Deliverable D1.2.7

Seventh six-monthly QM Report

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Date	Name	Changes/Comments
31.03.2017	Marie-Luise Neitz Sebastian Weisenburger Yannick Morel	Strategic KPIs Dissemination Experiments and RIFs
30.05.2017	Marie-Luise Neitz	Update to include the accepted Amendment V

1   ECHORD++ Report on Performance Indicators (KPIs)

While the umbrella document of the QM deliverable (D1.2.3._a) outlines the methodology used to track / assess the performance of the different instruments of ECHORD++, this second part of the deliverable reports on the results of this assessment and will be updated every six months.

1.1   Strategic Performance Indicators

The Strategic Performance Indicators have to reflect those aspects which are important to make E++ a success. The target values are based on the lessons learned from ECHORD and are geared to the expectations of the different target groups. Important to note: These indicators were fixed from the perspective of the users – irrespective of the fact if the members of the core consortium are able to influence them to full extent. Only if the cooperation of all stakeholders works – core consortium, external users and European Commission – the target values can be met.

Indicator	Assessment	Instrument	Target value	De-facto M37 – M42	
Time-to-grant	The time span between call deadlines and the accepted Grant Agreement	Call II experiments	9 months	Not relevant in this reporting period, as last relevant amendment was for Call II experiments (last reporting period)	●
Payment discipline	Time span between the submission of a Periodic Report and actual payments	Cost Claim II: Core, Experiments, public bodies (PDTI)	6 months	Submission of the Periodic Report: 27.01.2017 (for review – off-line) Submission via the NEF system and acceptance of Cost Claim by EC: pending	●
Planning security	Amendments: time span between Amendment session opened in the NEF and signed Amendment	No Amendment done during the period	6 months between opening of the Amendment Session and signed Amendment request	Amendment V (PDTI Phase II): Amendment opened on 07.12.2016; Amendment accepted: 27.05.2017	●
No of SMEs involved	Number of Small and Medium Sized companies involved in the project for all instruments	No Call and no Amendment during the period	Experiments & PDTI: 25% of the applicants; RIF targets as outlined in the RIF handbook	Call II experiments: 15 out of 47 = 32%	●
No of newcomers without any former participation in EU-	Number of newcomers involved in the project	No Call and no Amend-	Experiments & PDTI: 25%	Call I and Call II experiments have already been	●

funded pro-jects	for all instruments plus dissemination activities!	ment during the period	of the applicants; RIF targets as outlined in the RIF handbook	reported on in the previous periods. No additional data available or expected anmore.	
Strengthening the collaboration between industry and academia	Projects in which industrial partners and academic partners work together (during the runtime of E++ and afterwards)	Experiments, RIFs, PDTI: Willingness to participate with new partners in future academia-industry projects	Experiments: 90% of the mixed consortia	15 out of 15 consortia of Call II experiments were mixed	🟢
			PDTI: 90% of the mixed consortia	Not relevant yet: Will be evaluated first time after Phase II of PDTI ended.	⚫
Networking: Motivate new contacts which offer the potential for future collaboration in research projects or business leads	Number of new contacts gained by working on one of the instruments of ECHORD++.	Experiments PDTI RIFs	Experiments: 75% of the experimenting partners gained at least one new contact.	Not relevant: Call I experiments already included last QM report. Call II experiments to be evaluated after they finalize.	⚫
			PDTI: 75% of the PDTI partners gained at least one new contact	Not relevant yet. Will be evaluated first time after Phase II of PDTI ends.	⚫
Contribution to advancing the state-of-the art (technological progress)	The technological / scientific targets are outlined in the proposals	Experiments Call I (PDTI is not relevant yet as Phase I had not been reviewed, yet)	Experiments: 80 % of all experiments selected for funding meet the technological targets outlined in their KPI documents.	Out of 7 experiments with technical KPIs during the period, 4 met their objectives (57%)	🔴

Impact achieved by the individual technological instruments of E++	The impact targets are outlined in the KPI documents (experiments, PDTI); impact for RIF takes time to materialize, outcome will be qualified at a later stage., and in RIFs proposals).	Experiments PDTI RIFs	**Experiments:** 80 % of all experiments selected for funding achieve the impact outlined in their KPI documents	4 out of 10 experiments with impact KPIs during the period met their targets (40%)	🔴
Performant, strong proposals received: - **For the experiments** - **For PDTI** **For the RIFs**	The potential scientific / technological success of E++ heavily depends on the quality of the proposals submitted. They form the pool from which the independent experts can select.	No calls for experiments or PDTI were reviewed during the period.	Experiments 80% of the KPIs target values achieved. .	n.a. Call I experiments were reported on in QM report 6, Call II experiments will end in QM report 9	⚫

1.2 Experiments

The assessment of KPIs against target values for E++ expeiments is done in the bi-monthly monitoring session supported by the monitoring platform of ECHORD++. The relvant KPIs are reported on in each QM report (taking account of the KPIs of those experiments which have been active in the individual periods. In the seventh QM report of E++ (M40-M45 of the project's runtime) the following experiments have been active (all experiments have joined the project after the second Call for experiments, no Call I experiments have been active anymore during the QM reporting period):

Experiment	Runtime in months	Expected end
AAWSBE1	18 months	September 2016 – February 2018
CATCH	18 months	September 2016 – February 2018
CoCoMAPS	18 months	September 2016 – February 2018
DUALARMWORKER	18 months	June 2016 – November 2017
FASTKIT	18 months	September 2016 – February 2018
FLEXSIGHT	18 months	September 2016 – February 2018
GRAPE	18 months	September 2016 – February 2018
HyQ-REAL	18 months	September 2016 – February 2018
HOMEREHAB	18 months	June 2016 – November 2017
INJEROBOT	18 months	June 2016 – November 2017
KERAAL	18 months	September 2016 – February 2018
MAX ES	18 months	September 2016 – February 2018
RADIOROSO	18 months	September 2016 – February 2018
SAFERUN	18 months	June 2016 – November 2017
SAGA	18 months	June 2016 – November 2017
WIRES	18 months	June 2016 – November 2017

Note: Call II experiments opted for two different starting dates. E++ offered to them the option to start either in June 2016 or in September 2016. This step was taken to mitigate the impact of the delayed signature of the 4th Amendment caused by the unplanned Amendment III to amend the PDTI process.

The below tables provide a meta-level overview of the KPIs (technical, impact and dissemination) during M40 – M45 of E++). Detailed information on the performance of each experiment for each of these KPIs during each bi-monthly monitoring period and the respective traffic lights are given as Annex to this QM report: An even further in-depth analysis for each of them is provided in the WP3 deliverable D354 This approach thus provides performance assessment on three level of granularity to feed various information needs (executive summary, very detailed and one layer in-between).

Monitoring of the experiments of Call II has been strict to motivate them to a better performance and higher focus on the targets. This results in a fairly high number of red or yellow traffic lights, even though the only experiment which really raises concerns is CoCoMAPS. In fact, one red traffic light in one category resulted in a red traffic light for the entire QM period for the respective category (irrespective of the number of yellow or red traffic lights set in general). Already during the kick-off meeting for Call II experiments in Palma de Mallorca, the objectives of CoCoMaps were rated as extremely ambitious for the runtime of the project. The monitoring team needs to follow this experiment very closedly.

Assessment	AAWSBE1	CATCH	CoCoMAPS	DUALARM-WORKER
Tech. KPIs	n.a.	n.a.	🟥	n.a.
Imp. KPIs	🟧	n.a.	🟥	n.a.
Deliverables	🟧	🟧	🟥	🟧
Milestones	n.a.	🟥	🟥	🟧
Dissemination	🟩	🟩	🟥	🟧

Assessment	FASTKIT	FlexSight	Grape	HyQ-REAL

Tech. KPIs	n.a.	n.a.	n.a.	[orange]
Imp. KPIs	[orange]	n.a.	n.a.	[orange]
Deliverables	[orange]	[red]	[orange]	[orange]
Milestones	n.a.	n.a.	[orange]	[orange]
Dissemination	[red]	[red]	[red]	[orange]

Assessment	Homerehab	Injerobot	Keraal	MAX ES
Tech. KPIs	[orange]	n.a.	n.a.	[green]
Imp. KPIs	[orange]	n.a.	n.a.	[green]
Deliverables	[orange]	[green]	[orange]	[orange]
Milestones	[orange]	[red]	[green]	[red]
Dissemination	[orange]	[green]	[green]	[green]

Assessment	Radioroso	SAFERUN	SAGA	WIRES
Tech. KPIs	**n.a.**	[green]	[green]	[green]
Imp. KPIs	[orange]	[green]	[green]	[green]
Deliverables	[orange]	[orange]	[orange]	[green]
Milestones	[orange]	[orange]	[green]	[green]
Dissemination	[red]	[orange]	[orange]	[orange]

1.3 RIFs

The below table provides an overview of the consolidated performance of the three RIFs against targets for six months (M40-M45). Given targets refer to annual performance (12 months). The first six months from Dec. 2016 – May 2017 indicate the following trends:

Indicator	Explanation	Way of Assessment	Target value	Progress (Oct. 2014- May 17)
Businesses engaged • **SMEs** • **Non-SMEs** • **Individuals**	Total no. of organizations within the RIF network, including businesses, sole traders, non-profit organizations, HEIs and business start-ups.	Proposal and engagement statistics generated by E++ website & PM tools provided by BRL	**Annual** targets are (*total – SME*): BRL (150 - 90) CEA (100 - 60) SSSA (100 - 60)	BRL:(579-364) CEA:(19) SSSA: (7)
Businesses assisted (>12hrs) • **SMEs** • **Non-SMEs**	Consultancy support, information, advice and guidance to individual businesses. The assistance can be face-to-face, via phone, web-based, dialogue at conferences, seminars, walkings,	Internal statistics generated by PM tools provided by BRL& sign-off by organization required.	**Annual** targets are (*total – SME*): BRL (60 - 36) CEA (40 - 24) SSSA (40 - 24)	BRL: (221-175) CEA:(1) SSSA: (0)

	workshops or through networks.			
New businesses/Pre-start-up assistance	New business: The creation of new businesses including start-ups of all sizes, sole traders, partnerships and not for profit organizations. Pre-start Assistance: Inquiries from individuals on how to acquire the technical & entrepreneurial skills to set-up a new business venture.	Internal statistics generated by PM tools provided by BRL& sign-off by organization and/or individuals required.	**Annual** targets are: BRL (4) CEA (2) SSSA (2)	BRL:(56) CEA: no data SSSA: (0)
Jobs safeguarded	The number of jobs declared "at risk" by a business prior to enrolling onto the RIF programme and receiving business support, and still active twelve months from start of the engagement. "At risk" – a permanent, paid, full-time equivalent (FTE) job which is forecast to be lost within one year.	Internal statistics based on statements of users - entered into and generated by PM tools provided by BRL - This is not a hard KPI, but still useful as an indicator for long-term impact of RIFs.	**Annual** targets are: BRL (6) CEA (3) SSSA (3)	BRL:(6) CEA: no data SSSA: (0)
Jobs created	A new paid, full-time equivalent (FTE) job. Temporary employment is captured if it has a life expectancy of at least 8 weeks (or Pro Rata equivalent). The post is when an individual starts a new role.	Evidence & sing-off by organization and/or individual required. Generated by questionnaire at the end of the RIF stay and afterwards.	**Annual** targets are: BRL (9) CEA (6) SSSA (6)	BRL:(5) CEA: no data SSSA: (0)
Number of patents & other IPR products and / or processes launched.	As a result of direct assistance provided through engagement with a RIF.	Evidence of IPR device required. This information is gathered via a survey at	**Annual** targets are: BRL (2) CEA (1) SSSA (1)	BRL:(1) CEA: no data SSSA: (0)

