ECHORD++

European Clearing House for Open Robotics Development Plus Plus

ECHORD++ Experiments

Annagiulia Morachioli

The BioRobotics Institute

23th October 2014

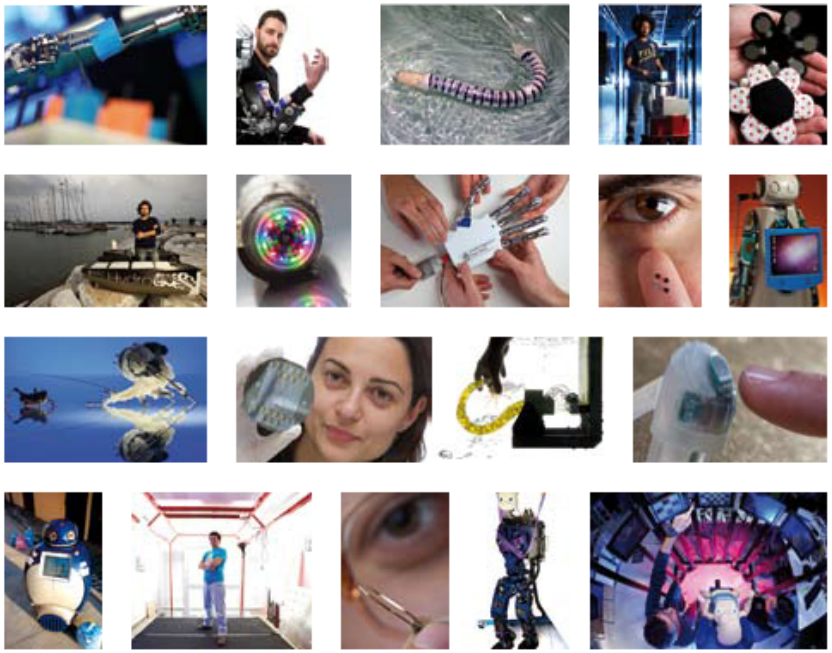
www.echord.eu

the BioRobotics Institute

12 Faculty

75 PostDocs

88 PhD Students



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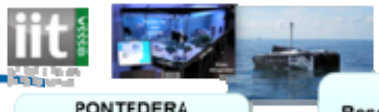
di Studi Universitari e Perfezionamento

www.bioroboticsinstitute.eu

The BioRobotics Institute: Collaborations and Joint Laboratories in Tuscany



The BioRobotics Institute
Laboratories in Tuscany

PONTEDERA
Center for Micro-BioRobotics IIT@SSSA

LIVORNO
Research Centre on Sea Technologies and Marine Robotics

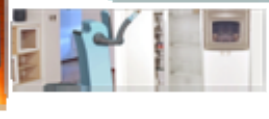
PISA
Locomotion Disorders

PISA
Neuro-Developmental Engineering

VOLTERRA
Neuro-Rehabilitation at Auxilium Vitae

GROSSETO
Laboratorio Tecnologico Multidisciplinare

PECCIOLI
Services Robotics, Green Robotics and Ambient Assisted Living (AAL)



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Main Instruments

Experiments

Robotics Innovation Facilities (RIF)

Pre-Commercial Procurement Pilots (PCP Pilots)

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WHAT IS AN EXPERIMENT?

A small to medium sized **scientific research and/or technology development** project with a clear focus on generation of impact

What is the size of an experiment?

- Funding ~**300k€**
- Duration up to **18 months**
- Small consortia, typically **2-3 partners**, no need for different countries

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HOW MANY CALLS WILL BE IN ECHORD++?

Two Calls

One in **Spring 2014** (ended on the 14th of April 2014), one **Mid-2015**

Total EU-contribution: 10.2 Mio. €

FIRST EXPERIMENT CALL

Issue first call: 3rd March 2014
Closing of the first call: 14th April 2014
Evaluation: May & June 2014
Selection: 30th September 2014
Start experiments: 1st January 2015

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ELIGIBILITY CRITERIA: WHO CAN APPLY FOR EXPERIMENTS

Any legal entity eligible for EU funding can apply for Experiments, **both** players from the **robotic industry** and **research institutions**. Small and medium enterprises (**SMEs**) who have not yet had access to EU funding are cordially invited to participate.

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WHICH RULES DO APPLY?

Standard FP7 rules, including financial ones

- **Pre-payment** of **equipment** and in selected cases (e.g. SMEs) also part of the labour
- **Depreciation** according to national and local rules
- **Cost claims** and **payments** based **on regular** periodic reports (as in other FP7 projects)
- Special rule for ECHORD++: Equipment costs are **capped at 100%** of the net cost

Please ensure early legal and financial validation of your company/institution

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WHAT ARE THE EVALUATION CRITERIA?

