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Best Practice Guide to FSTP Actions

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Executive summary

Financial Support to Third Party (FSTP) Actions are projects which, at their core, aim to achieve a significant part of their stated outcomes by funding organisations that are not part of the core consortium. Such funding can be actual payments to the end beneficiaries or through the provision of services by core partners or other third parties.

This report examines 13 robotics projects from both FP7 and H2020 that have performed, or are performing, cascaded funding actions as part of their core activity. Data was obtained directly from the projects through a questionnaire supplemented by information publically available on the web-sites of each project. The report examines the characteristics of each project before analysis of the obtained data.

These cascaded funding projects are an effective way of significantly widening the number of organisation involved in EC projects as well as increasing the participation levels of SMEs. They are therefore seen as an effective method for transferring technology to industry. This has a bearing on the upcoming Digital Innovation Hubs.

Five recommendations are made concerning the use and operation of future cascaded funding projects in the robotics area.

Contents

1. Introduction

Financial Support to Third Party (FSTP) Actions are projects which, at their core, aim to achieve a significant part of their stated outcomes by funding organisations that are not part of the core consortium. Such funding can be actual payments to the end beneficiaries or through the provision of services by core partners or other third parties.

Within the sphere of robotics these methods of flow-down of funds were pioneered within ECHORD and, later, ECHORD++ in FP7. These projects revealed many of the administrative difficulties of such flow-down mechanisms and helped identify changes needed in the project administration to alleviate such problems within H2020. Several projects in Robotics have now adopted such flow down mechanisms, particularly since the change of rules under H2020 specifically supporting FSTP actions.

This report provides an overview of the use of flow down funding in 13 Robotics projects in both FP7 and H2020 (only the H2020 projects were able to utilise the FSTP instrument) and contrasts some of the benefits and drawbacks compared with normal collaborative projects.

The report starts with a summary of the various actions that have used flow-down funding mechanisms and the main way in which they were implemented. Section 3 then reviews the extent of reach of these projects and analyses some of the data, although for H2020 projects there are currently very few that have carried actions through to even award of third party funds. Finally, Section 4 draws some conclusions and makes recommendations as to the use of FSTP actions in robotics.

2. FSTP Projects

Those projects which have made use of flow down funding to third parties in robotics within the FP7 and H2020 framework programmes are as follows:

Project Acronym	Project Title	Funding Programme
ECHORD	European Clearing House for Open Robotics Development	FP7
ECHORD++	European Clearing House for Open Robotics Development Plus Plus	FP7
EUROBENCH	European Robotic framework for bipedal locomotion benchmarking	H2020
ESMERA	European SMEs Robotics Applications	H2020
FABULOS	Future Automated Bus Urban Level Operation Systems	H2020
HORSE	Smart integrated Robotics system for SMEs controlled by Internet of Things based on dynamic manufacturing processes	H2020
L4MS	Logistics for Manufacturing SMEs	H2020
RECONCELL	A Reconfigurable robot workCell for fast set-up of automated assembly processes in SMEs	H2020
ROBMOSYS	Composable Models and Software for Robotics Systems	H2020
ROBOTT-NET	Robot Technology Transfer Network	H2020
RobotUnion	Stimulate ScaleUps to develop novel and challenging TEchnology and systems applicable to new Markets for ROBOtic soLUTIONs	H2020
ROSIN	ROS-Industrial Quality-Assured Robot Software Components	H2020
TERRINET	The European Robotics Research Infrastructure Network	H2020

2.1. ECHORD

The ECHORD project ran from Jan 2009 to December 2013. Its aim was to strengthen the links between various segments of the robotics industry and increase the effective transfer of technology in robotics from academia to industry. ECHORD had a number of approaches to achieving its objectives but the key instrument it used was small scale “Experiments”. Experiments used a flow-down funding mechanism to fund small, short projects from “third parties”. However, due to the FP7 funding rules these third parties had to become full partners in the project, which led to administrative difficulties the project in dealing with a changing consortium and Commission reporting requirements. These administrative problems are very much diminished by the FSTP instrument and this was a big learning experience on ECHORD and ECHORD++.