Number of new or im-proved prod-ucts and/or processes launched	The launch of a new or improved product / service as a direct result of assistance provided through en-gagement with a RIF.	Evidence of new or im-proved prod-ucts required and sign-off by organiza-tion and / or individual re-quired. This information is gathered via a survey at the end of the engagement as well as long-Term (see "Impact on Innnova-tion")	**Annual** targets are: BRL (10) CEA (8) SSSA (8)	BRL:(25) CEA: no data SSSA: (0)
		the end of the engagement as well as long-Term (see "Impact on Innnova-tion")		

1.4 PDTI

The same approach is chosen as for the experiments. Nevertheless, the bi-monthly monitoring starts with Phase II of PDTI. First results are likely to be available for QM report no. 8.

1.5. Outreach and dissemination

Indicator	Assessment	Target val-ues	De-facto M40 – M45	
Online-commu-nication	Clicks website	1000 per month	🟢	From 1st Nov 2014 (start of tracking) – 31st March 2017: Average of 1,382 visitors per month
	YouTube channel	Average of more than	🟢	10 videos, 740 views per average

		500 views per video		
	LinkedIn Group	More than 250 members	🟢	351 members (31st March 2017)
Media coverage	References in trade press	50 per year	🟡	110 trade press
	References in consumer press	10 per year	🟢	116 consumer press (both total until 31st March 2017)
Event audience	Estimated number of people from target audience reached at the various events	1000 per year	🟢	1,000 and beyond, to which the expeirments contributed a lot
Direct contacts	Direct contacts in contact database	More than 4.000 active contacts at the end of E++	🟢	4,328 contacts in total (31st March)
		More than 70 % new contacts (without login from old ECHORD)	🟡	62 % new contacts
Scientific publications	Number of scientific publications	At least one per experiment	⚫	To be evaluated in the 8th QM report for Call II experiments

2   Risk Contingency Plan

We can classify the risks for E++ into three categories: (i) risks arising from the internal organization, (ii) risks related to the acceptance of and interest in the different instruments, and (iii) risks during the execution phase of the instruments. The following table lists the risks associated with

the implementation of E++.

Risk (DOW)	Potential Impact	Corrective Action	Comments on current state
Type (i) Unclear work / task responsibilities	Impact high, Risk low Specific tasks and – in case of core tasks – the whole project may be delayed	The DOW of E++ shows clear responsibilities of Work Packages and tasks. Different escalation levels for different delays. Retain payments to beneficiaries, payments are linked to timely Delivery. Regular meetings (Video, Skype, phone and in person) to discuss the workflow openly.	__
Type (ii) E++'s visibility too low, profile unclear	Impact High, Risk low ECHORD has achieved very high visibility and credibility with clearly defined goals and means. In ECHORD, the interaction with the classical community and other projects was very strong. However, the new instruments, RIFs and PCP activities could cause a risk.	A clear communication plan including presentations at broad-spectrum and specific events will likely resolve this problem – just as we did very successfully within ECHORD. Outreach to new potential robotics community members will be achieved by (i) a strong focus on dissemination events of various types, by (ii) bringing experiments into the "real world" by on-site testing the demonstrators in the RIFs, by (iii) directly contacting new user groups, and by (iv) creating sustainable structures with the PCP activities.	---
Type (ii) Lack of acceptance by stakeholders	Impact High, Risk low The classical experiments as in ECHORD are widely accepted, but the new instruments RIF and PCP rely on involvement of all stakeholders, especially robot users and customers.	Special information events and targeted campaigns at the beginning of the project and involvement of the industry in all phases, especially in case of the PCP activities, will minimize this risk. In addition, as a result of the structured dialogue, not only can the content of all activities be adapted, but their administration aspects as well	----
Type (ii) Lack of acceptance of the	Impact Low, Risk medium Being pilots for new R&D instruments,	The interaction with all possible stakeholder groups in instrument- specific ways will lead to a good a priori estimation of the	----

new instruments RIF and PCP	there is a certain risk that they will not be accepted as anticipated	needs and acceptance criteria. This systematic approach will minimize the risk. An adjustment of the concepts in the structured dialogue will also be possible. Finally, it is always possible to adjust the budget so that resources can be shifted into the experiments and their number can be increased if needed.	
Type (iii) Beneficiary bankruptcy	Impact Medium, Risk Low Potential risk of a failure of a specific experiment	Rapid alert system due to additional reporting duties for beneficiaries with weak financial validation. Replace beneficiary Financial risk is safeguarded by guarantee fund	ROBOSOFT – the co-ordinator of the AR-NICA consortium in PDTI Phase I healthcare – had to declare bankruptcy. Mitigation measure were not necessary because ARNICA failed after Phase I (despite the redress filed).
Type (iii) Delayed start of experiments and other instruments	Impact High, Risk Medium-High No sound planning of resources and timeline possible for beneficiaries Experiments cannot deliver the intended results on time Project duration likely to be extended (cost-neutral) Bad image of the project and demotivation of SMEs to participate in future EU-funded projects	Realistic timetable with enough time between the Calls to realize the Amendments Timetable which avoids conflict between Cost Claims and Amendments Communication of this timetable to the beneficiaries. Beneficiaries that do not meet start deadlines will be postponed to the next batch or replaced Beneficiaries with complete documentation can start their experiments without prior signature of Amendment.	<mark>?????</mark>
Additional risks identified since DOW was written		Corrective Action	
Cooperation between	*Impact: High, Risk: Medium*	Preventive measures taken: Regular specific group updates (every two weeks) for PCP, RIFs,	The responsibilities within WP4 (RIFs) and the roles (coordination,

core benefi-ciaries does not work well (les-sons learned ECHORD)		Experiments and ExC Commit-tee. Appointment of a facilitator to tackle issues which require in-depth communication between different instruments OR differ-ent beneficiaries involved in one instrument to achieve consensus with the best results.	contributors to reports and RIF owners) had to be clarified in skype calls (who is driving, who is contributing).
Problems with recruit-ment of eval-uators	*Impact: High, Risk: High*	Intensive contact making with stakeholder groups not originally involved with the project (also by activating clusters and associa-tions)	----
Experiment reviews do not provide sufficient in-put to make an informed funding de-cision.	*Impact: High, Risk: Medium / Low*	Calibration of the proposal eval-uations during the panel meeting	---
Evaluators give high scores to proposals which do not provide a clear tracka-ble target.	*Impact: High, Risk: High*	Analysis of the weaknesses of the proposals selected for fund-ing and addressing these issues during the negotiations.	---
Tracking of take-up of results of all instruments reported by the partners / users	*Impact: High (for fol-low-up projects or second rounds); Risk: Medium*	Automated alarm system with deadlines for long-term tracking; implementation of the instru-ments for tracking (for instance questionnaires).	---

AAWSBE1

tKPIs	#1 Identification of batteries	#2 Identification of battery-containing objects	#3 Regain item location	#4 Adaptable pick list	#5 Picking and placing of requested items	#6 Segmentation of visible database items
	🔵	🔵	🔵	🔵	🔵	🔵
	#7 Classification of database items found	#8 Rejection of non-database items	#9 Picking of waste items	#10 Prototype realization of automated sorter	#11 Output bin purity	
	🔵	🔵	🔵	🔵	🔵	

iKPIs	#1 Business case end user	#2 Business case Technology provider	#3 Use case redesign/ flow	#4 Increased performance in waste sorting
	🟡	🔵	🔴	🔵
	#5 Interviews with stakeholders	#6 Users acceptance	#7 Quotes asked	
	🔵	🔵	🔵	

Mile-stones	#1 First images delivered to Refind from the final sensor suite	#2 Identification system working	#3 Picking works on the specified items	#4 Whole system integrated and working at DTI
	🔵	🔵	🔵	🔵

Deliver-a-bles	#SB Story Board	#D1.1 Final form of perception hardware and algorithms	#D1.2 20 Common items identifiable in real time	#D2.1 Dynamically prioritised pick list	#D1.3 Report on the perception system and its evaluation
	🟡	🟡	🟡	🔵	🔵
	#D2.2 Report on picking random, moving, waste items	#D3.1 Physical demonstrator	#MMR Multi-Media Report	#RIF Report on end-user evaluation	

	●	●	●	●	

Dissemi-nation	#1 Exhibition-DIRA roadshow/robotbrag	#2 Exhibition, speech- Salzburg IERC	#3 Exhibition- Madrid expo	#4 Exhibition- New Orleans ISRI	#5 Exhibition- Herning HI messe
	🟢	🟢	🟢	🟢	🔵
	#6 Exhibition- Automatica 2018	#7 Newsletter 1	#8 Press release 1	#9 Newsletter 2	#10 National TV - One of the TV channels
	🔵	🟡	🔵	🔵	🔵
	#11 In house exhibition demos	#12 Newsletter 3	#13 Press release 2	#14 Final system video	#15 networking with associations
	🔵	🔵	🔵	🔵	🔵

Impact KPIs
#1 Business case end user (yellow).
Business cases where received by E-Mail on 28/02/2017, with a delay of 2 months on the expected date. The first business case named "End User Business Case - Battery Sorting" Introduced an analysis of costs and revenues, produced by the use of the AASWBE1 system, and a brief comparison with respect to the current manual operations, for battery sorting. the second business case named "End User Business Case - WEE Sorting" concerned the analysis of the costs and the revenues, produced by the introduction of the AASWBE1, respect to the current manual operations, for the sorting of wired electrical components. The business cases were poorly described. A more detailed introduction on the current state of the art on the industrial recycling process, costs and revenues was suggested. This would made the document more readable and complete. In Particular, it would be also appreciated a more detailed description and justification of the values used in the tables.