Scientific and/or technological excellence

- Objective
- Advances targeted (e.g. in terms of TRL)
- Progress beyond State-Of-The-Art

Efficiency of Implementation

- Structure
- Description of partnership
- Overall Experiment resource- costs & funding ("value for money")

Expected Impact

- Expected results
- Exploitation plan
- Expected impact on the market created by the experiment when successful
- Realistic outcome (to be proven with a visit to a RIF or another kind of demonstration)

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Types of EXPERIMENTS

Joint enabling technology development

Develop new robots, components, etc. based on the bi-directional exchange of knowledge and on the industrial quality equipment provided by robot manufacturers.

Application development and implementation of use cases

Robot equipment from the robot manufacturer, together with components from third parties, combined to perform tasks in new applications.

Feasibility demonstration

Demonstrating that robots can be used in new complex industrial settings.

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SCENARIOS

1. Cognitive Tools and Workers for Cognitive Factories
2. General Purpose Robotic Co-workers
3. Cognitive Logistics Robots for Industry
4. Medical Robotics
5. Agricultural and Food Robotics

6. Urban Robotics*

*available in the 2nd Call

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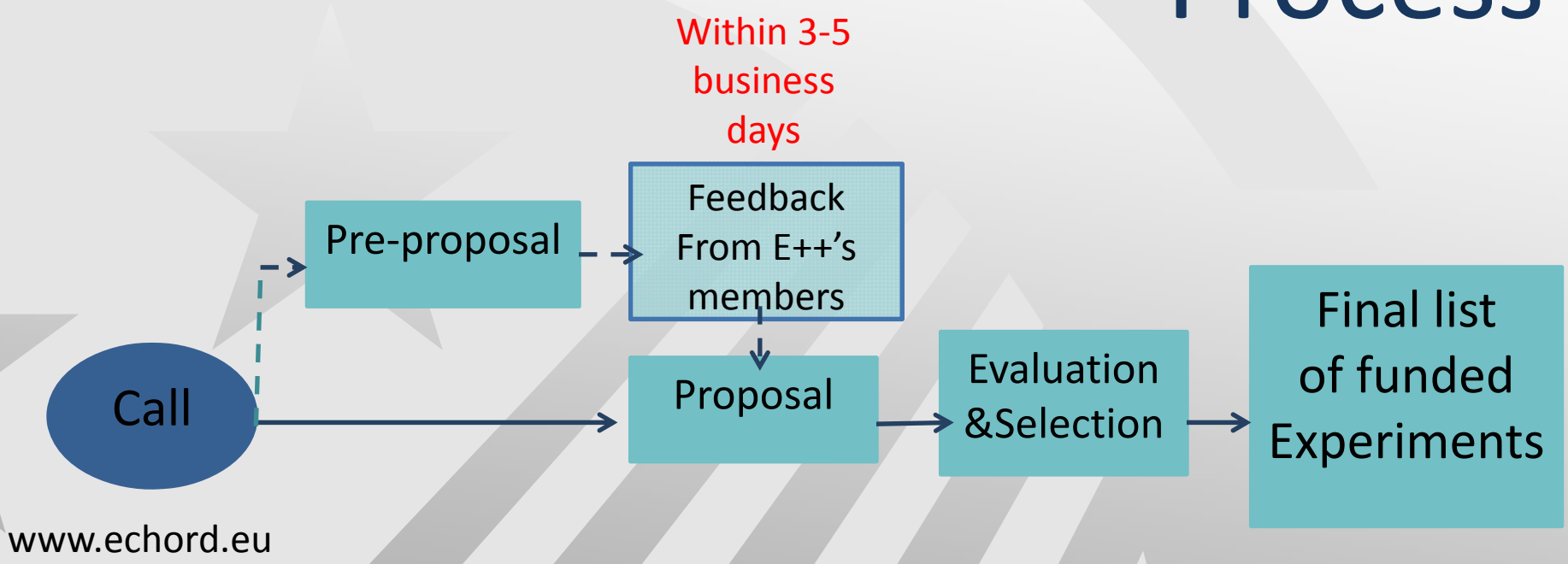
RESEARCH FOCI

1. Key Issues in Practical Machine Cognition
2. Advanced Perception and Action Capabilities
3. Multiple Cooperating Mobile Manipulators
4. System Architectures, Systems and Software Engineering Processes and Tools

Application Process



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Summer 2015: *2° Call for Experiments*

Fall 2015: Outcome of the Call and Start of the accession procedure for new partners to the ECHORD++ consortium

Beginning of 2016: Formal submission of amendment documents

Spring 2016: start of experiments

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What are Robotics Innovation Facilities (RIF)?

