DRs 6.3, 6.7, 6.11: Y3 Dissemination Report

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The present report describes the work carried out during the third project year regarding PAL's *Dissemination* activities. It is the summary of three different WP6 Deliverables: Deliverable 6.3 "Website y3", Deliverable 6.7 "Publications and proceedings report y3" and Deliverable 6.11 "Dissemination events promoted y3".

1 Executive Summary

The current report is intended to be a summary of the work carried out during the third project year in the context of PAL's *Dissemination and Valorisation* workpackage (*WP6*). The goal of the project dissemination is to increase awareness about PAL's innovative role in supporting children with Type 1 Diabetes Mellitus (T1DM) and its ability to generate new ICT healthcare models, tuning the messages to be conveyed on the public to which they're directed. To reach *WP6* main objectives, a defined set of tasks have been undertaken during the project's lifetime by the Consortium, according to specific dissemination channels (for more details please the Y1 Dissemination Report). Here we re-propose the tasks list:

1. Manage the sharing of knowledge among the PAL partners (*Task 6.1, 6.6*);
2. Build and raise awareness on the project outside the Consortium, both on-line (*Task 6.1, 6.7*) and off-line, via active participation in social media, public and on site events (*Task 6.3*) for the project lifetime and beyond;
3. Produce appropriate communication material on the project (*Task 6.1. 6.2, 6.3, 6.4 ,6.5*);
4. Disseminate knowledge, methodology, results and lessons learned in relevant Journals, Conferences and Workshops (*Task 6.4*);
5. Organize demonstrations for healthcare professionals, technology players and industries (*Task 6.2*);
6. Determine the health and economic impact of the PAL's solutions use for the project's stakeholders - e.g.: young patients and their families and healthcare professionals (*Task 6.8*).

In order to tangibly measure the impact of the described work-plan, the *Dissemination Indicators* identified at the beginning of the project, have been monitored over time and reported in order to update the present document, so that they can provide an overlook of the progresses made in *WP6*.

The current *Y3 Dissemination Report* aims at embracing the third release carried out during the project (M36) of three different documents: Deliverable 6.3 "Website Y3", Deliverable 6.7 "Publications and proceedings report Y3" and Deliverable 6.11 "Dissemination events promoted Y3". This choice was made to give a more organic view of the work accomplished in the current timeframe.

The Report is organized as follows: Section 2 recaps the PAL *Dissemination* strategy; Section 3 summarizes the results achieved in the third

project year according the the project roadmap; Section 4 recaps the on-line dissemination channels chosen for the PAL project and updates the stats about them; Section 5 reports an overlook of the project-related publications; Section 6 describes the events organized or attended to disseminate PAL's researches; Section 7 describes the official project's dissemination material; Section 8 provides a track of the partners' internal meetings and communication tools; Section 9 reports an overlook the work undertaken in order to draft the PAL costs and effectiveness analysis in an exploitation perspective; Section 10 ends the document with a description of the next steps to be undertaken.

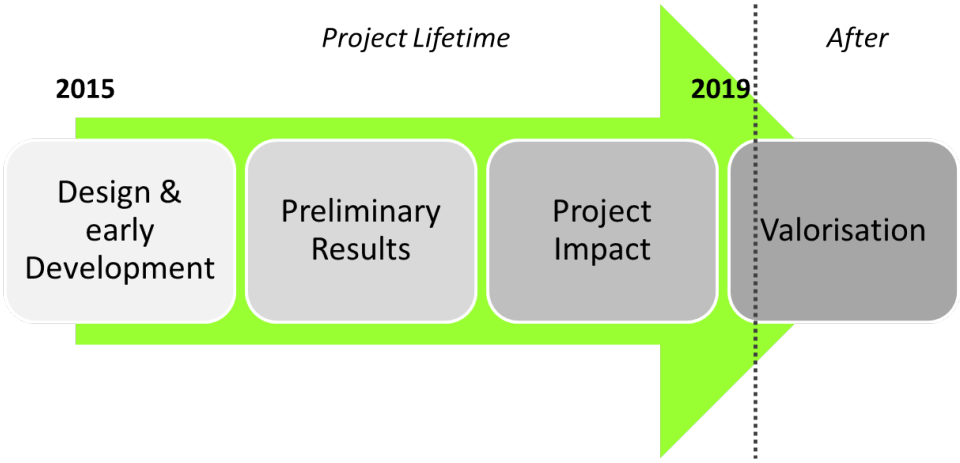

Figure 1: The PAL project Dissemination time line.

2 The role of *Dissemination* in PAL

The main purpose of Work Package 6 is to effectively disseminate to third parties (during the lifespan and also after the end of the project) PAL's existence, research objectives, technologies developed and used, as long as the obtained results and impacts. To this extent, a precise *Dissemination* strategy has been defined, which key steps are summarised in the following section.

2.1 The PAL *Dissemination* strategy

As shown in Figure 1, the plan for the PAL *Dissemination* has been designed, at the beginning of the project, to be articulated in four main stages (for an extensive description of each stage, please refer to Paragraph 2.1 of the *Y1 Dissemination Report*):

- *Stage 1 - Design and early Development*
- *Stage 2 - Preliminary Results*
- *Stage 3 - Project Impact*
- *Stage 4 - Valorisation*

The work carried out in Y3, still falls under the *Preliminary Results* second stage, but some steps have been undertaken in order to plan and ground the *Valorisation* strategy of the expected project *Impacts*, according to the results so far obtained.