#3 Use case redesign/ flow
The document is still missing on date 24/03/2017 (red).

Milestones
The AASBWE1 has only one milestone in the first year, expected on date 01/12/2016 named "First images delivered to Refind from the final sensor suite ". No document was uploaded, but the images of the systems could be seen in the video sent by E-Mail to the moderator (m.bonaccorsi@sssup.it) on date 13/12/2016. In this case there could be a delay of less than one month in the milestone delivery

Deliverables
SB "Storyboard"
It was due on date 01.10.2016, but uploaded the first time on date 22/11/2016 and resubmitted on date 14/12/2016 (yellow) The document provides few technical details and a poor description of the system.

#D1.1 Final form of perception hardware and algorithms
The deliverable was due on date 01.12.2016 but on date 10/01/2017 the document was still in progress and some parts was missing (yellow).
In particular, there is no detailed hardware description and the entire system architecture is poorly introduced. Experimenters were invited to include: 1) a new section regarding the current state of the art on hardware and software solutions on robotic garbage collection, 2) the technical and scientific requirements of the AASWBE1 system and how the selected hardware matches these requirements, 3) a detailed hardware description.

#D1.2 20 Common items identifiable in real time
On date 24/03/2017 the document is still missing. The idea is that the contents of D1.2 could be already included in the D1.1 document and in the video file sent by E-Mail. Nevertheless, experimenters were suggested to upload some document, picture, video o comment to improve the quality of the evaluation process (yellow).

Dissemination
The dissemination action in milestone 1 "Exhibition-DIRA roadshow/robotbrag" expected on 25.11.2016 is missing. Experimenters claim the milestone completed, but declare that they can not upload any file for this milestone on the Echord++ portal because of technical problems.
Experimenters also claim the dissemination Milestone Number 2 named "Exhibition, speech- Salzburg IERC" (due date 20/01/2017) and the dissemination milestone number 3 named Exhibition- Madrid expo (04/02/2017) done. Nevertheless, no file is uploaded on the portal. Moderators asked if it was due to a technical problem, and suggested to ask to ECHORD++ managers.

Synthetic Summary
The experimenters produced and/or uploaded some documents with significant delays, furthermore some documents were poorly described. Moderators asked some improvements on the documents but no resubmission was performed. Extent of scientific and technical progress achieved so far remains unclear because of the poor technical and scientific soundness of reports. Nevertheless, experimenters sent a video by E-Mail showing the AASBWE1 prototype working and able to distinguish between wired and battery operated waste in real time.
It is important to improve the technical and scientific level of the documentations. The experimenters should (must) upload materials on the portal instead of sending E-Mails or claim technical problems with the Echord ++ portal interface.

Impact KPI: Business cases are very basic
tKPI: No tKPI due in this period
Milestones: The images of the prototype were provided as a video. The video was sent by E-Mail to the moderator, nevertheless it should be uploaded on the portal

Deliverables: Very few technical details and scientific results are provided. Experimenters should improve the state of the art and provide some references on previous works.

Dissemination: Experimenters need to upload materials, links and references to the activities, otherwise it is hard to understand what has been done and what is still missing.

CATCH

tKPIs	#1 Amount of crushed cucumbers (mobile platform + grippers)	#2 Amount of lost cucumbers when placing them on the back basket	#3 Vision based cucumber detection	#4 Operating speed	#5 Efficiency	#6 Damage to plants
	●	●	●	●	●	●

iKPIs	#1 Reduction in harvest costs per hector	#2 Patent application	#3 Number of jobs created	#4 Number of spinoffs originating from the project	#5 Number of products originating from the project
	●	●	●	●	●

Mile-stones	#1 Experimental plan	#2 Recognition-Localization	#3 Experiment Set-Up	#4 End of Experiment
	🔴	●	●	●

Delivera-bles	#D1 Experiment Plan and Conception	#D2 Vision System	#SB Story Board	#D3 Robot and Control System
	🟠	●	●	●
	#D4 Programming Environment	#MMR Multi-Media Report	#D5 Evaluation of novel hortibot technology	
	●	●	●	

Dissemi-nation	#1 Website of experiment	#2 Press release-I	#3 Press release-II	#4 Multi media report	#5 Networking associations
	🟢	🟢	●	🔵	🟢
	#6 Attendance to trade fairs (Automatica	#7 Attendance to trade fairs (Grüne Woche	#8 Attendance to scientific conference	#9 Attendance to scientific conference (Internationale	#10 Scientific publications

	2018)	2018)	(IROS 2018)	Tagung Landtechnik)	
	🔵	🔵	🔵	🟢	🔵

General comments:
The experimenters must deliver more detailed information, potential solutions and decisions, at least, on critical aspects of vision, arms coordination and gripping. Some of these open questions should be clarified by beginning of June 2017.
Waiting for that relevant information, experimenters are encouraged to continue their work even some concerns were already expressed to the research team during the session at Palma last year remain undefined.
Moderators would like to have the opportunity to attend to some of the tests and demonstrations they plan to develop in "real" conditions context.

Technical KPIs: according to the DOW, any tKPI was not scheduled on period October 2016-March 2017

Impact KPIs: according to the DOW, any iKPI was not scheduled in period October 2016-March 2017

Milestones: The achievement of Milstone#1 "Experimental plan" was related to #D1 and at the moment #D1 is not still approved. However, the CATCH experimenters didn't edit any comments. The deadline was on 01/03/2017 and for this reason the flag is RED.

Deliverables: #D1 was delivered on 15/12/2017, the moderators asked to resubmit it by 09/1/2017 because some aspects had to be clarified and better detailed. The new version of #D1 was uploaded on 13/02/2017. The updated version of #D1 is the same as the first version and at the end of the document, CATCH experimenters answered point by point to the moderators' doubts. Considering the delay and that #D1 is not still approved, the flag is YELLOW.

Dissemination: #1, #2, #5, and #9 were achieved on period October 2016-March 2017. Regarding the #9 " Attendance to scientific conference (Internationale Tagung Landtechnik)", the CATCH experimenters did not participate to the LAndtechnik conference, instead of this they organized a Workshop at ATB, with participants from applied science and end-users sides.

Synthetic summary
We've had monitoring call in December 2016. #D1 lacked technical details and it was delivered late. Milestone#1 is not achieved because it is related to approval of #D1. The traffic lights for monitoring period on September2016-October2016 and on November2016-December2016 are GREEN, even if the 2° monitoring periodic report was delivered with one month and a half delay. The 3° monitoring periodic report was delivered to moderators on 18/05/2017 (two months and a half delay) but it is not still uploaded on Echord portal due to Echord portal problems.

CoCoMaps

tKPIs	#1 Ability of current state of the art running on one Qbo robot	#2 Ability of real-world robot-robot interaction using new collaborative CMA	#3 Ability of real-world multi-robot-human interaction using collaborative CMA and speech	#4 Success rate in inserting wiring terminals
	🔴	🔵	🔵	🔵
	#5 Efficiency of collaborative detection of humans	#6 Efficiency of collaborative information extraction through dialogue	#7 Efficiency of collaborative task extraction through dialogue	
	🔵	🔵	🔵	

iKPIs	#1 Industrial collaborations	#2 Psyclone framework	#3 Academic collaborations	#4 Psyclone + project bundle, ready for commercially funded integration projects
	🔵	🔵	🔵	🔵

Mile-stones	#1 Kick-off Meeting	#2 Support for Qbo platform	#3 Current state-of-the-art supported	#4 Demonstration 1
	🔴	🔴	🔵	🔵
	#5 Collaborative Cognitive Map complete	#6 Demonstration 2	#7 Demonstration 3	#8 Project completed
	🔵	🔵	🔵	🔵

Deliver-a-bles	#T1.D1 Specification of Experimental Platform	#T6.D1 Current state-of-the-art implementation	#T8.D1 Draft Collaborative Cognitive Map	#T9.D1 Demo 1: Collaborative Visual Detection	#T8.D2 Final Collaborative Cognitive Map
	🟡	🔴	🔵	🔵	🔵
	#T10.D1 Demo 2: Collaborative Visual Search [RIF visit 1]	#T12.D1 Four-way Turn-Taking	#T13.D1 Demo 3: Collaborative Information Extraction [RIF visit 2]	#T15.D1 Demos, results and literature publicly available	

Dissemi-nation					
	🔵	🔵	🔵	🔵	

Dissemi-nation	#1 website of experiment	#2 press release - I	#3 press release - II	#4 Final demo	#5 Multi media report
	🟢	🔴	🔵	🔵	🔵
	#6 Networking w customers (Marel)	#7 Networking w customers (Magic Leap)	#8 Networking w customers (Honda)	#9 Attendance to trade fairs (Consumer Technology Association / CES)	#10 Attendance to trade fairs (Hanover Messe 2017)
	🔵	🔵	🔵	🔵	🔵
	#11 Attendance to trade fairs (Hanover Messe 2018)	#12 Attendance to scientific conferences (CES in the US booked and scheduled)	#13 Attendance to scientific conferences (Hanover Messe 2017)	#14 Attendance to scientific conferences (Hanover Messe 2018)	#15 Create posters/leaflets/ roll-ups
	🔵	🔴	🔵	🔵	🔴
	#16 Social media				
	🟢				

General Comments: To begin with, it should be made clear that there probably has not been any monitoring of this Experiment so far. We (Yannick, Adam) have been in touch with them to schedule a monitoring call since the E++ review (mid-February). We finally have been able to schedule it for early April (the 3rd). There is no trace of previous monitoring on the platform. We are not assigning any general monitoring traffic light before we have a monitoring call with them. They assess themselves as orange. Delays in pre-payment has, according to them, prevented them from purchasing equipment they needed for the Experiment (Qbo platform, discontinued). They selected another platform instead. Their hardware choice does not seem to allow them to complete goals of the Experiment stated in the proposal (interaction between robot and mechanical equipment or machine). We have no information on their progress so far, but the sceptic in me (Yannick) strongly believes they have not done anything yet. We'll know more after the monitoring call. The proposal was very ambitious, I am expecting them to try to casually under-deliver and hope we do not give them too much trouble (wrong! we will give them trouble).

