



The European Coordination Hub for Open Robotics Development

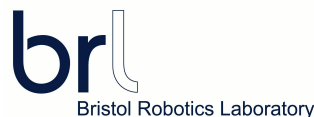
3rd Review Meeting – Work Package 5

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Lessons learned



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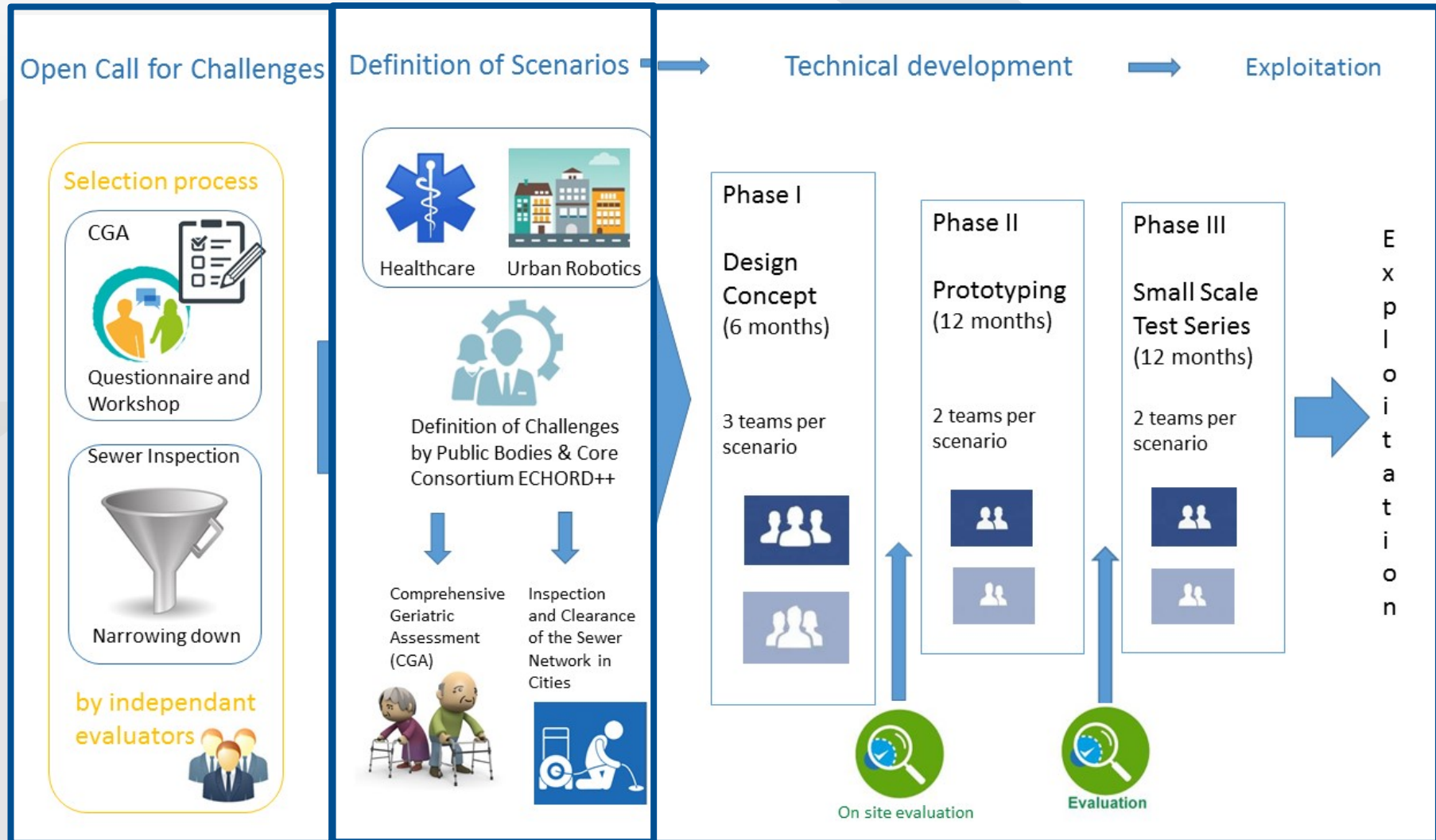
- **Close collaboration** of public bodies and technical partners is key from the beginning, even before the technology development starts (Phase 0)
- The **Challenge Brief** must be very precise and cover the entire spectrum of skills required to deliver a technology tailor-made to the needs of the public sector
- **PDTI is highly interdisciplinary** – and all disciplines need to be present in all phases (Challenge Brief, evaluators, technology development teams and moderators)
- **Phase I** should require the development of a **first prototype** instead of only a solution design

