Deliverable D3.4.2

Collection of documents with final ranking, evaluation reports, statistics, and funding suggestion

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1. Executive summary

The aim of the document is to present the collection of information about the results of the Selection phase of the ECHORD++ Second Call for Experiments. Details about the evaluation process, comprising of statistics of both proposals received and evaluators involved, will be provided. Then the selection phase will be described, providing a full picture of the 16 proposals selected.

2. Eligible Proposal received

A proposal will only be considered eligible if it meets all of the following conditions: (i) it is received before the deadline given in the call text, (ii) template and web forms (all sections!) have been completed. The proposal must be submitted by legal entities which have been established in one of the member states of the EU or in an associated country.

This report covers *the Second Call for ECHORD++ Experiment Proposals.* The second call was opened on May 4th and closed on June 23, 2015. This call targeted the scenarios mentioned in the DoW for ECHORD++ as well as in the Guide for Applicants with the addition of a sixth scenario, Urban Robotics. General statistics about the proposals which were reviewed in the remote evaluation and in the panel can be found in Table 1.

Echord++ Call 2	**Eligible Proposals**	**Failed threshold(s)**	**Above thresholds**
Number of proposals	114	54	60
Percentage	100%	47.4%	52.6%

114 proposals have been submitted, showing a high majority of applications from Italy, France, United Kingdom and Spain (see Fig.1).

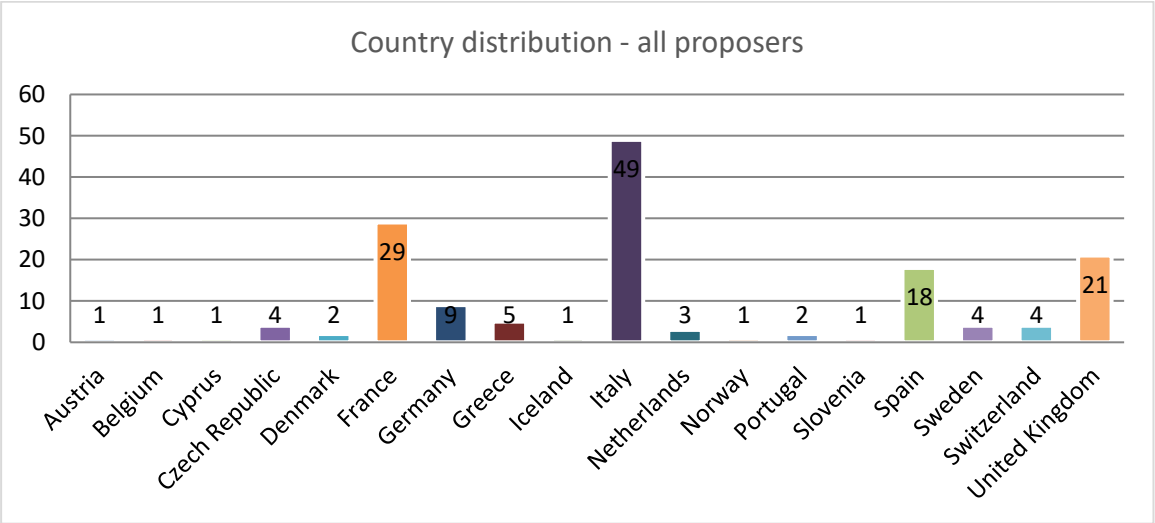


Figure 1: Distribution of Applicants' Countries

In 241 organizations applied as coordinator or partners in the 114 proposals, having the following distribution:

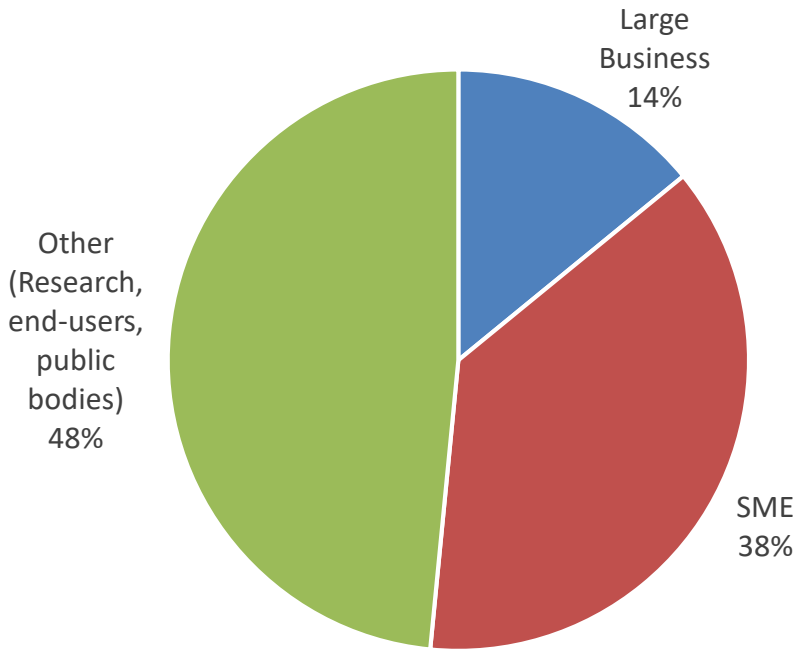


Figure 2: Organizations' distribution.

Looking at the 291 PIC numbers, 37 resulted to be "provisional" meaning that ECHORD++ succeeded in hiring 37 new organizations.

The average number of partners per proposal is: 2.55, with a minimum of 1 partner and a maximum of 5, see Fig.3.

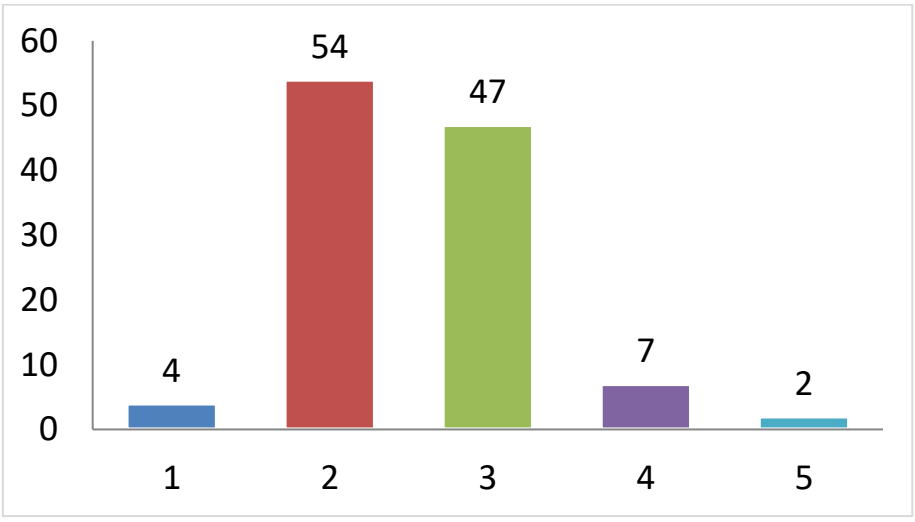
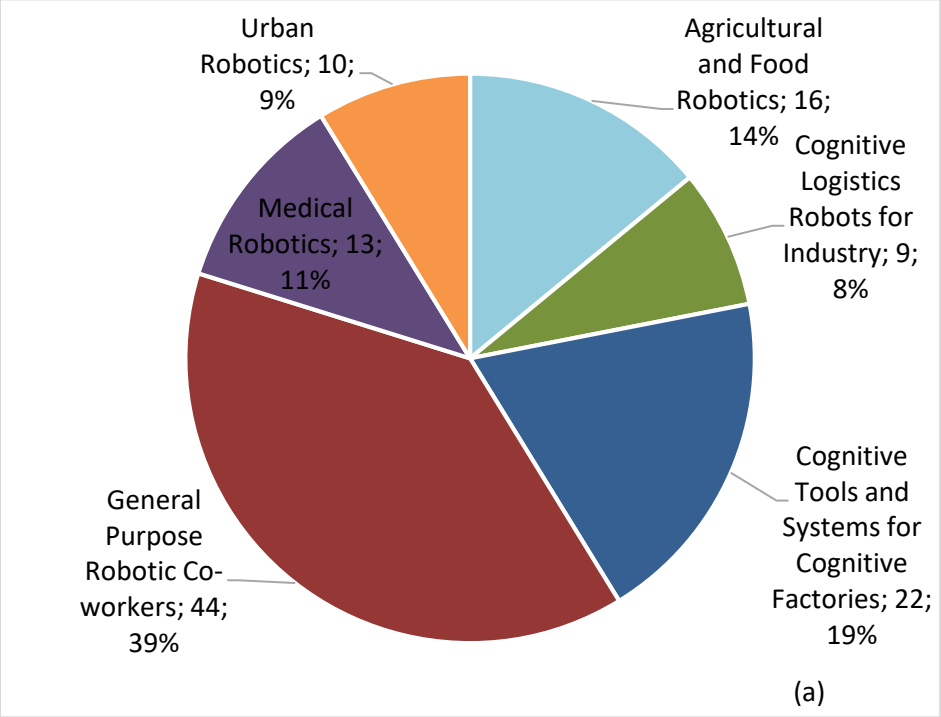
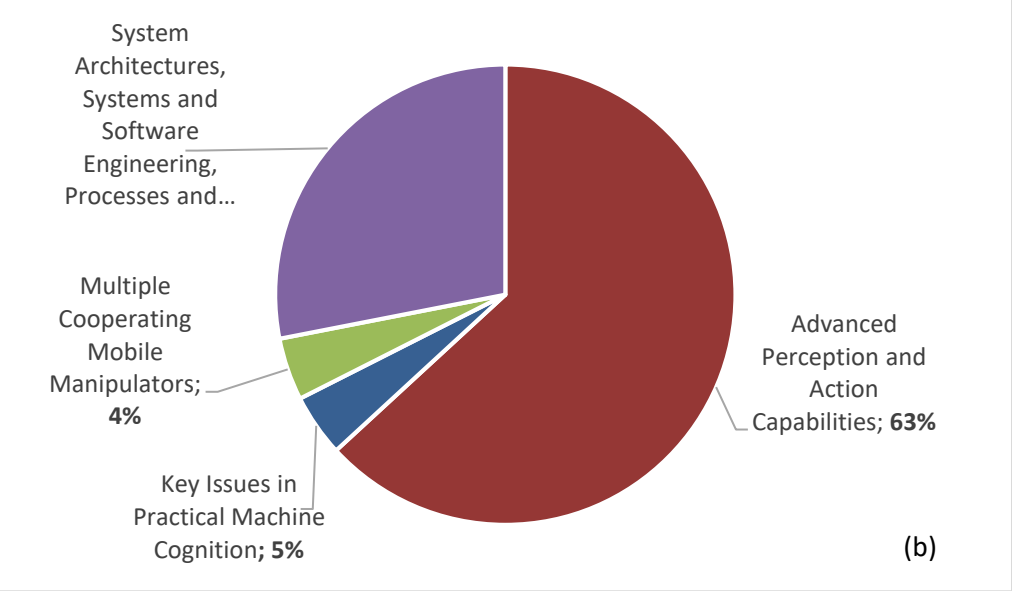


Figure 3: Number of partners per proposal

The distribution of Scenarios, Research Foci and Experiment Type are provided in Figure 4 (a,b,c).


Urban Robotics; 10; 9%
Agricultural and Food Robotics; 16; 14%
Cognitive Logistics Robots for Industry; 9; 8%
Medical Robotics; 13; 11%
Cognitive Tools and Systems for Cognitive Factories; 22; 19%
General Purpose Robotic Co-workers; 44; 39%
(a)


System Architectures, Systems and Software Engineering, Processes and…
Multiple Cooperating Mobile Manipulators; 4%
Key Issues in Practical Machine Cognition; 5%
Advanced Perception and Action Capabilities; 63%
(b)

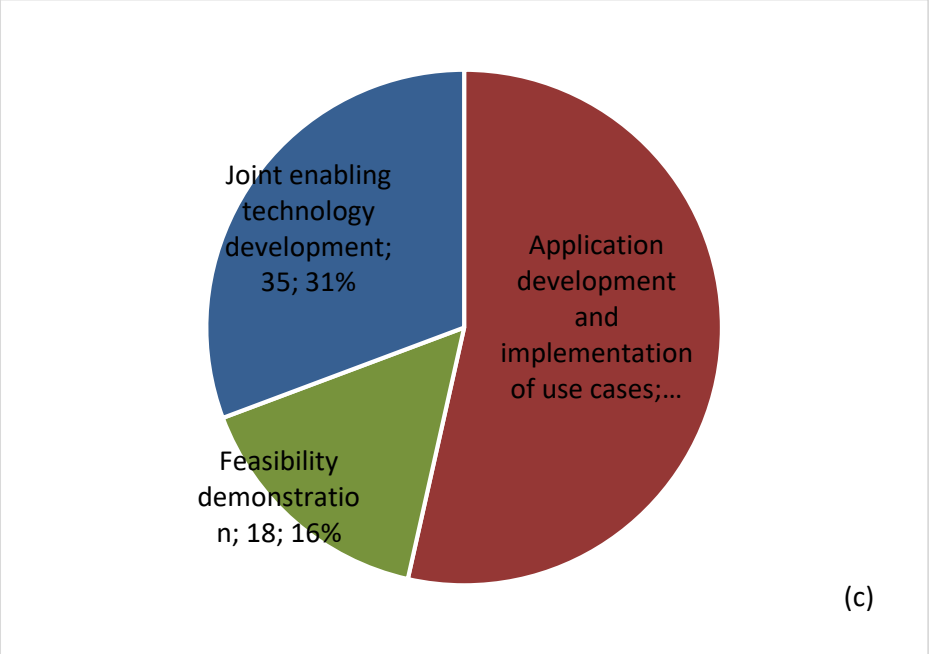
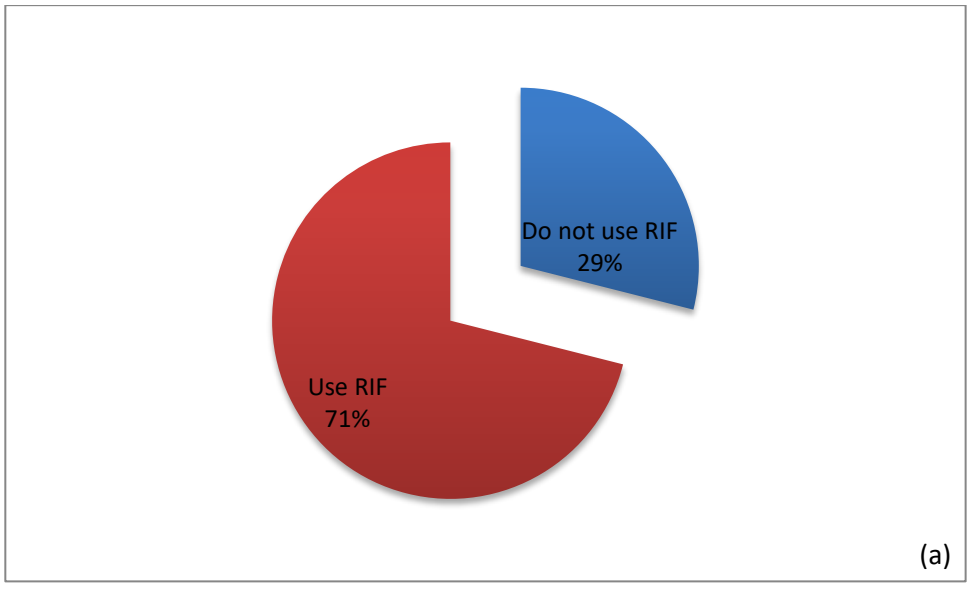


Figure 4: Distribution of Scenarios (a), Research Foci (b) and Experiment Types (c).