The Experiments in ECHORD were designed to be easy to access and to achieve a quick result. Typically an Experiment involved 2-3 partners (ideally at least one academic partner and one SME) and lasted 12 – 18 months. A call and evaluation procedure, together with supporting software platform, was put in place to ensure that proposals of the appropriate quality were received and

independently evaluated, i.e. the evaluators were experts that were independent from the proposers and the core ECHORD project partners. The evaluation process gave emphasis to the exploitation potential of the proposed experiment but otherwise followed the FP7 evaluation criteria. However, in terms of proposals, the required proposal length was much shorter than the required for an FP7 collaborative project and the timescale from initial call announcement to projects being started was significantly shorter. One big difference from standard FP7 collaborative projects was that as the successful projects joined the ECHORD project as additional partners then these Experiments did not have to have partners from a minimum of three countries (as the Core partners in ECHORD already fulfilled this criteria) and could potentially be two organisations working in close physical proximity of each other. Another aspect of ECHORD was the compilation of 3rd party robotic equipment lists which was aimed at boosting European robot manufacturers by encouraging Experiments to utilise their equipment. Essentially, Experiments were encouraged to utilise equipment from the list which was then made available at a discount negotiated by the ECHORD project.

ECHORD Experiments proved to be a successful way of extending the participation in FP7 robotics projects, particularly among SMEs. The success factors were particularly:

- Low overhead involved in writing the proposal
- Relatively short time from submitting the proposal to completion of the project (i.e. a combination of the proposal evaluation time + the project run-time)
- Ability to work in a small team
- Ability to work with local partner(s)
- Focus of project

2.2. ECHORD++

ECHORD++ was also an FP7 project but extended the remit undertaken within ECHORD to further evaluate mechanisms and instruments that could increase innovation. ECHORD++ started in October 2013 and is due to complete this September. With regard to flow-down of funds, as well as Experiments ECHORD++ introduced two new instruments, vis

- Robotics Innovation Facilities (RIFs)
- Public end-use Driven Technological Innovation (PDTI)

RIFs can be seen as a forerunner of Competence Centres in the robotics area. These are centres which offer support to two types of user. The first is developers of robotic equipment who can get technical support and expertise in the development of their products and services, utilise equipment they can otherwise not have ready access to and obtain business growth advice. The second type of user are end-users who need initial support on evaluating robotic processes in order to see if, and how, they may give benefit to their business. End-users are able to access robotic equipment at the RIFs as well as expertise and advice on the most appropriate systems and methods of use.

Three RIFs were established, in France, Italy and the UK, each with a specific set of application foci. They operate an Open Call approach and supplement this with Seminars. Applicants are evaluated on the alignment of the proposal to robotics and automation, clarity of the proposed work, evidence of commitment and impact and novelty of the proposed work. In addition, preference is given to SMEs over large organisations. Successful applicants are given free access to equipment, expertise and support within the RIF and may also be eligible for travel grants.

RIFs have again proved useful in attracting organisations that are not normal applicants for European Commission framework grants. Some of the key observations of operating the RIFs have been:

- Even when facility usage and support is free it is difficult to find commercial organisations, particularly SMEs, to actively apply to use the RIFs. It has proved necessary to operate a more active approach of introductory seminars with active follow-up to obtain commitment to worthwhile projects.
- Although the original intention was to operate across Europe, with each RIF helping out organisations mainly according to the RIF specialisation, this has generally not happened. One of the findings, now confirmed by several robotics Competence Centres is that the attractiveness of the support offered by RIFs diminishes according to the organisations physical distance from the facility and rarely crosses international borders. This has implications for both Competence Centres and Digital Innovation Hubs.

PDTI was set up as an experiment in, or pilot of, the use of Public Procure of Innovation (PPI) in the area of robotics innovation. It used similar mechanisms as a PPI with the exception that the public bodies were eligible for funding for their time. Again there was a focus on SMEs. A first call was put out to establish the public body challenges and after evaluation, two were selected, one in the assessment of elderly patients and the second in sewer inspection. The core project team worked with the relevant public bodies to establish the precise details of the challenge call and then the calls were submitted and evaluated. 3 teams were selected for each challenge and this was down-selected to 4 following the initial feasibility stage. Again the emphasis was on SMEs but the consortia for the challenges were encouraged to ensure that they had a complete coverage of the necessary skill and experience sets.

