DRs 6.2, 6.6, 6.10: Y2 Dissemination Report

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The present report describes the work carried out in the second project year regarding PAL's *Dissemination* activities. It is the summary of three different WP6 Deliverables: Deliverable 6.2 "Website y2", Deliverable 6.6 "Publications and proceedings report y2" and Deliverable 6.10 "Dissemination events promoted y2".

1 Executive Summary

The current report is intended to be a summary of the work carried out during the second 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 fulfill *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 end-users - e.g.: young patients 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 list of the Indicators has not been changed during the second year of the project, then no changes have been reported.

The current Deliverable aims at embracing the second release (carried out during the project M24) of three different documents: Deliverable 6.2 "Website Y2", Deliverable 6.6 "Publications and proceedings report Y2" and Deliverable 6.10 "Dissemination events promoted Y2". This choice was made to give a more organic view of the work accomplished in the second project year.

Deliverable is organized as follows: Section 2 recaps the PAL *Dissemination* strategy; Section 3 summarizes the results achieved in the second 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 describes costs and effectiveness and an estimation after deployment of PAL System; Section 10 ends the document with a description of the next steps to be undertaken.

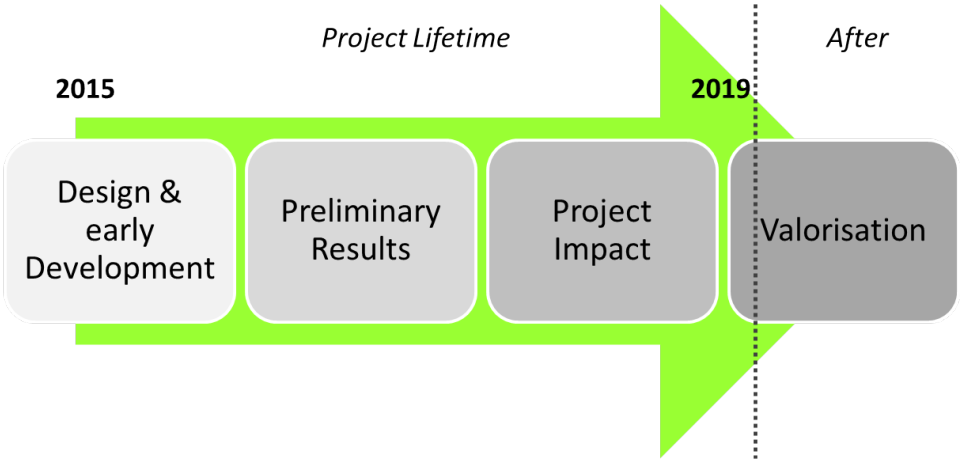

Figure 1: The PAL project Dissemination time line.

2 The role of *Dissemination* in PAL

The main purpose of Work Package 6 is to effectively disseminate to third parties, during and after the end of the project, PAL's existence and aims. Also, the main purpose is to disseminate the design and research methodologies and technologies developed and applied during the project and the obtained results. To this extent, a precise *Dissemination* strategy has been studied, which key steps are detailed in the Y1 Dissemination Report.

2.1 The PAL *Dissemination* strategy

As shown in Figure 1, the plan for the project dissemination is designed to be articulated in four main stages and here we re-propose the list of the stages (for the detailed description of each stage see 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*

To confirm what previously described in the Y1 Dissemination Report, one of the most challenging aspects of the first stages of the *Dissemination* strategy is to point out the key end-users and to define the proper communication language and tools to maximize the impact in their respect. Among the possible beneficiaries of the PAL System, the most strategic audience is

confirmed to be represented by children with T1DM, their families and their in/formal caregivers: relatives, Healthcare Professionals (e.g.: the hospital staff), or assistive associations, school staff, coaches, etc.

Following the strategy studied by the Consortium at the beginning of the project, we list here the main identified fields of intervention (which are explained in details in the Y1 Dissemination Report):

- *Academic dissemination*
- *Public dissemination*
- *Technological and Industrial dissemination*
- *Healthcare dissemination*

3 Tasks, objectives, results

3.1 Y2 work plan

During the second year, WP6 focused its efforts on reinforcing the Y1 work plan, paving the ground for an effective *Dissemination* of the project potentialities, in order to maintain a long lasting *Valorisation* of the PAL results. The work done in this months was planned to specifically continue to contribute to the following tasks: "Project website and knowledge management" (T6.1), "Workshops, conferences and other dissemination events organisation" (T6.2), "Dissemination to general public" (T6.3), "Academic dissemination" (T6.4), "Dissemination to Healthcare, technological, industrial players and policy makers" (T6.5), "Partner exchange" (T6.6), "Co-creation online tool" (T6.7), "Ex-ante impact assessment to establish the costs and benefits of the PAL system" (T6.8). Also in this second phase of the project, different networking contacts have been made with the Healthcare world thanks to the diabetes associations belonging to the Consortium and the hospitals involved. To summarize, the objectives of this second project phase were to: *(i)* contribute to the Academic dissemination field of interest; *(ii)* organize - or make connections to organize in the future - dedicated PAL events for the general public and health-related audience; *(iii)* disseminate results so far achieved.