The analysis of the willingness to use RIF in the projects proposed showed a high interest, 2% higher than the First Call, as seen in Fig.5 (a), and the main interest resulted in the Peccioli RIF (Fig.5 b).



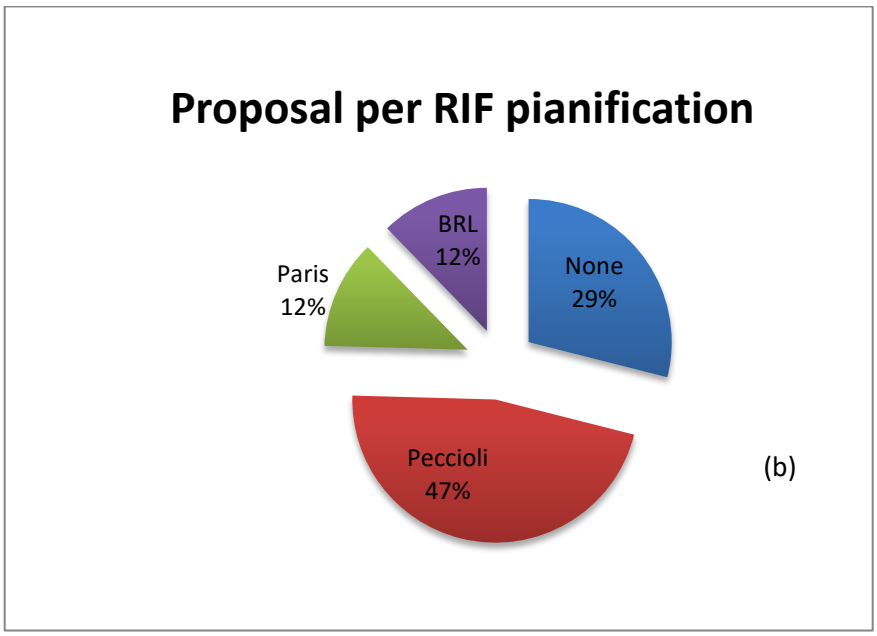


Figure 5: Distribution of Proposals' Plan to use RIFs (a) and Distribution among E++'s RIFs (b).

The highest funding request received is of 446,730 € while the lowest is of 119,320 €, having an average of 292,612 €.

3. Evaluators

Potential evaluators have been contacted through mail in which an anonymous doodle was included in order to facilitate the communication on their availability.

Starting from the ones that served for the First Call, 45 were selected as being the ones performing best and were contacted to act as evaluator even for the Second Call and 10 were contacted as new evaluators.

Of the 55 contacted, in 37 confirmed their availability to act as Evaluators, having an average of 9,24 proposals each, maximum assignment of 16 proposals (to 2 evaluators), minimum assigned of 2 proposals (to 1 evaluator).

The background distribution of the evaluators is reported in Fig.6, increasing the percentage of Industry background of 10% compared to the First Call.

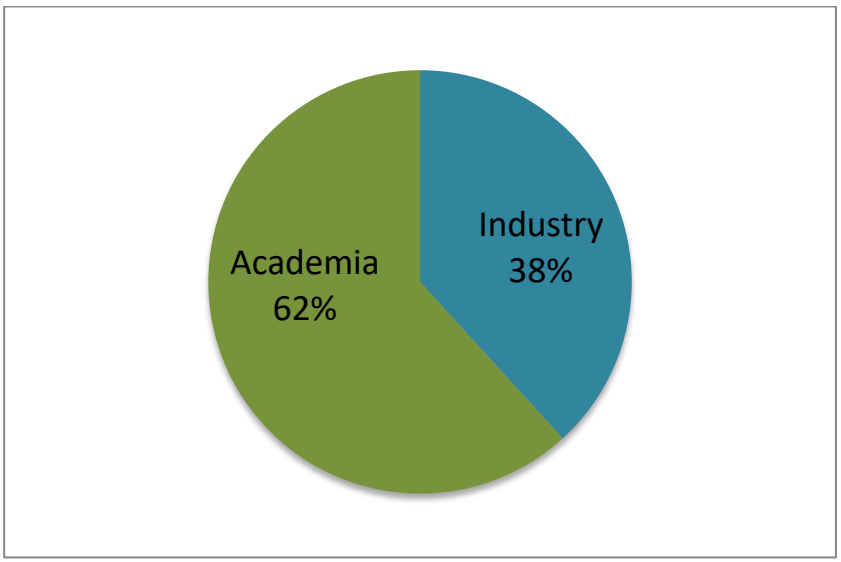


Figure 6: Background distribution of evaluators.

Note that some of the experts from academia have an industry-related background.

3.1. Assignment

As for the Firs Call, for each of the evaluators a web based expertise profile has been developed in order to facilitate the matching with the 114 proposals and obtain an appropriate assignment. The expertise profile has been obtained from keywords provided by each of them when registering on the evaluator's portal.

For each proposal, a set of 2 evaluators and 1 rapporteur has been assigned based on the evaluators' expertise profile that had to match with the scenario and application of the proposal.

In the majority of the assignments, a mix between Academia and Industry has been developed in order to achieve a balanced evaluation process. Compared to the First Call, the mixed assignment arise from 66% to 87%, see Fig.7.

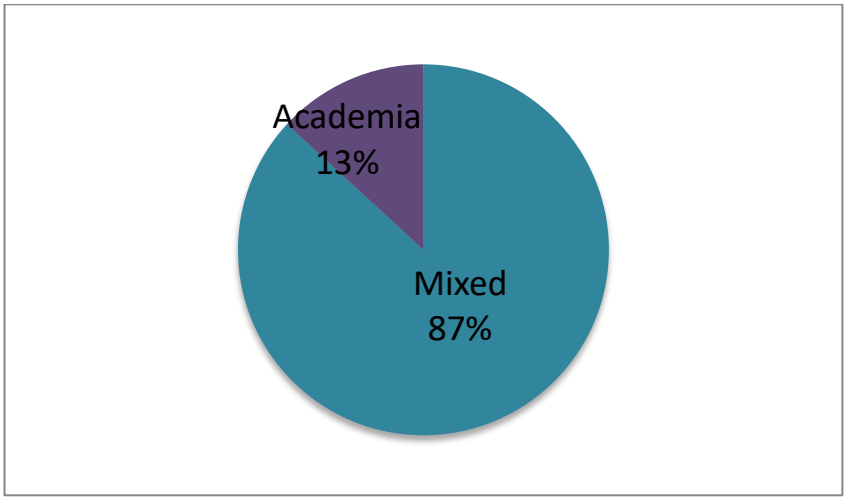


Figure 7: Assignment distribution.

3.2. Contract

Once the assignment has been completed, an email has been sent to all evaluators with the following attachments:

- Guide for Independent Experts (see D 3.1): guidelines to be followed in order to develop a proper evaluation
- Conditions of Appointment (Annex I): information about Conflict of Interest and Code of Conduct for Independent Experts
- Reply form of acceptance (Annex II): form to be signed by each expert in order to be legally authorized to develop the assigned evaluations
- Appointment Letter (Annex III): letter signed by the WP leader (Prof. Paolo Dario) attesting the request to act as evaluator for the reported proposals assigned to each expert

Only once received the signed reply form and downloaded both the “Guide for Experts” (see D 3.1) and the “How to” guidance to use the website (see Annex IV), the expert had the access to the proposals assigned to him.

4. Evaluation Process

The evaluation process has been developed in 3 steps:

1. Step1: a remote evaluation, in which the full proposals have been evaluated by two independent experts and two individual evaluation reports (IER) have been written. The two IER's arguments have been converted into Individual Provisional Marks and compared. In contentious evaluations, with remarkable differences between experts’ opinions, the rapporteur developed a third evaluation, compiling his own IER. In the end the arguments of all three evaluators have been combined.

2. Step 2: The provisional marks have been computed by the rapporteur as a result of argument counts of the 2 (or 3) IERs, and reported in a Consensus Draft. Consequentially, there was a Consensus Blog discussion between the rapporteur and the evaluators in which the provisional marks have been turned into a final score. The final marking was based too on the comments of the evaluators made on the appropriate *Consensus Blog* via web platform and not on the arithmetical mean of the argument counts. The evaluators explicitly agreed on both the final mark for each criterion and consensus report. This report has been sent to the proposers after the evaluation phase. The rapporteur was in charge of writing a consensus report (Evaluation Summary Report, ESR), summarizing the views of the evaluators.

3. Step 3: after a physical working day in order to finalize the evaluation, that took place on the 6th of October, on the 7th of October 2015 in Munich, an on-site panel meeting has been taken place, where a ranking of the proposals was established and where the scores of the proposals were calibrated. The panel meeting was held with a subset of experts who have acted as evaluators and/or rapporteurs. The final ranking has been approved by the European Commission

The complete description of the web platform functionality related to the evaluation process has been described in detail in a document “ Evaluation process How To” (Annex IV). This guide describes the procedure through which the experts

were able to access to the proposal assigned, to evaluate them on the portal and to reach the consensus for each proposal.

5. Selection: Panel Meeting

Only 7 of the 37 experts were asked to participate to the one-day Panel Meeting held in Munich on the 7^{h} of October 2015 .

These were:

- David Bisset
- Philippe Bidaud
- Edwige Pissaloux
- Jose Neira
- Jose Antonio Tornero
- Grzegorz Cielniak
- Andreas Nuechter

The Panel meeting was held in the meeting room of the computer science

department of TUM (Munich) followed the agenda reported in Fig.8:

10:00	Welcome and introduction to procedures
10:10	Overview of all proposals and evaluation state
10:30	Discussion of selected proposals
11:00	Agreement on final scores and bunch acceptance for proposals below thresholds
12:30	*Lunch*
13:30	Ranking of above-threshold proposals
15:30	Calibration and finalization of the ranked list and approval of the panel minutes
17:00	End of meeting

Figure 8: Panel Meeting Agenda

5.1. Discussion of proposals

On the 6th of October five panelists (Bidaud, Bisset, Tornero, Neira and Pissaloux) finalized missing remote evaluationsand reviewed the critical ones that showed inconsistencies in the evaluation process.

Three groups of two panelists (based on their expertise) have been developed in order to optimize the process.

5.2. Prioritization of above-threshold proposals with tied scores

The proposals have been evaluated by experts on the basis of three criteria:

1. Scientific and/or technological **excellence** relevant to the scenario and research focus.
2. Quality and efficiency of the **implementation** and the management.
3. Potential **impact** through the development, dissemination and use of project results.

For each criterion, a score from 0 (lowest) to 5 (highest) was possible, half points were allowed. The threshold for possible funding was 3 in each criterion, with the sum of all three marks not being less than 10.

The panel decided to use the following **rules** in the prioritizing procedure of the proposals:

(a) Proposals were ranked by higher total score.

(b) When there was an equal total score, **groups** of proposals with the same total scores have been formed.

(c) Within each group, the proposals were ranked by higher score for criterion 3, i.e. impact. As this issue is especially important in the ECHORD++ experiment scheme, the experts were asked to have a very close look at the expected exploitation, which includes the “transfer excellence” and a potential route to the market.

(d) When, within a batch, there was an equal score for criterion 3 between the proposals, the proposals were ranked by higher score for criterion 1, i.e. scientific and/or technological excellence.

(e) For proposals in the same group and with equal scores on all criteria, the panel decided in a comparative manner, based on the nature of the proposals’ topics. The main aspects of the proposals were carefully analyzed to assess the match of the proposal’s goals with the ECHORD overall goals and the panel agreed on their relative order in a consensual way.

These rules were applied in consecutive order until the final prioritization was achieved. This procedure was only applied to proposals that scored above thresholds. In the following, proposals with 10.0 or more points, but with one or more criterion failing the individual threshold of 3.0 are not listed.