The PDTI Instrument has proven successful in enacting a pre-commercial procurement (PCP)-like scheme in robotics, which in itself is an achievement. Public bodies were actively engaged within the innovation process, in a manner that was constructive for the beneficiaries pursuing RTD work. Additionally, not being limited to national exchange but being able to work with experts all over Europe is beneficial to third parties.

Some of the key observations from operating the PDTI Instrument has been:

- This would appear to be a good method of opening up new markets for SMEs in supplying public bodies with products that directly meet central challenges.
- Significant education of, and discussion with, public bodies is required in order to discover central challenges that are amenable to solution with robotic solutions.
- There needs to be significant technical monitoring of the Research And Technology teams in order to ensure that the developed solutions meet the true market need of the public bodies.

2.3. EUROBENCH

The EUROBENCH project started in January 2018 and aims to create the first unified benchmarking framework for robotic systems in Europe. This framework will allow companies and/or researchers to test the performance of their robots at any stage of development. The project is mainly focused on bipedal machines, i.e. exoskeletons, prosthetics and humanoids, but aims to be also extended to other robotic technologies. To this aim, EUROBENCH will develop:

- Two benchmarking facilities, one for wearable robots (including exoskeletons and prostheses) and the other for humanoid robots, to allow companies and/or researchers to perform standardized tests on advanced robotic prototypes in a unique location, saving resources and time.
- A unified benchmarking software, which will allow researchers, developers and end-users worldwide to design and run the tests in their own laboratory settings.

The FSTP instrument will be used in 2 phases; The first phase is for third party organisations to assist with the development of a benchmarking framework consisting of environments, test equipment, benchmarking metrics and algorithms and databases of human and robot performance. Third party organisations can apply for funding through a call which was launched in July 2018 and will close in September 2018.

The second phase will offer third party organisation the opportunity to use the benchmarking facilities at no cost. Again a call for third party organisations will be launched in June 2020, closing in August 2020.

EUROBENCH does not specifically target SMEs.

2.4. ESMERA

The ESMERA project started in January 2018. It is specifically aimed at supporting SMEs in developing products to meet existing industrial challenges. The ESMERA project objective is to solicit unmet industrial challenges from larger companies and organisations and present these to SMEs for them to produce products and services that have and immediate, but new market, thus assisting the growth of European robotics SMEs. The structure of the project has been to first gather, assess and filter challenges from industry which have then been translated into challenge statements that SMEs can bid for funds to solve. There will be two sets of calls, the first was launched in August 2018 and will close in October 2018. The second will be launched in July 2019 and close in September 2019. For each call 8 projects in 4 application areas (i.e. 16 projects in total) will be accepted to perform a

feasibility study following 3rd party evaluations. At the end of the feasibility studies 8 projects will be down-selected to undertake prototype development and business planning. The projects will also receive assistance in their developments from one of 4 competence centres located in France, Germany, Greece and Spain.

2.5. FABULOS

The FABULOS project started in January 2018 and aims to perform a Pre-Commercial Procurement action in the area of autonomous bus transport. It does not specifically target SMEs. FABULOS follows the PCP process with and initial call opening in September 2018. There will be three phases with, initially 12 consortia being selected. These will be down-selected to 6 consortia for Phase 2 and further down-selected to 4 consortia for the final phase. As the phases progress the amount of money available to each consortia will increase. With the potential procurers being cities, there is a large network of potential procurers as a market for winning consortia.

2.6. HORSE

The HORSE project commenced in November 2015 and focusses on manufacturing industry proposing a new flexible model of smart factory involving collaboration of humans, robots, AGV's (Autonomous Guided Vehicles) and machinery to realize industrial tasks in an efficient manner. The target customers of the HORSE project are manufacturing SMEs. The HORSE project uses a number of different development strands including Innovation Hubs, Competence Centres and Pilot experiments all aimed at developing and proving an integration framework to ease the uptake of flexible manufacturing methods by SME manufacturers. As part of the validation of the derived framework consortia have been invited to bid for projects to evaluate the framework in realistic settings. The Call for proposals opened in December 2017 and closed in March 2018. Projects were expected to start by July 2018.