3 Tasks, objectives, results

3.1 Y3 work plan

During the third PAL year, on the basis of the insights obtained and lessons learned through the experimental cycles held in Y1 and Y2, the awareness on PAL aims and expectations previously established has been strengthened through a proper and trusted communication of the project's improvements and key results. To this extent, the main fields of intervention for the Y3 Dissemination activities were:

- *Strengthening the PAL community* - updates on the project improvements and new findings were constantly communicated (by the PAL on-line channels or ad hoc dedicated events) to the project end users, who in these years kept on supporting PAL researches, i.e. especially children with T1DM, their families and healthcare professionals. This point contributes to Tasks: "Project website and knowledge management" (T6.1), "Workshops, conferences and other dissemination events organisation" (T6.2) and "Dissemination to general public" (T6.3);

- *Properly communicate the results achieved to the scientific community* - various research works have been extracted by the PAL activities and submitted to the international Academic attention by journals/conference scientific papers, presence at workshops and invited lectures. The work done in this regard was planned to specifically continue in contributing to the "Academic dissemination" task (T6.4);

- *Planning the project Valorisation strategy* - Preliminary researches on the project value proposition, stakeholders and competitors analyses as long as discussions with field experts has been carried out during this year. Moreover, demonstrations or special on site events were held for the healthcare-related stakeholders, in order to start looking for and creating proper partnerships and networking contacts for the future project Valorisation of Impacts. The corresponding tasks are: "Workshops, conferences and other dissemination events organisation" (T6.2), "Dissemination to Healthcare, technological, industrial players and policy makers" (T6.5), "Partner exchange" (T6.6), "Ex-ante impact assessment to establish the costs and benefits of the PAL system" (T6.8).

In the following parts of the current *Dissemination Report*, the main activities carried out to tackle these objectives and the related achievements are reported, divided depending on their nature and main aim.

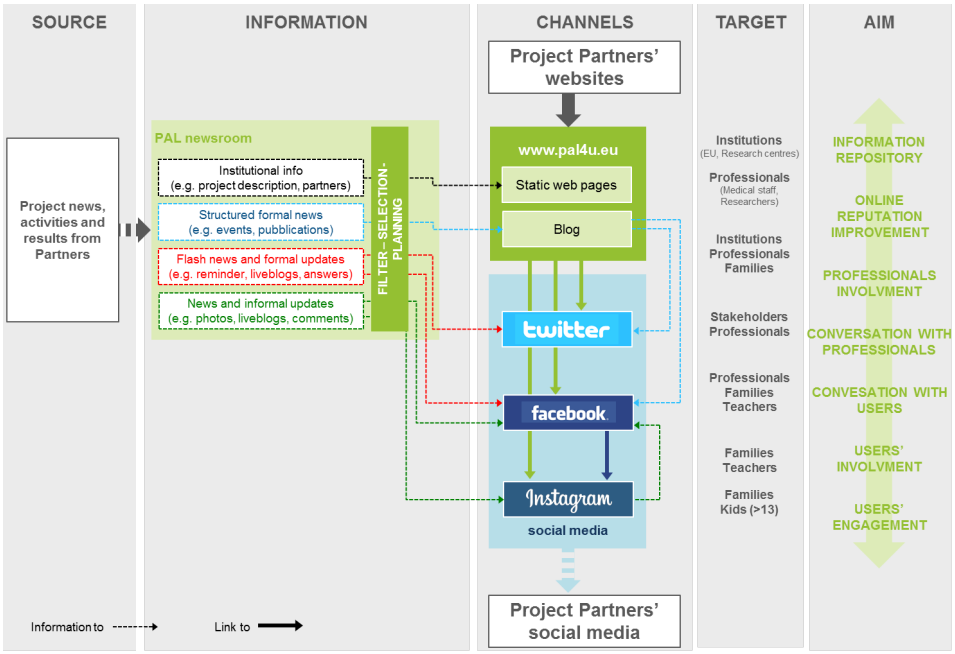

Figure 2: The PAL project On-line Communication Framework.

4 The PAL Online *Dissemination*

During the first two project years, the online dissemination campaign brought a good number of contacts and raised spontaneous awareness and interest in PAL both from the General Public side and the Academic one. The same trend proposes again in third year, confirming that, as for the previous years, the Communication Strategy built up by the Consortium could be considered effective. Figure 2 reports a schematic overview of the framework used in order to produce the different PAL communication and dissemination contents.

In the current time frame, the Consortium kept updating the channels targeted for the purpose of dissemination which are:

- the PAL official website and blog.
- the PAL social networks (i.e.: Twitter, Facebook and Instagram).

The Consortium also maintained the distinction among the different kind of information to be updated in the online channels available: *(i) Institutional info* about the project and the participants via PAL official project website; *(ii) Structured formal news* as blog posts mainly; *(iii)Flash news and formal updates* such as pictures or references to other projects in both the official project website and specific social media channels (i.e. twitter);

Figure 3: A view of the Homepage and the Blog of the PAL project website.

(iv) News and informal updates about the project or ludic news by the PAL social networks.

Please, for more details on the rationale behind this choices, refer to the *Y1 Dissemination Report*.

The *PAL news room* still involves three roles:

- A Communication Coordinator (Cc - from FCSR) who is in charge to keep the website updated and to ensure a proper dialogue among partners. Specifically, the Cc is in charge to evaluate all the information achieved through the mail address (*communication@pal4u.eu*), which is handled by managers in TNO and FCSR.
- A Blog editor (Be - from FCSR for the third project year) who is in charge to edit the blog posts.
- A Scientific reviewer (Sc - from TNO, with the support of both Dutch and Italian Healthcare professionals involved in the project) who is in charge to verify the reliability of the information to be published.

4.1 PAL project official website

The official *website* of the project (Figure 3), which is available at the following address: http://www.pal4u.eu/ has been updated about events, publications, results and news about the project arisen so far.