After the finalization of the missing remote evaluations, the panel members had the chance to “raise” any proposal with issues or discussion needs. They were asked to name the proposal and a comment on whether they consider it overrated or underrated, see Fig.9:

Upgrade	Expert present	Controversal	Expert present	Downgrade	Expert present
W-TRUST	Neira 2, 3, 3	ArtificialEye	-----3, 3, 3.5	MoRthos	Bidaud 3.5, 4.5, 3.5
GarbaCopter	-------3, 2.5, 3	SAGA	Cielniak 4.5, 5, 4	SARROMA	----- 4.5, 4, 3
ROBO-WAM	Neira 4 3.5, 4	R&A	Nüchter 3.5, 4, 3.5		
WIRES	Bidaud 5, 4, 4.5				
FASTKIT	Nüchter 4, 4, 4.5				
AAWSEB1	------ 4.5, 4.5, 4.5				
TAURIS	--------- 5, 3, 4				
HyQ-REAL	Bisset, Neira 4.5, 4.5, 3.5				
HOMEREHAB	-------- 4, 4.5, 4.5				
RadioRoSo	-------- 4, 4.5, 4.5				

Figure 9: Proposal for discussion

The following changes in the scores were agreed by the independent experts:

RadioRoSo

Impact from 4 to 4.5

HOMEREHAB

Impact from 4 to 4.5

AAWSEB1

Implementation from 3.5 to 4.5

WIRES

Impact from 3.5 to 4.5

MoRthos

Scientific from 4.5 to 3.5, Impact from 4.5 to 3.5

SARROMA

Impact from 4 to 3

ArtificialEye

Science from 5 to 3, Impact from 4.5 to 3.5, comments need revision

SAGA

Impact from 4.5 to 4

Keraal

Science from 5 to 4

HANDMADE

Impact from 4 to 3.5

CATCH

Impact from 4 to 3.5

In addition, it was agreed that the following proposals get an additional hint with the outcome letter:

TAURIS

Suggestion to contact RU robots to be linked with potential users of the proposed technology

ROBO-WAM

Suggestion to contact RU robots to be linked with potential users of the proposed technology and with bodies related to safety and regulation

R&A

Art-related, bring in contact e.g. with Raff d'Andrea (ETH)

INJEROBOT

In experiment, route to market must be made clearer, only licensing is not sufficient

Based on this ranking, given in Table 3, the panel recommended to fund all proposals with 11.5 or more points.

The total grant requested by all proposals above thresholds is about 5.7 M€.

5.3. Final Ranking

After the panel, 16 proposals were suggested for possible funding, as shown in Table 2 below. Taking the indicative budget of the second call and the expected high quality of the proposal's contents into account, the decision was made to suggest all proposals with a score of 12.5 or more for funding.

Acronym	Title	Partners
INJEROBOT	**UNIVERSAL ROBOTIC SYSTEM FOR GRAFTING OF SEEDLING**	**TEC, ING, ROB**

FlexSight	**Flexible and Accurate Recognition and Localization System of Deformable Objects for Pick&Place Robots**	**UNIROMA, ITR, ROBOX**
SAGA	**Swarm robotics for agricultural applications**	**WU, CNR, AV**
MAX ES	**Embedded software for autonomous industrial vehicles**	**ECA, Aluminium Pechiney, IRT SYSTEMX**
AAWSBE1	**Adaptive automated WEEE sorting 1: battery extraction**	**Organization of Bridget Hallam; Refind Technologies; Averhoff A/S**
WIRES	**Wiring Robotic System for Switchgears**	**UNIBO, SUN, IEMA**
Keraal	**Kinesiotherapy and Rehabilitation for Assisted Ambient Living**	**GR, TB, CB**
SAFERUN	**Secure And Fast rEal-time planneR for aUtoNomous vehicles**	**UniPR, PG, E80**
DUALARMWORKER	**Dual-arm robot closed kinematics chain motion planning for flexible industrial components assembly**	**TECNALIA, LAAS, AIRBUS**
RadioRoSo	**Radioactive Waste Robotic Sorter**	**CERTH, CVUT, UNIGE, ANSALDO NES, SURO**

HOMEREHAB	**Development of Robotic Technology for Post-Stroke Home Tele-Rehabilitation**	**CEIT, UMH, INSTEAD**
FASTKIT	**COLLABORATIVE AND MOBILE CABLE DRIVEN PARALLEL ROBOT FOR LOGISTICS**	**IRT JV, CNRS**
CoCoMaps	**Collaborative Cognitive Maps**	**CMLabs, IIIM**
GRAPE	**Ground Robotics for vineyArd monitoring and ProtEction through biological control**	**POLIMI, EURECAT, VITIROVER**
CATCH	**Cucumber Gathering- Green Field Experiments**	**IPK, ATB , CSIC**
HyQ-REAL	**HyQ-REAL: from the research lab to the real world**	**IIT, Moog**

Table 2. Proposals suggested for funding

The analysis of the willingness to use RIF in the project proposed showed a high interest, especially for Peccioli's RiF, as seen in Fig.10.

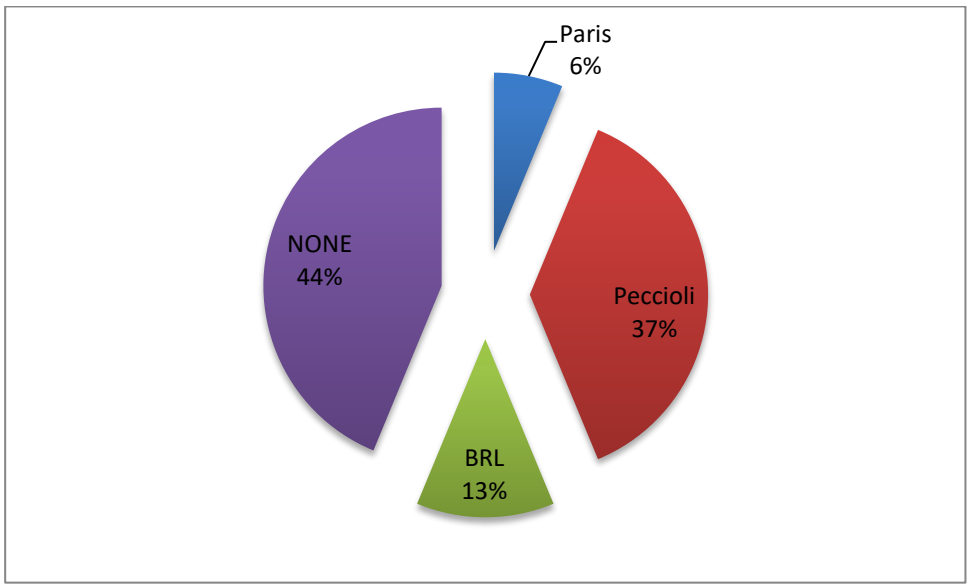


Fig.10: Willingness of use a ECHORD++'s RIF

The selected proposals, as shown in Table 2, cover only 4 out of 6 scenarios.

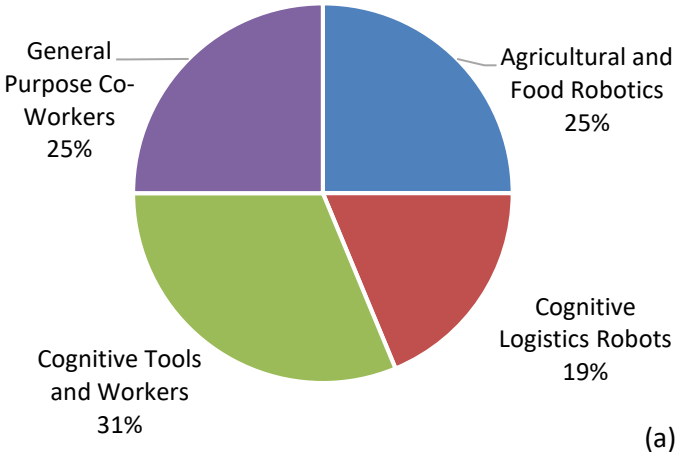
4 out of the 16 selected proposals addressed the *General Purpose Robotic co-workers,* 4 proposals the *Agricultural and Food robotics* scenario, 5 the *Cognitive Tools and workers for Cognitive Factories* scenario and 3 Cognitive Logistics Robots (Fig.11a).

The distribution of the research foci was in-line with the expectations. The research focus Advanced Perception and Action Capabilities was the most addressed one (Fig. 11b), while "multiple cooperating mobile manipulators" and "key issues in practical machine cognition" were chosen by no one.

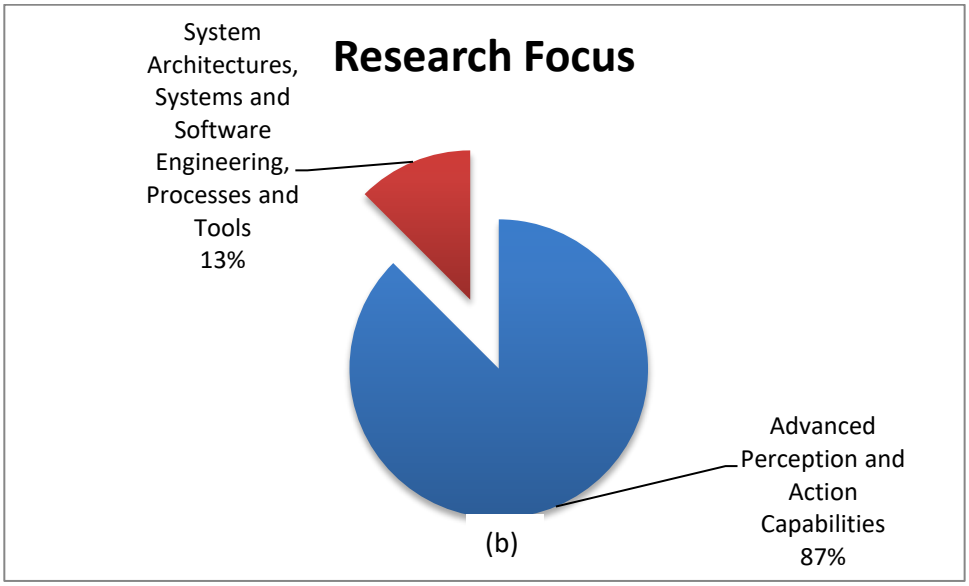
The majority of the proposals showed a good scientific and/or technological quality (average 4,47), and even the average scores for the other criteria shows a high quality level (4,25 for the Quality score and 4,44 for Impact score). This proves that the chosen format of proposals allows for a lean and precise description of experiments, and the impact end exploitation description have improved compared to the first call.

More than half of the proposals were of type "Application development and Implementation of Use-Cases", which shows that the emphasis on the creation of impact and transfer excellence was and same share is shown between "Joint enabling technology development" and "Feasibility demonstration" (Fig.11c).

Scenario distribution of selected proposals



(a)



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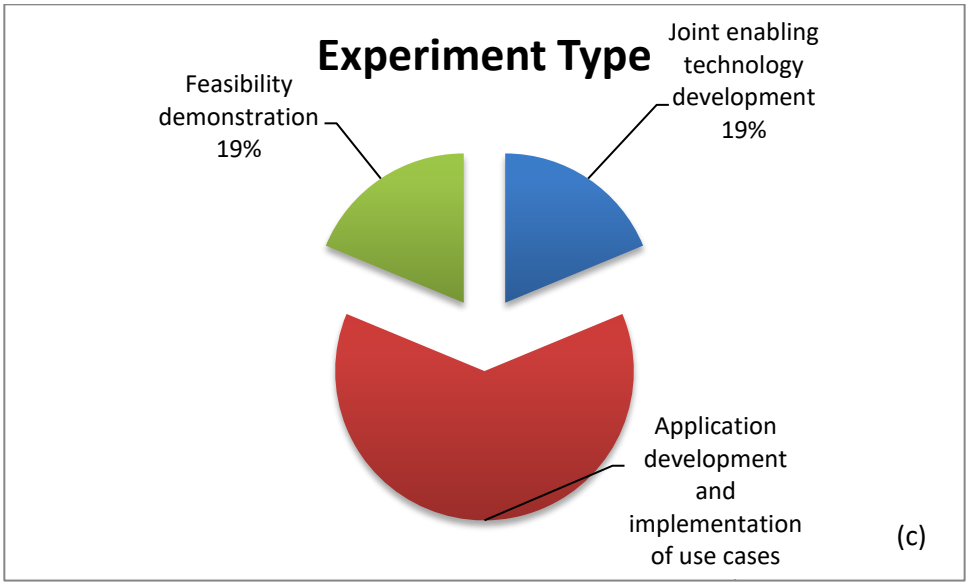


(c)

Fig. 11: Distribution of Scenarios (a), Research Foci (b) and Experiment Type (c) of the selected proposals

The topics addressed are *universal robotic system for grafting of seedling (INJEROBOT), Flexible and Accurate Recognition and Localization System of Deformable Objects for Pick&Place Robots (FlexSight), Swarm robotics for agricultural applications (SAGA), Embedded software for autonomous industrial vehicles (MAX ES), Adaptive automated WEEE sorting 1: battery extraction (AAWSBE1), Wiring Robotic System for Switchgears (WIRES), Kinesiotherapy and Rehabilitation for Assisted Ambient Living (KERAAL), Secure And Fast rEal-time planneR for aUtoNomous vehicles (SAFERUN), Dual-arm robot closed kinematics chain motion planning for flexible industrial components assembly (DUALARMWORKER), Radioactive Waste Robotic Sorter (RadioRoSo), Development of Robotic Technology for Post-Stroke Home Tele-Rehabilitation (HOMEREHAB), collaborative and mobile cable driven parallel robot for logistics (FASTKIT), Collaborative Cognitive Maps (CoCoMaps), Ground Robotics for vineyArd monitoring and ProtEction through biological control (GRAPE), Cucumber Gathering Green Field Experiments (CATCH), from the research lab to the real world (HyQ-REAL).*

The total number of funded organizations is 47, with the following country and type distribution, shown in Fig. 12 and Fig. 13:

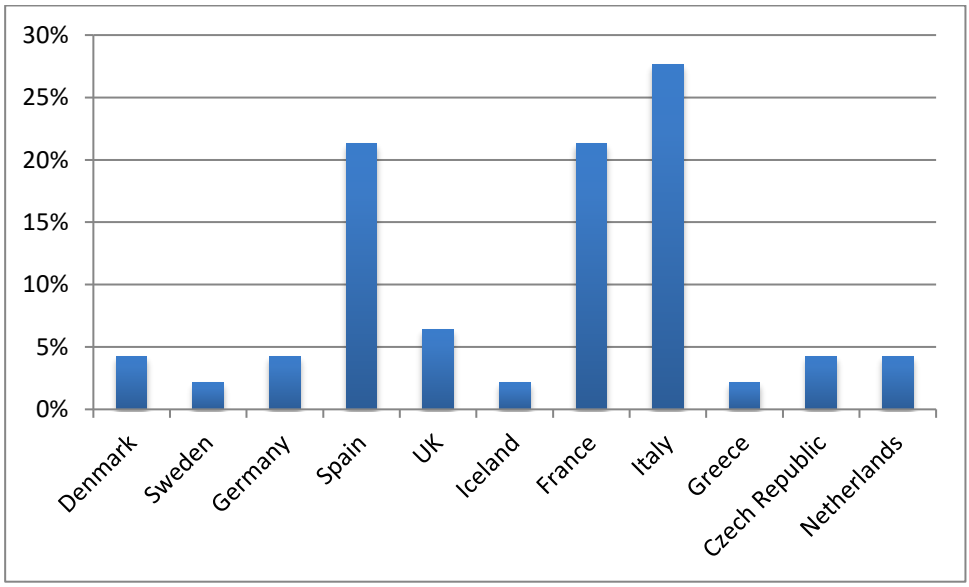


Fig.11: Country distribution of the selected proposals

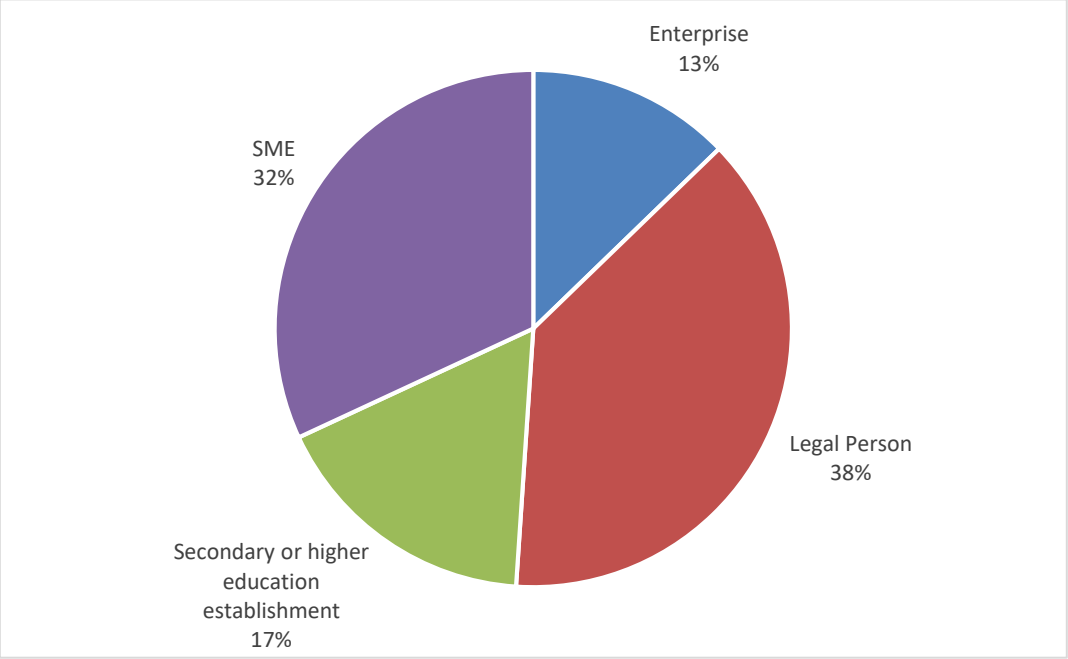


Fig.12: Organization type distribution of the selected proposals

5.4. Funding Suggestion

Since the final list of funded project is still waiting for the final approval, the Funding Suggestion will be provided with delay.

5.5. Abstracts of proposals above threshold in the ranking order

INJEROBOT- universal robotic system for grafting of seedling

The main objective is to perform a flexible robotic system for supporting grafting of horticultural seedlings, based on the cooperative work of two industrial robots and supported by artificial vision and external mechanical devices. Finally, it desired develop on ROS for a hardware abstraction.

FlexSight - Flexible and Accurate Recognition and Localization System of Deformable Objects for Pick&Place Robots

"One of the key challenges in most robotics applications, from robot-aided manufacturing to service robotics applications, is the capability to automatically identify and locate various types of objects, in such a way that the robot can grasp and manipulate them accurately and reliably. In this experiment, we propose a perception system that is able to recognize and localize several types of deformable objects that can be commonly found in many industrial and logistic applications, such as soft sacks, deformable and variable size packaging, food products, articles of clothing, flexible assembly parts, etc...

The main objectives of the FlexSight experiment are: (1) Enable a robot to perceive a large and widespread class of rigid and deformable objects in an accurate and reliable way, with a particular emphasis on the computational speed of the whole system. (2) Implement a prototype of a compact industrial sensor (the FlexSight Sensor, FSS), that integrates inside a robust and small chassis all the required sensors and a processing unit suitable to run the detection and localization algorithms. (3) Integrate the FSS inside a working system that will be tested in several industrial and logistic use cases."

SAGA - Swarm robotics for agricultural applications

Robotics is expected to play a major role in the agricultural/farming domain, and often multi-robot systems and collaborative approaches are mentioned as potential solutions to improve efficiency and system robustness. Swarm robotics, in particular, stresses aspects like flexibility, scalability and robustness in solving complex tasks, and is considered extremely relevant for precision farming and large-scale agricultural applications. However, swarm robotics research is still confined into the lab, and no application in the field is currently available. With this experiment, we will demonstrate for the first time the application of swarm robotics principles to the agricultural domain. Specifically, we target a decentralised monitoring/mapping scenario, and implement a use case for the detection and mapping of volunteer potatoes in sugar beet fields by a group of small unmanned aerial vehicles.

MAX ES - Embedded software for autonomous industrial vehicles

The proposed experiment aims to develop and implement navigation software for delivery robots in heavy industries environment. Rio Tinto Alcan launched a couple of years ago an extensive reflection about major improvements which could be done in classical process of aluminium production. Among these improvements, the use of autonomous ground vehicles for heavy load delivery has been identified as a very promising and innovative approach.The experiment proposes to demonstrate an autonomous navigation indoor and outdoor of an unmanned vehicle for heavy load with cohabitation of pedestrians and other manned or unmanned vehicles, in an industrial environment with dust, strong magnetic fields and various climatic conditions. The demonstration will be done thanks to the RTA prototype MAX 01 in an industrial factory .

Main associated technological issues in this experiment are the ability of the robot to move autonomously in complete safety for people and for existing equipment and thus the management of the interactions between the navigation module and the safety module. The experiment proposes also to demonstrate the ability of the autonomous vehicle to handle the loads in an autonomous way. That requires an accuracy and a safety approach that is not yet available on the market.

Navigation system will be based on past ECA Robotics development (indoor or outdoor). The TRL of these developments is 6-7, but they were not yet implemented in a realistic industrial factory with at the same time indoor and outdoor roads.

The prototype will be based on this knowhow and the adaptation of existing proprietary component. SLAM laser was initially developed by ECA Robotics using outputs from different research centers: Stanford Research Institute, INRIA and CEA.

The safety system for autonomous component remains a relatively new component. We can mention the project autonomous car of the Institut de Recherche Technologique (IRT) System-X. IRT will provide its safety methodology developed in the frame of this project and modelisation software in order to validate the safety of the system and response of the system with generation of failures.

The experiment will help to validate the concept of robot delivery in realistic environment; the next stage will consist in industrialization of the concept and launch marketing about for the promotion of the system. In this way the demonstration belong to a “lab to market” initiative."

AAWSBE1 - Adaptive automated WEEE sorting 1: battery extraction

Legislation regarding recycling both to preserve resources and to reduce hazardous waste puts strong requirements onto waste handling, resulting in specialist recycling companies. This experiment targets a form of waste mentioned specifically in legislation: batteries inside Waste Electrical and Electronic Equipment (WEEE).

This experiment will sort potential battery-containing items from amongst realistic levels of residuals in a WEEE small electronics stream. The following components will be implemented:

a) a multimodal perception system to detect items of interest

b) a classification system to identify items of interest

c) a dynamically maintained pick list, adaptively prioritising the items to pick

d) a simple system to provide up-to-date location information for desired items

e) a robot system capable of picking all the items existing in the database.

It is important to the value of our system that it works at realistic waste densities. This is a step change from current technologies, that rely on identifying and picking isolated items. It is also important that the system runs cost-effectively in real time on real WEEE mixtures obtained from our end-user partner. For this reason we will not pick all available items, but will maintain operational speed by picking just the most important ones, where “important” can easily be adopted based on current priorities.

Our system will be adaptive, responding to e.g. new items appearing, changes in item value, both successful and failed picks, conveyor movements and settling. It will be designed to work as an individual sorting station in a line, with either manual or robot sorting stations before and after, capable of either working alone or of integration into a cognitive factory. It will be most cost-effective in a line of similar (but differently programmed) robot sorting stations in a cognitive factory.

WIRES - Wiring Robotic System for Switchgears

The proposed experiment will address the problem of robotized automatic wiring of switchgears from both the hardware and the software point of view. Aiming at a further improvement of the switchgear production quality and at reducing the manufacturing time and costs, the main objective of this experiment is to develop a robotic system devoted to the

execution of the automatic wiring of the switchgear by means of both a software package for the extraction of the data from the CAD files and optimization of the wiring procedure and a suitably designed manipulation device (end effector). From the software point of view, the focus will be on the optimization of the wiring sequence taking advantage of the infor-mation provided by the EPLAN P8 platform. Aiming at the minimal increment production line complexity and at the flexibility of the proposed solution, the problem will then be approached by designing an innovative end effector: able to manipulate the wires and accomplish the wire connections; provided with the appropriate tools for executing wire connection on both screw-type and clip-type components; provided with a force/tactile sensors able both to detect the grasped wire orientation in order to define the inser-tion direction and to estimate tangential forces during the routing to successfully complete the wiring; provided with a suitable sensor set (wrist force/torque sensors and 3D vision) to deal with the uncertainties in the environment and interaction with other components and wires; compatible with standard industrial robots and typical manufacturing lines.

KERAAL - Kinesiotherapy and Rehabilitation for Assisted Ambient Living

While the need for rehabilitation increases the workload of physiotherapists, due to frequent health problems such as low back pain, we propose to increase the efficiency of rehabilitation exercises by the means of a robot coach. Instead of exercises where the patients are unsupervised by their physiotherapists, a robot coach can augment the supervision capabilities of a physiotherapist. The robot can instruct, evaluate and encourage patients during small exercise sessions. The KERAAL project is a feasibility demonstration, which targets a general-purpose robotic co-workers scenario and focuses on advanced perception and action capabilities. Our consortium made up of roboticists and doctors will address both the technological and the medical aspects of this project. We design a robot coach based on our medical expertise in rehabilitation and assistive technologies and adapt an existing humanoid robot which anthropomorphic design gives it the unique capability of realizing movements of the lumbar spine for low back pain rehabilitation exercises. We develop an intelligent tutoring system and a human-robot interface. We develop algorithms based on state-of-the-art algorithms of imitation learning. Our prototype robot coach will be evaluated by clinical experiments and a business model will be identified for a commercial solution. The coaching system uses its advanced action capabilities as an anthropomorphic system to efficiently instruct and encourage the human user, and it uses its advanced perception capabilities to adaptively evaluate the performance and progress of the user, so as to work together with the patient toward his recovery. KERAAL project will lead to a commercial solution developed by the commercial partner, giving way to the emergence of a new market of robotics for healthcare. The results of our works will impact the community of open-source robot users, and will be disseminated broadly towards the robotics and medical fields.

SAFERUN - Secure And Fast rEal-time planneR for aUtoNomous vehicles

LGVs operating in automated warehouses in co-presence with human coworkers raise severe safety issues. The safety problem is normally considered in competition with the plant productivity: In order to avoid dangerous collisions with human coworkers, LGV velocities are kept well below their potential values. The SAFERUN project will propose, and experimentally validate, a new velocity planner for LGVs that is able to combine the safety requirement with the plant productivity. This result is achieved by limiting speeds in critical configurations - even below the values that are currently used - but by admitting higher velocities in secure configurations. The overall planner must be efficient since it must handle in real-time unpredictable emergency situations and, as known, LGV controllers have reduced computational capabilities. Test experiments will be executed in a real warehouse, so that it will be possible to obtain proper comparisons with the current performances of the plant and to verify the compatibility of the novel algorithm with the architectures of old systems.

DUALARMWORKER - Dual-arm robot closed kinematics chain motion planning for flexible industrial components assembly

Architectural practices and building industry has been traditionally technology reluctant, however digital fabrication and 3D printing Digital fabrication, automation and robotic is gaining in momentum in several niche applications. At now, highly precise building components are prefabricated in off-site factories (like curtain wall and CNC machined structures), nevertheless most of buildings are still “assembled”• (precast based construction) or erected on-site (on site construction), impacting directly in the economic cost and environmental footprint. By introducing the additive manufacturing technologies in building practices the building component fabrication can be done on-site, reducing the cost and environmental footprint derived from transport emissions, waste reduction, etc..¦ Moreover, digital fabrication and additive manufacturing technologies (such as on site -3D printing) are being gradually introduced in construction landscape, by the first early adopters (such as Monolite, COR3D partner) and architectural practitioners (such as IAAC), finding synergies between their “business as usual”• practices and AM/3D printing technologies . While additive manufacturing for architecture is yet at an early stage, a clear potential have been identified by industries, contractors and architects to reduce the cost of customized fabrication and therefore create a change of paradigm from the XX century standardized architecture of mass production toward the contemporary digital architecture of mass customisation and site specific adaptation. Furthermore, 3D printing technologies and equipment, are inherently enabled by high high levels of automation, intelligent systems and robotic techniques, than increase its performance in terms of time and cost. COR3D is aimed to develop, industrialize and validate a new system of 3D printing robotic system for architecture and building construction industry applications via the following general approaches.