2.7. L4MS

The L4MS project started in October 2017. The focus of L4MS is to foster the uptake of logistics automation by SMEs. L4MS goal is to reduce the setup cost and time of mobile robots by a factor of 10 for manufacturing SME's. L4MS provides complete virtualization of logistics automation with OPIL (Open Platform for Innovations in Logistics) together with 3D simulator, to enable cost effective deployment of exceptionally small and flexible logistics solutions requiring no infrastructure change, no production downtime and no in-house expertise, while making investment in logistics automation attractive for manufacturing SMEs.

The developments in L4MS are validated within 3 Pilot experiments. In addition 10 third party projects will be chosen to enter a 3 phase accelerator project to gain the skills and the business knowledge to effectively use the L4MS systems. The accelerator aims to tailor a specific solution to the successful companies and provide associated business skills. There is a 2 month introductory phase followed by a 6 month implementation phase and then a 4 month phase where the third parties will be introduced to sources of loans and venture capital to complete the full implementation. The call closes in November 2018.

2.8. RECONCELL

The RECONCELL project started in November 2017 and focuses on manufacturing SMEs. ReconCell proposes to develop a widely autonomous robotic workcell that will allow very short, self-adaptable and affordable changeovers under the conditions demanded and based on end-user needs. This will be achieved with the minimum use of additional resources over the system's lifetime. The RECONCELL project uses cascaded funding for organisations to test the RECONCELL approach in one of the project's competence centres. The call for these experiments closed in March 2018 and 2 projects were selected for funding.

2.9. ROBMOSYS

The ROBMOSYS project started in January 2017 and focusses on the composition of robotics applications with managed, assured, and maintained system-level properties via model-driven techniques. It establishes structures that enable the management of the interfaces between different robotics-related domains, different roles in the ecosystem, and different levels of abstractions. The

developed framework is validated in 4 Pilots together with validation through third parties funded via cascaded funding. ROBMOSYS has two cascaded funding calls, neither of which is focussed on SMEs: The first is for organisations to help with the development of the framework and specific software modules while the second is aimed at testing and validation of the toolset as well as finalisation of some of the modules. The first call opened in July 2017 and closed October 2017. A total of 6 projects were selected and the contracts started in March 2018. The second call is due to open in April 2019 and close in July 2019.

2.10. ROBOTT-NET

ROBOTT-NET started in January 2016 and is thus one of the few cascaded funding projects in robotics, other than the FP7 ECHORD and ECHORD++ projects, that have had time to gain experience of using the instrument, albeit using a slightly different voucher scheme approach. The ROBOT-NETT project aims to promote the uptake of robotics in manufacturing industries of all sizes although the project does have a special emphasis on SME manufacturers. ROBOTT-NET operates through 4 competence centres situated in Denmark, Germany, Spain and the UK. The primary mechanisms for supporting industry are Open-Labs, a Voucher scheme and Pilots. The Open Labs are networking and demonstration events showcasing the possibilities of robotics in manufacturing. The Voucher Scheme, which has now closed, was a form of cascaded funding and allowed companies to access up to 400 hours of consultancy with one of the consortium partners for robotic projects. A total of 62 projects were financed in this manner, although not all were with unique companies, i.e. some companies accessed the voucher scheme multiple times. The Pilot projects are extensions of the projects funded under the Voucher scheme with 8 projects being assisted to reach the stage of market readiness.

Unsurprisingly, as the Voucher scheme was similar in content to the ECHORD++ RIFs, the ROBOT-NET project has reported a similar difficulty with recruiting companies at a greater distance from the Competence Centres, particularly with SMEs.

2.11. RobotUnion

The RobotUnion project is an accelerator dedicated to robotic technologies, aimed at speeding up the scaleup of startups. It started in January 2018. A total of 40 startups will receive €3,800 towards the development of a feasibility study. From the results of this half will be chosen to enter the acceleration programme for which they will receive €120k each in public funding. At the end of this period, through a due diligence process, 8 of these 20 companies will be chosen for pre-seed round where they will be given further business coaching and produce a proof of concept demonstrator. All the funding to this point is public money and equity free. Finally, these 8 companies will be given the opportunity to bid for up to a €1m of seed funding from VC and other funding partners in the project in order to launch their products on the market.