The structure of the website has not been changed, so in the home page, visitors receive a summary of the main project information and are led to discover the site contents, clustered in the sections: *Partners*, *Project*, *In the news*, *PAL Blog*.

Also for this third year, we used Google Analytics to extract the stats for the project website, covering the entire lifetime of the project page. Table 1

Indicators	**Y2 Results**
New Visitors	52
Average session duration	00:00:41
Number of posts on the blog	11
Number of posts in the section *"In the news"*	14
Top 4 countries visiting the website	IT; P; E; NL

Table 1: Summary of the PAL Website indicators - updated to February 2018.

summarizes the currently available information, covering the period between February 2017 and February 2018.

4.2 The Social Network channels

Social media have been used as additional dissemination channels on the basis of the following evidence: nowadays people, especially the younger ones, are continuously searching for innovative ways of communicating electronically to fit their needs [1] and social networks are currently motivating new forms of social interaction, dialogue, exchange and collaboration among the users [2].

During the third year of the project, Social media dissemination has been done through the following channels:

- *Facebook*
- *Twitter*
- *Instagram*
- *Youtube*

Through these tools the Consortium created a community of people interested in the development of PAL, not strictly scientific, but also involving the real end-users of the project solutions, such as Healthcare Professionals, families and children with T1DM, schools and most commonly, General Public. Through these social media, the Consortium disseminated contents about T1DM and project steps or achievement as frequently as possible and with a friendly approach. They also share content from other sources (validated by the PAL Scientific Reviewer), in order to keep people updated and engaged.

In the following paragraphs the details of each PAL social network are reported.

Figure 4: A view of the Facebook project page.

Indicators	**Y2 Results**
Total number of posts	57 (+30% respect to Y2)
Number of followers	160 (+20% respect to Y2)
Average coverage of the posts	272
Age range with more engagement	25-34 y.o.
Top 3 countries	Italy; Netherlands; USA
Gender of the followers	65% females; 34% males

Table 2: Summary of the PAL Facebook page indicators - updated to February 2018.

4.3 Facebook

The nickname of the PAL Facebook account is *PAL4Uproject* (see Figure 4) and the page is managed by FCSR and TNO researchers, but everyone can share news or related links on the page's notice board. Via Facebook, updates are shared on the project activities and T1DM related initiatives (both organized by the project or international events attended by PAL researchers - e.g.: World Diabetes Day related initiatives-) through pics, videos and interactive links, reaching both the General Public and the Academic one.

Statistics for Facebook, concerning the interactions, coverage of the posts, the number of likes, etc. have been obtained directly by the Facebook Analytics tool available on the page and reported in Table 2.

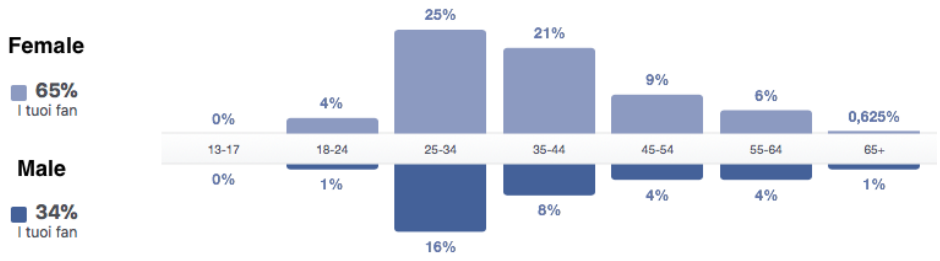

Figure 5: Average age of the PAL Facebook page fans and gender - updated to February 2018.

Figure 6: A view of the Twitter project home page.

4.4 Twitter

Twitter messages are designed to be as contextualized as possible with links to interesting papers, websites, blogs, videos, pics, and other news. It is targeted for a young and active public, which is interested to have a flow of constantly up to date insights and, on this basis, is willing to learn more about the project researches (in our case, for example: researchers investigating on similar fields, healthcare institutions, young people with T1DM, parents, etc). Table 3 summarizes the current Twitter indicators obtained directly by the Twitter Analytics, covering the month of February 2018 which is the only available period to be investigated by using Twitter Analytics. Coherently, also for Twitter the project account corresponds to *PAL4Uproject* (see Figure 6 the related Home Page).

Indicators	**Results Y2**
Total number of posts	171 (+20% respect to Y2)
Number of followers	120 (+40% respect to Y2)
Tweets visualization	2904
New followers last month	1
New followers in the last year	30
Number of profile visits	62

Table 3: Summary of the PAL Twitter account indicators - updated to February 2018

Figure 7: A view of the Instagram project home page, with some pics highlighted.

4.5 Instagram

The PAL Instagram nickname is *PAL4Uproject* (see Figure 7) and the focus of this Social network is strictly visual, based on the use of images and hashtags that are characterizing the project, to raise the interest of the public, especially the younger one, who are the main users of the service (mainly children and teens with T1DM).

Instagram's stats were extracted by using a specific software, Gabstats (*www.gabstats.com/*) and these are reported in Table 4. The results cover the past year of the project.

Indicators	**Results Y2**
Number of total posts	60
Number of page followers	93
Total likes	69
Average likes per posts	10

Table 4: Summary of the PAL Instagram account indicators updated to February 2018

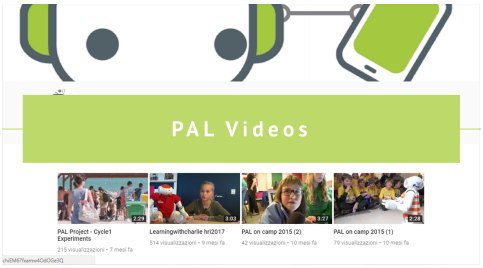

Figure 8: A view of the Youtube project channel home page.