Issues (to be) addressed

- Innovative procurement has a **huge leverage effect**, but the obligation to provide alternative solutions at the end can be boon and bane at the same time (sponsor failures)
- **Governance** is extremely important to avoid risks (Conflict of Interest) as reviews are face-to-face
- **(Unjustified) redresses** can delay the entire process for a long time



The PDTI process in a nutshell



Objectives

Overall:

Development of *robotics technology for the public service* in two areas: Urban Robotics (sewer) and healthcare (Comprehensive Geriatric Assessment) with 1 robust prototypes at the end of Phase II and a small-scale test series at the end of Phase III.

Focus of the period:

To efficiently and successfully manage Phase I of the technology development process with the selection of four strong teams (two for each application area) and four prototypes at the end (instead of just outlining the design)



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Main achievements

- Unforeseen incidents addressed by a **swift and effective adaptation of the process**
- **Tight collaboration** with public bodies in all phases
- Development of **evaluation matrixes** for for two different scenarios - sewer and CGA – in close collaboration with the public sector
- **Strong four teams** selected after completion of Phase I
- **Kick-off meetings** for Urban Robotics and Healthcare well-perceived



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Deliverables and Milestones

Del. No.	Delivered	comment
D5.3.	Yes	Open Call and selection of RTD consortia
D5.4.	Yes	Phase I: Design Phase – Selection of the two winning teams for Phase II

Overview of tasks for WP 5

- Task 5.1: **Preparatory activities**
- Task 5.2: **Active search** for public bodies
- Task 5.3: **Evaluation and selection** of public bodies
- Task 5.4: **Definition of details** for RTD proposals
- Task 5.5: **Open Call** for RTD proposals
- Task 5.6.: **Evaluation and selection** of proposals
- Task 5.7. **Phase I:** Solution Design and **Phase II:** Prototypes



Task 5.6 Evaluation and selection of RTD proposals

Different starting points for Urban Robotics and Healthcare at the beginning of the reporting period

- Urban Robotics (sewer):
Selection of 3 teams for Phase II finalized in RP2
- Healthcare (CGA):
Selection of 3 teams for Phase II at the beginning of RP 3 due to re-launch of the Open Call for RTD proposals in healthcare)



Impact of the further course of action: NONE!

Task 5.7. Phase I

Different end points for Urban Robotics and Healthcare at the end of the reporting period

ACTIVITIES FOR RESEARCH AND TECHNICAL DEVELOPMENT OF PRE-COMMERCIAL PRODUCTS									
2014 DEC 3rd	2015					2016			
	JAN 15th - MARCH 15th	APRIL 16th	MAY 4th - JUNE 23rd	JULY 14th		JAN 1st - JUN 30th	JUL 7th	JUL 8th	AUG 28 - DEC 6th
Market Consultation Day	Call 1 for RTD Proposals	EXPERT PANEL	Call 2 for RTD Proposals	EXPERT PANEL	Results	PHASE I Solution Design and First Prototype	Final Testing	EXPERT PANEL	Results
									Redress

ACTIVITIES FOR RESEARCH AND TECHNICAL DEVELOPMENT OF PRE-COMMERCIAL PRODUCTS									
2014 NOV 20th	2015					2016			
	JAN15th-FEB28th	MAY 19th				JAN1st	JUN30th	JUL6th-7th	SEP15th
Open Market Consultation INFODAY	Call for RTD Proposals	EXPERT PANEL	Results			PHASE I Solution Design and First Prototype	EXPERT PANEL	Results	Kick-Off PHASE II

Impact: Sewer and CGA decoupled, CGA will not finish within runtime of ECHORD++ if process remains as outlined in Annex I

