SPARC

The Road to Robotics

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SPARC
The Partnership for Robotics in Europe

1. Why Robotics?

Robotics – a pivotal technology

Impact on industry, economy and jobs

- competitiveness, (re-)industrialisation of Europe
- Growth and jobs: innovation push, new “era”
- Impact also by technology diffusing into all branches

Benefits for Society:

- demographic change, health and well-being, food production, transport and security

→ **Europe should stay No. 1 in Robot Technology**

Examples of different robots

Work: robot as "companion" of human workers

(ABB)

Health:
robots support logistics in hospitals

(Bluebotics)

Civil Applications

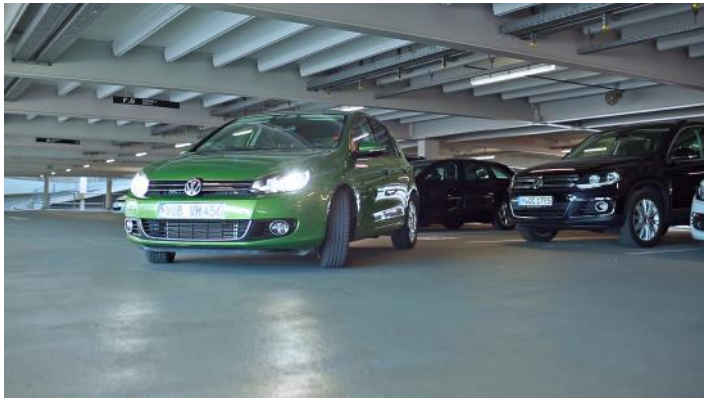
Safety: Fire Extinguishing Robot

(Robocluster Denmark)

Services: Cleaning

(Siemens)

Robots in Transport and Logistics



Transport: automatic driving and parking

(ETH Zürich)

Logistics: loading/unloading of a container with mixed objects

(UAS Reutlingen)

Robots for Waste Disposal and Decomissioning

Waste Disposal

(City of Peccioli, SSSA)

Decommissioning

(Snake Arm Robots of OC Robotics dismantle pipes)

Robots under Water and on Fields

Underwater Robot to prevent accidents off-shore

(subsea 7)

Robot for Precision Farming

(Bosch, Amazone)