4.6 YouTube

A new on-line channel for dissemination has been set in place: the Youtube page of the PAL project, available with the nickname: *PAL4u project*. This channel is meant to collect all the project-related videos. So far there are 4 videos, 3 videos about the Summer Camps carried out during the past years, and one video regarding the Cycle 1 Experiments. New videos are going to be added.

Figure 9: A view of the published newspapers' articles on PAL.

5 Publications and Proceedings

In the current section the PAL project publications related to the third year of the project are reported, divided by typology. For the previous years' publications, please look at the *Dissemination Report Y1* and *Dissemination Report Y2*.

5.1 Journals & Books

During the third year of the project the Consortium published articles in relevant research journals, as well as via publications in local Italian and Dutch newspapers (Figure 9). In the following, the publications related to this section are listed:

- A. Cully, Y. Demiris. *Quality and diversity optimization: A unifying modular framework*, published in the IEEE Transactions on Evolutionary Computation (Volume: PP, Issue: 99).

5.2 Conferences

During the third project year, the PAL Consortium produced the following publications, related to papers that have been presented during international conferences/congresses. In the following the paper's details are listed together with their abstracts:

- **Guidelines for Tree-based Learning Goal Structuring** - R. Peters, J.Broekens and Mark A. Neerincx. *"Educational technology needs a model of learning goals to support motivation, learning gain, tailoring of the learning process, and sharing of the personal goals between different types of users (i.e., learner and educator) and the system. This paper proposes a tree-based learning goal structuring to facilitate personal goal setting to shape and monitor the learning process.*

We developed a goal ontology and created a user interface representing this knowledge-base for the self-management education for children with Type 1 Diabetes Mellitus. Subsequently, a co-operative evaluation was conducted with healthcare professionals to refine and validate the ontology and its representation. Presentation of a concrete prototype proved to support professionals contribution to the design process. The resulting tree-based goal structure enables three important tasks: ability assessment, goal setting and progress monitoring. Visualization should be clarified by icon placement and clustering of goals with the same difficulty and topic. Blooms taxonomy for learning objectives should be applied to improve completeness and clarity of goal content".

This extended abstract was presented during the 22nd annual meeting of the intelligent user interfaces community (ACM IUI 2017) in Limassol, Cyprus, on the 03/13-16/2017. In particular, ACM IUI 2017 was the 22nd annual meeting of the intelligent user interfaces community and served as a premier international forum for reporting outstanding research and development on intelligent user interfaces.

- **Robots Educate in Style: The Effect of Context and Non-verbal Behaviour on Childrens Perceptions of Warmth and Competence.** - R. Peters, J.Broekens and Mark A. Neerincx. *"Social robots are entering the private and public domain where they engage in social interactions with nontechnical users. This requires robots to be socially interactive and Intelligent, including the ability to display appropriate social behaviour. Progress has been made in emotion modelling. However, research into behaviour style is less thorough; no comprehensive, validated model exists of non-verbal behaviours to express style in human-robot interactions. Based on a literature survey, we created a model of non-verbal behaviour to express high/low warmth and competence - two dimensions that contribute to teaching style. In a perception study, we evaluated this model applied to a NAO robot giving a lecture at primary schools and a diabetes camp in the Netherlands. For this, we developed, based on expert ratings, an instrument measuring perceived warmth, competence, dominance and affiliation. We show that even subtle manipulations of robot behaviour influence children's perceptions of the robot's level of warmth and competence."*

  This extended abstract was presented during the 26th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN) in Lisbon, Portugal, on the 08/28-30/2017 09/01/2017. The conference covered a wide range of topics related to Robot and Human Interactive Communication, involving theories, methodologies, technologies, empirical and experimental studies.

- **Personalized Self-Explanation by Robots: the role of Goals**

Versus Beliefs in Robot-Action Explanation for Children and Adults - F. Kaptein, J. Broekens, K. V. Hindriks and M. Neerincx. *"A good explanation takes the user who is receiving the explanation into account. We aim to get a better understanding of user preferences and the differences between children and adults who receive explanations from a robot. We implemented a Nao-robot as a belief-desire-intention (BDI)-based agent and explained its actions using two different explanation styles. Both are based on how humans explain and justify their actions to each other. One explanation style communicates the beliefs that give context information on why the agent performed the action. The other explanation style communicates the goals that inform the user of the agent's desired state when performing the action. We conducted a user study (19 children, 19 adults) in which a Nao-robot performed actions to support type 1 diabetes mellitus management. We investigated the preference of children and adults for goal versus belief-based action explanations. From this, we learned that adults have a significantly higher tendency to prefer goal-based action explanations. This work is a necessary step in addressing the challenge of providing personalised explanations in human-robot and human-agent interaction."*

This extended abstract was presented during the 26$^{\text{th}}$ IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN) in Lisbon, Portugal, on the 08/28-30/2017 09/01/2017. The conference covered a wide range of topics related to Robot and Human Interactive Communication, involving theories, methodologies, technologies, empirical and experimental studies.

- **Self-Explanations of a Cognitive Agent by Citing Goals and Emotions** - F. Kaptein, J. Broekens, K. V. Hindriks and M. Neerincx. *"This paper presents a cognitive (belief-desire-intention based) agent that can self-explain its behaviour based on its goals and emotions. We implement a cognitive agent, embodied by a nao-robot or virtual avatar thereof, to play a quiz with its user. During the interaction the agent intelligently selects questions to optimally educate the user. We show how the simulation of emotions can be used to generate end-user explanations of the agent's behaviour. With this we provide a first proof of concept showing the value of using simulated emotions in addition to goals for generating agent behaviour explanations."*

  This paper was presented during the 7$^{\text{th}}$ Affecting Computing and Intelligent Interaction in San Antonio, Texas, between 23$^{\text{rd}}$ and 27$^{\text{th}}$ of October 2017. The Conference series on Affective Computing and Intelligent Interaction is the premier international forum interdisciplinary research on the design of systems that can recognize, inter-

pret, and simulate human emotions and related affective phenomena. A theme of this ACII2017 will be to emphasize the affective computing in action. The theme showcased how affective computing can impact scientific knowledge and address societal challenges.