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

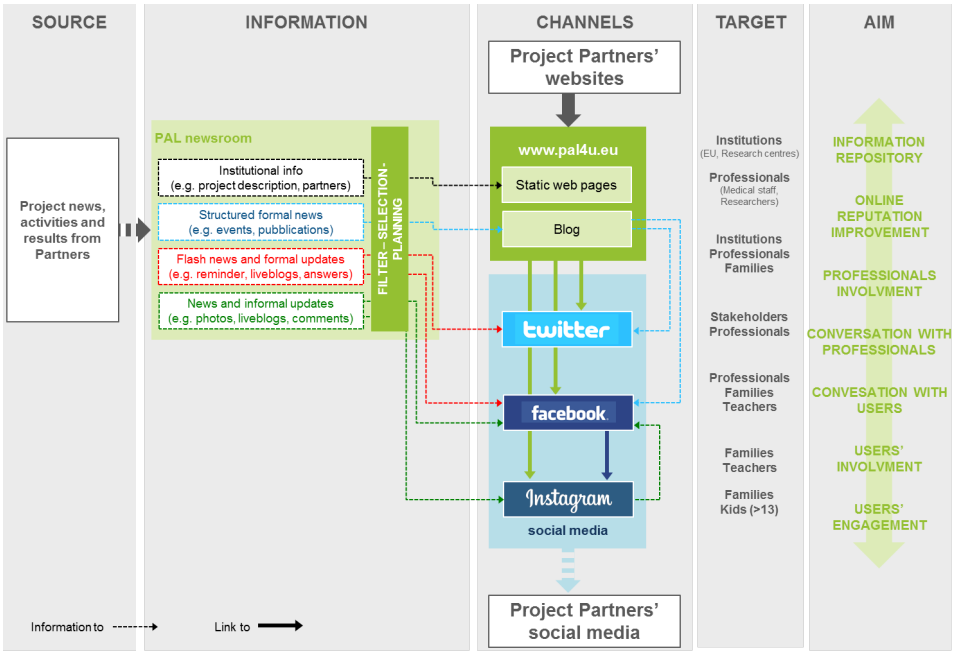

Figure 2: The PAL project On-line Communication Framework.

4 The PAL Online *Dissemination*

During the first year, the Online dissemination campaign brought great contacts and raise more awareness and interest in the project by people, such as General Public or Academic one. Same results were evaluated during the second year, and this confirms that, as for the first year of the project, the communication strategy built up by the Consortium could be considered as efficient for our purpose. Figure 2 reports a schematic overview of the workflow.

During the second year of the project the Consortium keep updating the channels targeted for the purpose of dissemination (which are described specifically in the Y1 Dissemination Report):

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

The Consortium also keep maintaining the distinction among the kind of information to be updated in specific online channels: *(i) Institutional info* about the project and the participants; *(ii) Structured formal news* as blog posts mainly; *(iii)Flash news and formal updates* such as pictures or references to other projects; *(iv) News and informal updates* such as updates about the project or ludic news (for more details please read the Y1 Dissemination Report).

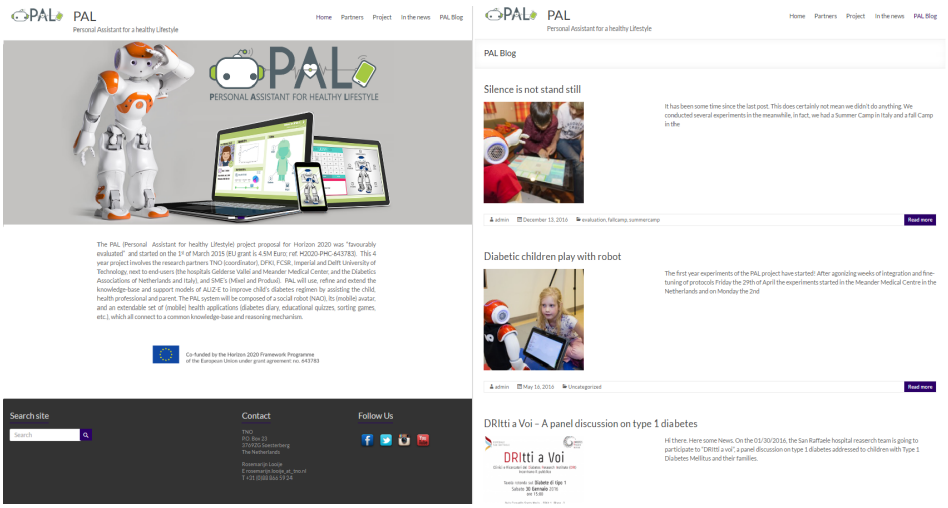

Figure 3: A view of the Homepage and the Blog of the PAL project website.