2. What is SPARC?

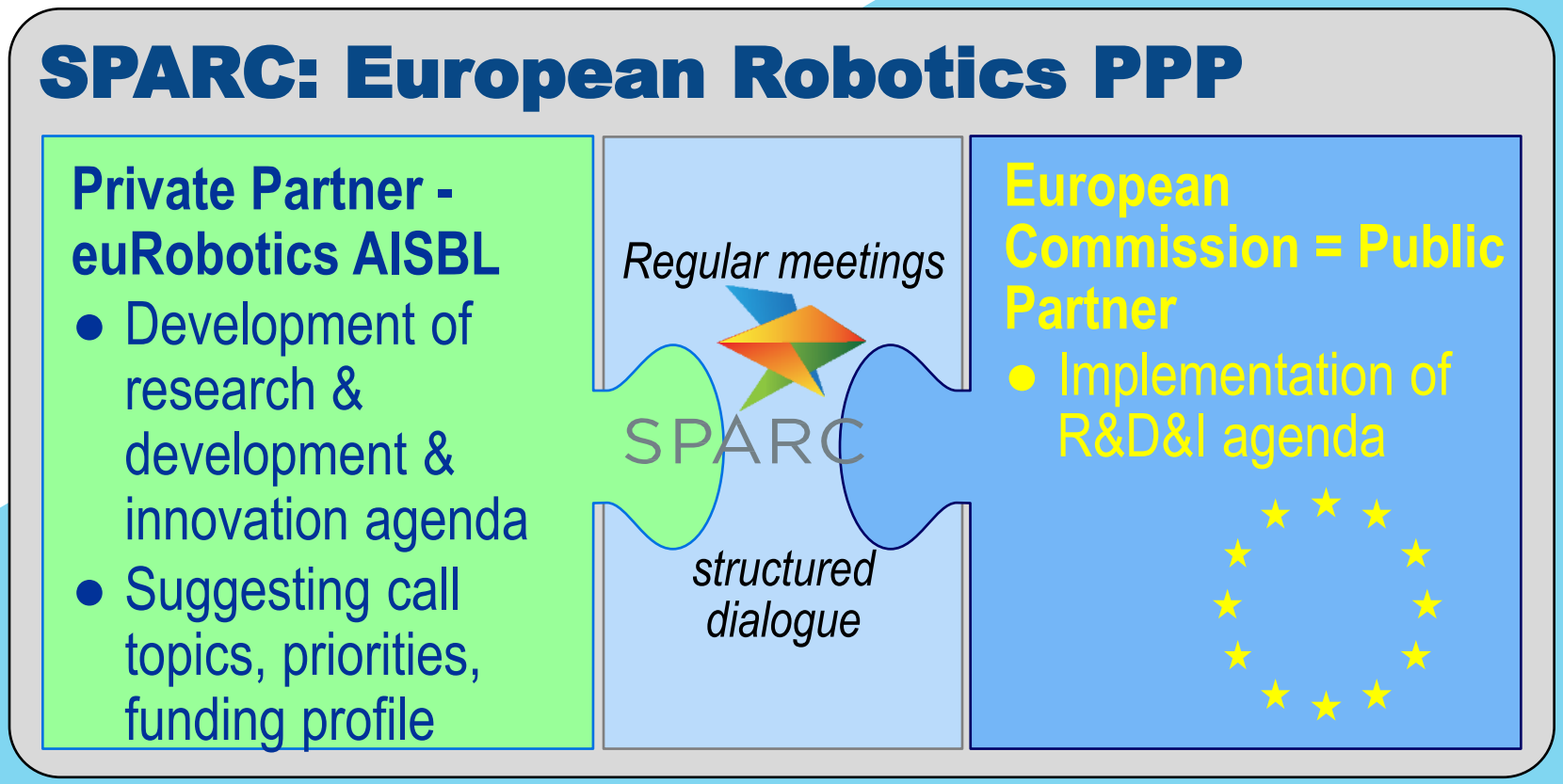
Launch of “SPARC” on 3 June 2014

- 700 M EUR from EC
- 2.1 B EUR from EU Industry
- 2014 - 2020
- Largest civilian robotics programme in the world
- Robotics will have a very positive impact on European economy and society

http://europa.eu/rapid/press-release_SPEECH-14-421_en.htm

SPARC

- … is the partnership of euRobotics AISBL in Brussels with the European Commission