- **Humanoid robot for children with type1 diabetes: challenges and ethical implications of a supportive tool in the therapeutic process.** - V. Sanchini, C. Pozzi, E. Oleari, F, Sacchitelli, A. Sanna, M. Neerincx. *"Type 1 Diabetes (T1DM) is an overwhelming pathology, since it requires to cope with different therapeutic tasks and to adopt major changes in lifestyle. In recent years, it is widely spreading up, affecting a growing number of children. Some proposals have been raised with respect to the introduction of humanoid robots in the healthcare domain for paediatric patients, especially in the contexts of rehabilitation and autism. Our aim is to discuss to what extent a humanoid robot (in our case, Aldebaran Robotics NAO) can represent a supportive tool for children with T1DM and their families. In particular we investigate and discuss three different roles that an humanoid robot may have in this context: i) an empathetic companion for the child, reducing negative emotions, while promoting positive feelings and wellbeing; ii) an educator, that can reinforce important medical concepts related to T1DM; iii) a coach, that can motivate the child to adopt healthy behaviours, relevant in the process of care of T1DM."*

  This paper was presented during the International Research Conference Robophilosophy 2018 - Envisioning Robots in Society, Politics, Power, and Public Space, in Vienna, Austria, between 14^{th} and 17^{th} of February 2018. One of the main themes of the conference was to present interdisciplinary Humanities research in and on social robotics that can inform policy making and political agendas, critically and constructively.

6 PAL *Dissemination* events

During the third year of the project, the Consortium participated to several events in order to promote awareness and raise interest towards PAL's fields of research and objectives among different types of audience. Dissemination, during various events attended, consisted mainly in Project presentations, Robot demonstrations and explanations of the results achieved during the previous PAL experimental campaigns.

In the following, all the details of each *Dissemination* event are summarized in Table 5.

Moreover in the next Sections 6.1 and 6.2 the attended Workshops and Invited Lectures are highlighted and described.

Event	**Promoter**	**Where**	**When**	**Audience**	**Partner**
DRItti a Voi - 2017	IRCCS Ospedale San Raffaele Diabetes Reasearch Center	Milan	11th of February 2017	Clinicians and Reaserchers, families and stakeholders with T1DM	FCSR, OSR and SOStegno70
Digital Health Outlook	UK Science and Innovation Network, Department for International Trade Italy, IRCCS Ospedale San Raffaele	Milan	20th of March 2017	Industrial players, researchers	FCSR and OSR
KPMG rondetafel robotiser-ing	KPMG	The Hague	21th of April 2017	Researchers, policy makers, business actors	TNO, TU Delft
MedicalDelta	TU Delft	Leiden	27th of June 2017	Industries and scientific community	TU Delft
Research Seminar at heuritech data	Heuritech Data	Paris	12nd of August 2017	Industries and scientific community	IMPC
Women in Artificial Intelligence WeTALK - Human-Robot Interaction	Women in Artificial Intelligence, Founders Factory	London	30th of January 2018	General public, researchers, entrepreneurs	IMPC

Table 5: List of the Events attended during which the Consortium presented the project

6.1 Workshops

During the third year of the project the PAL Consortium attended some workshops in order to disseminate the project implementations and results. In the following, articles presented in the corresponding events are reported, highlighting the type of public reached in these occasions.

- **Evaluating Child-Robot Interaction.** In addition to the paper presentation of Rifca Peters (see section 5.2), PAL was presented in two other tracks of HRI 2017: The 12$^{\text{th}}$ Annual Conference for basic and applied human-robot interaction research. The conference seeked contributions from a broad set of perspectives, including technical, design, methodological, behavioral, and theoretical, that advance fundamental and applied knowledge and methods in human-robot interaction. The location was Vienna, Austria and it was presented between the 6$^{\text{th}}$ and the 9$^{\text{th}}$ of March 2017. First, Mark Neerincx was invited panel member at the 3$^{\text{rd}}$ international workshop on Child-Robot Interaction (CRI), included in the HRI2017 program. He started with an overview presentation of the PAL project, followed by a discussion with the other panel members and the audience. Second, a video of the PAL-activities at the camps was accepted and presented at the HRI conference.

- **The Role of Emotion in Self-Explanations by Cognitive Agents.** Frank Kaptein presented his paper at the 7$^{\text{th}}$ Affecting Computing and Intelligent Interaction conference in San Antonio, Texas, between 23$^{\text{rd}}$ and of October 2017. Furthermore, he gave demo of his PAL explanation-module at the conference.

- **Goals, transparency and explainability of agents.** In addition to the paper presentations of Frank Kaptein, PAL was presented in another track of RO-MAN 2017: The 26$^{\text{th}}$ IEEE International Symposium on Robot and Human Interactive Communication, which was held in Lisbon, Portugal, from August 28 to September 1, 2017. The conference covers a wide range of topics related to Robot and Human Interactive Communication, involving theories, methodologies, technologies, empirical and experimental studies. Mark Neerincx gave an invited presentation at the Transparency Workshop: Presenting the explanation approach to realise transparency in the PAL system for the different end-users.

- **Guidelines for Tree-based Collaborative Goal Setting** Rifca Peters presented her paper at the 22$^{\text{nd}}$ annual meeting of the intelligent user interfaces community in March 13 - 16, 2017, Limassol, Cyprus. ACM IUI is where the Human-Computer Interaction (HCI) community meets the Artificial Intelligence (AI) community.