The startups are selected through two calls, the first of which has now been completed. The top 25 companies from each call will go forward to a jury panel to be down-selected to the 20 that will receive feasibility study funding. The first call received 204 submissions, i.e. an eventual success rate of just under 10% for the initial funding phase.

2.12. ROSIN

The ROSIN project has a similar intent to the ROBMOSYS project, but focusses on the use of the ROS (Robot Operating System) architecture and toolset. It also started in January 2017. ROSIN propels the open-source robot software project ROS-Industrial beyond the critical mass required for further autonomous growth. As a result, it has and will become a widely adopted standard for industrial intelligent robot software components, e.g. for 3D perception and motion planning. System integrators, software companies, and robot producers already started and will use the open-source framework and the rich choice in libraries to build their own closed-source derivatives which they will sell and for which they will provide support to industrial customers. Exactly the same thing has happened with Linux, now being supported and developed by many influential multinationals such as Intel.

ROSIN's cascaded funding works through Focussed Technical Projects (FTPs) although a smaller amount is also made available through cascaded funding to Education Projects (EPs). FTPs aim to develop open source robot software using the ROS framework. ROSIN supports the startup of these projects by funding 33% of the total development costs. The aim is to kick-start a wide community effort by persuading consortia to form and start. This is done by funding the initial work (defined as the

first milestone) at 100%. Once the first milestone has been met, the industrial partners are expected to fund the remaining development. EPs are funded at 50%.

Calls for FTPs are open with ongoing submission process with evaluations every 3 months. So far there have been two evaluated calls with a total of 13 organisations supported, 7 of which are SMEs. Although SMEs are not a specific focus for the cascaded funding, they are expected to be significant beneficiaries due to the number of start-ups using the ROS framework.

2.13. TERRINET

The TERRINET projects started in December 2017. IT provides a European-wide network of competence centres that provide access to “infrastructures” which are a range of 15 robotic platforms and test facilities. The main intent of the project is to boost robotics research and exploitation in Europe by granting access to organisations and individuals to the infrastructures plus providing technical and non-technical support. As with other facility based projects, organisations and individuals are expected to respond to calls for proposals. The first call will open in December 2018 and closes in February 2019 with first projects expected to start in July 2019.

Successful applicants will get access to the infrastructure of their choice at one of the 12 locations around Western Europe, typically for 10 days, together with training on the use of the equipment plus other advice on their project. They would also be eligible for to €1,500 of travel and subsistence support.

TERRINET is not specifically targeted at SMEs but does include them in the overall target group.

3. Data Analysis

Table 1 (see Annex below) contains a breakdown of past and future cascaded funding actions per project with a breakdown by organisation type. However, where the breakdown by organisation is not known or cannot be reasonably estimated the total figure at the end of each row contains the expected cumulative figure. Therefore, these total figures are frequently not the sum total of the 5 organisation types but represent the gross expected support from the project.

Overall the cascaded funding actions in FP7 and H2020 for the identified robotics projects have already supported 296 organisations that were not part of the core project teams. By the time the projects have completed this figure will rise to well over 560 organisations. Of these at least 195 (and probably many more) will have been supporting SMEs. It should be noted that this figure is significantly lower than anticipated as where no target for future SME inclusion has been set then no SMEs are assumed supported within this figure. However, this lower estimate already represents an SME inclusion rate of almost 35%, well above the norm for standard collaborative projects in both FP7 and H2020.

For those projects where the cascaded funding action involved or involves direct funding of third parties the total number of supported organisations by the end of projects will be over 390, with at least 31% being SMEs. These direct funding projects are all identified projects with the exception of ECHORD++ RIFs, ROBOTT-NET and TERRINET. In these three cases the support of third parties involved services, either directly accessed or obtained through vouchers, and so there was no direct funding of the third parties apart from minor sums for expenses.