Radioactive Waste Robotic Sorter (RadioRoSo)

There is a wide demand to sort the old undocumented radioactive waste buried underground in unused mines in several countries. The job has been performed by master-slave robots operated by humans remotely. RadioRoSo will innovate the process by making it more autonomous. The cognitive burden of the human operator will be reduced significantly with RadioRoSo outcomes.

RadioRoSo experiment builds on top of knowledge/skill obtained in the EC funded project CloPeMa (Clothes Perception and Manipulation, 2012-2015) to a specific domain - manipulating and sorting radiation-contaminated waste. Three partners bear this knowledge.

Additional two end-user partners experience in the radiological waste domain will guide the experiment into practically useful skills. However, new skills will likely have a wider applicability in industrial robotics.

Development of Robotic Technology for Post-Stroke Home Tele-Rehabilitation (HOMEREHAB)

The HOMEREHAB project aims at developing a new tele-rehabilitation robotic system for delivering therapy to stroke patients at home. It will research on the complex trade-off between robotic design requirements for in home systems and the performance required for optimal rehabilitation therapies, which current commercial systems designed for laboratories and hospitals do not take into account. Additionally, the new home scenario also demands for the smart monitoring of the patientâ€™s physio-logical state, and the adaptation of the rehabilitation therapy to these data for an optimal service. The main novelty of the HOMEREHAB approach is the integration of both specifications to develop new rehabilitation robotic systems for in home use. For the experimental validation of the HOMEREHAB approach, a proof-of-concept prototype will be developed based on the RoboTherapist 2D robotic system manufactured by Instead Technologies. A

RIF stay will allow validating the system by rehabil-itation experts and with post-stroke patients, as well as gathering advice and experience on legal, ethi-cal and economic issues for the exploitation of the system. To pursue project objectives, HOMEREHAB gathers two partners with complementary expertise in robotics and a technology-based company aimed at helping individuals with disabilities that develops, manufactures and distributes robotic rehabilitation systems.

Collaborative and mobile cable driven parallel robot for logistics (FASTKIT)

Todays logistic automation solution do not answer the industry's need for flexibility and low investment cost. Thanks to their experience and expertise in Cable Driven Parallel Robot (CDPR), in safe navigation of mobile platform and in mechatronics, FASTKIT partners will combine these technological building blocks to develop a use-case oriented prototype of mobile and collaborative CDPR for logistics puroposes. Main exploitation area will be manufacturing industries storage facilities as well as retail.

Collaborative Cognitive Maps (CoCoMaps)

The experiment we propose uses an expanded version of the existing Cognitive Map Architecture implemented on Honda's ASIMO robot in an environment with more complex tasks than already attempted. This will allow the robot to interact in more complex ways, in particular, to - simultaneously - interact with another robot and more than one person at a time. Thus, we aim for a group of 2 robots and 2 humans: The robots will be controlled by the CMA, forming a 4-way collaborative team with the humans. The team will share, enhance and make use of learned information, using an extension of the Turn Taking Dialogue System developed at IIIM, using the CMA. We plan to show that these systems will enable social interactions that can coexist with the robots' attention to - and completion of - practical tasks in the workplace.

Ground Robotics for vineyArd monitoring and ProtEction through biological control (GRAPE)

GRAPE (Ground Robot for vineyArd monitoring and ProtEction) aims at creating the enabling technologies to allow companies, working in the market of instruments for biological control, to develop vineyard robots that can increase the cost effectiveness of their products with respect to traditional chemical control. In particular, the project develops the tools required to execute (semi) autonomous vineyard monitoring and farming tasks, with Unmanned Ground Vehicles (UGVs). Two different vineyard applications are considered in order to demonstrate the aforementioned tools: The first one concerns (semi) autonomous monitoring of vineyards. In the autonomous case, UGVs travel the vineyard autonomously executing a specified monitoring task (soil analysis, soil monitoring, grapes inspection, leaves and clusters thinning, precision weed removal, etc.). In the semi-autonomous case, the UGVs autonomously travel the vineyard sending video streams to the agronomist. If a problem is detected, the agronomist can teleoperate the required analysis. The second application concerns the autonomous execution of a farming task, namely the application of pheromone dispensers to protect the grapevine, by way of mating disruption, from the grape moths. The UGVs travel the vineyard, select some plants, according to a specified criterion, and lightly slide on, or twist around, the branches the dispenser. The GRAPE project considers both applications, but is focused on the enabling technologies (methodologies for autonomous navigation in a vineyard, techniques to support generic monitoring tasks, etc.), setting up one single platform that can support the lead users in the development of the tasks previously mentioned. As a consequence, it does not demonstrate specific monitoring tasks like soil analysis, soil monitoring, etc. All the technology developed in GRAPE is as modular as possible, so that it can naturally support the extension to a fleet of robots, though the demonstration entails a single robotic platform.

Cucumber Gathering Green Field Experiments (CATCH)

CATCH experiments deal with with the shortage of flexible, cost-efficient and reconfigurable/scalable hortibotic out-door solutions for automated harvesting in difficult natural conditions by addressing critical problems: fruit perception and fast picking actions. Additionally, CATCH explores novel, light-weight, modular and cheap, nevertheless robust multi-arm robotic systems build of standardized components, providing economic basis and utilization models for agricultural applications. The experiments address essential bottlenecks for wider usage of robot technology in agriculture fields.

From the research lab to the real world (HyQ-REAL)

The HyQ-REAL experiment is a feasibility demonstration of a general purpose robotic co-worker. The experiment will bring IIT's new quadruped robot HyQ2Max from the laboratory to the real world applications. HyQ2Max is an improved version of HyQ, a robot that has demonstrated a wide repertoire of indoor/outdoor motions ranging from running and jumping to careful walking over rough terrain. In this experiment IIT will team up with MOOG, the world-leader in reliable, high-performance actuation systems for aerospace and motorsport. Besides ruggedizing the robot against impacts, dust and rainwater, IIT will develop control algorithms for self-righting and intelligent tele-operation. MOOG will develop a compact engine-powered hydraulic system to provide HyQ2Max with power-autonomy. MOOG will also further develop their TRL-4 Integrated Servo Actuators (ISA) that will be used to upgrade HyQ2Max with highly reliable and efficient hydraulic actuators, with performance levels beyond the state-of-the-art robots developed by Boston Dynamics. IIT will transfer know-how in robotics to MOOG that is new to this field. Both partners will field test the power-autonomous robot outdoors close to IIT and during a 2-week visit at the RIF Pisa. The experiment will have three main results: (1) a tether-free, robust and field-tested prototype that will be demonstrated to stakeholders at the RIF Pisa outdoor facilities and other locations; (2) a TRL increment from 4 to 9 of MOOG's ISA and (3) a newly developed compact and efficient engine-powered hydraulic system for mobile machines.

Each of these main results will be exploited as follows, respectively: (1) IIT will create a spin-off company with the aim to commercialize the legged vehicle and related technologies targeting civil applications such as construction, forestry and disaster recovery; (2) MOOG will commercialize its unique ISA, a highly customizable actuator for high-performance machines and (3) MOOG will conduct market analyses for the newly developed hydraulic power supply.

Annex I : Conditions of Appointment

ECHORD++ Call 2 for Experiment Proposals

Conditions of Appointment for Independent Experts

1 Conflict of Interest Rules

Independent experts must declare any known conflicts of interest beforehand and must immediately inform the ECHORD++'s Consortium if one becomes apparent during the course of the assessment. The ECHORD++'s Consortium will take whatever action is necessary to remove any conflict. A disqualifying conflict of interest exists if an independent expert:

- was involved in the preparation of any ECHORD++ proposal within the call in which he acts as an independent expert,
- if he or she or his or her organisation could stand to benefit, or be disadvantaged, as a direct result of the assessment carried out,
- has a close family relationship with any person representing a participating organisation in the proposal,
- is a director, trustee or partner of any beneficiary, participating in the proposal, or is a subcontractor/third party carrying out work for any beneficiary in the proposal concerned,
- is employed by one of the beneficiaries, participating in the proposal or by a subcontractor/third party carrying out work for any beneficiary in the proposal concerned,
- is in any other situation that comprises his or her ability to review the proposal impartially.

Independent experts with disqualifying conflicts of interest cannot take part in the assessment of experiments.

A potential conflict of interest may exist, even in cases not covered by the clear disqualifying conflicts indicated above, if any independent expert:

- was employed by one of the participating organizations in a proposal in the last three years,
- is involved in a contract or research collaboration with a participating organisation, or had been so in the previous three years,
- is in any other situation that could cast doubt on his or her ability to review the proposal impartially, or that could reasonably appear to do so in the eyes of an external third party

Independent experts cannot assess proposals where they have a potential conflict of interest. Also, they are excluded from the evaluation panel meeting (see Section 11 of the Guide for Applicants for more details). However, they can assess proposals where no potential conflict of interest exists.

Independent experts are to maintain strict confidentiality with respect to the whole evaluation process. Under no circumstance may an expert attempt to contact an applicant on his own account, either during the evaluation or afterwards.

2 Code of Conduct for Independent Experts

1. The task of an independent expert is to participate in a confidential, fair and equitable assessment of each experiment proposal according to the procedures described in the specific ECHORD++ documents. He/she must use his/her best endeavors to achieve this, follow any instructions given by the ECHORD++'s Consortium to this end and deliver a constant and high quality of work.

2. The independent expert works as an independent person. He/she is deemed to work in a personal capacity and, in performing the work, does not represent any organization.

3. The independent expert must sign a declaration of no conflict of interest and confidentiality before starting the work, by which he/she accepts the present Code of Conduct. Invited experts who do not sign the declaration will not be allowed to work as an independent expert.

4. In doing so, the independent expert commits him/herself to strict confidentiality and impartiality concerning his/her tasks.

5. If an independent expert has a conflict of interest with an experiment proposal, he/she must declare such facts to the ECHORD++'s Consortium as soon as he/she becomes aware of this.

6. The ECHORD++'s Consortium ensures that, where the nature of any link is such that it could threaten the impartiality of the independent expert, he/she does not participate in the assessment of that experiment proposal, and, if necessary, competing proposals.

7. Independent experts may not discuss any proposal with others, including other independent experts not directly involved in the assessment of the proposal, except during the formal discussion at the meetings moderated by or with the knowledge and agreement of the ECHORD++'s Consortium.

8. Independent experts may not communicate with applicants,. No proposal may be amended during the assessment session. Experts' advice to the ECHORD++'s Consortium on any proposal may not be communicated by them to the applicants or to any other person.

9. Independent experts are not allowed to disclose the names of other independent experts participating in the assessment.

10. Where it has been decided that experiment proposals are to be posted or made available electronically to independent experts, who then work from their own or other suitable premises, the independent expert will be held personally responsible for maintaining the confidentiality of any documents or electronic files sent and returning, erasing or destroying all confidential documents or files upon completing the assessment as instructed. In such instances, independent experts may seek further information (for example through the internet, specialized databases, etc.) in order to allow them to complete their examination of the proposals, provided that the obtaining of such information respects the overall rules for confidentiality and impartiality. Independent experts may not show the contents of proposals or information on applicants to third parties (e.g. colleagues, students, etc.). It is strictly forbidden for independent experts to make contact with applicants.

11. Where the assessment takes place in an office or building during a meeting organized by the ECHORD++'s Consortium, independent experts are not allowed to take outside the meeting site any parts of experiment proposals, copies or notes, either on paper or in electronic form, relating to the assessment of experiment proposals. Independent experts may be given the possibility of seeking further information (for example through the internet, specialized

databases, etc.) to allow them to complete their examination of the experiment proposals, but they may not contact third parties without the express consent of the ECHORD++ staff supervising the assessment.

12. Independent experts are required at all times to comply strictly with any rules defined by ECHORD++ for ensuring the confidentiality of the assessment process and its outcomes. Failure to comply with these rules may result in exclusion from the immediate and future assessment processes, without prejudice to penalties that may derive from other applicable Regulations.

Annex II: Reply form

Acceptance of the appointment letter to act as an independent expert

for the assessment of experiment proposals submitted in response to

Call 2 of the FP7 Project ECHORD++

Dear Prof. Dario,

I'm glad to accept the appointment to act as an independent expert for the assessment of experiment proposals submitted in response to Call 2 of the FP7 Project ECHORD++ according to the terms and conditions detailed in the appointment letter and its Annexes.

In particular, I undersign the following declarations:

- I undertake to abide by the Code of Conduct for independent experts covered in Annex II of the appointment letter (***declaration of abidance of the code of conduct***).

- I undertake to inform the ECHORD++'s Consortium immediately if I discover any disqualifying or potential conflict of interest with any experiment proposal that I am asked to assess or which is the subject of discussion in any assessment meeting in which I participate (***declaration of no conflict of interest***). In particular, … **<complete the sentence with the one of the following two that applies to you and cut the other>**

  ☐ I declare that I have not submitted, nor am I, to my knowledge involved in any experiment proposal currently under assessment or submitted for assessment, under Call 2 for ECHORD++ Experiment Proposals.

  ☐ I declare that my participation in the assessment of the following proposal(s) could create a conflict of interest: **<please indicate whether this would be a "disqualifying" or "potential" conflict of interest; see Annexes I and III for explanation>**

Acronym	*Title*	*disqualifying (D) or potential (P)*
.....	.....	.....
.....	.....	.....
.....	.....	.....

- I undertake not to reveal any detail of the assessment process and its outcomes or of any experiment proposal submitted for assessment without the express written approval of the ECHORD++'s Consortium. In case of evaluations carried out outside ECHORD++'s Consortium controlled premises, I understand that I will be held personally responsible for maintaining the confidentiality of any documents or electronic files sent and for returning, erasing or destroying all confidential documents or files upon completing the assessment, unless otherwise instructed (***declaration of confidentiality***).