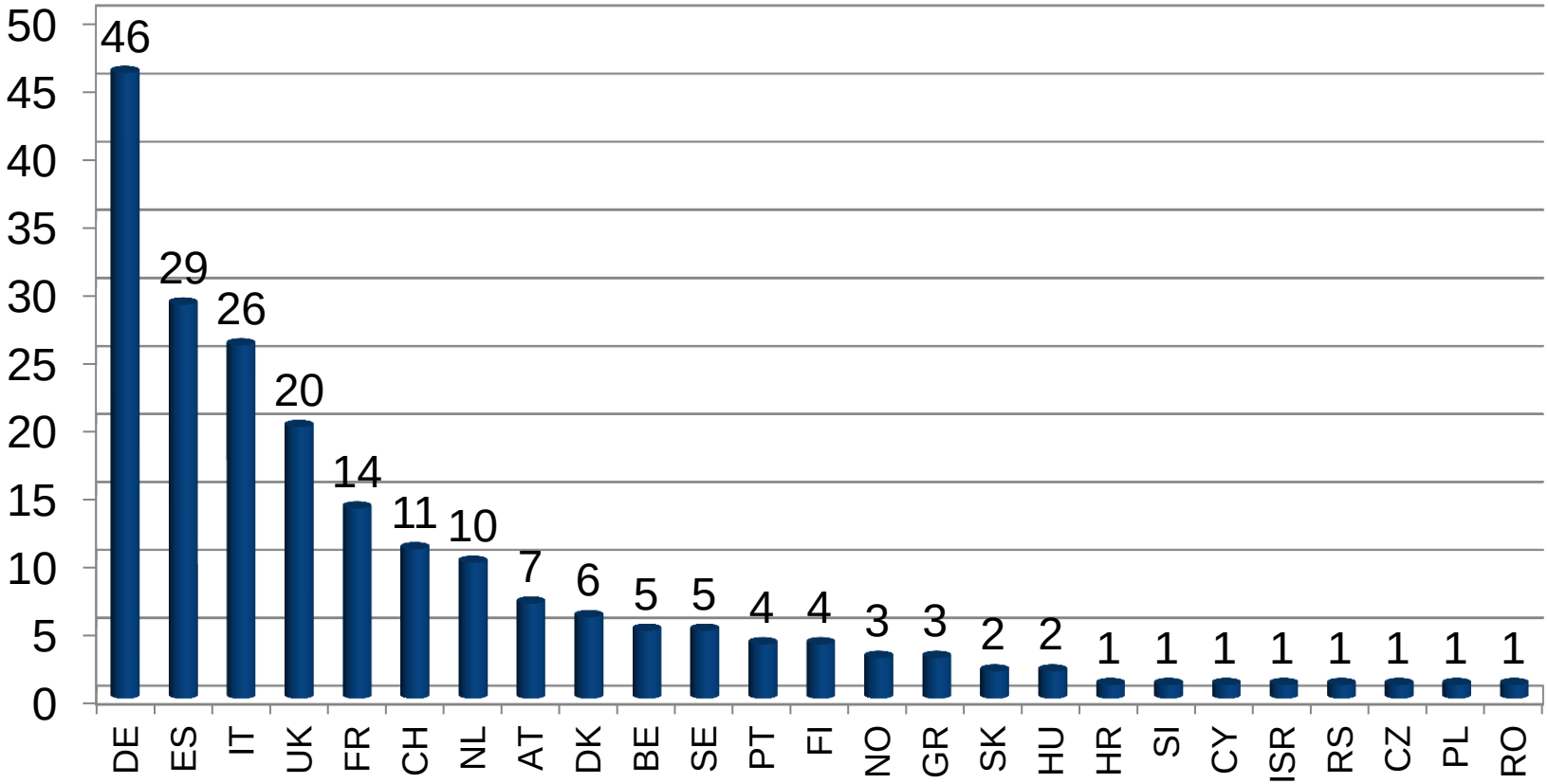
205 euRobotics AISBL Member Organisations

Legend:

- Industry (69)
- Research (125)
- Associate (11)
- euRobotics AISBL

Status: 15 Sep 2014

Seats of Members per Country



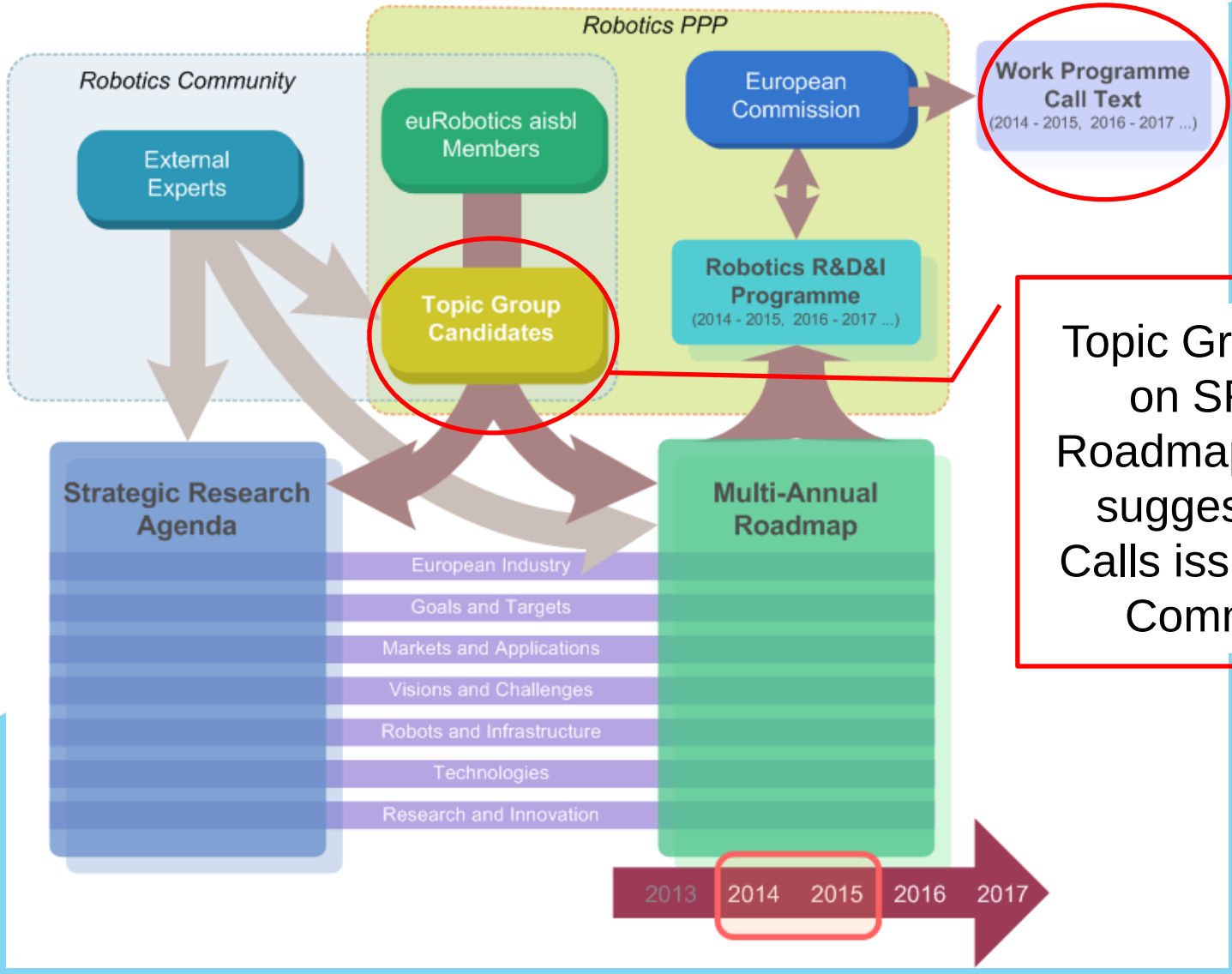
2 Documents members produce with support from the whole community

- High level document
- "SRA"

- Technical detail, updated each year
- Multi-annual Roadmap, "MAR"


17 Sept. 2012, Leuven – Roadmapping Workshop

Roadmapping:
From Members to Call Text



Topic Groups work on SRA and Roadmap and draft suggestions for Calls issued by the Commission

Topic Groups of euRobotics AISBL

Example of Communication between Topic Groups

Market Domains
Agriculture
Civil
Healthcare (Surgery, Hospitals, Rehabilitation etc.)
Industrial Robots
Maintenance and Inspection
Mining
Grasping
Robot Companions

Environment/ Shape
Underwater
Nano/Micro
Field
Aerial
Space
Bio-inspired
Telerobotics
Others

Technologies
Artificial Intelligence
Navigation
Natural Interaction
Materials
Perception
Mechatronics
Others

Systems
Benchmarking
Systems Engineering
Standardisation

Society
Ethics, legal
Education
Entrepreneurship
Innovation and Value Chains

Roadmapping is a *weighted* process between markets, shapes, technologies

→ weighted to maximise objectives of SPARC

Driver of SPARC is euRobotics:

- ✓ 205 members and still growing
- ✓ ≈ 25 Topic Groups: very active
- ✓ growing relations with other EC units
- ✓ building relations with key-MEPs
- ✓ Robotics and Regions
- ✓ Robotics and Jobs
- ✓ Networking
- ✓ information to Media/ General Audience