Technical KPI #1: We do not know what they have done (need to talk to them), but they were supposed to provide a video and "statistics graph" (whatever that is), they have not provided either. In addition, the milestone concerned porting code onto a platform they are not able to secure. Don't know what they did, but this is red for now.

Milestones: no evidence of any of the two milestones due were "achieved." Red.

Deliverables: Specs are lacking (orange), state of the art is not there (red).

Dissemination: No way to verify for #2, 12, and 15. Red.

DUALARMWORKER

tKPIs	#1 Time to plan a dual arm trajectory	#2 Trials to obtain a suitable solution	#3 Deviation with the respect to ideal trajectory	#4 Weight carrying capability
	🔵	🔵	🔵	🔵

iKPIs	#1 Station Recurring Cost Reduction	#2 Number of Airbus operations as potential users of the dual-arm	#3 Open Source Software Modules release	#4 Automation in different industrial sectors	#5 Commercial exploitation of dual-arm planning libraries
	🔵	🔵	🔵	🔵	🔵

Mile-stones	#1 Dual-arm closed kinematics chain planning algorithm selected	#2 First prototype implemented	#3 final prototype implemented
	🟡	🔵	🔵

Delivera-bles	#D4.1 Story Board	#D1.1 Pilot case scenario definition	#D2.1 Intermediate report on dual arm motion planning algorithm	#D2.2 Library for dual arm closed kinematics chain motion planning	#D3.1 Prototype of the first demonstrator
	🟢	🟢	🟡	🔵	🔵
	#D2.3 Library of dual arm constrained automatic programming	#D2.4 Library of dual arm online collision detection and avoidance	#D3.2 Prototype of the second demonstrator	#D4.2 Multi-media Report	
	🔵	🔵	🔵	🔵	

Dissemi-nation	#1 Website of experiment	#2 Press release I	#3 Press release II	#4 Multimedia report	#5 Networking with associations (AER-ATP)	#6 Networking with associations (GDR ROBOTIQUE CNRS)
	🟡	🔵	🔵	🔵	🔵	🔵
	#7 Networking with associations (Hisparob)	#8 Attendance to trade fairs (INNOROBO)	#9 Attendance to scientific conferences (AIM 17)	#10 Social media		
	🔵	🔵	🔵	🟡		

General comment:
Even if there are some minor delays in providing information, the project is progressing well and as expected.

Deliverable D2.1 Intermediate report on dual arm motion planning algorithm
submitted one month later (yellow)

dKPI#1 The website of the experiment is not commented (yellow)
dKPI#4 social media is not commented (yellow)
Milestone #1 is not commented (yellow)

Synthetic summary
Two telcos have already been developed and a third one is programmed for Wednesday 24th of May.
The motion planning system has been tested: Moveit! Package has been used and they worked on adding the functionality of closed kinematics.
The Dual Arm Closed Kinematics Planner has been tested in the real robot to manipulate one A380 rib. Two different motion planning system have been used in the experiments: an Octomap server and the move_group component of Moveit!. The tests showed that octomap_server performed better but further experiments are needed.
The two grippers have been designed: a pneumatic and a multifunctional one.
Finally, the last version of DACKP V1.2 ensures a fast calculation of the dual-arm trajectories. A database to store successfully calculated trajectories is being developed in order to re-use them instead of re-calculate them every time the robot repeat the same operation.

The experimenters always provide useful videos to assess their progresses.
In parallel a journal article has been submitted on 14th of April.

FASTKIT

tKPIs	#1 Robust and reliable navigation	#2 Robust and reliable perception	#3 Deployable and stable mechanical system	#4 Increase in speed of pick and place operation, workspace area and payload compared to competition		
	🔵	🔵	🔵	🔵		

iKPIs	#1 Reduction in lead time of the operation compared to operation by competition	#2 Reduction in investment cost compared to competition	#3 Patent	#4 New product prototype	#5 Creation of Start up	#6 Potential users (PSA, Renault, BA systems)
	🔵	🟡	🔵	🔵	🔵	🔵

Mile-stones	#1 AGV and tow able to reach each position	#2 CDPR with end effector able to pick up box	#3 CDPR integrated on mobile platform
	🔵	🔵	🔵

Delivera-bles	#D3.1 Final and sub scenario design	#VD1 Simulation video of FASTKIT prototype performing scenario	#D1.1 Navigation Package (Software + Hardware)	#D2.1 Deployable CDPR prototype (Software + Hardware)	#VD2 Initial video of the robot in warehouse
	🟡	🟢	🔵	🔵	🔵
	#MMR Multi-Media Report	#D3.2 Integrated prototype and final scenario implementation	#VD3 Final video of the robot in the warehouse	#VD4 One AGV autonomously pulling the other one to the destination	
	🔵	🔵	🔵	🔵	

Dissemi-nation	#1 Website of experiment	#2 Press releases-I	#3 Press releases-II	#4 Multi media report	#5 Networking w associations (IRT Jules Verne and CNRS)
	🟢	🔴	🔵	🔵	🔵
	#6	#7	#8	#9	#10 Social media

	Attendance to trade fairs (Innorobo 2017)	Attendance to scientific conferences	Organisation of events	Create posters/leaflets/roll-ups	
	🔵	🔵	🔵	🔵	🟢

Impact KPI #2: Missing the information, I believe we discussed it with them in the last monitoring call (March), I'll ask them to provide the information. Leaving it as orange for now as incomplete.

Deliverable D3.1: Is overdue, they said they had it available in French (in early March), and only needed to translate and communicate it to us. I'm happy to believe that but we're still waiting. Leaving it in orange for now. Will follow up with them. If they fail to deliver it soon will turn to red.

Dissemination #2: We don't have the text of the press release, will also follow-up. Leaving it in red for now, as we don't have any trace of it and it would be overdue by 4 months. I'm honestly not super worried, as these guys love to communicate, but we'll see what they say.

General comments: Seems to be progressing OK so far. Difficult to judge until the prototype has been put together to a significant extent. They have some mobile base, which is functional. Videos of it are not necessarily entirely convincing however, as it seems to lack stability to some extent, which is not reassuring considering it is expected to include a large apparatus on top of it (raising the center of mass, negatively impacting stability). Further, the frame supporting the cable robot has a vertically-elongated form factor, without much structural reinforcement. These points were raised during the monitoring call, to which the team ensured that had conducted a rigidity analysis of the frame, which they agreed to provide to the monitoring team. The video showing a simulation of the robot was oddly disjointed, with detailed models for the mobile platforms, and a largely less detailed model (wireframe, MATLAB) for the cable driven robot. Finally, concerns were expressed by the monitoring team that the Experimenters were looking to short-change what was included in the accepted proposal in terms of navigation solution (namely, they proposed 3D vision-based environmental reconstruction, whereas now that is not part of the plans anymore). There is no doubt that the CNRS partner, in charge of the cable robot, will deliver (he is committed to his work). The monitoring team will be vigilant and in particular ensure the team delivers on promises in other aspects. A functional, integrated prototype is expected in the coming months, we will be able to easily assess shortcomings (I'm worried they completely underestimated structural and stability problems). It's a green so far in overall state, but could swiftly shift to orange if the prototype turns out to be worrying.

FlexSight

tKPIs	#1 Object recognition rate	#2 Localization accuracy	#3 Operation life of FSS	#4 Algorithm parallelization: computation time vs cycle time
	●	●	●	●

iKPIs	#1 FSS product available	#2 FSS product cost compared to existing solutions	#3 FSS foreseen clients	#4 Interested stakeholders (system integrators or external brokerage provides)
	●	●	●	●
	#5 News letter	#6 Website	#7 Leads	
	●	●	●	

Mile-stones	#1 Object recognition	#2 Object localization	#3 Final Prototype	#4 First system
	●	●	●	●

Delivera-bles	#D1.1 Use-Case Analysis and Requirements Report	#D2.1 Object Recognition Report	#D3.1 FSS Final Prototype Report	#MMR1 Multi-Media Report on RIF Visit Outcome	#RIF RIF visit outcome Report and Prototype
	●	●	●	●	●
	#D4.1 Final perception System Report	#D5.1 Final System Report and Demonstrator	#SB Story board	#MMR2 Final Multi-Media Report	
	●	●	●	●	

Dissemi-nation	#1 Website of experiment	#2 Press release 1	#3 Press release 2	#4 Press release 3	#5 Promotional multi media report
	🔴	🔴	🔴	🔵	🔴
	#6 RIF Multi-Media Report	#7 Final Multi-Media Report	#8 Networking w associations-SIRI	#9 Attendance to trade fairs-MECSPE	#10 Attendance to trade fairs-Hannover Messe
	🔵	🔵	🔵	🔴	🔵
	#11 Attendance to trade fairs - SPS parma, Italia	#12 Attendance to trade fairs-Automatica 2018	#13 Attendance to trade fairs-Vision	#14 Attendance to trade fairs-SPS Nuernberg	#15 Attendance to trade fairs- ITR open House
	🔵	🔵	🔵	🔵	🔵
	#16 Attendance to scientific conferences - ICRA 2017 conference	#17 Attendance to scientific conferences-IROS 2017	#18 Attendance to scientific conferences-ICCV 2017	#19 organisation of events- Open-House in ITR facility	#20 Project presentation poster
	🔵	🔵	🔵	🔵	🔴
	#21 Prototype presentation poster	#22 Product brochure	#23 social media Facebook & Twitter	#24 scientific papers	#25 other publications (e.g. newsletter, …)
	🔵	🔵	🔴	🔵	🔵

General comment

Worried about deadlines and presentation of work. Different delays on loading material on portal, especially periodic reports, have occurred during this first period of project and actually this is mainly disadvantageous for the experimenters themselves. Project is interesting and challenging, work on project is carrying and therefore I would have to stress for more efforts on respecting deadlines and presenting project developments. Overall status of project is green, but it may change in orange if this aspect is not solved.

Deliverable #D2.1Object Recognition Report is not yet submitted (red).

Dissemination milestone not delivered (red)
#1 Website of experiment
#2 Press release 1
#3 Press release 2

#5 Promotional multi media report
#9 Attendance to trade fairs- MECSPE
#20 Project presentation poster
#23 social media Facebook & Twitter

Flexsight first results have been presented through two scientific articles:
1. Basso, F., Menegatti, E., & Pretto, A. (2017). Robust Intrinsic and Extrinsic Calibration of RGB-D Cameras. *arXiv preprint arXiv:1701.05748*.