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 TNO) 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 during the entire period of the project, 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 second year, we used Google Analytics to extract the stats for the project website, covering the entire lifetime of the project page. Table 1 summarizes the currently available information, covering the period

Indicators	**Y2 Results**
New Visitors	701
Returning visitors	143
Average session duration	00:00.56
Number of posts on the blog	2
Number of posts in the section *"In the news"*	4
Top 4 countries visiting the website	GB; DE; IT; NL

Table 1: Summary of the PAL Website indicators - updated to February 2017.

between the February 2016 and February 2017, which are going to be updated year by year.

4.2 The Social Network channels

Social media has 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 second year of the project, Social media dissemination has been done through the same channels chosen for the first year:

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

We noticed a lot of participation by the followers, especially by those who participated at experimental campaigns.

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 friendly approach. It also shares content from other sources (validated by the Scientific reviewer), in order to keep people updated and engaged.

In the following paragraphs the details of each PAL social network are reported, regarding the second year of the project.

Figure 4: A view of the homepage of the Facebook project page.

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 participated and international events - e.g.: World Diabetes Day -) through pics, videos and interactive links, reaching both a General Public and an Academic one.

Statistics for Facebook, concerning the interactions, coverage of the posts and the number of likes, are available for a period which covers the last 28 days. This overview has been obtained directly by the Facebook Analitycs tool available on the page and reported in Table 2. These parameters are going to be update each year.

Indicators	**Y2 Results**
Number of posts	43
Number of followers	134
Average coverage of the posts	85
Average interactions	132
Total average coverage	92
Age range with more engagement	25-34 y.o.
Top 3 countries	Italy; Netherlands; USA
Gender of the followers	66% females; 34% males

Table 2: Summary of the PAL Facebook page indicators - updated to February 2017.

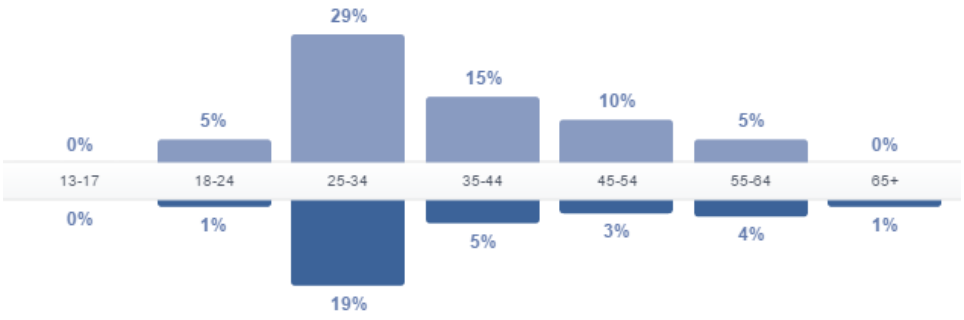

Figure 5: Average age of the PAL Facebook page visitors and gender (light blue for females and dark blue for males)

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

Indicators	**Results Y2**
Number of posts	144
Number of followers	85
Tweets visualization	501
New followers last month	85
Number of profile visits	66

Table 3: Summary of the PAL Twitter account indicators - updated to February 2017

4.4 Twitter

Twitter messages were 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 2017 which was the only 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).

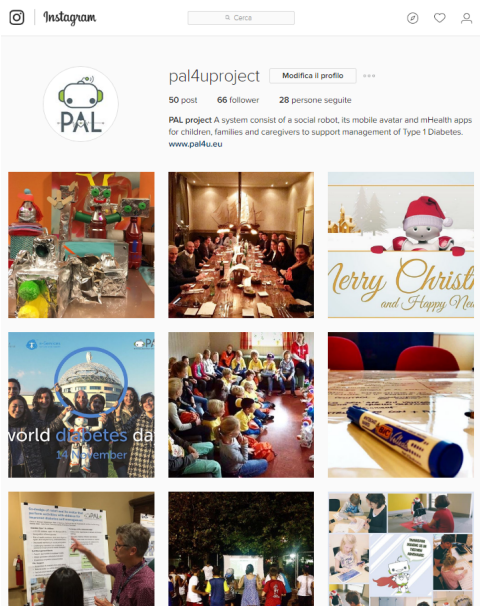

Figure 7: A view of the Instagram project home page.