PDTI Healthcare Kick-Off Meeting

The meeting was held on 17th of February 2016

Project started on 1st of January 2016

- 30 min session - each consortium received individual feedback on their development plan
- Open questions, concerning the deliverables and administrative tasks, were discussed
- Tour of the testing rooms at the end of Phase I
- Private question session with public body



PDTI Healthcare Evaluation Criteria

Overview Deliverables *(disseminated January 2016)*

Deliverable	Name	Submission
1	Specifications after 1 month	After 1 month
2	Specifications after 6 months	After 6 months
3	Idea Resume	After 6 months
4	Specifications Phase II	After 6 months
5	Specifications Phase III	After 6 months
6	Video deliverable	After 6 months
7	Economic Viability	After 6 months
8	Ethics	After 6 months
9	Knowledge collection & End-User Involvement	After 6 months
Test Series: Physical demonstration of the mock-up system		After 6 months

PDTI Healthcare Evaluation Criteria

Evaluation Matrix *(disseminated June 2016)*

Category	Crucial	Essential	Important
General	Human-Robot Interaction	End-User Involvement	Integration with other hospitals
System	-	Weight, Power Supply, Language Interface	Motion tracking
Evaluation and data management	-	Legal and ethical regulations	Analysis of results
Ethics	-	-	Costs for the Public Entity
Economic Viability	Freedom to Operate Analysis	Core Advantages of RTD Consortia's solutions	Business Case
Configuration	-	Calibration	Patient-specific configuration
On-Site Testing	All tests	-	-

PDTI Healthcare Phase I

Collaboration

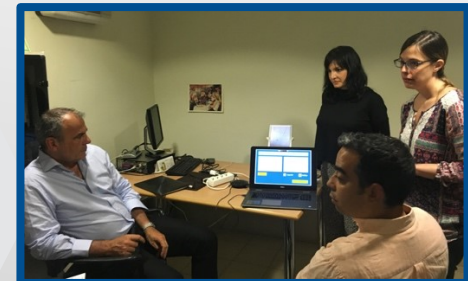
- Ongoing contact with all consortia, but not monitoring
- Intensity of the contact was dependent on the initiative of the consortia
- Public body answered the consortia's questions during phone calls, conference calls and physically meetings at the hospital
- Workshop “End-User Driven Development and Implementation of Healthcare Robots” at RoboBusiness Europe 2016