2. Imperoli, M., & Pretto, A. (2016). Active Detection and Localization of Textureless Objects in Cluttered Environments. *arXiv preprint arXiv:1603.07022*.

Till now the dissemination activities developed are appropriate. About dissemination KPIs of the project, they have to develop the experiment website, their participation in social media Facebook & Twitter and the first press release, as soon as possible.

Synthetic summary
From a mere technical point of view, the work presented up to now (mainly described through D1,1 and periodic report) seems valuable and interesting, focusing on a new hardware for object detection and recognition.
However, reports of work are constantly presented after deadlines, as regards the D2.1 or the fourth periodic report, even after warnings provided to Experimenter directly by mail. These delays should be considered in evaluation of fourth period.

GRAPE

tKPIs	#1 Capability to cover large area autonomously after addition of electronics and the arm	#2 Vinestock structure identification	#3 3D map of the vineyard	#4 Autonomous navigation in a vineyard	#5 Robust dispenser deployment	#6 Multi-dispenser storage system for easy pick-up by a robot
	🔵	🔵	🔵	🔵	🔵	🔵

iKPIs	#1 Industry interest in GRAPE	#2 Patentability study for potential patent application	#3 Number of jobs created	#4 Extended usage of the platform	#5 Cross-crop usage (quick reconfiguration)	#6 Open publication of data	#7 Scientific dissemination
	🔵	🔵	🔵	🔵	🔵	🔵	🔵

Mile-stones	#1 Agreement on scenario definition and requirements' specification	#2 Robot navigates in a vineyard and performs a monitoring task	#3 Robot performs a dispenser deployment task	#4 Farmer can satisfactorily use the robotic platform
	🟡	🔵	🔵	🔵

Delivera-bles	#D1.1 Scenarios and requirement specifications	#D2.1 Vineyard navigation (methods and algorithms)	#D2.2 Vineyard navigation (results)	#D3.1 Vineyard monitoring technique	#D4.1 Pheromone dispenser manipulation techniques
	🟡	🟢	🔵	🔵	🔵
	#SB Story Board	#D5.1 Vineyard robotic platform HMI	#MMR Multi-Media Report	#RIF Report on RIF visit outcome and demo results	#D1.2 Exploitation plan and commercial agreements
	🔵	🔵	🔵	🔵	🔵

Dissemi- nation	#1 Website of experiment	#2 Press release- I	#3 Press release- II	#4 Multi media report	#5 Networking w associations (>50 individual stakeholders contacted)
	🔴	🔴	🔵	🔵	🔵
	#6 Attendance to trade fairs (>=5 trade fairs (including ERF))	#7 Attendance to scientific conferences	#8 Create posters/leaflets/r oll-ups	#9 Social media	
	🔵	🔵	🔵	🔵	

Deliverables

#D1.1 Scenarios and requirement specifications
The first deliverable uploaded close to the deadline had been evaluated as incomplete. During the project call moderators asked to upload the document again with the necessary changes. The experimenters performed satisfactorily the required improvements (YELLOW).

#D2.1 Vineyard navigation (methods and algorithms)
The experimenters submitted the deliverable 2.1 with satisfactory improvements but with 20 days late.

One colour for each deliverable, with green in the last one, indicating a positive tendency. Both deliverables have been uploaded with delay.

Dissemination

#1 Website of experiment	deadline: 1.12.16
It is "RED" because they have to add that ECHORD is funding the project, no mention to ECHORD nor European Commission neither. This mistake is severe.

#2 Press release- I		deadline: 1.2.17
It has the "RED" light because experimenters haven't done their job, either to make the action and tick the OK if the action has been done. They have to log in the experiment portal area and take care of their actions.

Synthetic summary
About the Period Reports the experimenters obtained, right now, two green lights and a red light. The Report for the 4th Period has been uploaded and assessed with a green light.
Although the experiment started with some difficulties and delays, in my opinion now the progress is positive and I hope that no more red lights will be set in the research area. However, experimenters should take care of the actions needed in the portal such as marking as "OK" the activities done.
Website has to be modified including ECHORD funding reference.

HOMEREHAB

tKPIs	#1 Protocol for safety of users	#2 Protocol for the storage of patients' data	#3 Simulation video of rehabilitation therapy robot	#4 Learning based intention and physiological state monitoring system	#5 Video Demo of control software with or without human	#6 Tele Rehabilitation interface
	🟡	🟢	🟡	🟡	🔵	🔵

iKPIs	#1 High performance	#2 Reliability	#3 Commercialisation of standalone system	#4 Certification
	🔵	🔵	🔵	🔵

Mile-stones	#1 First Results of Robot Design Specifications and Patient Bio-Signal Monitoring System	#2 Development of Robotic System	#3 Development of Monitoring System	#4 Validation of the Completed System
	🔵	🔵	🔵	🔵

Delive-ra-bles	#SB Story Board	#D2 State of the Art in Robot Requirements and Features for in Home Use	#D7 Protocol for safety of users	#D3 Report about New Robot Design and Patient Bio-Signals Online and Offline Analysis	#D4 Report about the Development of a Tele-Rehabilitation Robotic System
	🟡	🟡	🟡	🔵	🔵
	#MMR Multi-Media Report	#RIF Report on RIF visit outcome	#D5 Final Demon stration	#D6 Publications in International Journal and Conferences	#FR Final Report to Echord++ team
	🔵	🔵	🔵	🔵	🔵

Disse-mi-nation	#1 website of experiment	#2 Press release-I	#3 Press release-II	#4 Multi media report	#5 Networking associations (euRobotics)
	🟢	🔴	🔵	🔵	🔵

#6 Attendance to trade fairs- (AUTOMATICA 2018)	#7 Attendance to trade fairs (REHACARE 2016)	#8 Attendance to scientific conferences (BIOROB 2018)	#9 Attendance to scientific conferences (ICORR 2017 / REHAB WEEK 2017)	#10 Organisation of events (IWART)
🔵	🔴	🔵	🔵	🟢
#11 Create posters,leaflets, roll-ups	#12 Social media (Twitter account)	#13 Publications in scientific magazines (Advances in Mechanical Engineering)	#14 Publications in scientific magazines (Computer Methods and Programs in Biomedicine)	#15 Other (Internal Company Newsletter)
🔴	🟢	🔵	🔵	🔴

Technical KPI #1: They do not have an actual safety protocol for the patient. They have some idea of the involved legislation and authorizations they need to obtain for clinical tests. But, they have not produced anything looking like a protocol to follow to ensure safety of the patient. It was brought up during the monitoring call, they said they were very concerned with this safety protocol and that there was a misunderstanding regarding content of the corresponding deliverable. We asked them to produce one such protocol. Leaving it as orange for now, will update depending on what they produce.

Technical KPI #3: They've not provided the video, I'll ask them to send it to me directly. Orange in the meantime.

Technical KPI #4: Presentation has not been provided, we've honestly not addressed that point in the last monitoring call. They have previous results on this, but I doubt they have produced anything new within this project on that topic yet. I (Yannick) will contact them and ask the status. Leaving in orange for now, will shift to either green or red depending on their response.

Deliverable SB: It's an overview of the project, this was meant to be a storyboard of the final MMR. That's a minor problem, I did not care enough to even bring it up, as there are other concerns. It's an orange, because nobody cares about storyboards.

Deliverable D2: I (Yannick) have a problem with their specifications. The specifications were supposed (according to the proposal) to be based on the task to be addressed (performing rehab). Instead, it's loosely based on whatever else is on the market. That is not right, and they need to show or explain how the specs do allow to address the problem. I told them so and they are expected to edit the deliverable. Orange for now. Will turn to red if they do not make me happy.

Deliverable D7: As mentioned in tKPI#1, it does not feature a patient safety protocol (i.e. steps and precautions taken to guarantee physical integrity of the patient). I want to see it in there, I've asked to get the deliverable completed with it. As for D2, orange for now, red soon.

Dissemination: A lot of item whose justification is overdue, putting them in red as super late. Will ask them for justifications.

General comments: I (Yannick) am concerned that they have not really started working yet. Deliverables up to now have been subpar, waiting for updates to them. Justifications missing

for a number of dissemination items. They were shaky on justifications of poor deliverables. We'll have a better understanding of what they have been doing soon, as they have a system design document due early April. We'll see if they've done anything. Not holding my breath. I believe it should be an orange in overall assessment (up to Christophe/CEA), as specs are poorly justified and safety not properly treated. If they fix those two aspects and the design document is good, then green. If not, that's a big fat red. **Need to keep a close eye**. Iñaki made a good impression, but Nicolas was deflecting and proved unable to provide straight answers to most questions. INSTEAD (industrial partner) was not represented during the call.

HyQ-REAL

tKPIs	#1 Characterization of Integrated Servo Actuator (ISA) on bench test	#2 Hybrid power supply being able to give power autonomy (bench test)	#3 Increased robot energy efficiency due to the integrated Servo actuators	#4 Overall weight reduction due to ISA (including less cooling, smaller pump thanks to higher efficiency)	#5 Increase in operating range (hours of operation) due to the hybrid power supply
	🟠	🔵	🔵	🔵	🔵

iKPIs	#1 Patent application	#2 Number of jobs created	#3 Number of spinoffs originating from the project	#4 Number of products originating from the project	#5 Number of companies that are starting to work with Moog to adapt ISA technology for their own products	#6 TRL increase of ISA
	🔵	🔵	🔵	🔵	🔵	🔵

Mile-stones	#1 Concept figures of new engine powered hydraulic system	#2 Self-righting in simulation	#3 Bench test report covering operation, performance and efficiency of hyd. system	#4 Robot power-autonomy ruggedization and self-righting of robot	#5 Joystick-Controlled robot with 25kg payload moving in operational environment
	🟢	🟢	🔵	🔵	🔵

Delivera-bles	#D1.1 Different views of CAD model of updated HyQ2Max robot with overview of plan of ruggedization	#D2.1 Different views of CAD model of the new engine-powered hydraulic system mounted inside the robot torso model.	#D3.1 Simulation video showing self-righting from different starting postures	#D2.0 Requirements of the gasoline power supply in context of the project.	#D1.2 Water and dust proofing of robot limbs
	🟢	🟢	🟢	🟠	🔵
	#D2.2 Combustion engine-powered hydraulic system bench test report, efficiency analysis	#D3.2 Joystick based control of the robot with the new ISA. Robot speed and direction can be adjusted by the joystick.	#D1.3 List of improvements gain in ISA A complete list of what has been improved: weight, design, energy efficiency, strength, force etc	#D2.3 Combustion engine-powered hydraulic system prototype finished and delivered to IIT	#D1.4 Ruggedized and power-autonomous robot demonstration during RIF Pisa visit

	🔵	🔵	🔵	🔵	🔵
	#SB Story Board	#D4.1 Exploitation plan with market analysis	#RIF Report on RIF visit outcome	#D3.3 Final demonstration of power-autonomous robot with joystick control showing self-righting and 25kg load carrying	#MMR Multi-Media Report
	🔵	🔵	🔵	🔵	🔵

Dissemi-nation	#1 Website of experiment	#2 Press release- I	#3 Press release- II	#4 Multi media report	#5 Networking w associations (Italian Civil Protection)
	🟢	🔵	🔵	🔵	🔵
	#6 Networking w associations (Corpo Nazionale dei Vigili del Fuoco)	#7 Networking w associations (the Nuclear Institute)	#8 Attendance to trade fairs (Innorobo and Hannover Messe)	#9 Attendance to scientific conferences(ICRA 2017)	#10 Attendance to scientific conferences (IROS 2017)
	🔵	🟢	🔵	🔵	🔵
	#11 Create posters/leaflets/roll-ups	#12 Social Media- Twitter	#13 Scientific papers (IEEE IROS or ICRA conference)		
	🟠	🟢	🔵		

Technical KPI #1: MOOG has had problems in integrating the ISA, milestone delayed to this summer with the monitoring team's approval (not a big deal, we checked impact on other deadlines and it is minor). Orange for now.