Indicators	**Results Y2**
Number of posts	21
Total Likes	90
Number of followers	36
Average like per post	5
Average comment per post	1

Table 4: Summary of the PAL Instagram account indicators of the second year of the project, updated to February 2017

4.5 Instagram

The PAL Instagram nickname is *PAL4Uproject* and the focus of this Social network is strictly visual, based on the use of images and hash-tags 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). Figure 7 shows the project Home Page.

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 second year of the project.

5 Publications and Proceedings

In the current section the PAL project publications related to the second year of the project are reported, divided by typology. This list is going to be updated yearly.

5.1 Journals & Books

During the second year of the project the Consortium published several articles in relevant journal and the project was also disseminated through publications in local newspapers or through the European Commission Blog. In the following all the publications related to this section are listed:

- *Robot Charlie supports children with diabetes*, an article published on the European Commission Blog on the 18$^{\text{th}}$ of August 2016 from Rosemarijn Looije (TNO).
- *Specifying and testing the design rationale of social robots for behavior change in children* published in the journal *Cognitive Systems Research* by Rosemarijn Looije, Mark A. Neerincx and Koen V. Hindriks, DOI: http://dx.doi.org/10.1016/j.cogsys.2016.07.002, 14$^{\text{th}}$ July 2016.
- *Integrating Robot Support Functions into Varied Activities at Returning Hospital Visits* published in the journal *International Journal of Social Robotics* by Rosemarijn Looije, Mark A. Neerincx, Johanna K. Peters and Olivier A. Blanson Henkemans, DOI: 10.1007/s12369-016-0365-8, 23$^{\text{rd}}$ June 2016.
- *A Motivational Approach to Support Healthy Habits in Long-term ChildRobot Interaction* published in the journal *International Journal of Social Robotics* Raquel Ros, Elettra Oleari, Clara Pozzi, Francesca Sacchitelli, Daniele Baranzini, Anahita Bagherzadhalimi, Alberto Sanna and Yiannis Demiris, DOI: 10.1007/s12369-016-0356-9, 29$^{\text{th}}$ June 2016.
- *Integrating Graded Knowledge and Temporal Change in a Modal Fragment of Owl* which is an article published in the Journal *Springer-Verlag* by Hans-Ulrich Krieger and presented during the ICAART 2016 Conference in 2016, ISBN: 978-3-319-53353-7.
- *Guidelines for Tree-based Learning Goal Structuring* published in the Journal *Springer* by R. Peters, J.Broekens and Mark A. Neerincx, ISBN 978-1-4471-2312-5, March 2017
- Many times the Project was mentioned in local newspapaer, especially in Netherlands, as the *Soest Nu, Sugar Kids Club Magazine* and *Jong.* in dutch national TV programs (http://www.rtllive.nl/item/9609/opmars_van_de_social_robots) also some PodCasts and eBooks on social robots are available

(http://www.oostenwind.org/boeken/leven-met-robots/)

5.2 Conferences

During the second project year, the PAL Consortium produced the following publications, related to papers that have been presented during international conferences/congresses. Here are listed the abstract presented during several conferences:

- **CAAF: A Cognitive Affective Agent Programming Framework** - *F. Kaptein, J. Broekens, K. V. Hindriks and M. Neerincx* This extended abstract was presented during the 16th International Conference on Intelligent Virtual Agents (IVA 2016) in Los Angeles, California, 20th and 23rd of September 2016, by researchers from TNO and DUT. In particular, IVA 2016 is a congregation of an interdisciplinary annual conference and the main leading scientific forum for presenting research on modeling, developing and evaluating intelligent virtual agents (IVAs) with a focus on communicative abilities and social behavior.

- **The Federated Ontology of the PAL Project. Interfacing Ontologies and Integrating Time–Dependent Data** *Hans-Ulrich Krieger, Rifca Peters, Bernd Kiefer, Michael A. van Bekkum, Frank Kaptein, Mark A. Neerincx* - This extended abstract was presented during the 8th International Joint Conference on Knowledge Engineering and Ontology Development (KEOD 2016) in Porto, Portugal, 9th and 11th of November 2016, by researchers of TNO, DFKI and DUT. Knowledge Engineering (KE) refers to all technical, scientific and social aspects involved in building, maintaining and using knowledge-based systems. Ontology Development (OD) aims at building reusable semantic structures that can be informal vocabularies, catalogs, glossaries as well as more complex finite formal structures representing the entities within a domain and the relationships between those entities.