PDTI Healthcare On-Site Testing

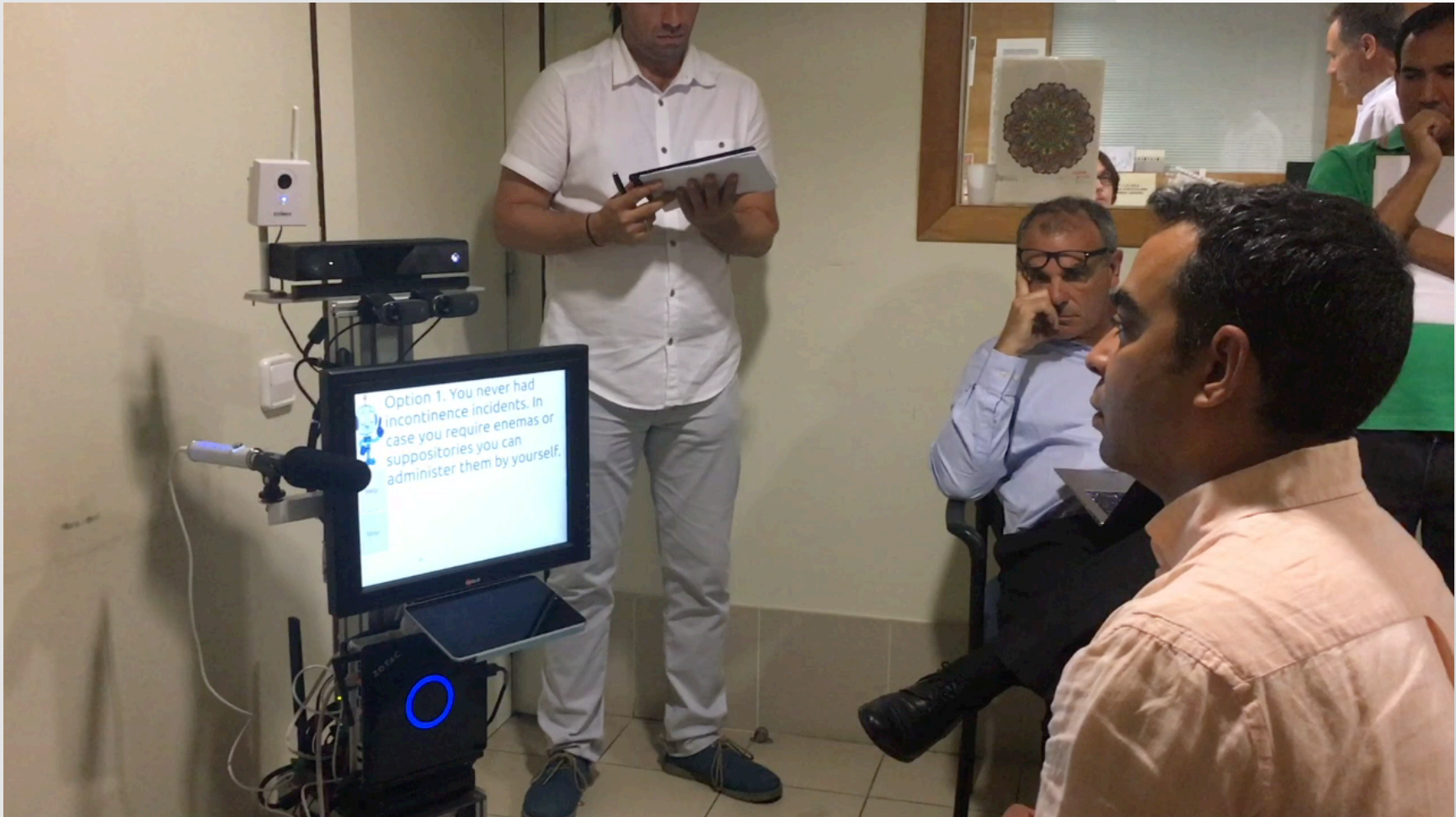
Hospital *Sant Antoni ABAT* in Vilanova i la Geltru - July 6th and 7th, 2016

- Each consortium performed the same test
- After each test sessions, the reviewers had 10 minutes to discuss the performance or ask the consortium questions
- Tests
 - Functional Assessment: 1st test - BARTHEL Test - performed by all consortia.
 - Mental Assessment: 2nd test - MMSE Test - performed in 30 min.
 - Gait Assessment: 3rd test - Get up and Go Test - was tested in an open room to have enough space for the test person to walk



PDTI Healthcare On-Site Testing

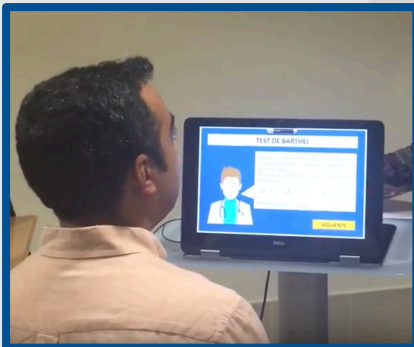
Hospital *Sant Antoni ABAT* in Vilanova i la Geltru - July 6th and 7th, 2016



PDTI Healthcare Panel Meeting

8th of July - AQuAS in Barcelona

- 3 external reviewers: Malcom Fisk, Andreas Müller and Philippe Bidaut
- Reviewers were supported by E++ partners involved in PDTI Healthcare
- ASSESSTRONIC received the highest score from each reviewer & public body
- Discussion: do CLARK and ARNICA solutions show enough potential to compete with ASSESSTRONIC solution?
- CLARK has a platform which is more open to technological changes and possible re-design than ARNICA's platform



PDTI Healthcare Outcome

Selected RTD Consortia

- The two consortia which advanced to Phase II were: CLARK and ASSESSTRONIC
- CLARK needs to add additional partner to consortium
- ActivAgeing Living Lab group
 - Université de Technologie de Troyes (UTT), France
 - User Testing & User Studies
 - Translation of End-User Needs to Technical Requirements





The European Coordination Hub for Open Robotics Development

Thank you!

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Bristol Robotics Laboratory



RUROBOTS
Cognitive Science at Work