In order to allow payment of the assessment fees, … **<complete the sentence with the one of the following two that applies to you and cut the other>**

☐ I hereby notify my *codice fiscale*: XXX XXX XXXXX XXXXX

☐ I hereby authorize the SSSA to request on my behalf my *codice fiscale* to the *Ufficio delle Entrate*; for this purpose, attached please find copy of my identity card.

Date _____ *Signature* _____

Please, fill in the following section only if you are NOT Italian:

Alla Scuola Superiore Sant'Anna

Oggetto*: Dichiarazione ai sensi e per gli effetti del DPR 600/1973 (art. 23) e della L. 335/1995 (art. 2) in riferimento all'incarico conferito in data*_____

☐ **Tick off if you previously provided Scuola Superiore Sant'Anna with the following information and/or if such information remained unchanged. In this case, please just insert your name and surname.**

Please, fill in the following form in BLOCK LETTERS.

I undersigned_____ born in _____ country _____ on _____,

address_____, telephone number_____, e-mail address _____, social security number _____.

Self-Employed or Employed

Employee of _____
(If public employee, please specify the exact name of employer, full address and telephone number)
_____

Payment:
Please, credit my honorarium to the following bank account (bank fees will be charged on my account):

- Bank's name, address and agency:

  _____

  _____
- Account Number: _____
- IBAN:_____
- Account owner's name: _____
- Sort code or routing number or swift code: _____

Further declaration

☐ (Applicable only to the person resident in a country covered by Bilateral agreement: In order to avoid a “double taxation” I choose to pay the taxes in my Country.

At this end, I enclose a statement of my National Revenue Service in which NRS declares that the taxation will take place in my country, and not in Italy- mandatory statement).

☐ I choose to pay the taxes in Italy; so I am aware that the Scuola Superiore Sant’Anna has to deduct the 30% from the reimbursement of my sustained costs, as the due taxes

For acceptance:

Date _____ *Signature* _____

Please, fill in the following section only if you are Italian:

Alla Scuola Superiore Sant'Anna

Oggetto*: Dichiarazione ai sensi e per gli effetti del DPR 600/1973 (art. 23) e della L. 335/1995 (art. 2) in riferimento all'incarico conferito in data*_____

☐ Barrare se le informazioni relative ai dati anagrafici sono già in possesso di questa amministrazione e/o non sono variati rispetto a precedente comunicazione. In tal caso indicare solo il cognome e il nome

Il/La sottoscritto/a _____ nato/a _____ Prov._____il _____, residente in_____Prov_____ Via_____ n. ____ cap_____, Tel._____e-mail_____, codice fiscale_____

CHIEDE che il pagamento delle proprie competenze venga effettuato (da non compilare se la modalità di pagamento è già in possesso di questa amministrazione ed è invariata):

mediante accredito, con spese a suo carico, sul c/c n. _____ABI_____CAB_____CIN_____

presso _____Ag._____;:

IBAN_____ oppure BIC/SWIFT_____

DICHIARA

per quanto stabilito dal DPR 633/1972

☐ di essere in possesso del seguente numero di partita IVA _____

Se titolare di partita IVA:

☐ che la prestazione derivante dal presente incarico NON rientra nell'alveo della propria professione

☐ che la prestazione derivante dal presente incarico rientra nell'alveo della propria professione ed emetterà, quindi, relativa fattura

per l'applicazione del d.lgs. 165/2001

□ di essere attualmente lavoratore dipendente presso il seguente Ente Pubblico_____

Ai fini previdenziali in relazione a quanto stabilito dall'art. 44 della L. 326/2003

[A] che con riferimento alla data di richiesta della liquidazione dell'incarico cui si riferisce questa autocertificazione, il proprio reddito dall'inizio dell'anno, derivante da prestazioni occasionali supera la fascia di esenzione previdenziale di euro 5.000,00

[B] che con riferimento alla data di richiesta della liquidazione dell'incarico cui si riferisce questa autocertificazione, il proprio reddito dall'inizio dell'anno, derivante da prestazioni occasionali e corrisposto da enti e amministrazioni diverse dalla Scuola Sant'Anna, non supera la fascia di esenzione previdenziale di euro 5.000,00 ed è pari a euro_____

nel caso sul reddito da corrispondere sia dovuto il contributo INPS (L.335/95) dichiara:

□ di essere stato messo a conoscenza dell'obbligo di iscrizione alla gestione autonoma e separata INPS

□ di essere iscritto alla seguente forma obbligatoria previdenziale, diversa dalla gestione separata INPS _____ (es. INPS dipendenti, INPDAP, Inarcassa ecc.) e pertanto chiede l'applicazione dell'aliquota ridotta

□ di essere titolare di pensione diretta

□ di aver superato nell'anno in corso il reddito di Euro 100.123,00

Ulteriore dichiarazione per i soggetti non residenti in Italia:

□ dichiara di volersi avvalere della convenzione contro le doppie imposizioni in essere tra Italia e _____ Allega allo scopo certificazione in duplice lingua, inglese e italiano, resa dall'ufficio imposte del Paese di appartenenza attestante l'assoggettamento del reddito prodotto in Italia nel suddetto Paese.

Il contraente si impegna a comunicare tempestivamente eventuali variazioni rispetto ai dati sopra esposti; in assenza di nuova comunicazione la presente certificazione si intende valida per tutta la durata del rapporto di lavoro.

Il/La sottoscritto/a, ai sensi della L. 196/03, dichiara altresì di essere a conoscenza che i propri dati saranno trattati dalla Scuola Sant'Anna per assolvere attività istituzionali che non potrebbero essere adempiute mediante il trattamento di dati anonimi o di dati personali di diversa natura.

Il/La sottoscritta dichiara infine di essere a conoscenza del disposto di cui all'art. 71 (controllo di veridicità da parte dell'amministrazione), all'art. 75 (decadenza dai benefici per dichiarazione non veritiera) e all'art. 76 (sanzioni penali per dichiarazione mendace) del DPR 445/2000

Data_____ Firma_____

NOTE PER LA COMPILAZIONE

Sezione dei dati anagrafici

Compilare correttamente e in stampatello tutte le informazioni richieste. Per incarichi successivi al primo la sezione in parola può non essere compilata se i dati sono già in possesso di questa amministrazione e se sono invariati rispetto alla dichiarazione precedente.

Sezione adempimenti previdenziali

Per verificare se il prestatore ha superato i 5000,00 euro di reddito da lavoro autonomo occasionale (art. 67 del TUIR) occorre fare riferimento al criterio di cassa ossia al momento in cui il compenso è stato percepito indipendentemente dal momento in cui la prestazione è stata effettuata. La somma da conteggiare non corrisponde al netto percepito ma all'ammontare lordo indicato nel contratto o lettera di incarico. Viene richiesto di escludere i redditi a tale titolo erogati dalla Scuola in quanto informazione già in possesso della medesima.

Per redditi da lavoro occasionale superiori ai 5000,00 euro scatta l'obbligo di versamento del contributo previdenziale all'INPS con aliquote differenziate a seconda della posizione lavorativa del contraente. Si sottolinea che il versamento è un obbligo del sostituto d'imposta che provvederà ad effettuare tutte le operazioni previste dalla normativa in materia. Tuttavia l'iscrizione alla gestione autonoma e separata INPS è un adempimento richiesto alla singola persona che può essere assolto rivolgendosi a qualunque sede territoriale INPS oppure mediante Internet collegandosi al sito www.INPS.it. Le iscrizioni successive alla prima sono richieste solo nel caso di variazione del committente.

E' molto importante dichiarare se il soggetto è coperto da altra forma previdenziale obbligatoria diversa dalla gestione separata INPS (es. se dipendente presso altro ente sarà iscritto ad INPDAP o INPS sezione dipendenti a seconda se pubblico o provato; se libero professionista sarà iscritto a INARCASSA o cassa Avvocati, Geometri ecc.). Ciò consente l'applicazione di un'aliquota inferiore. Lo stesso dicasi se il contribuente è titolare di pensione (da intendersi nel senso che la pensione è la propria fonte di reddito prevalente).

Importante! Non è sufficiente dire che si ha un'altra copertura previdenziale, è necessario dichiarare quale perché la Scuola deve giustificare all'inps l'eventuale applicazione dell'aliquota ridotta e comunicare qual è l'altra forma previdenziale obbligatoria in capo a ciascun sostituito.

Se il soggetto supera nel corso dell'anno il reddito complessivo di euro 100.123,00 non si applicherà nessun contributo INPS.

Annex III: Appointment Letter

Appointment letter to act as an independent expert for the assessment of experiment proposals

submitted in response to 1st Call of the FP7 Project ECHORD++

Dear Prof. «uname»,

following your availability to act as an independent expert for the assessment of experiment proposals submitted in response to 1st Call of the FP7 Project ECHORD++, upon your signature this appointment letter constitutes an agreement between you and the ECHORD++'s Consortium to contribute to the assessment of experiment proposal submitted to ECHORD++.

To the ends of this agreement, the ECHORD++'s Consortium is represented by Technische Universität München (TUM)Blue Ocean Robotics (BOR), Bristol Robotics Laboratory (BRL), Commissariat à l'Énergie Atomique et aux Énergies Alternatives (CEA), Scuola Superiore Sant'Anna (SSSA), Universitat Politècnica de Catalunya (UPC).

The appointment has to be considered as concerning autonomous work without subordination constraints to Scuola Superiore Sant'Anna and is subject to the regulations of *Libro V*, *Titolo III* of the *Codice Civile* (Italian Civil Code). Note that the Annexes of this appointment letter form an integral part of the appointment letter itself.

The description of your work as independent expert, is specified in Annex I of this appointment letter and, in brief, consists in acting either as an *evaluator* or as a *rapporteur* for each experiment proposal assigned to you.

As agreed within the ECHORD++'s Consortium and with the European Commission, a 150.00 Euro fee will be paid for each ECHORD ++ experiment proposal you will properly handle in either of the two above roles. Please note that, when acting as a rapporteur, this fee also includes an additional independent evaluation that must be provided in the case of conflicting opinions between the two evaluators.

The 150.00 Euro fee is to be intended as a before-tax amount and, conforming with the laws in force in Italy, payment might be subject to withholding tax (*ritenuta di acconto*).

As agreed within the ECHORD++'s Consortium and with the European Commission, the deadline for the evaluator task (i.e., for delivering a complete *evaluation report*) is 30th of May 2014 while the deadline for the rapporteur task (i.e., for delivering a complete *consensus report*) is 10th of June 2014. The deadline for providing an additional evaluation when needed is 17th of June 2014.

The list of experiments assigned to you and your specific role in their assessment is detailed as follows.

Evaluator for «uacronym» - «ufullTitle»«Nächster Datensatz»

Evaluator for «uacronym» - «ufullTitle»«Nächster Datensatz»

Evaluator for «uacronym» - «ufullTitle»«Nächster Datensatz»

Evaluator for «uacronym» - «ufullTitle»«Nächster Datensatz»

Rapporteur for «uacronym» - «ufullTitle»«Nächster Datensatz»

Rapporteur for «uacronym» - «ufullTitle»

Your appointment is subject to the explicit acceptance of the conditions covered in Annex II, resulting in a **declaration of abidance of the code of conduct**, in a **declaration of no conflict of interest** and in a **declaration of confidentiality**.

In order to allow payment of the fee, you are required to notify your fiscal data (*codice fiscale*) or, in absence, to send copy of an identity card. In the latter case, it is intended that you authorize the SSSA to request on your behalf your *codice fiscale* to the *Ufficio delle Entrate*. Note that, without a valid *codice fiscale* SSSA cannot proceed to payment of the fees.

This agreement is transmitted to you by email and enters in force at your reply of acceptance by the same means. To this purpose, you are required to fill in the reply form in Annex III and to use it as the body of an email to be sent to the address info@echord.eu with carbon copy (CC) to echord@in.tum.de . A scan of your identity card must be attached if you need to require issuing of the *codice fiscale*.

Yours sincerely.

xxx

List of Annexes:

Annex I – Guide for independent experts;

Annex II – Conditions of appointment;

Annex III – Reply form.

Annex IV: Evaluation platform HOW TO

Evaluation platform HOWTO

ECHORD++ Call 2 for experiment proposals

This guide describes the web platform functionality related to the evaluation of experiment proposals for ECHORD++ Call 2.
Version 2014-05-12

Evaluation process summary – please read this page before looking at the first proposal!

The FP7 project ECHORD++ aims at strengthening the **cooperation between scientific research and industry in robotics**, as a follow-up to ECHORD (2009 – 2013) but with modified emphasis. **Experiments are small to medium sized scientific research and/or technology development projects** carried out by a team of one or more research institutions and robot manufacturers, which typically last **18 months** and receive a funding of approximately **300,000 €**.

The independent experts are requested to determine if the proposal is **substantial enough** to **justify the requested resources**. The impact in terms of **industrial exploitation** and **route to market** is a key factor for the success of ECHORD++. Preference will hence be given to proposals which describe a **plausible concept** leading to results that **are suitable for take up by industry** – such as by showing a working prototype that is likely to be turned into a product, by starting up a company or by transferring the results to a capable third party. Therefore, we are most interested in the **experts' evaluation** of the **tangibility** and **concreteness** of the **expected outcome** of the proposed experiment. Are **concrete Key Performance Indicators** proposed for assessing this? Moreover, **the proposed plans for continuation after the end of the experiment must be substantial and credible.**

The evaluation criteria are the same as in other FP7 projects: (a) **Scientific and/or technological excellence,** (b) **Efficiency of the implementation,** (c) **Impact**.