- **A Modal Representation of Graded Medical Statements** *Hans-Ulrich Krieger, Stefan Schulz* - This paper was presented during The 21st Conference on Formal Grammar (FG) in Bolzano, Italy, 20th and 21st of August 2016, by the researchers of DFKI. FG provides a forum for the presentation of new and original research on formal grammar, mathematical linguistics and the application of formal and mathematical methods to the study of natural language. DOI 10.1007/978-3-662-53042-9_8

- **Capturing Graded Knowledge and Uncertainty in a Modalized Fragment of OWL** *Hans-Ulrich Krieger* - This paper was pre-

www.soestnu.nl Soest Nu · woensdag 25 mei 2016 · 17

Robot en app helpen kinderen met diabetes

AMERSFOORT - Kinderdiabetes is een ingewikkelde chronische ziekte. Het is moeilijk voor kinderen om hier goed mee om te gaan. Daarom doet Meander Medisch Centrum mee aan Europees onderzoek naar gebruik van een robot met app om ze hier bij te helpen.

Dagelijks moeten kinderen met diabetes koolhydraten tellen, gezond eten, genoeg bewegen en regelmatig de bloedsuikerspiegel meten en insuline spuiten. Dit vraagt veel zelfdiscipline, zeker omdat deze waarde bij kinderen sterk wisselt. Robot Charlie leert kinderen met diabetes zelfstandig met hun ziekte om te gaan. Een goede behandeling is van groot belang om complicaties te voorkomen.

Meander Medisch Centrum behandelt 222 kinderen en tieners met diabetes. Van hen doen vijftien kinderen de komende weken mee aan een experiment. Zij komen twee keer naar het ziekenhuis voor een instructiesessie met de robot. Ze krijgen een tablet mee naar huis en daar verschijnt Charlie via een app op het scherm kunnen ze thuis doorgaan met spelletjes en oefeningen doen met hem.

Het experiment met de robot en app zijn een onderdeel van het Europese PAL4U-project dat bestaat uit verschillende experimenten uitgevoerd door TNO samen met het Ziekenhuis Gelderse Vallei en een ziekenhuis in Milaan. Het PAL-project loopt nog tot 2019.

Charlie kan de hele dag bezig zijn met de zorg van een kind. Daarnaast doet Charlie informatie op die door ouders en zorgverleners gebruikt kan worden.

Robot Charlie leert Tatum met haar diabetes om te gaan. Foto:

Figure 8: The article published in the Soest Nu journal.

sented during The 8st Conference on Agents and Artificial Intelligence in Rome, Italy, 24th and 26st of February 2016, by the researchers of DFKI. The purpose of the International Conference on Agents and Artificial Intelligence was to bring together researchers, engineers and practitioners interested in the theory and applications in the areas of Agents and Artificial Intelligence.

- **Ontology Engineering for the Design and Implementation of Personal Pervasive Lifestyle Support** *Michael A. van Bekkum, et al.* - This paper was presented during The 12th International Conference on Semantic Systems (SEMANTiCS) in Leipzig, Germany, 12th and 15th of February 2016, by the researchers of TNO, DFKI and DUT. The annual SEMANTiCS conference is the meeting place for professionals who make semantic computing work, and understand its benefits and know its limitations. Every year, common audience of SEMANTiCS is composed on information managers, IT-architects, software engineers, and researchers, from organizations ranging from NPOs, universities, public administrations to the largest companies in the world.

- **Evaluating an autonomous and responsive avatar for diabetic care: the pitfalls of questionnaire based research with children** *Michael A. van Bekkum, et al.* - This paper and its poster were presented during the Second International Conference on e-Coaching for Health and Wellbeing in Amsterdam, Netherland, 26th and 27th of January 2017, by Mike Ligthart (TNO).

- **A Disclosure Intimacy Rating Scale for Child-Agent Interaction** *Franziska Burger, Joost Broekens, and Mark A. Neerincx* - This papers was precsented during the 16th International Conference, IVA 2016, in Los Angeles, California, 20th and 23rd of September 2016.

- **Guidelines for Tree-based Learning Goal Structuring** *R. Peters, J.Broekens and Mark A. Neerincx* - This article was presented during the The 22nd annual meeting of the intelligent user interfaces community (ACM IUI 2017), in Limassol, Cyprus, 13th and 16th of March 2017.

Figure 9: Princess Victoria of Sweden and her husband, the Prince Daniel, talking with doctors and researchers about the PAL project

6 PAL *Dissemination* events

During the second year of the project, the Consortium participated in 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 presentation, Robot demonstration and presentation of the results achieved during the previous experimental campaigns.

In the following all the details of each *Dissemination* event during which the project was promoted through a presentation of the project are summarized in Table 5, and the the details for each *Dissemination* event during which the project was promoted through a Robot Demonstration are summarized in Table 6.