For these projects where there is cascaded funding the average funding provided to each organisation is around €92k. Within these projects, where a breakdown by organisation type is available the average funding for companies (including SMEs) and HEIs is around €80k per organisation. For these projects RTOs are funded at the slightly higher rate of just over €92k per organisation while “Other” organisations (mainly public bodies) are funded at the slightly lower rate of just under €70k. However, it should be noted that it is not possible to draw any meaningful conclusions between the overall average funding rate as these differences are more down to different funding schemes and amounts on the projects where no organisation type breakdown is available.

Finally the direct funding from the 11 projects that are providing direct cascaded funding will be in excess of €36m to third party organisations by the end of H2020 for robot related R&D&I efforts.

4. Conclusions

The cascaded funding projects in robotics, started in FP7 and continuing within H2020 represent a significant instrument for successfully involving organisations that otherwise would not have an involvement with the Framework programmes. This is particularly notable concerning the engagement of SMEs, with inclusion rates significantly above those seen in typical framework R&D&I projects.

The actions seem to be generally well regarded by those organisations involved in the cascaded funding actions and the sub-projects are generally viewed as producing useful results for the participants.

The relative success of these actions seems to be down to several factors but particularly:

1. The relatively short application process, with short application forms and a quick turn-around between application submission, applications being assessed and sub-projects starting.
2. The short, focussed sub-projects (in some cases a few weeks!) that are directly relevant to the organisation's business.
3. The flexibility of sub-project structure without the need for consideration of external factors such as country representation.
4. The support, both technical and administrative, offered by the core project partners that assist the organisation in extracting the maximum benefit from the sub-project without an overly burdensome overhead.

Several projects, notably ECHORD++ RIFs and ROBOTT-NET, have noted a distance factor as being a significant element of engagement of SMEs. However others, such as RobotUnion, have been able to attract SMEs over significant distances. Anecdotally this could be related to the type of SME for which the service is offered. It could be that high-technology SMEs who are developing technology are more willing to travel significant distance for the appropriate support. Conversely, SMEs for whom robotics is a service and not a central focus for their business are more reluctant to travel significant distances in order to access the support services. This could be an important factor for the upcoming Digital Innovation Hubs and needs to be investigated further.

It was also noted that there has been significant effort expended across the 13 projects in devising and implementing software tools to support and manage the call procedure. While these different software system often supported unique facilities for individual projects, the core functionality of call preparation, management and subsequent project management is in most cases common.

4.1. Recommendations

The following recommendations result from the analysis of the 13 projects:

4.1.1. Recommendation 1

The use of cascaded funding is an effective tool for both the inclusion of SMEs and for the effective take up of technology by industry. It is recommended that this type of tool should continue to used for H2020 and future programmes.

4.1.2. Recommendation 2

Project reporting of numbers of organisations and their types should be utilised by the Commission in order to assess the balance of organisations supported by the Framework programmes and for assessing the inclusion of SMEs.

4.1.3. Recommendation 3

Consideration should be given to the use of a standardised toolset for administering and managing calls as well as managing the subsequent sub-projects. This would reduce the

overhead associated with production of such tools and / or prevent the management function becoming something only relatively few large organisations are prepared to take on.

4.1.4. Recommendation 4

Projects with have already had significant experience of running cascaded funding projects note that there needs to be in-depth technical and administrative oversight / support available for the sub-projects. Such functions from core partners should be a standard part of a cascaded funding project service.

4.1.5. Recommendation 5

The effective geographic reach of SME interest for cascaded funding actions needs further investigation. This will have a significant on the planned Digital Innovation Hubs and any cascaded funding actions involving Competence Centres. It is recommended that information should be obtained from the current live cascaded funding projects in robotics to assess what factors are involved in determining such reach.