Figure 10: The PAL project official logo.

6.2 Invited Lectures

As well as Workshops, during the third year of the project, the Consortium participated to Invited Lectures in order to disseminate aims of the project and steps done:

- **Institution of Engineering and Technology (IET) prestige lecture**, Cambridge, 21st of February 2017. The project was disseminated through a general description of the PAL project, aims and preliminary results by researchers of IMPC to a public composed by pupils and students of the IET and interested citizens (the lecture was public).
- **Seminar for Multimedia Standards (MMI 726) course** - promoted by the Informatics Institute, Middle East Technical University and it was held in Ankara, on the 5th of January 2018. The project was disseminated through a general description of the PAL project, aims and objectives by researchers of IMPC.
- **Health2.0 Event** Presentation of the PAL-project as an example of an innovative social robot system. The event focused on of healthcare entrepreneurs, researchers, doctors, corporate innovators, investors, insurers, pharma, and students; and took place at at the Amsterdam Health Technology Center, The Netherlands (1st of February, 2018).

7 PAL project official material

7.1 PAL logo

To maintain coherence since the beginning of the project, the logo has not been changed. In Figure10 the official logo is shown.

More details about the meaning of the components are written in the *Y1 Dissemination Report.*

7.2 PAL Poster & Brochures

The project brochure and poster represent an efficient communication instrument designed to be used in public demonstrations and other events, modulating the communication language and the graphical layout on the basis of the target public to be addressed.

During the third year of the project a poster has been designed to be distributed to families with children with T1DM, in order to recruit participants for the Experimental campaign held from June to September 2017. Figure 11 shows the Poster used during the experiments conducted in June-September 2017.

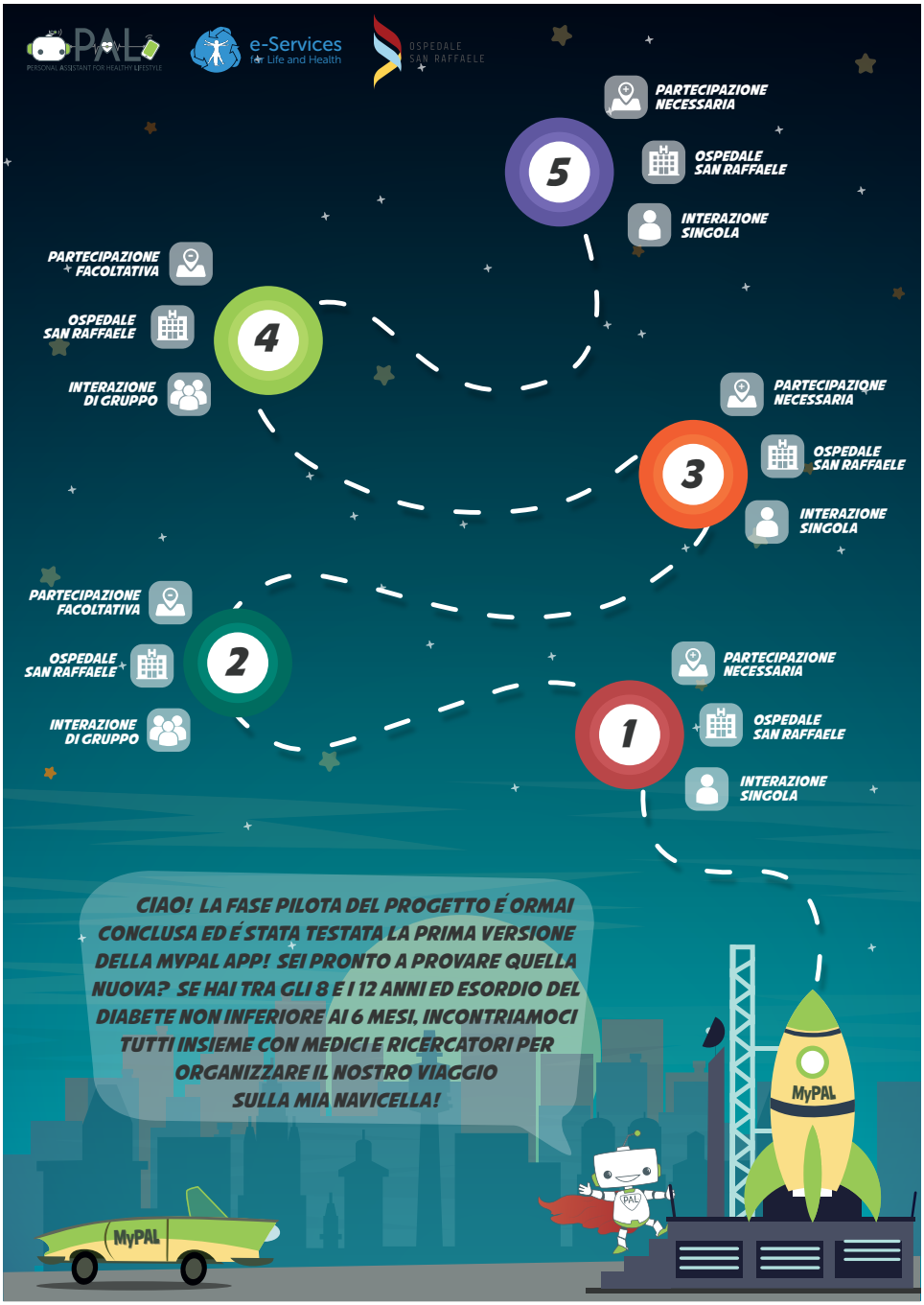

Figure 11: Poster of the June-September experimental campaign

8 Partners' exchange

As usual, the communication among project partners was held through day-to-day exchanges (i.e. mail exchange or Skype calls), the web based communication (e.g. SharePoint-based) and the project meetings.