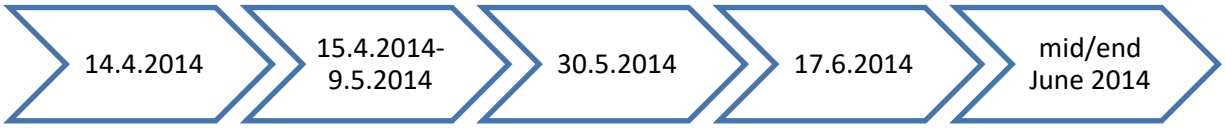
What is to be done by the experts:

1. **Read the proposal** with the above remarks in mind
2. **Formulate five comments** per criterion (a) … (c) and mark them as positive or negative, according to section 2.4 of this guide (see also section 2.3)
3. **Fill out the web form** for all the proposals that were assigned to the expert

After the completion of the web forms, the evaluation process will continue with two more steps (the first one will involve all the independent experts, the second one not):

1. Consensus finding for the individual proposals (remotely via the web platform)
2. Physical panel meeting for calibration of the evaluations and for setting up a final ranking

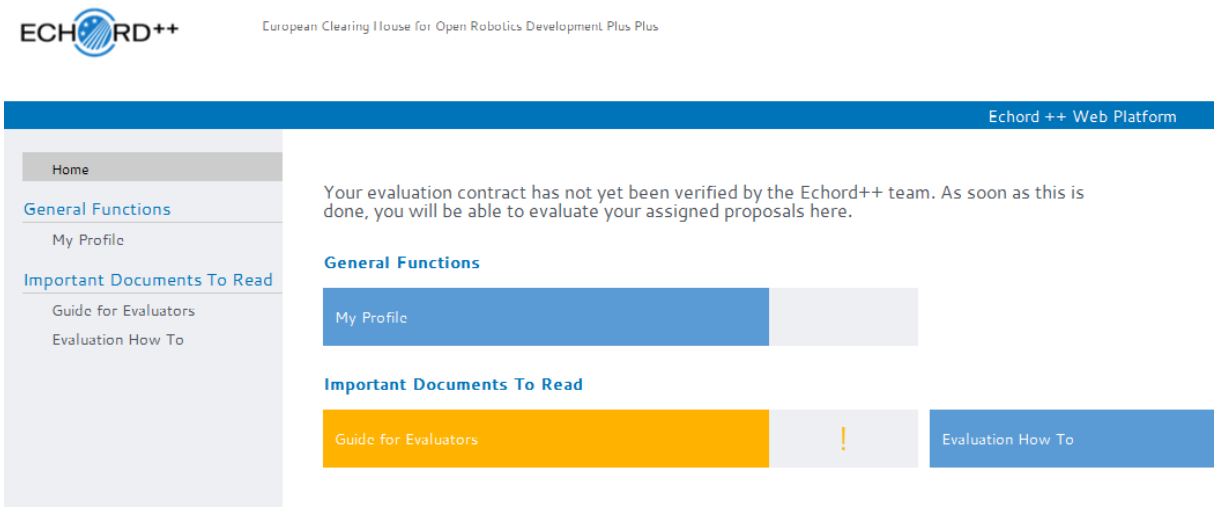
Timeline:



Call deadline	Assignment and contracting of evaluators	End of independent remote evaluations	Individual evaluation reports complete	Physical panel meeting to calibrate the evaluations and final ranking

1 Getting access to the proposals

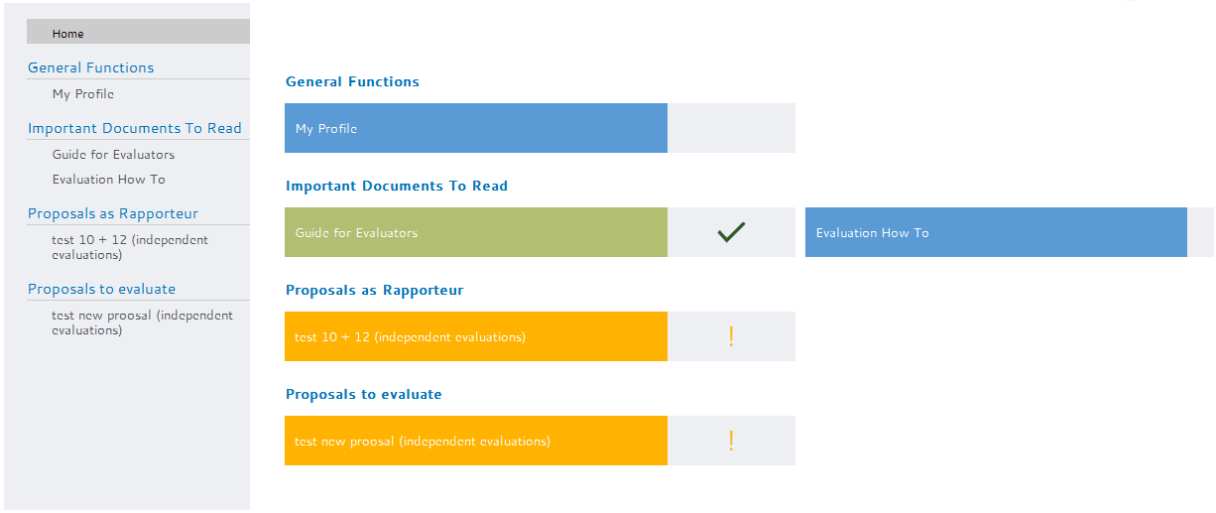
After login in to www.echord.eu/portal/ , you should have a screen like this:



Before getting access to the proposals, you need to **read the guide for independent experts**. This is a mandatory step and only then the access to the proposals is granted. Therefore, initially, the link to the guide is shown in **yellow**.

Once you have read the guide, you can simply reload that start page or click on “home” top left in the navigation pane, and the link to the guide is shown in **green**.

If your evaluation contract was already verified, you can see the proposals as shown below, otherwise you will see the message “Your evaluation contract has not yet been verified by the Echord++ team. As soon as this is done, you will be able to evaluate your assigned proposals here.”


Home
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My Profile
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Guide for Evaluators
Evaluation How To
Proposals as Rapporteur
test 10 + 12 (independent evaluations)
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General Functions
My Profile
Important Documents To Read
Guide for Evaluators
Evaluation How To
Proposals as Rapporteur
test 10 + 12 (independent evaluations)
Proposals to evaluate
test new proosal (independent evaluations)

2 Independent evaluation (step 1 in the evaluation process)

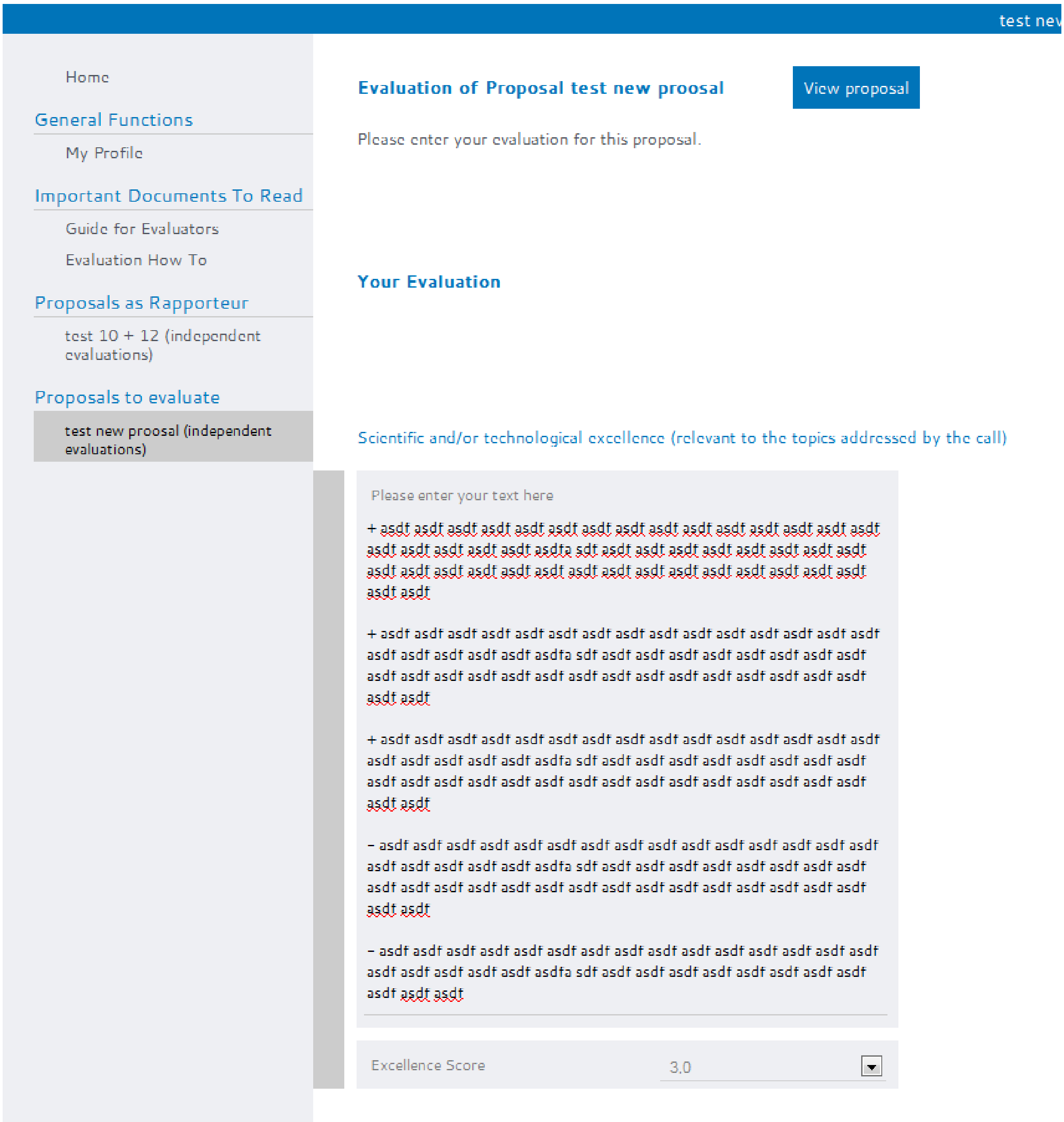
2.1 Evaluator role

In the role of an evaluator, you will get access to the proposal and the evaluation. The status of the proposal in this step is “independent evaluations”.

The full proposal which can be downloaded through the “View proposal” button includes:

- Proposal basic information and abstract
- Partner and budget information
- Proposal document according to the template.

After you have read the proposal you can start editing you evaluation according to the guidelines. Please provide **five comments per criterion** and mark them as positive or negative (+/-) and put the scores accordingly for each of the three criteria.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Your Evaluation
Scientific and/or technological excellence (relevant to the topics addressed by the call)
Please enter your text here
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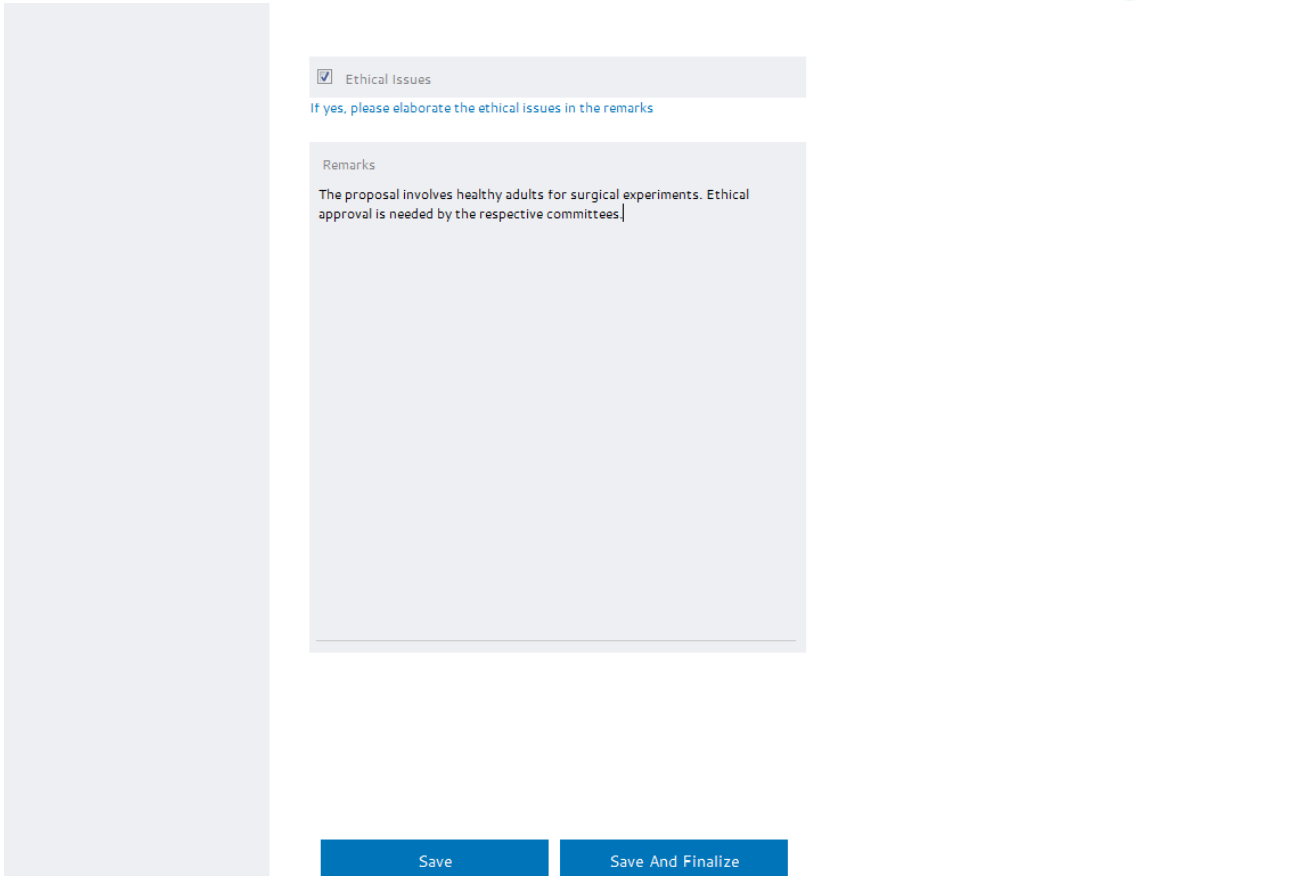
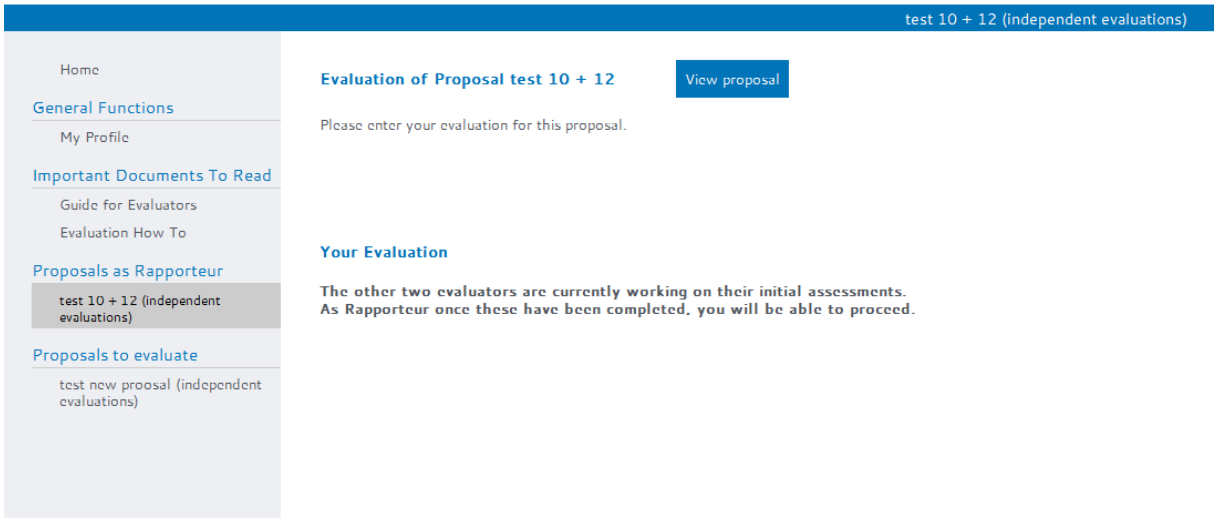
Excellence Score
3.0