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**
Delegation of Ministry of healthcare	TNO	The Hague	3rd of February 2016	Delegation of Ministry of Healthcare with Minister Schippers	TNO
European Robotics Forum	EU	Ljubjlana	21st -23rd of March 2016	Entrepeneurs, Researchers	FCSR
Plenary meeting	SOStegno70	Milan	27th of March 2017	Parents and children	FCSR
T1DM soresvrij	Zilveren Kruis	Den Dolder	3rd-4th of May 2016	Children	TNO
Philips eHealth presentation	Philips	Eindhoven	3rdof May 2016	Industry, healthcare providers	TNO
AI for diabetes workshop ECAI	ECAI	Den Haag	28th of August 2016	Scientific community	DUT + TNO + DFKI
Healthwise Conference	Centre of Expertise Healthwise of the University of Groningen	Groningen	4th of November 2016	scientific community and Industries	TNO + ZGV

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

Event	**Promoter**	**Where**	**When**	**Audience**	**Partner**
Technical creative lesson	Postiljon primary education	Soesterberg	5^{th}-12^{th} of February 2016	Children aged 8 to 12 y.o.	TNO
Settimana della Scienza	DRI	Lesmo	18^{th} of March 2016	Children angd 6 - 10 y.o.	FCSR
Robots in de openbare ruimte	RWS	Rotterdam	3^{rd} of May 2016	Policymakers	TNO
Dutch technology week	DTW	Eindhoven	17^{th} of May 2016	General public	TNO
Festival #IoCondivido	Altroconsumo	Milan	24^{th} of September 2016	Children till 14 years old	FCSR
Plenary Meeting	SOStegno70	Montebello della Battaglia	21^{st} of October 2016	Parents and children	FCSR
Guestlecture OBS de Wereldwijzer	VHTO (STEM education)	Duiven	3^{rd} of October 2016	Primary school students	TNO
Dies Nathalis	TU Delft	Delft	8^{th} of January 2016	Academics	TU Delft
Princess Victoria of Svezia visit	San Raffaele Hospital	Milan	17^{th} of December 2016	Doctors, children and parents	FCSR

Table 6: List of the Events attended during which the project was disseminated through a Robot Demonstration

6.1 Workshops

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

- **X-Protege: An Ontology Editor for Defining Cartesian Types to Represent n-ary Relations** - This article was presented during the Joint Second Workshop on Language and Ontology & Terminology and Knowledge Structures (LangOnto2 + TermiKS). That workshop proposed to bring together two different but closely related strands of research. On the one hand it was looked at the overlap between ontologies and computational linguistics and on the other it was explored the relationship between knowledge modelling and terminologies. The location was Portoroz, Slovenia and it was presented on the 23rd of May 2016 by researchers of DFKI.
- **Ontologies for social, cognitive and affective agent-based support of childs diabetes self-management** - This article was presented during the Workshop on Artificial Intelligence for Diabetes (AID 2016). The primary goal of the AID workshop is to facilitate discussion among different researchers actively engaged in finding Artificial Intelligence-based solutions to problems associated with diabetes. The location was The Hague, Netherland and it was presented on the 23rd of May 2016 by researchers of DFKI.

Furthermore, we were also co-organizers of a workshop on child-robot interaction.

Evaluating Child-Robot Interaction HRI 2017 - Abstract:

Many researchers have started to explore natural interaction scenarios for children. No matter if these children are normally developing or have special needs, evaluating Child-Robot Interaction (CRI) is a challenge. To find methods that work well and provide reliable data is difficult, for example because commonly used methods such as questionnaires do not work well particularly with younger children. Previous research has shown that children need support in expressing how they feel about technology. Given this, researchers often choose time-consuming behavioral measures from observations to evaluate CRI. However, these are not necessarily comparable between studies and robots. This workshop aims to bring together researchers from different disciplines to share their experiences on these aspects. The main topics are methods to evaluate child-robot interaction design, methods

to evaluate socially assistive child-robot interaction, and multi-modal evaluation of child-robot interaction. Connected questions that we would like to tackle are for example:

1. What are reliable metrics in CRI?
2. How can we overcome the pitfalls of survey methods in CRI?
3. How can we integrate qualitative approaches in CRI?
4. What are the best practices for in the wild studies with children?

Looking across disciplinary boundaries, we want to discuss advantages and short-comings of using different evaluation methods in order to compile guidelines for future CRI research.