3. Current Call

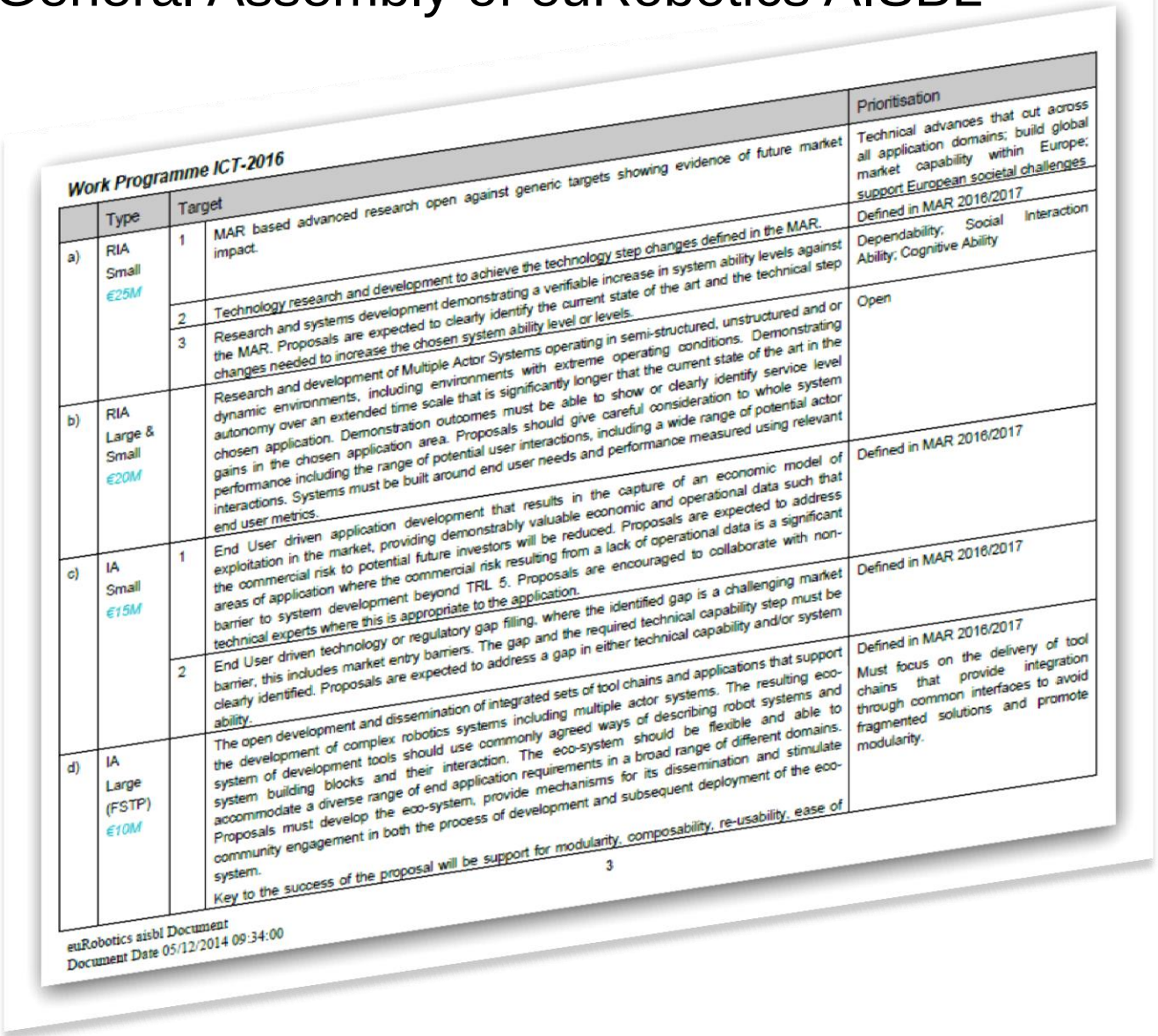
ICT 24 – 2015: Robotics

http://ec.europa.eu/digital-agenda/en/science-and-technology/robotics

Roadmap-based R&I in Robotics **Deadline: 14 April 2015**	• ACTION TYPE • % fund. • Size	83M€
ICT24.a – Research & Innovation Actions PRIORITY Market domains: healthcare, consumer, transport Advance key technologies for priority domains + Enabling robotics technologies for disabled people	RIA 100% Small/Large	50M€
ICT24.b - Technology transfer Industry-academia cross-fertilisation	IA 70% Large	12M€
ICT24.c - Technology transfer Robotics use cases	IA 70% Small/Large	12M€
ICT24.d - Pre-commercial procurement in robotics: healthcare	PcP 70% Large	5M€
ICT24.e - Community building and Robotics competitions	CSA	4M€