8.1 Meetings

The following paragraph lists the project meetings organized in the third project year.

1. *Executive Board Meeting* in Arnhem, The Netherlands between 12th to 13st of January 2017. The agenda of this meeting distinguished the following topics: Experiment protocols (over cycle 2 and 3), ontology, feature requests (such as feedback on activities and progress, mutual self-disclosure, affect button in timeline, sentiment mining, objectives, out of activity talk), the identification of new opportunities (valorisation), data anonymization and server use. In the meeting decisions were made for these topics and the corresponding actions were allocated. Further, the planning was refined concerning the experiment & feature requests, and the upcoming deliverables.

2. *Exploitation Strategy Meeting* in Milan, Italy on 12th of April 2017. Representatives of Mixel, FCSR, Produxi, TNO and the hospitals (ZGV, Meander, the Netherlands) met to discuss the valorization opportunities and business plan development of PAL. Topics of discussion were, among other things, future H2020 talks, smart cities, FCSR 9 lines of robotics developments (social, surgical, social robots, rehabilitation, athletics, ...), wearable sensors, personalized meals etc., project hotel of future, better in - better out, opportunities to arrange SME-research institute. Interesting networks we identified, such as Digital health outlook (as FCSR organized with UK embassy), tekdelta.nl, technologie zoekt ondernemer, Health Holland (shared challenges, smart solutions), EIT Health (e.g. innovation project), Medical Delta (Leiden, Rotterdam, Delft) and Health Valley (Eindhoven, Ede, Nijmegen, Twente). The partners present identified 3 packages that may be relevant: Diary + Storage of the data (local or cloud), Quiz game and presentation and Break & Sort game. For the next step, PAL has to develop a broader perspective and clear ideas on how to proceed.

3. *Project Meeting* in Leiden, The Netherlands on the 19th of July 2017. The focus of the meeting was to begin the discussion about the new features to be implemented in the final release of the PAL System for the upcoming 2918 experimental test campaign.

4. *General Assembly Meeting* in Milan, Italy from 21st to 22nd of September 2017.

   The agenda was structured to cover the following topics of discussion:

   - Preliminary results of the second PAL experimental cycle
   - 2017 Experiments and related feature requests
   - Ontology of the PAL System
   - Papers and possible Dissemination opportunities
   - Deliverables and Periodic Report planning
   - Timeline for the last Project Year
   - Future meetings plan
   - Future action plans

5. *Developers Week* in Lissone (at Mixel premises), Italy, from 24th to 26th of January 2017. The meeting was organised in two different parts: the first one, to which attended not only the PAL developers team but also the experimenters, was dedicated to the definition of the functionalities to be implemented in the upcoming version of the MyPAL app and the finalization of the corresponding feature requests. a brief overlook of the third experimental test campaign and protocol was also given. the second part of the meeting was instead focused on joint implementation sessions for the developers.

6. *Business Development Plan Meeting* This workshop was held in Leiden, at TNO, on the 15th of February 2018. The meeting was moderated by an appointed EC specialist in exploitation and valorisation of research project plans.

   The main points covered were:

   - Summary of the Key Exploitable Results provided by PAL partners
   - Discussion and Evaluation of Key Exploitable Results
   - Explanation of Business/ Lean Canvas model; risk analysis, PESTLE analysis and Legacy outcomes

8.2 Future Meetings

In the last project year are going to be held (i) a last integration meeting among the PAL developers, (ii) a last General Assembly meeting. (iii) a coordinated final project dissemination and exploitation event both in Italy and in the Netherlands.

8.3 The project SVN

Since the first year of the project, the Consortium still uses the open source Tortoise SVN program. This software allows to store documents securely, preventing the download by other people external to the project. Data secured in the *SVN* are categorized as:

- Descriptive forms for the Activities done during the project
- Data collected during the experiments
- Presentations realized for internal meetings and their minutes
- Papers and related presentations or posters
- Material useful for the realization and implementation of the PAL platform
- Meeting minutes

8.4 The project GitLab

To facilitate the software development a GitLab was created on one of FCSR server's. GitLab is a specific source code control system and all the developers belonging to the Consortium to handle and develop the modules which are part of the PAL System. Specifically GitLab is based on a *issue management* to keep track of the bugs or enhancements. The milestones in this context are used when changes in one, or more than one modules, are required. For each feature change a new *branch* is created and after testing is merged with the *master* branch (the principal one) which is used by the production server in experiments (e.g. when children use the MyPAL app). The Consortium still uses this software.

8.5 The project Slack

To facilitate the day-to-day information exchange between the partners a Slack site was implemented since June 2016. Using this, individual persons among the Consortium can easily chat, and there are also so called channels for more generic messages.

However partners among the Consortium still uses other softwares to keep in touch, such as *Skype* and *Google Hangouts* for daily calls.