6.2 Invited Lectures

As well as Workshops, during the second year of the project, the Consortium participated to several Invited Lectures in order to disseminate aims of the project and steps done. Here are listed the Invited Lectures attended by the Consortium:

- **Benelux Conference on Artificial Intelligence** - the aim of this conference is to promote and disseminate recent research developments in Artificial Intelligence and it was attended by researchers of the TNO during the 11^{th} of November 2016, in Amsterdam, Holland.
- **Two public lectures** organized by the *The Institution of Engineering and Technology (IET)* which were an opportunity to see the future of engineering showcasing the latest ideas and technologies. All the lectures covered a range of engineering disciplines, ranging from general interest to the more technical. The researchers of the Imperial College attended the first *Prestige letter* during the 21^{st} of February 2016, and the second *Public lecture* on the 11^{th} of May 2016, both in Cambridge, England.
- **International Workshop on Assistive and Rehabilitation Technology (IWART)** organized by the *AIDE European Consortium* primarily addressed to young researchers (PhD and advanced Master students), researchers and professionals interested in Assistive & Rehabilitation Robotics and in the new perspectives in this field provided by the direct link to neuroscience. It was attended by researchers of the Imperial College during the 15^{th} December 2016, in Elche, Spain.
- **Fall Symposium on Shared Autonomy in Theory and Practice** organized by the *The Association for the Advancement of Artificial Intelligence (AAAI)* which is a nonprofit scientific society devoted to advancing the scientific understanding of the mechanisms underlying thought and intelligent behavior and their embodiment in machines.The symposium was attended by researchers of the Imperial College during the 17^{th} of November 2016, in Arlington, USA.
- **SMART School on Computational Social and Behavioural Sciences** organized by the *SMART Consortium*, which context was quantitative modeling and understanding of human behaviors through computational models is a long-term goal. It was attended by researchers of the Imperial College during from the 5^{th} to the 9^{th} of September 2016, in Paris, France.

Figure 10: The PAL project official logo.

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 are meant to be tools for "marketing purposes". They 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 second year of the project a brochure has been designed to be distributed to families with children with T1DM, in order to recruit participants for the Experimental campaign held in the months of May and June 2016. Figure 11 and 12 show the Brochure used in Italy during the experiments conducted in May-June 2016.

Figure 11: Front of the Brochure designed for the May-June Experiments

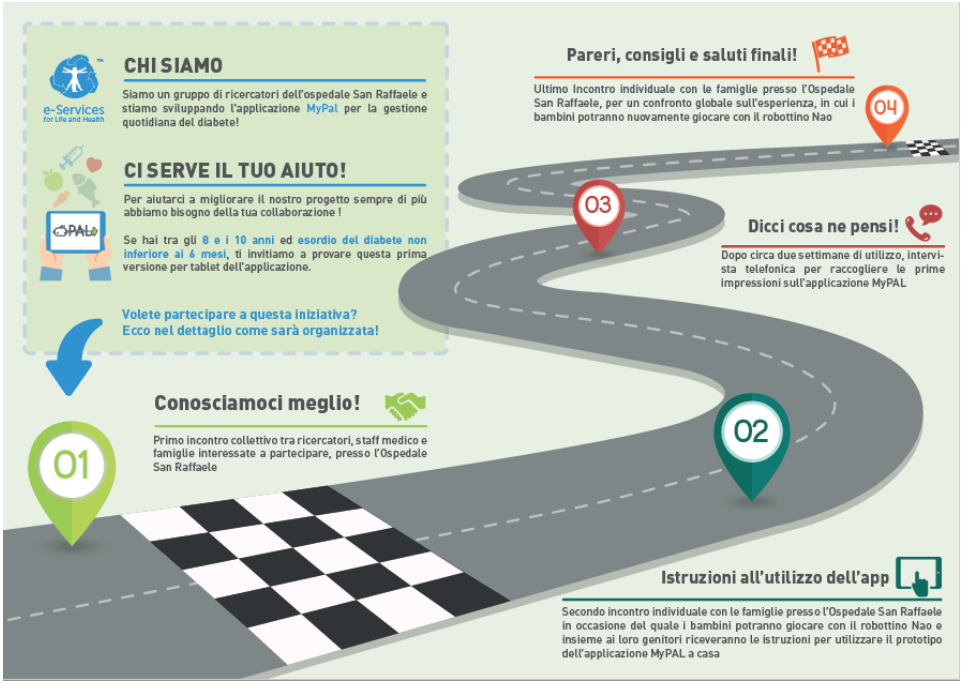

Figure 12: Back of the Brochure designed for the May-June Experiments

8 Partners' exchange

During the second year of the project the communication among 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 second project year.

1. *General Assembly Meeting* in Saarbrucken, Germany from 13th to 16th of June 2016.