Deliverable D2.0: Delayed, at the initiative of the monitoring team, which requested additional details be included in the deliverable in question, in particular regarding design of the on board power system. Orange in the meantime.

Dissemination #11: I need to track down their files, they claim they did it, I have nothing to verify. I'm in contact with them (Yannick). Orange.

General comments: HyQ-REAL has been difficult. The problem is, they sold a project in which they would integrate a gas engine on a quadruped (lots of work, complicated), got it funded, then decided they would get rid of the engine and use batteries instead (a lot less work, much simpler). That was not acceptable, and we have negotiated an

amendment of the project with them, obtaining additional work on aspects related to the hydraulic system for example, to compensate for the fewer person months spent on power system design. General monitoring light went from red to currently orange. Still negotiating the modification of the KPI document. Overall, Claudio is good people and committed, there is no doubt he will (work hard to try his best to) deliver. Mike (MOOG) is slippery, non-committed, difficult, opinionated, and thinks he can talk himself out of any situation. Or so is the impression he made during the negotiation process. The project should come out good, **but**, we will follow it closely, in particular to make sure MOOG delivers.

INJEROBOT

tKPIs	#1 Grip operation Accuracy	#2 Correct cut	#3 Success of clipping operation and correct graft	#4 Robot arm speed	#5 Time/cycle
	🔵	🔵	🔵	🔵	🔵
	#6 Correct positioning of grafted plants in output tray	#7 Quality control calibration	#8 Number of grafted plants/ hour	#9 Survival rate of grafted plants	#10 Stakeholders involvement
	🔵	🔵	🔵	🔵	🔵

iKPIs	#1 System ability for grafting horticultural species	#2 Economic viability of solution	#3 Reduction of labour Cost of grafted plant	#4 Number of implementations
	🔵	🔵	🔵	🔵

Mile-stones	#1 Starting solution	#2 All needed components acquired	#3 Prototype components developed	#4 Total integration completed	#5 System test done
	🟢	🔴	🔵	🔵	🔵

Delivera-bles	#D1 Report on the state of the art	#D2 Report on requirements and specification of the prototype components	#D3 Report of conceptual design of the system	#D4 Report on metrics defined	#D5 Plans and photos of the gripper developed	#D6 Plans and photos of the auxiliary devices (cutting, clipping and others)
	🟢	🟢	🟢	🟢	🟢	🔵
	#D7 Software package for ROS-Ind	#D8 Tested solution in TEC facilities	#D9 Report on RIF@Bristol visit outcome	#D10 Results on growing chamber	#D11 Final report	
	🔵	🔵	🔵	🔵	🔵	

Dissemi-nation	#1 Website of experiment	#2 Press release-I	#3 Press releases-II	#4 Press releases-III	#5 Multi media report
	🟢	🟢	🔵	🔵	🔵
	#6 Networking associations(CO EXPHAL)	#7 Networking associations (Federación de agricultores Viveristas de)	#8 Networking associations (ASEHOR)	#9 Networking associations(SOCIEDAD ESPAÑOLA DE AGROINGENIER IA)	#10 Attendance to trade fairs (AUTOMATICA 2018)
	🟢	🟢	🟢	🟢	🔵
	#11 Attendance to trade fairs (Infoagro Exhibition)	#12 Attendance to scientific conferences (IROS 2018)	#13 Attendance to scientific conferences (ROSCON 2018)	#14 Other publications (e.g. newsletter, …)	
	🔵	🔵	🔵	🔵	

Milestone #2 "All needed components acquired": At the end of this periodic period (March 2017), the experimenters have not reached the milestones yet (RED). The Experiments said that the milestones was badly placed in the original DoW, since they are still designing the final gripper and auxiliary devices (according to the Gantt chart the design phase will end in June 2017). Both moderators agreed to suggest them to mark the milestone as ok as soon as they will reach it, but mention the change in the original plan in the corresponding periodic report and in the final report, justifying the change.

Synthetic summary

Injerobot is progressing very well and it is on time with the schedule (except for the Milestone #2, as already described before). The experimenters are almost always on time with the upload of the required documents and are responsive to the requests made by the moderators. They were asked to improve D2 with further description of technical feasibility and functionality and with further specifications and they upload a new version in the requested time fulfilling the missing parts. They should be able to go the RIF in Bristol in the next months (a period in July-August) to test the developed technology.

Keraal

tKPIs	#1 Number of exercises in rehabilitation identified as coachable by the robot for low back pain.	#2 Exercises implemented by the robot for demonstration	#3 Detection rate of wrong exercise or movements	#4 Percentage of patients needing the exercises coached by the robot
	🔵	🔵	🔵	🔵

iKPIs	#1 Number of jobs created	#2 Potential profit per sale	#3 Time saved from doctors	#4 Interest from therapists
	🔵	🔵	🔵	🔵
	#5 Better healthcare for patients	#6 Sales of Poppy	#7 Application to other fields	
	🔵	🔵	🔵	

Milesto nes	#1 "Kick--off" meeting	#2 Choice of a scenario	#3 Delivery of a anthropomorphic robot	#4 Intelligent tutoring algorithm	#5 Functional robot coach
	🟢	🟢	🟢	🔵	🔵

Delivera - bles	#D1.1 Website	#D2.1 Report on the Specifications of Exercises, Robot Platform and the Human-Robot Interaction	#D1.2 Ethics committee approval	#D3.1 Anthropomorphic Robot Platform Adapted to Rehabilitation	#D4.1 Demonstrator of the HRI	#D5.1 Demonstrator of the ITS
	🟢	🟢	🟠	🟢	🔵	🔵
	#D6.1 Demonstrator of a Functional Robot Coach	#D7.1 Evaluation Report	#D8.1 Business Model Report	#FR Final Report	#SB Story Board	#MMR Multi-Media Report
	🔵	🔵	🔵	🔵	🔵	🔵

Dissemi-nation	#1 Website of experiment	#2 Press releases-I	#3 Press releases-II	#4 Press releases-III	#5 Press releases-IV
	🟢	🔵	🟢	🔵	🔵
	#6 Press releases-V	#7 Press releases-VI	#8 Multi media report	#9 Networking w associations - Ordre des kinés	#10 Networking w associations- 3th european symposium "Silver économie & Habitat"
	🔵	🟢	🔵	🔵	🟢
	#11 Networking w associations- Pole Images & Réseaux-Technoférence	#12 Attendance to trade fairs - INNOROBO	#13 Attendance to trade fairs- Medica 2018	#14 Attendance to scientific conferences-ACCAS 2016	#15 Attendance to scientific conferences-CogRob2016 at IEEE IROS 2016
	🟢	🟢	🔵	🟢	🟢
	#16 Attendance to scientific conferences-ISPRM 2018	#17 Create posters/leaflets/roll-ups - for Innorobo	#18 Create posters/leaflets/roll-ups - for Medica	#19 Publications in scientific magazines-IEEE	#20 Newsletter- blog from IMT
	🔵	🟢	🔵	🔵	🔵

General Comment

D2.1, D3.1, and D4.1 derived with technical details. Provided information was understandable but its seems experimenters avoid to provide more details due to unpublished work. Although moderators tried to ask them for more details, they avoided to provide. We have had also monitoring calls in December to understand the ongoing activities and introduce each other. They assessed themselves orange for D1.2 even after 8 months, ethical approval is pending. Moderators also assessed them as orange but it would be turn red if moderators do not listen any news on ethical approval at the end of May 2017. In general project is on track.

Deliverables

#D1.1 Website was delivered on time. URL was uploaded in the comments. (http://keraal.enstb.org/) (Green)

#D1.2 Ethics committee approval
Delay in the preparation of the documents for the ethical approval due to a o huge documentation involved. The ethical approval is still pending. They did not provided any clear reason why it is delay. Moderator often try to push them to provide more detail but every time same answer "Request sent to Ethical committee".

Ehtical approval request sent to Central Hospitalier Regional Universitaire for the PROTOCOL OF RESEARCH and Robotic Patient Coach (Orange).

D2.1 and D3.1 definition of scenarios and hardware modifications was delivered on time. Often pushed them to provide more technical details. In general, provided information is understandable (Green).

Dissemination Milestones
Link requested for Create for Innorobo event
Attendance to trade fairs - INNOROBO to present the Kerall Project
Experimenters attended scientific conferences:
- CogRob2016 at IEEE IROS 2016
- ACCAS 2016

Networking activities with associations:
- 3th european symposium "Silver économie & Habitat"

Press Release of Keraal Project on track

Synthetic summary
The overall project is on track. No major problem in deliverables and Dissemination milestones. Moderators often pushed experimenters to provide more technical details. About ethical approval issue, it is not clear to moderators why they are delaying this process. The experimenters tried to provide relevant information but still not much clear about ethical approval. Progress is on track with the expected deadlines, the Experimenters have been testing the technology with all rehabilitation exercises. The provided link to demonstrate exercises is not working. Moderators are in contact with them, overall the results are encouraging.