4. Calls 2016/2017

9 Dec 2014: Recommendations for 2016/2017 passed General Assembly of euRobotics AISBL



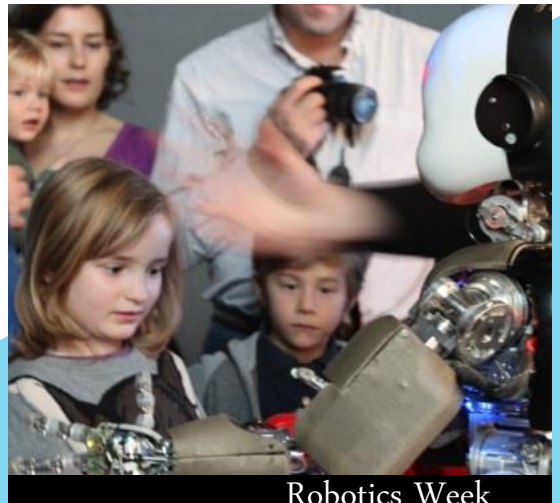
Work Programme ICT-2016

	Type		Target	Prioritisation
a)	RIA Small €25M	1	MAR based advanced research open against generic targets showing evidence of future market impact.	Technical advances that cut across all application domains; build global market capability within Europe; support European societal challenges
		2	Technology research and development to achieve the technology step changes defined in the MAR.	Defined in MAR 2016/2017
		3	Research and systems development demonstrating a verifiable increase in system ability levels against the MAR. Proposals are expected to clearly identify the current state of the art and the technical step changes needed to increase the chosen system ability level or levels.	Dependability; Social Interaction Ability; Cognitive Ability
b)	RIA Large & Small €20M		Research and development of Multiple Actor Systems operating in semi-structured, unstructured and or dynamic environments, including environments with extreme operating conditions. Demonstrating autonomy over an extended time scale that is significantly longer that the current state of the art in the chosen application. Demonstration outcomes must be able to show or clearly identify service level gains in the chosen application area. Proposals should give careful consideration to whole system performance including the range of potential user interactions, including a wide range of potential actor interactions. Systems must be built around end user needs and performance measured using relevant end user metrics.	Open
c)	IA Small €15M	1	End User driven application development that results in the capture of an economic model of exploitation in the market, providing demonstrably valuable economic and operational data such that the commercial risk to potential future investors will be reduced. Proposals are expected to address areas of application where the commercial risk resulting from a lack of operational data is a significant barrier to system development beyond TRL 5. Proposals are encouraged to collaborate with non-technical experts where this is appropriate to the application.	Defined in MAR 2016/2017
		2	End User driven technology or regulatory gap filling, where the identified gap is a challenging market barrier, this includes market entry barriers. The gap and the required technical capability step must be clearly identified. Proposals are expected to address a gap in either technical capability and/or system ability.	Defined in MAR 2016/2017
d)	IA Large (FSTP) €10M		The open development and dissemination of integrated sets of tool chains and applications that support the development of complex robotics systems including multiple actor systems. The resulting eco-system of development tools should use commonly agreed ways of describing robot systems and system building blocks and their interaction. The eco-system should be flexible and able to accommodate a diverse range of end application requirements in a broad range of different domains. Proposals must develop the eco-system, provide mechanisms for its dissemination and stimulate community engagement in both the process of development and subsequent deployment of the eco-system. Key to the success of the proposal will be support for modularity, composability, re-usability, ease of	Defined in MAR 2016/2017 Must focus on the delivery of tool chains that provide integration through common interfaces to avoid fragmented solutions and promote modularity.

5. euRobotics AISBL beyond SPARC

euRobotics AISBL – beyond SPARC: supports a growing network

euRobotics at AUTOMATICA


Robotics Week

2014:

- **> 500 events**
- **in 26 countries**
- **>60,000 people**

Annual euRobotics Forum ERF


euRobotics Awards

How to become a Member?

- Only organisations can become members:
  - Industrial companies
  - Research organisations
  - Associate members, e.g., Regions, Clusters

Companies: turnover RTOs and HES: budget*	Fee	Free registrations to the European Robotics Forum
<= 2 Mio Euro	950 Euro	1
> 2-10 Mio Euro	2,500 Euro	2
> 10-50 Mio Euro	5,000 Euro	3
> 50-100 Mio Euro	10,000 Euro	4
> 100 Mio Euro	15,000 Euro	5

* maximum fee for RTO and HES members is 5,000 Euro

Thanks. More? Ask!

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