Annex A: Summary of Cascaded Support by Project

Table 1 - Summary of Cascaded Support by Project

		Completed						Planned						Total							Assumptions / Notes
		SMEs	Large	HEIs	RTOs	Other	Total	SMEs	Large	HEIs	RTOs	Other	Total	SMEs	Large	HEIs	RTOs	Other	Total	% SME	
ECHORD	Organisations	29	9	37	16	2	93						0	29	9	37	16	2	93	31.2%	
	Funding (€k)	€ 3,500.00	€ 600.00	€ 7,300.00	€ 3,300.00	€ 100.00	€ 14,800.00						€ 0.00	€ 3,500.00	€ 600.00	€ 7,300.00	€ 3,300.00	€ 100.00	€ 14,800.00		
	Funding / Organisations (€k)	€ 120.69	€ 66.67	€ 197.30	€ 206.25	€ 50.00	€ 159.14	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 120.69	€ 66.67	€ 197.30	€ 206.25	€ 50.00	€ 159.14		
ECHORD++ Experiments	Organisations	31	13	21	12	3	80						0	31	13	21	12	3	80	38.8%	
	Funding (€k)	€ 3,400.00	€ 1,300.00	€ 2,400.00	€ 1,600.00	€ 500.00	€ 9,200.00						€ 0.00	€ 3,400.00	€ 1,300.00	€ 2,400.00	€ 1,600.00	€ 500.00	€ 9,200.00		
	Funding / Organisations (€k)	€ 109.68	€ 100.00	€ 114.29	€ 133.33	€ 166.67	€ 115.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 109.68	€ 100.00	€ 114.29	€ 133.33	€ 166.67	€ 115.00		
ECHORD++ PDTI	Organisations	7	2	7	2	6	24						0	7	2	7	2	6	24	29.2%	
	Funding (€k)	€ 774.00	€ 57.00	€ 631.00	€ 451.00	€ 104.00	€ 2,017.00						€ 0.00	€ 774.00	€ 57.00	€ 631.00	€ 451.00	€ 104.00	€ 2,017.00		
	Funding / Organisations (€k)	€ 110.57	€ 28.50	€ 90.14	€ 225.50	€ 17.33	€ 84.04	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 110.57	€ 28.50	€ 90.14	€ 225.50	€ 17.33	€ 84.04		
ECHORD++ RIF	Organisations	73	26	1	8	0	108						0	73	26	1	8	0	108	67.6%	
	Funding (€k)						€ 0.00						€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00		
ECHORD++ TOTAL	Organisations	111	41	29	22	9	212						0	111	41	29	22	9	212	52.4%	
ECHORD++ Experiments+PDTI	Funding (€k)	€ 4,174.00	€ 1,357.00	€ 3,031.00	€ 2,051.00	€ 604.00	€ 11,217.00						€ 0.00	€ 4,174.00	€ 1,357.00	€ 3,031.00	€ 2,051.00	€ 604.00	€ 11,217.00		
ECHORD++ Experiments+PDTI	Funding / Organisations (€k)	€ 109.84	€ 90.47	€ 108.25	€ 146.50	€ 67.11	€ 52.91	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 37.60	€ 33.10	€ 104.52	€ 93.23	€ 67.11	€ 52.91		
EUROBENCH	Organisations						0						60	0	0	0	0	0	60	0.0%	
	Funding (€k)						€ 0.00						€ 4,920.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 4,920.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 82.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 82.00		
ESMERA	Organisations						0	16		2	2		20	16	0	2	2	0	20	80.0%	25% of projects have academic or research partner
	Funding (€k)						€ 0.00	€ 1,760.00		€ 220.00	€ 220.00		€ 2,200.00	€ 1,760.00	€ 0.00	€ 220.00	€ 220.00	€ 0.00	€ 2,200.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 110.00	€ 0.00	€ 110.00	€ 110.00	€ 0.00	€ 110.00	€ 110.00	€ 0.00	€ 110.00	€ 110.00	€ 0.00	€ 110.00		
FABULOS	Organisations						0						36	0	0	0	0	0	36	0.0%	3 organisations / consortium
	Funding (€k)						€ 0.00						€ 5,000.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 5,000.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 138.89	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 138.89		
HORSE	Organisations						0	9	2	5	5		21	9	2	5	5	0	21	42.9%	40% SME, 10% Large, 25% HEI, 25% RTO