MAX ES

tKPIs	#1 Position accuracy while docking	#2 Indoor accuracy	#3 Outdoor accuracy
	🔵	🔵	🔵

iKPIs	#1 Costs reduction	#2 Increase in productivity	#3 Further interests
	🔵	🔵	🔵

Mile-stones	#1 Preliminary design review	#2 Pre-Integration Review	#3 Pre-trail review	#4 Post-campaign review
	🔴	🔵	🔵	🔵

Delivera-bles	#2 (RIF) Report on RIF replaced by RTA prototype presentation report	#3 (D1.1) Use Cases	#1 (SB) Story Board	#4 (D2.1) System Specification	# 5 (D3.1) Navigation Module
	🟢	🔴	🟠	🟠	🔵
	#6 (D3.2) Test report for Navigation Module	# 7 (D4.1) Safety Module	# 8 (D4.2) Test report for safety module	# 9 (D6.1) Docking and Handling module	# 10 (D6.2) Test report for Docking and Handling module
	🔵	🔵	🔵	🔵	🔵
	# 11 (D7.1) MAX Robot with all modules	# 12 (D7.2) Test report for integrated system	# 13 (D5.1) Test report for Numerical Safety validation	# 14 (D8.1) Final test campaign report	# 15 (D8.2) Dissemination plan
	🔵	🔵	🔵	🔵	🔵
	# 16(MMR) Multi-Media Report				
	🔵				

Dissemi-nation	#1 Website of experiment	#2 Press releases- I	#3 Press releases- II	#4 Multi media report	#5 Networking w associations- I	#6 Networking w associations - II	#7 Networking w associations- III
	🔵	🔵	🔵	🔵	🟢	🔵	🔵
	#8 Attendance to trade fairs- Automatica	#9 Attendance to scientific conferences - AUTONOMOUS SYSTEM WORLD CONFERENCE	#10 organisation of events - Journées de l'industrie at Dunkirk	#11 social media- Youtube			
	🔵	🔵	🔵	🔵			

Milestone #1: Title is misleading, milestone not about design but about use case and evaluation scenario definition. A short document was produced. It is woefully shallow and insufficient. They were told to provide additional details in the last monitoring call. Red, shifting to green if they fix it.

Deliverable SB: Not a storyboard, no one cares. Orange.

Deliverable D1.1 use cases: See comments about milestone #1, use case description is no good, needs a lot more detail. Red. They've been told to fix it.

Deliverable D2.1 specs: The document is titled "functional analysis," it does not provide a functional analysis but rather a short system functions description. It does not provide (quantify) any specifications in terms of expected or necessary performance for the different functions. I (Yannick) was expecting numbers characterizing goal positioning accuracy at the very least, as navigation is the core problem treated, but also numbers for energy autonomy, locomotion (manoeuvrability, cruise speed), and detection distance of obstacles I have not found any of that in there. Will get in touch with them to let them know what the expectations are. Orange for now.

General comments: Again, worried they have not started actual work yet. No technical person present during the call, only managers, completely unable to discuss even very simple technical aspects, e.g. sensors considered for inclusion on board, or type of navigation algorithm used. They have been made aware they need to update their use case with some details, we will let them know they similarly need to provide actual specs. They also were made aware they needed to have technical people for the next monitoring call to be able to actually have some sort of technical discussion. The last monitoring call did not allow to assess technical progress on any level. General status is a generous green for now. Could rapidly shift to orange if

they don't steer the ship back in the right direction. Nicolas (RT) made a good impression in his talk at the last E++ review, and Sylvie (RT) sounded interested and invested in the discussion in the monitoring call. Victorien (ECA) continuously deflected any technical question, claiming no technical knowledge whatsoever (which is questionable, even for a business developer kind of profile, for a robotics SME such as ECA; I know people that work and have worked there, they all have some technical background).

RADIOROSO

tKPIs	#1 Average single item sorting time (grasping, classification, separation from heap, measurement)	#2 Sorting error for compressible/rigid items.	#3 Percentage of wrongly detection of item radioactivity level.
	🔵	🔵	🔵

iKPIs	#1 Production of a new radioactivity-proof gripper (possible product)	#2 Reduction of cost of sorting procedure	#3 Improved health, safety and quality of work of personnel	#4 Attract interest of possible stakeholders in RadioRoSo technology	#5 Commercial viability of RadioRoSo results
	🟡	🔵	🟢	🔵	🔵

Mile-stones	#1 Demonstration of Scenario A with CloPeMa gripper	#2 Demonstration of Scenario A with RadioRoSo gripper	#3 Demonstration of the full-scale scenario B
	🟡	🔵	🔵

Delivera-bles	#SB Story Board	#D1.1 Detailed Experiment Specification and Evaluation Methodology	#D2.1 Gripper detailed design and interface specifications	#D5.1 Phase 1 experiment report	#D5.2 Phase 2 experiment report	#MMR Experiment Multimedia Report	#D5.3 Experiment final report
	🟢	🟢	🟡	🟡	🔵	🔵	🔵

Dissemi-Nation	#1 Website of experiment	#2 Press release-I	#3 Press release-II	#4 Multi media report	#5 Networking w associations
	🔴	🔴	🔵	🔵	🔵
	#6 Attendance to trade fairs (Innorobo 2017)	#7 Attendance to trade fairs (Automatica 2018)	#8 Attendance to scientific conferences	#9 Organisation of events	#10 Organisation of events
	🔵	🔵	🔵	🔴	🔵

IkPI
#1 the production of a gripper is not finished yet (YELLOW).

Milestone
#1 Demonstration of Scenario A with CloPeMa gripper (YELLOW).
The Experimenters commented that progresses are reported in D5.1 but they uploaded this deliverable with 20 days of delay. The deliverable shows a large deviation in the scope of the project.

Deliverables
#D2.1 Gripper detailed design and interface specifications (YELLOW).
They uploaded the deliverables with 20 days of delay but it was granted. The content was fine. Now they are focusing on the robot.
#D5.1 Phase 1 experiment report (YELLOW).
They uploaded the deliverables with 17 days of delay but it was granted.

Dissemination
The experimenters didn't comment #1, #2, #9 on the echord++ portal (RED).
#1 Website of experiment: The RadioRoSo website doesn't have ECHORD++ LOGO
#2 Press release-I
#9 Organisation of events

Synthetic summary
During the monitoring period 3 they asked for 20 days extension, Antoni granted it. They uploaded the deliverable D2.1 with 20 days of delay and the deliverable D5.1 with 17 days of delay. The contents were fine but the work performed within the RadioRoSo project is gradually shifting away from what was proposed originally.
In particular:
- in the proposal, they talked about the problem of performing classification for different object types, instead, in these 3 monitoring periods they considered only one specific type of object: the springs. This implies a reduction in scope of the project. Furthermore, among the different types of objects that were to be classified and manipulated, the proposal emphasized soft, deformable objects, putting forward the consortium's experience on that topic, and motivating that aspect by the necessity to treat protection outfits of workers having to operate in irradiated environments (gloves, pants, etc.). It now appears that such types of objects are not being addressed in the work performed.
- The proposal emphasizes dual-arm manipulation, whereas it appears that the experiment shows to limit work to single-arm manipulation.
- The proposal talks at length of tactile feedback, and clearly motivates the need of developing a new gripper but it is unclear how they designed gripper will allow for tactile feedback.
- The proposal explicitly mentions the necessity to measure radioactivity of the items being manipulated. The outcome of a telco with the experimenters has highlighted that they would not deal with radioactive materials within the project, but that the prototype would be explicitly designed to account for constraints stemming from a radioactive environment (in particular in terms of protection of electronics).

Yannick sent a mail with a request of information regarding the experiment deviations.

The experimenters gave an explanation about some of these deviations:

1. When they had the kick-off meeting the end user Ansaldo NES explained in detail the use cases and that radioactive spring sorting is where our experiment could have the most impact. It is the task that is most demanding for humans and most doable by robots. Even a speedup of 20% will be very significant for them. For these reasons they decided to focus on this at least for the first round of the experiments. Nevertheless, they already work with the big picture in mind (e.g. arbitrary objects, soft objects). The design of the gripper will be able to grasp both the large arbitrary objects and springs. The prototype will be available in a 1-2 months.

2. Regarding radioactivity handling, they explained that there are available solutions in the market for protecting robots and there are also solutions for localizing radioactivity sources at different levels of granularity (and cost). The only new hardware will be the gripper and it has to be designed to account for these constraints, in fact, for this reason a fluid actuation mechanism has been chosen which allows for placing the electronics far from the gripper in a protected environment.

The next monitoring call for RadioRoSo was scheduled the 26 of May.

SAFERUN

tKPIs	#1 Handling of different weights and different types of weights (E80 plant)	#2 Test experiment No. 1 executed in a Matlab Environment	#3 Test experiment no. 2 executed in a Matlab Environment	#4 Test experiment no. 3 executed in a Matlab Environment	#5 Test experiment no. 4 executed in a Matlab Environment	#6 Test experiment No.5 executed in a Matlab Environment
	🔵	🟢	🟢	🟢	🟢	🟢
	#7 Test experiment No. 1 executed in the E80 plant with the prototype vehicle	#8 Test experiment No. 2 executed in the E80 plant with the prototype vehicle	#9 Test experiment No. 3 executed in the E80 plant with the prototype vehicle	#10 Test experiment No. 4 executed in the E80 plant with the prototype vehicle	#11 Test experiment No.5 executed in the PG plant with the prototype vehicle	#12 Extensive tests considering real operation conditions (PG plant)
	🟢	🔵	🔵	🟢	🔵	🔵

iKPIs	#1 Number of jobs created	#2 Provision of a novel velocity controller which adapts its speed based on the curvature and on the safety areas, instead of using constant velocity	#3 Number of PhD Positions	#4 Increase in TRLs (3 to 4)	#5 Increase in TRLs (4 to 5)	#6 Increase in TRLs (5 to 6)
	🟢	🔵	🟢	🟢	🔵	🔵

Mile-stones	#1 Project specifications	#2 The safe and optimal velocity planner is tested in a Matlab environment	#3 The safe and optimal velocity planner is ported in C and tested in the E80 environment	#4 The hardware of the experimental AGVs is ready	#5 The safe and optimal velocity planner is adapted to the planning scheme used in the E80 plants
	🟠	🟢	🟢	🟢	🟢
	#6 Integration and debugging phase in the E80 demo plant	#7 Integration and debugging phase in the PG plant	#8 The PG plant is ready for the extensive test phase	#9 The overall system is extensively tested in the PG plant	
	🔵	🔵	🔵	🔵	