Finally, you can add additional remarks, and you should address possible ethical issues which need further attention.

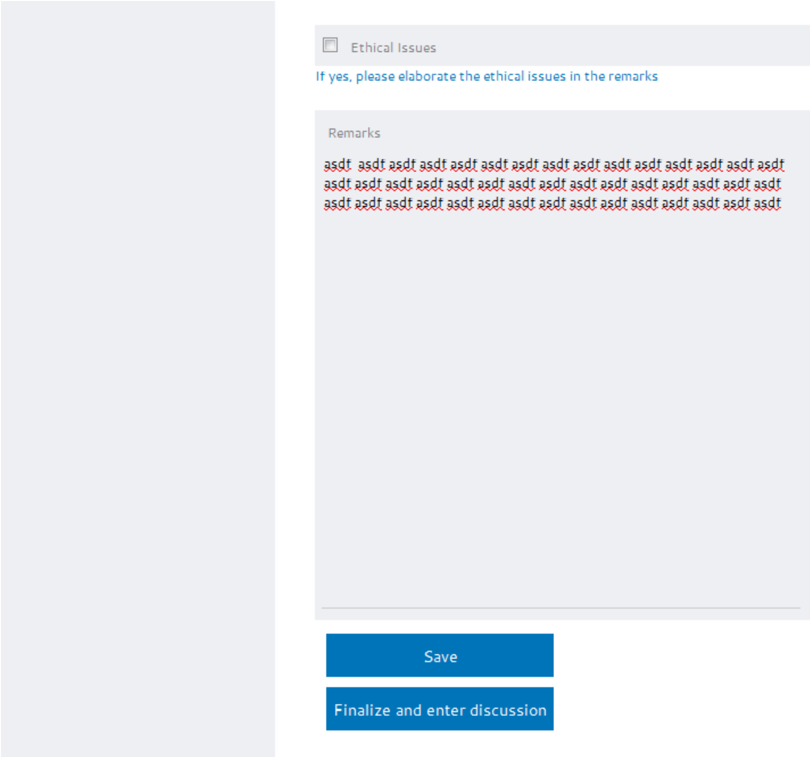
2.1 Rapporteur role

While the initial evaluations are perfomed, you get the following message:



As soon as both initial evaluations are finalized, the scores are checked and it will be automatically decided whether a third independent evaluation by the rapporteur is needed and the function will be enabled for the rapporteur.

The status in this case is “Third evaluation needed”. Finalizing this third evaluation means directly to enter the discussion with the other experts in order to reach consensus in the next step.



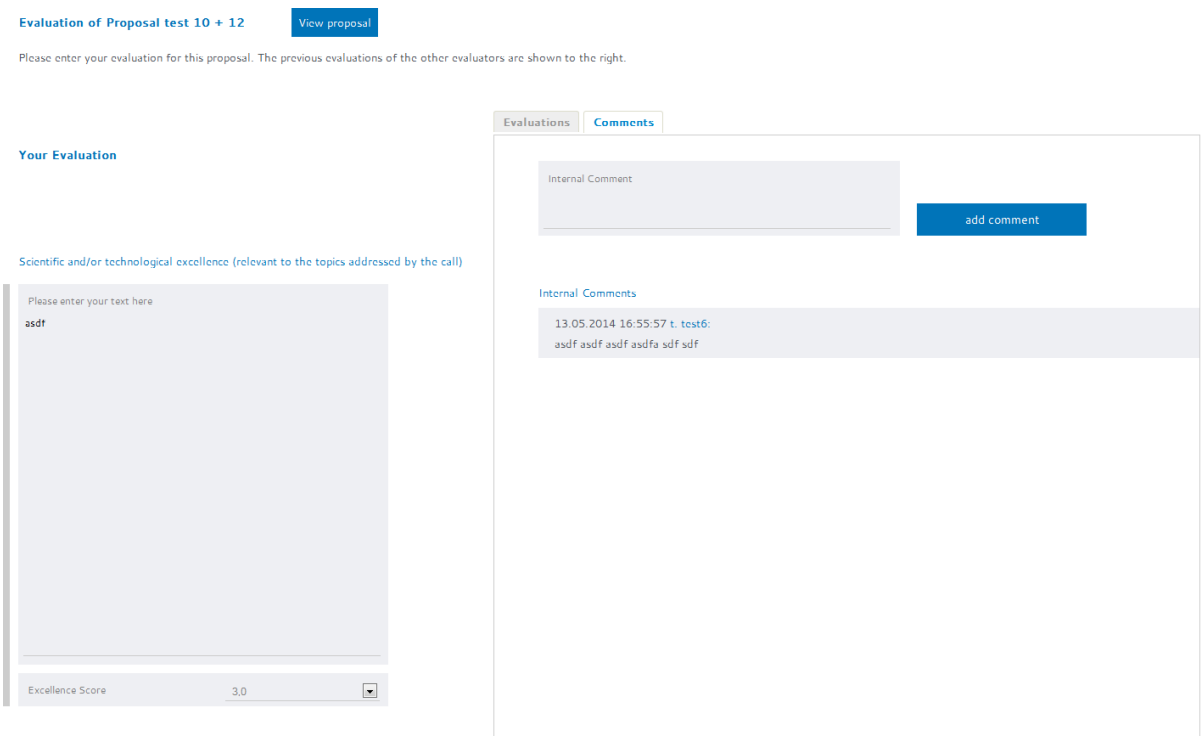
3 Consensus finding (step 2 in the evaluation process)

The first action within this step is that the rapporteur uses the 2 or three initial evaluations with scores and texts to draft a consensus report. This report should **not** have the +/- arguments anymore, but should be a continuous text addressing all arguments provided and formulated in a way that is suitable to be given to the proposers (see guidelines).

All previous evaluations can bee accessed in the right block. The horizontal scroll bar at the bottom of each evaluation report can be used bar to see the initial evaluations and previous consensus draft versions.

The evaluators and the rapporteur can now start finding a consensus using 2 instruments:

1. By discussion between the 3 experts involved in the proposal, to add a new comment, click on the “Comments” tab on the right and enter your remarks. Please note, that in this section also comments from ECHORD++ core staff may appear in order to support the process or to remind of deadlines etc.



2. By creating a new report suggestion
   All expers can revise the report and create a new version to be discussed.

Scientific and/or technological excellence (relevant to the topics addressed by the call)

Please enter your text here

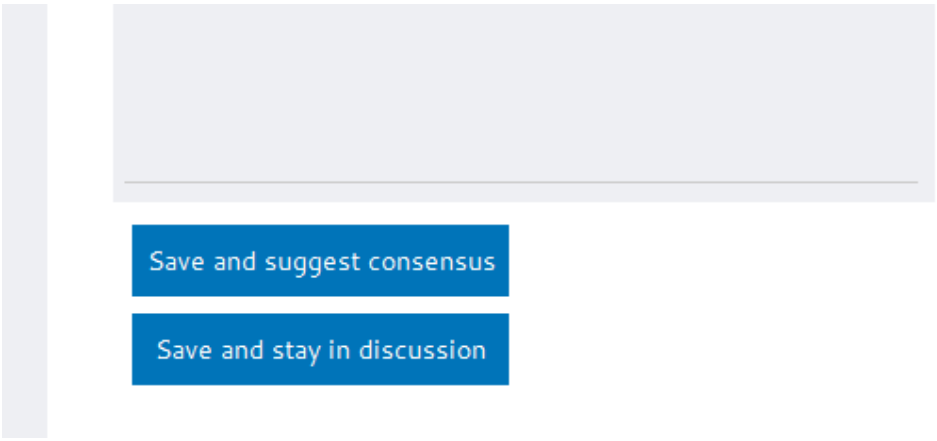
This is a new version of the consensus draft. The proposers .....

Excellence Score 3,0

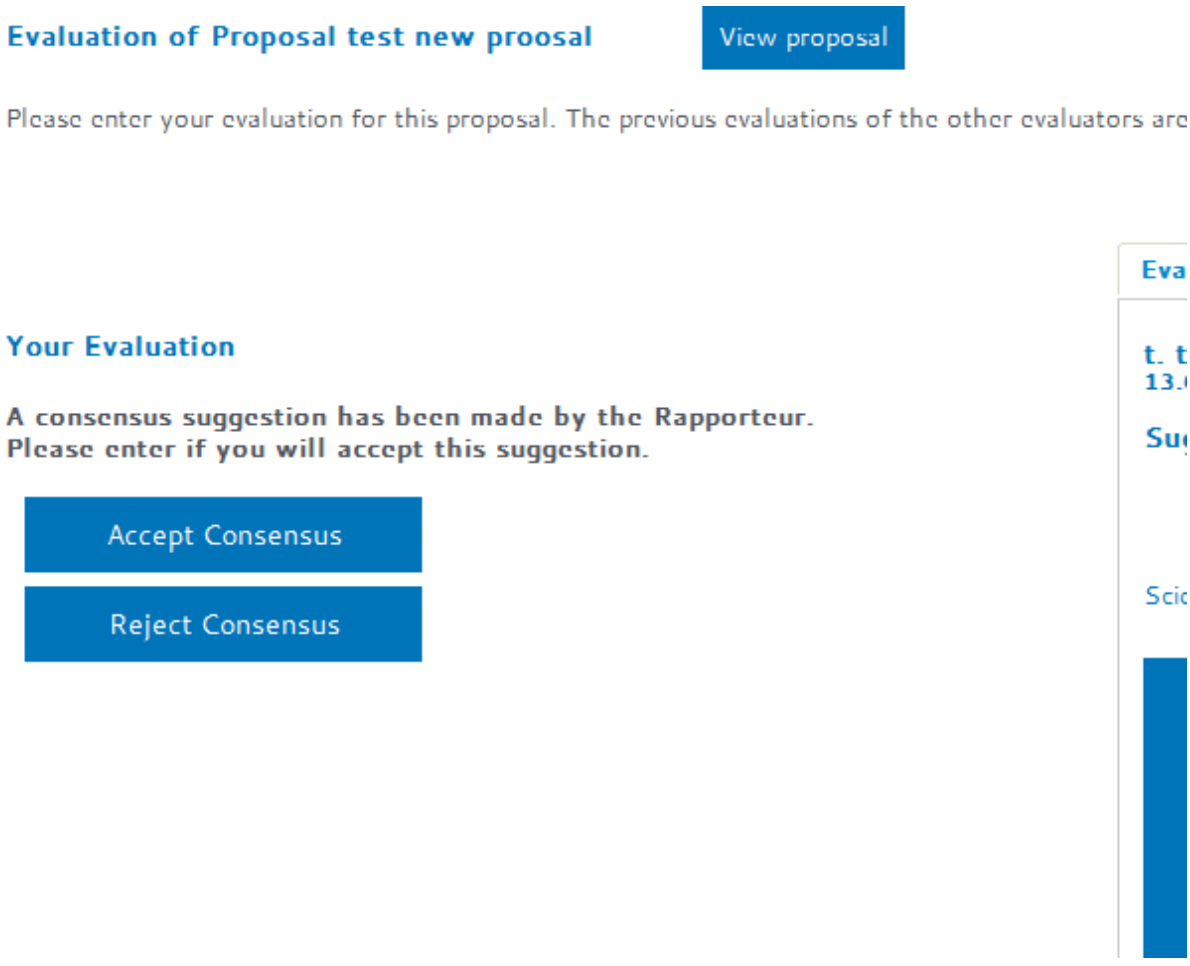
Quality and efficiency of the implementation and the management

Please enter your text here

After an agreement on the report text and the scores seems to be likely, the rapporteur can suggest consensus.



The evaluators can either accept the consensus or reject it to re-enter the discussion until consensus could be reached by all.



Collection of documents with final ranking, evaluation reports, statistics, and funding suggestion