- RIFs are facilities for **bringing researchers and industry in direct contact** with **current and new users** of **robotics technology**
- New user groups are: E++ experiments, SMEs and start-ups, Students

The purpose of the RIFs is hence:

- To be a **living lab**
- To serve as **test-beds** for E++ experiments
- To be **central and sustainable showrooms** for the general public

Experiments

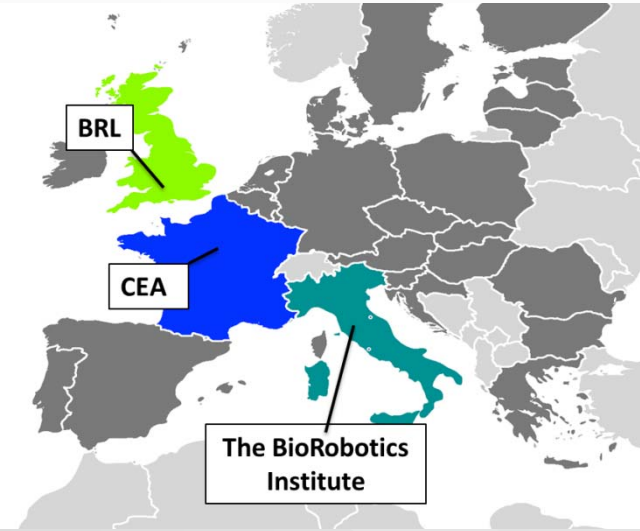
Robotics Innovation Facilities (RIF)

Pre-Commercial Procurement (PCP)

The ECHORD++ RIFs

RIF France: Medical & Health Robotics

In Paris at **CEA**
(Commission for Atomic Energy and Alternative Energies) Institute for Smart Digital Systems



RIF in GB: Cognitive Workers

In Bristol at the Bristol Robotics Lab (**BRL**)

RIF in ITALY: Indoor & Outdoor, Logistic, Agricultural, Medical Robotics

In Italy at **BioRobotics Institute** in Peccioli

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How to link Experiments to RIFs?

EXPERIMENTS & RIFs

Experiments

Robotics Innovation Facilities (RIF)

A visit to one or more of E++ RIFs **increases** the **Expected Impact** of the project

The RIF is an instrument to test the **realistic outcome** of the robotic solution

Each RIF addresses **different Experiment scenarios**:

Research Scenarios	RIF
1.Cognitive Tools and Workers for Cognitive Factories	Bristol (UK), Pisa (IT), Paris (FR)
2.General Purpose Robotic Co-Workers	Bristol (UK), Pisa (IT), Paris (FR)
3.Cognitive Logistics Robots for Industry	Bristol (UK), Pisa (IT)
4.Medical Robotics	Paris (FR), Pisa (IT)
5.Agricultural and Food Robotics	Pisa (IT)

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EXPERIMENTS & RIFs

Experiments

Robotics Innovation Facilities (RIF)

Why experimenters should use a RIF:

- Possibility to have **ready-to-use realistic test bed**, anytime you want → minimize deviations and errors
- **Cost saving:** take advantage of a tested technological location, do not waste time and money in developing your own → **invest money in the project and travels/accomodations to RIFs**
- **Technology transfer/knowledge sharing** → straightforward access to robotics equipment and experts to support bootstrapping and to cater for knowledge exchange for everyone and anyone who is interested in robotics – no matter how "unexposed" to robotics they have been before.
- **Specific technology-oriented programs** for spin-offs/SMEs

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1st Call for Experiments: ***PRELIMINARY RESULTS***

Experiments

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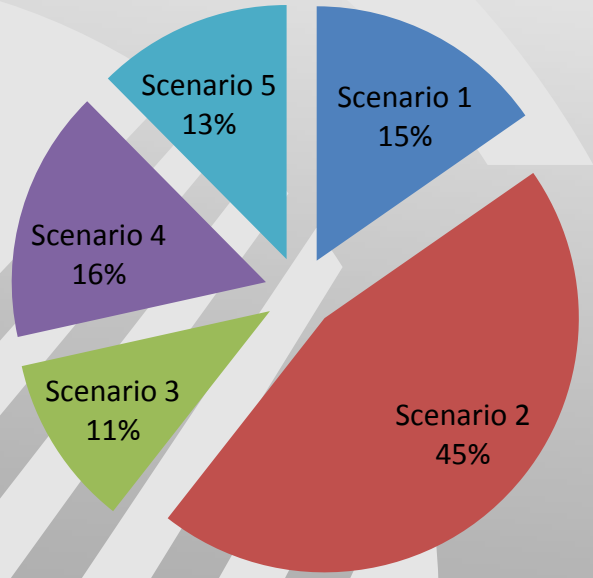
Preliminary Results of E++ First Call for Experiment