	Funding (€k)						€ 0.00						€ 1,400.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 1,400.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 66.67	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 66.67		
L4MS	Organisations						0	10		7	8		25	10	0	7	8	0	25	40.0%	2.5 organisation / consortium, 1 SME + 50:50 split betweem RT) and HEI
	Funding (€k)						€ 0.00	€ 492.00		€ 465.73	€ 532.27		€ 1,490.00	€ 492.00	€ 0.00	€ 465.73	€ 532.27	€ 0.00	€ 1,490.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 49.20	€ 0.00	€ 66.53	€ 66.53	€ 0.00	€ 59.60	€ 49.20	€ 0.00	€ 66.53	€ 66.53	€ 0.00	€ 59.60		
RECONCELL	Organisations						0	2		2	2		6	2	0	2	2	0	6	33.3%	
	Funding (€k)						€ 0.00	€ 56.67		€ 56.67	€ 56.67		€ 170.00	€ 56.67	€ 0.00	€ 56.67	€ 56.67	€ 0.00	€ 170.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 28.33	€ 0.00	€ 28.33	€ 28.33	€ 0.00	€ 28.33	€ 28.33	€ 0.00	€ 28.33	€ 28.33	€ 0.00	€ 28.33		
RobMoSys	Organisations						9						9	0	0	0	0	0	18	0.0%	3 organisations per consortium
	Funding (€k)						€ 1,800.00						€ 1,800.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 3,600.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 200.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 200.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 200.00		
ROBOTT-NET	Organisations						62						0	0	0	0	0	0	62	0.0%	
	Funding (€k)						€ 0.00						€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00		
RobotUnion	Organisations						0	40					40	40	0	0	0	0	40	100.0%	
	Funding (€k)						€ 0.00	€ 2,552.00					€ 2,552.00	€ 2,552.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 2,552.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 63.80	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 63.80	€ 63.80	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 63.80		
ROSIN	Organisations	7	3	3			13						50	7	3	3	0	0	63	11.1%	20-50 organisations expected to be supported
	Funding (€k)	€ 389.71	€ 206.80	€ 82.55			€ 679.06						€ 3,139.60	€ 389.71	€ 206.80	€ 82.55	€ 0.00	€ 0.00	€ 3,818.66		
	Funding / Organisations (€k)	€ 55.67	€ 68.93	€ 27.52	€ 0.00	€ 0.00	€ 52.24	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 62.79	€ 55.67	€ 68.93	€ 27.52	€ 0.00	€ 0.00	€ 60.61		
TERRINET	Organisations						0						0	0	0	0	0	0	0		No target figures available
	Funding (€k)						€ 0.00						€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00		
	Funding / Organisations (€k)	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00		
TOTAL	Organisations	118	44	32	22	9	296	77	2	16	17	0	267	195	46	48	39	9	563	34.6%	
	Funding (€k)	€ 4,563.71	€ 1,563.80	€ 3,113.55	€ 2,051.00	€ 604.00	€ 13,696.06	€ 4,860.67	€ 0.00	€ 742.40	€ 808.93	€ 0.00	€ 22,671.60	€ 9,424.38	€ 1,563.80	€ 3,855.95	€ 2,859.93	€ 604.00	€ 36,367.66		
	Funding / Organisations (€k)	€ 38.68	€ 35.54	€ 97.30	€ 93.23	€ 67.11	€ 46.27	€ 63.13	€ 0.00	€ 46.40	€ 47.58	€ 0.00	€ 84.91	€ 48.33	€ 34.00	€ 80.33	€ 73.33	€ 67.11	€ 64.60		
TOTAL Cascaded	Organisations	45	18	31	14	9	126	77	2	16	17	0	267	122	20	47	31	9	393	31.0%	
	Funding (€k)	4563.71	1563.8	3113.545	2051	604	13696.055	4860.667	0	742.4	808.9333	0	22671.6	9424.3767	1563.8	3855.945	2859.933	604	36367.655		
	Funding / Organisations (€k)	€ 101.42	€ 86.88	€ 100.44	€ 146.50	€ 67.11	€ 108.70	€ 63.13	€ 0.00	€ 46.40	€ 47.58	€ 0.00	€ 84.91	€ 77.25	€ 78.19	€ 82.04	€ 92.26	€ 67.11	€ 92.54		