   The agenda was structured for discussing about:

   - Preliminary results of the experiments done in May 2016
   - Reflection on first year
   - Diabetes camps in Italy and in Holland
   - New research questions for the consecutive experiments
   - Valorization
   - User Requirements
   - Integration approach
   - Timeline for the Y2
   - Future meetings plan
   - Future plans

2. *Internal Meeting* in Leiden, Netherland, from 8th to 9th of December 2016 among FCSR and TNO researchers. The agenda was structured for discussing about:

   - Minimal requirements for the system for evaluation cycle 2
   - Evaluate and improve research questions for cycle 2
   - Use cases related to research questions
   - Minimal requirements to address research questions
   - Protocol evaluation and first setup (what are measures we want to drop, add, etc., what setup do we want)

3. *General Assembly Meeting* in Ede, Holland, from 12th to 13th of January 2017. The agenda was structured for discussing about:

   - Experiments discussion

- Objectives of meeting and project
- Use cases related to research questions for next implementations
- Deliverables
- Development process
- Timelines (including meetings, papers, experiments etc)
- Next meetings

4. *Integration Week Meeting* This meeting was held in Delft, at TNO university, from 1st to 4th of December 2016.

   The agenda was structured for discussing about:

   - Aims of a typical scenario
   - Ontology and Requirements
   - Bugs and scenario functionality
   - Plan for the next months

8.2 Future Meetings

For the forthcoming years of the project there will be organized several meetings in order to facilitate communication among partners and make decisions. Meetings that are in the planning are: meeting on questions and objectives with DUT, TNO, MMC, ZGV (end of February beginning March), Business plan meeting April, GA close after review meeting, GA in January 2018 together with business plan workshop in London, Developer integration sessions close to GA meetings.

8.3 The project SVN

During the second year of the project the Consortium used (and 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).

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.

9 Valorization

Several steps to ensure valorization in the future were taken this year, taking into account the review comments.

Firstly, a cost effectiveness analysis was performed for T1DM. This analysis shows an estimation of current costs and effectiveness and an estimation after deployment of PAL. Many of the current and future costs were hard to come by. This document is therefore more an overview of what information is needed than a good estimation of the current costs (see Annex 11.1 for a description and 11.2 for the cost factors). After discussing this with a company which made a business model and cost effectiveness analysis for a Type 2 Diabetes Mellitus intervention (Vintura) we came to the conclusion that many numbers are hard to come by, especially in the short term. One of the main ideas coming from this analysis is to focus more on stress with parents and of course keep the analysis factors into our mind to make sure we fill in the numbers we do have.

Secondly, we had interviews with a health care insurer and a hospital to investigate what kind of views they have on the project. It showed that the health care provider had many visions about how PAL could support his work, but for the insurance the whole idea was not yet practical enough and the direct cost effectiveness (within 2 years, preferably 1) was hard to see. This reaction supports our idea to focus a bit more on the stress of the parents as this is easier to see an improvement in than in improved adherence and decreased complications over a 10 year period.

Thirdly, the dissemination via news items in paper and online stimulated small companies to contact us. With some of them we have had talks to investigate possible avenues to go (e.g. Pilotfish). They are interested but it is hard to come up with a good financial plan towards investors in eHealth prevention products. Therefore we also look at possibilities in other domains (e.g. children oncology, parenting support) and for parts of the system. Next to this we should keep in mind that parts and ideas of the PAL project are ripe for valorization during and after the project, but for the rest we focus on TRL 5 which is far from an deployable product. Nevertheless we have contact and will keep in contact with pharmaceutical companies (e.g. Menarini), health care providers etc. and SMEs.

Fourthly, the project coordinator had regular meetings with business consultants at TNO to discuss possible valorization venues.

Fifthly, ZGV, TNO and Produxi are going to have a spin-off project to use the NAO as assessor and school presentation pal for children with diabetes. This project will be fund via a charity.

Sixthly, and finally we are going to make use of the opportunity provided by the EU via the Common Exploitation Booster service to get support in Business Plan Development, this will take place in January 2018. Before this time we will have a meeting with interested partners and business con-

sultants from these partners to prepare.

10 Future steps

In the next project year, the Consortium will continue to give efforts on increasing the interested 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 in order to disseminate previous results and to create future partnerships.

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.

11 Annexes

In this Section are collected the PAL official *Dissemination* materials:

11.1 Description of Cost Effectiveness analysis

Abstract This annex describes how the cost effectiveness analysis is build up, what are the variables and what is missing.

Relation to WP This annex provides input for the valorization T6.8

Availability Restricted.

11.2 Cost Effectiveness factors

Abstract This annex describes the factors and estimation of the costs and reductions of costs when the system is applied.

Relation to WP This annex provides input for the valorization T6.8

Availability Restricted.