Delivera-bles	#SR Specification Report	#D4.1 Technical Report on the Matlab implementation of the planner and corresponding comparison tests	#D2.1 Technical report	#D2.2 Prototype LGVs ready at E80 and PG	#D4.2 Technical Report on the C implementation of the planner
	🟠	🟢	🟢	🟢	🟢
	#D3.1 Multi-M11edia Report showing the first movements of the E80 prototype vehicle	#D4.3 Technical Report concerning the implementation of the planner on the E80 vehicle and corresponding comparison tests	#D3.2 Multi-Media Report showing the first tests in the E80 plant	#D4.4 Technical Report concerning the implementation of the planner on the PG vehicle and first extensive tests on the E80 vehicle	#D3.3 Multi-Media Report showing the first tests in the PG plant
	🟢	🔵	🔵	🔵	🔵
	#D4.5 Technical Report concerning the first tests on the PG vehicle	#D3.4 Multi-Media Report some comparison tests in the PG plant	#D3.5 Technical Report concerning a set of variable load tests executed with the E80 prototype	#D4.6 Technical Report concerning a complete set of comparison tests executed on the PG vehicle	#D5.1 Experiment demonstrator ready at PG
	🔵	🔵	🔵	🔵	🔵
	#SB Story Board	#MMR Multi-Media Report	#RIF Report on end-user tests outcomes		
	🔵	🔵	🔵		

Dissemi-nation	#1 Website of experiment	#2 Press releases - I	#3 Press release-II	#4 Press release-III	#5 Multi media report
	🟢	🟠	🔵	🔵	🟢
	#6 Multi media report	#7 Multi media report	#8 Multi media report	#9 Networking associations (ANIPLA)	#10 Attendance to trade fairs (sps ipc drives)
	🔵	🔵	🔵	🔵	🔵
	#11 Attendance to trade fairs (Automatica)	#12 Attendance to trade fairs (Tissue World)	#13 Attendance to trade fairs (Interpack)	#14 Attendance to trade fairs (Drinktec)	#15 Attendance to trade fairs (MIAC)

	#16 Attendance to scientific conferences (IROS 2017)	#17 Attendance to scientific conferences (ICRA 2018)	#18 Create posters/leaflets/roll-ups	#19 Social Media (Facebook)	#20 Scientific publications
	●	●	●	●	●
	●	●	●	●	●

Milestone #1 and Deliverable #SR: The Experimenters have not technically provided specifications. Instead, they have evaluated the level of performance of the current planning solution in both the E80 test environment and the PG plant. That level of performance will serve as a comparison to assess merit of the proposed approach. It's OK and useful overall, but not actual specifications (orange).

Press release #2: I need to track down the text of the press release. I'm in contact with them about it. Orange for now, but that's kind of on me (Yannick).

General comments: D4.1, D2.1, and D4.2 were shallow and lacked technical details, to a point that it was difficult to actually understand what was going on in the project. We've had monitoring calls in January and March. I (Yannick) requested a lot of additional details in January, which they have been rather good in providing. In particular, providing additional details in the overall system architecture, which parts of the planner is centralized and which is decentralized, and what are the steps in designing the planned velocity profiles. Description of the planner itself has not been included in any deliverable (so far), to my great surprise, as it is central to hat they are doing. They however provided me with an early copy of a conference paper they are submitting to IROS17, discussing some of the aspects, which I appreciate. This paper is to be included as an annex to the upcoming report due April 1rst. Progress is good so far, some of the algorithm developments are a little too heuristic for me but it's what they proposed so that's fine. They also have been testing experimentally very early, which is a healthy sign and encouraging. **Overall progress** traffic lights are green all the way up to now (NB: I'm having a bug and can't assign a traffic light for monitoring period 4 somehow).

SAGA

tKPIs	#1 on board processing	#2 Usability of the system	#3 Performance in autonomous motion planning	#4 Performance in individual weed detection
	🔵	🔵	🟢	🔵
	#5 Ability of coordinated motion behaviour	#6 Field coverage ability	#7 Scalability	#8 Collective performance in weed detection
	🔵	🟢	🔵	🔵

iKPIs	#1 Reduce weed control costs	#2 definition of a business model	#3 Involvement of stakeholders	#4 Collaborations with end users	#5 Portability to other crop/weed	#6 Fundraising
	🔵	🔵	🔵	🟢	🔵	🔵

Mile-stones	#1 UAV prototype and low-level control	#2 UAV prototype with individual-level control	#3 UAV swarm with collective-level control	#4 Final demonstration
	🟢	🟢	🔵	🔵

Delivera-bles	#1 SB	#D1 Methods and guidelines	#D2 Hardware and control design	#MMR 1 Video of UAV with motion planning	#MMR 2 Video of collision avoidance sequence	#MMR 4 interactive simulations
	🟢	🟢	🟢	🟠	🔵	🔵
	#D3 SAGA prototype	#MMR 3 video of individual weed recognition	#MMR 5 Multimedia report	#RIF report of RIF visit	#D4 Final demonstration	
	🔵	🔵	🔵	🔵	🔵	

Dissemi-nation	#1 Website of Experiment	#2 Press release-I	#3 Press release -II	#4 Multi-Media Report	#5 Networking associations (ZLTO)	#6 Networking associations (Confagricoltura)
	🟢	🟢	🔵	🔵	🟡	🟢
	#7 Networking associations (IFOAM EU Group)	#8 Attendance to trade fairs (Maker faire)	#9 Attendance to trade fairs (TUS Expo)	#10 Attendance to trade fairs (Automatica 2018)	#11 Attendance to trade fairs (Agritechnica)	#12 Attendance to trade fairs (Precisiebeurs)
	🔵	🟢	🟢	🔵	🔵	🟢
	#13 Attendance to trade fairs (Vision, Robotics & Mechatronics)	#14 Attendance to scientific conferences (ICRA or IROS 2018)	#15 Attendance to scientific conferences (DARS or ANTS 2018)	#16 Attendance to scientific conferences (EurAgEng)	#17 Organisation of events (IEEE TC AgRA Webinar)	#18 Organisation of events (Field Robot Event, Harper Adams University)
	🔵	🔵	🔵	🔵	🟡	🔵
	#19 Create posters/leaflets/roll-ups	#20 Social media (Twitter account)	#21 Scientifc publications (Robotics)	#22 Scientific publications (Precision Farming)		
	🟢	🟢	🔵	🔵		

General Comments: The deliverables #D1 and #D2 are sufficiently detailed and clear. The dissemination is satisfactory and the request to postpone #17 (AgRA Webinar) is reasonable. The finalization of the final prototypes has some delays, which is understandable in this type of project. Video resources such as the #MMR1 and the forthcoming #MMR2 should be provided in form of computer simulations as long as the hardware is not ready and later upgraded.

Dissemination:
#5 Networking associations (ZLTO): no written report has been submitted (yellow).
#17 Organisation of events (IEEE TC AgRA Webinar): no information were provided. Experiments were proposed to postpone to a later time towards the end of the project (yellow).

Deliverables:
#MMR 1 Video of UAV with motion planning: The video shows a flying drone. There is no evidence of motion planning (yellow).

Synthetic summary
The progress of the project is adequate and satisfactory. There are delays in the constructions of the drone prototypes. However, such delays are reasonable. The technical deliverables are detailed and robust. The dissemination activity is also suitable. The period monitoring reports had some delays that have been addressed by the experimenters. The overall progress is encouraging.

WIRES

tKPIs	#1 Time to complete single wiring(involving one cable only in simplified conditions)	#2 Time to complete full task	#3 Gripper simulation	#4 Success rate in inserting wiring terminals
	🔵	🟢	🟢	🔵
	#5 Detection of wires	#6 Time spent to execute the connection/Overall wiring time (wiring efficiency)	#7 Manufacturing efficiency	
	🔵	🔵	🔵	

iKPIs	#1 Patent application	#2 Industrial Collaborations	#3 Cross domain application	#4 Job Creation
	🔵	🔵	🔵	🔵

Mile-stones	#1 Task execution	#2 Sensory system validation	#3 End-effector validation	#4 System integration	#5 Experimental evaluation results
	🟢	🔵	🔵	🔵	🔵

Delivera-bles	#D1 Application Requirements report	#D2 Simulation Environment	#RIF1 Report on RIF visit outcome	#D3 Sensory System Prototype	#D4 End-effector prototype	#D5 Task planning and execution
	🟢	🟢	🔵	🔵	🔵	🔵
	#D6 Manipulation Control	#D7 System Integration	#RIF2 Report on RIF visit outcome	#SB Story Board	#MMR Multi-Media Report	
	🔵	🔵	🔵	🔵	🔵	

Dissemi-nation	#1 Website of experiment	#2 press release - I	#3 press release - II	#4 press release - III	#5 multi media report	#6 Networking associations (unindustria)
	🟢	🟢	🔵	🔵	🔵	🟢
	#7 Networking associations (capiel)	#8 Networking associations (anie)	#9 Attendance to tradefairs (Futuro Remoto)	#10 Attendance to tradefairs (SPS IPC Drives Nuremberg)	#11 attendance to scientific conferences (ICRA)	#12 Attendance to scientific conference (AIM)
	🟠	🟠	🔵	🔵	🔵	🔵
	#13 attendance to scientific conference (IROS)	#14 create posters/leaflets/roll-ups	#15 Social media (facebook)	#16 social media (youtube)	#17 publication in scientific magazine (IEEE-TRO)	#18 publication in scientific magazine (IEEE-TMECH)
	🔵	🟢	🟢	🔵	🔵	🔵
	#19 publication in scientific magazine (Automatica)	#20 publication in scientific magazine (Mechatronics)	#21 publication in scientific magazine (Sensors and Actuators A: Physical)			
	🔵	🔵	🔵			

Dissemination:
#7 Networking associations (capiel): The CAPIEL association has been contacted, experimenters are waiting their reply (yellow).
#8 Networking associations (anie): The ANIE association has been contacted, experimenters are waiting their reply (yellow).

Synthetic summary
Solid progress shown by the Experiment so far. No problems on tKPIs or iKPIs. The Experimenters have always shared all the relevant information with the moderating team. Progress is on track with the schedule, the Experimenters have designed and tested the sensors and platform realized and all the information have been efficiently shared. When asked, Experimenters added videos and descriptions of their current work. Technical progress is good.
Regarding the Dissemination, there is a delay of the CAPIEL and ANIE associations.