- 137 Eligible Proposals submitted, of which the percentage per Scenario is:

Distribution of the 1st Call- Proposal submitted

1. Cognitive Tools and Workers for Cognitive Factories
2. General Purpose Robotic Co-workers
3. Cognitive Logistics Robots for Industry
4. Medical Robotics
5. Agricultural and Food Robotics



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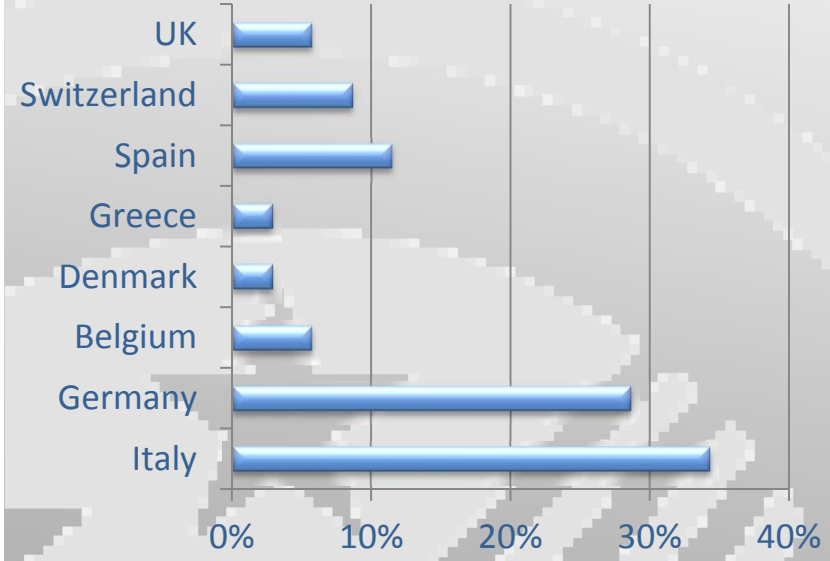
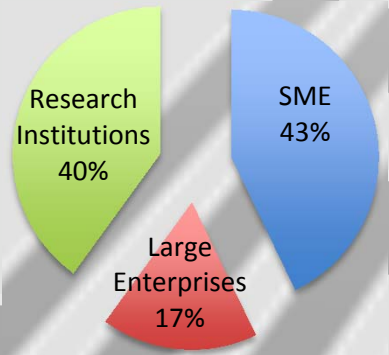
Selected Experiments (first call)

- Total: 16 Experiments
- Partners: 40

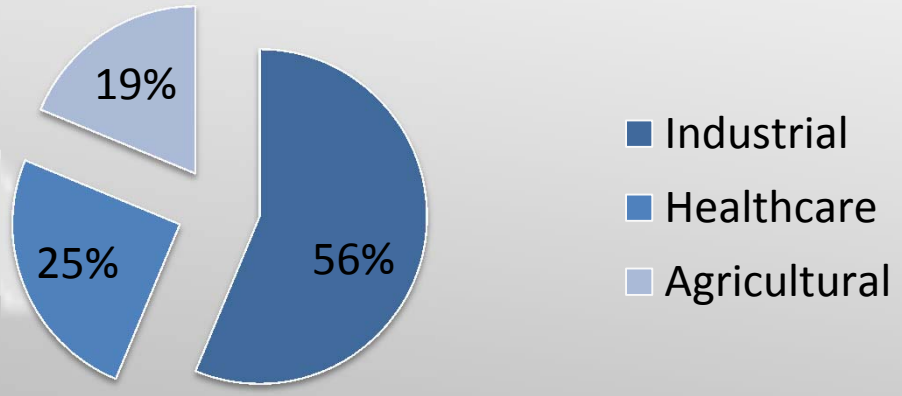
13 out of 16 will use E++'s RIFs





Experiments – Application scenarios

- Mobile robot locomotion
- Surgical robotics
- Rehabilitation Robotics
- Sensor Integration
- Agricultural Robotics
- Industrial Inspection
- Vision – Image processing
- Industrial manufacturing
- Human robot Interaction



Conclusion

- **2 Calls**: One just ended (Deadline 14th April), **next** starting from **Mid 2015**
- **300k€** of funding for each Experiment
- **Circa 30** total Experiments will be funded
- Duration up to **18 months**
- **Small Consortia suggested** (1-3 partners)

The ECHORD Plus Plus Consortium acknowledges support by the European Commission under FP7 contract 601116.

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