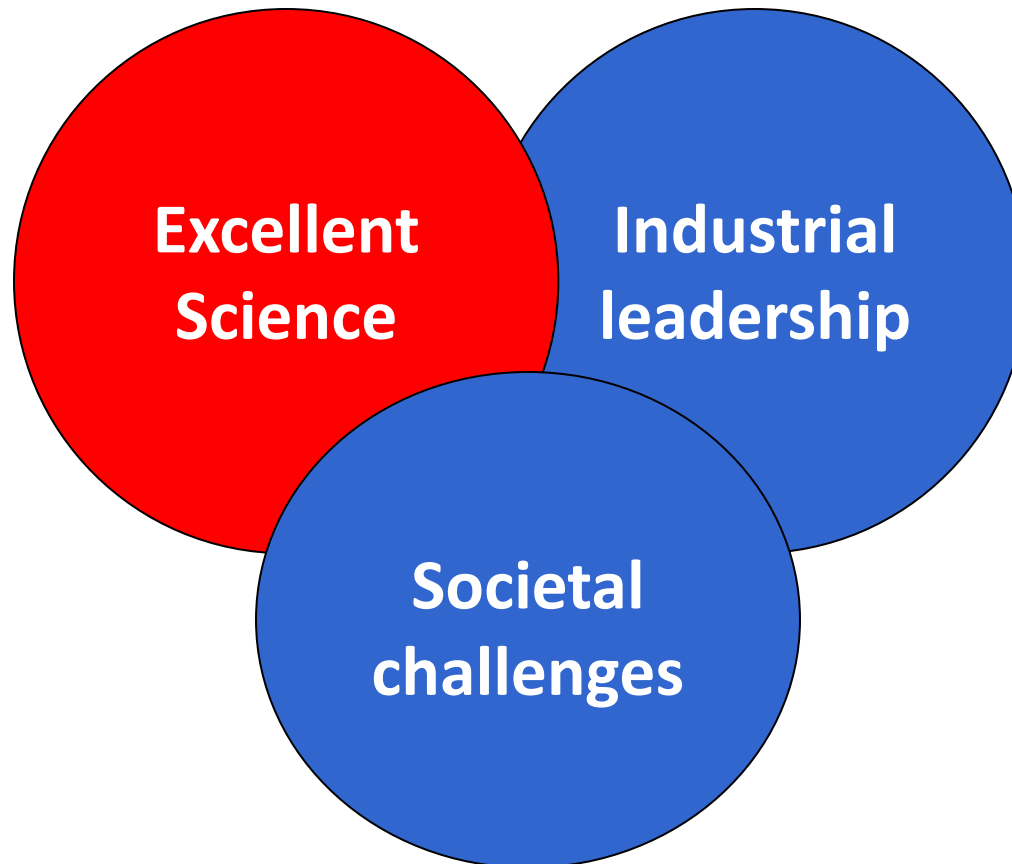
SC 5 Climate action, environment, resource efficiency and raw materials

- SC5-11-2014/2015: New solutions for sustainable production of raw materials
- c) Deep mining on continent and in sea-bed [2015]- *new highly-automated technological sustainable solutions*

SC 7 Secure societies – Protecting freedom and security of Europe and its citizens

- FCT-3-2015: Forensics topic 3: Mobile, remotely controlled technologies to examine a crime scene in case of an accident or a terrorist attack involving CBRNE materials

H2020



Cognitive Systems and Robotics in the Excellent Science pillar

FETPROACT 2: Knowing, doing and being, cognition beyond problem solving

- Foundational research on future **artificial cognitive systems and robots**
- **Multidisciplinary**: knowledge, cognition and related issues (incl. embodiment, learning, motivation, autonomy, knowledge)
- Takes artificial **cognitive systems beyond** the level of **dull task execution**
- Demonstrate **robust performance** for future robotics systems

Conclusions

Context and link to Strategic programme

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Robotics throughout H2020.

Funding opportunities for robotics appear in several sections of H2020. This table is provided for information. Proposers are invited to check whether the calls mentioned below are relevant to their field of research. The table and figures are not binding - please check the final versions of the various Work programmes at the H2020 Web site.[\[1\]](#)

[\[1\] http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020-documents](http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020-documents) and http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html

** Figures refer to the WP main topic, not to sub-topics on robotics.*

*** Funding schemes open to any topic*

The views expressed are purely those of the writer and may not in any circumstances be regarded as stating an official position of the European Commission