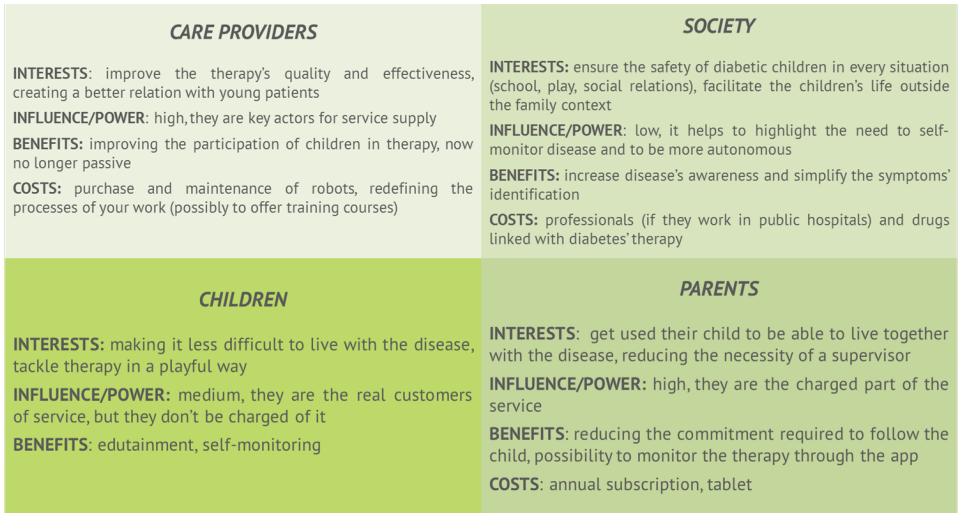

Figure 12: PAL Stakeholders analysis framework.

9 Valorization

The work performed during the second project year on Task 6.8, with the preliminary cost effectiveness analysis on T1DM (for more details, please see the *Dissemination Report Y2*), has been brought forward and in the following is reported a summary of the steps undertaken in this regard.

A *Stakeholders analysis* was performed, focusing at this first time on children, their families, care providers and then widening the glance to the society (see Figure12).

The analysis was conducted in order to understand stakeholders' expectations and the benefits they could seek in PAL, their possible influence in supporting the project solution and the costs they could sustain to use it. This kind of analysis is going to be refined and improved in the last project year, so as to include other categories of stakeholders resulting to be of a key role for the PAL project exploitation. In addition to that, a *Competitors analysis* has been done, focusing on the m-Health app market. In fact, it is a well-founded tendency that a growing number of people with diabetes is using (or will use) a dedicated mobile app, especially because the number of diabetes-related medical devices which exert their own app is increasing and their quality level is raising (as long as the competition among app publishers - see Figure13).

At the 15^{th} of February 2018, PAL organized a Business Plan Development workshop, supported by an expert (Trevor Gregory), commisioned by the EU. All partners participated and provided draft descriptions of the *Exploitable Results* (KER) as input for the meeting. During the workshop, the grouping and specification of KERs were improved and the process for work-

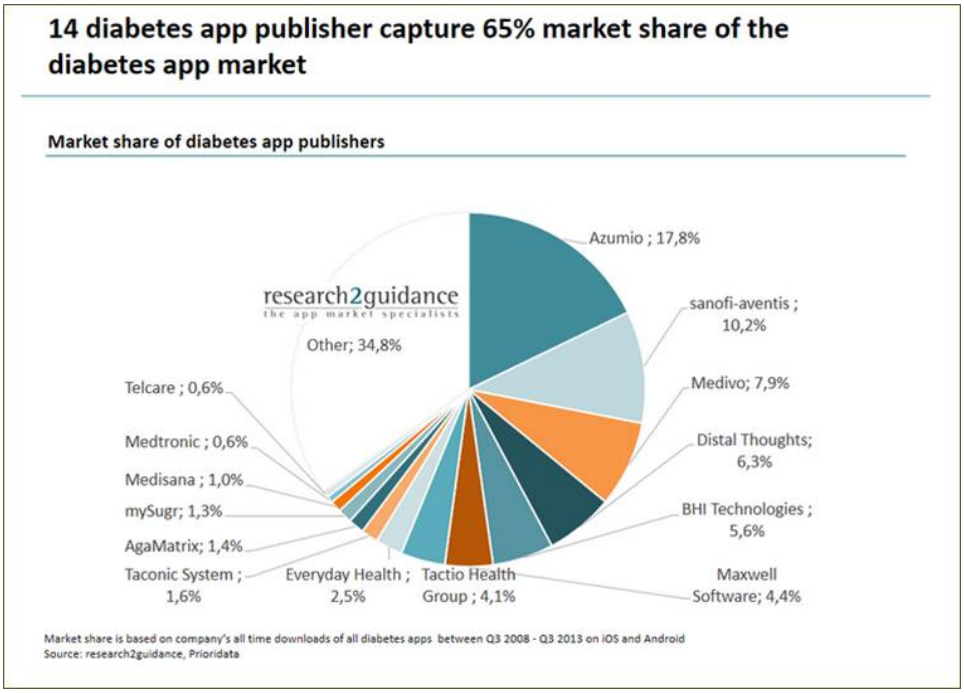

Figure 13: An overlook of the diabetes app market segmentation.

ing them out was determined. IP and risk-analysis issues were discussed and included in the planning for the further development of the business plan. The PESTLE method is being explored to advance the impact-benefits analysis of the PAL project. Further, the legacy of the project for each partner was discussed (expected versus actual outcomes) and included in the planning. Currently, we are processing the outcomes of the BDP workshop.

The final exploitation report, D6.5 *PAL system impact valorisation and future perspectives*, [M48] will present the results of all these activities carried out during the project timeframe, as long as the finalisation of the expected project impact and the corresponding businness model.

10 Future steps

During the final project year, the Consortium will continue to give efforts on increasing the interest in the project and to organize and participate in the related dissemination events. In addition to that, concrete actions will be done reaching Healthcare Industries and Policy makers in order to reinforce the exploitation perspectives of the project.

References

[1] Maeve Duggan, Dana Page, Senior Communications Manager, Dana Page, and Senior Communications Manager. Maeve Duggan. (August), 2015.

[2] Mayank J. Trivedi Meghna J. Vyas. Role of social networking tool in dissemination of information at SMT.HANSA METHA library. *e-Library Science Research Journal*, 2(9), 2014.