PERSONAL ASSISTANT FOR HEALTHY LIFESTYLE

DRs 6.1, 6.5, 6.9: Y1 Dissemination Report

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The present report describes the work carried out in the first project year regarding PAL's *Dissemination* activities. It is the summary of three different WP6 Deliverables: Deliverable 6.1 "Website y1", Deliverable 6.5 "Publications and proceedings report y1" and Deliverable 6.9 "Dissemination events promoted y1".

1 Executive Summary

The current report is intended to be a summary of the work carried out during the first 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 will be undertaken during the project's lifetime by the Consortium, according to specific dissemination channels (see paragraph 2 for more details):

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, a number of *Dissemination Indicators* have been identified. These will be monitored over time and reported yearly, updating the present document, so that they can provide a brief overlook of the expected progresses made in *WP6*. In the following, the corresponding list is reported:

- PAL project website and social network Indicators - examples: Number of posts, Number of followers, Countries from which people visit the communication channels, Engagement level, etc...
- Number of National and International events attended (e.g.: congresses, lectures, exhibitions, workshops, etc...);
- Number of project-related Publications;

- Number of users (not necessarily diabetic end users, but also their relatives, friends etc) who access to the PAL online tools;
- Number of feedback from interested people on PAL researches presentation (e.g., medical institutions, assistive associations, hospitals, schools and industries).

This list may be edited and extended, during the project, if specific developments of the project ask for it or on the basis of the software utilized for the stats analysis. These changes will be reported.

The current Deliverable aims at embracing the first release (expected for the project M12) of three different documents: Deliverable 6.1 "Website y1", Deliverable 6.5 "Publications and proceedings report y1" and Deliverable 6.9 "Dissemination events promoted y1". This choice was made to give a more organic view of the work accomplished in the first project year.

The Deliverable is organized as follows: Section 2 describes the PAL *Dissemination* strategy in detail; Section 3 summarizes the results achieved in the first year according the the project roadmap; Section 4 describes the on-line dissemination channels chosen for PAL; 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; Section 9 ends the document with a description of the next steps to be undertaken.

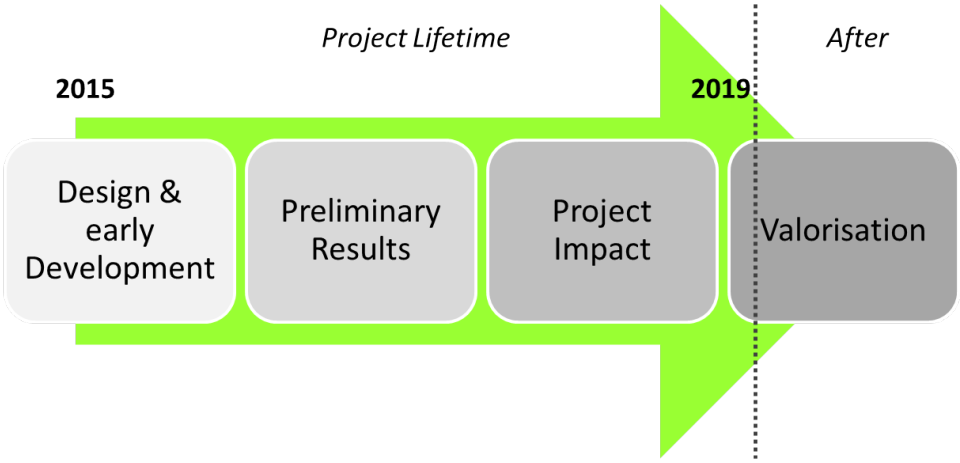

Figure 1: The PAL project Dissemination time line.

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 following:

1. Increase the awareness of PAL's role in supporting children with T1DM among both the field-expert public (medical and technical - e.g., caregivers, healthcare institutions, mHealth companies, ICT companies) and the general one (e.g.: families, patients associations, schools, sport clubs);

2. Communicate PAL's design and research methodologies and technologies developed and applied and their results, in order to provide a clear evidence of the project impact and potentialities among the possible interested auditory (e.g., general, academic, public, healthcare and industry channels of communication);

3. Study the possible cost-benefit trade-off of applying PAL's solutions in the real life for young patients with T1DM in EU and investigate possible measures to support this analysis.

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 phases, so as to be aligned as much as possible

to the project work-flow:

- *Stage 1 - Design and early Development*: at the onset of the project, the Consortium establishes the specific PAL dissemination message/s, the related communication strategy and proper timing. Then, during the first research phases, the aim of *WP6* is to inform the general public about the project existence and to create awareness about its objectives and expected results. To this extent, target-oriented PAL brochures, poster and informational leaflets are going to be realized, together with the project website and the related social networks will be prepared (see Sections 4 and 6).

- *Stage 2 - Preliminary Results*: on the basis of the insights and lessons learned during the early research stages, the awareness previously established has to be strengthened through a proper and trusted communication of the preliminary PAL results. In particular, the Consortium needs to identify different dissemination channels, based on to the specific interests and needs of each project target group (and their communication languages). In doing so, research topics, technological innovation and underlying behavioural and educational theories will be disseminated through specific means, like scientific papers, workshops, technological demonstrations and ad hoc events created for both the PAL end users and caregivers (see Sections 5 and 6).

- *Stage 3 - Project Impact*: during the last project year, the main purpose will be to exploit the path paved during the previous two stages to give an overall vision of the obtained results. This is meant to both increase knowledge and awareness and attract potential investors for a fruitful exploitation of PALs impact, both in the healthcare (not only strictly medical, but also psychological and educational) and technological fields.

- *Stage 4 - Valorisation*: at the end of the project and right after, demonstrations, special on site events and workshops will be organized for specific strategic audiences. These initiatives aim to keep interest in the PAL fields of research and to open new horizons to foster and improve its results.

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 fraction is represented by children with T1DM, their families and their in/formal caregivers: relatives, healthcare professionals (i.e.: the hospital staff), assistive associations, school staff, coaches, etc.

Because usually the acceptance of an innovative system is mediated by the perception of the embedded potential and possible benefits, that the future users have about it, the dissemination of project contents and findings must be effectively managed.

Consequently the different audience categories determine all the possible communications channels. Because of this multivariate nature of the project, the *Dissemination* strategy should cover different areas of intervention in different ways, ranging from the more 'classical' approach towards the academia, to the more interactive communication needed to target the general public. The following list reports an overlook of the main identified fields of intervention:

- *Academic dissemination*: the project's results will be communicated to the scientific community through Journals and Conference publications, alongside participation in special sessions and workshops in international conferences in all the PAL's relevant fields of research. Publications will range not only in the strictly ICT and Robotics technical, but will also reach the healthcare providers, in order to emphasize the highly interdisciplinary angle of the project;

- *Public dissemination*: target users (children with T1DM and their families or informal caregivers and) will be addressed via various initiatives including: demonstrations, presence on relevant sites/ social networks, leaflets and publications, as well as participation in 'open-to-public' science and technology events (e.g.: exhibitions and thematic days, week-ends, etc.). Also the social sphere of the users will be involved. This will be possible thanks to the direct involvement and to activities carried out in the schools or sports clubs;

- *Technological and Industrial dissemination*: project results will be communicated through ad hoc initiatives (e.g. demonstrations) to businesses and industry in order to foster and explore possible industrial collaborations and business connections;

- *Healthcare dissemination*: project results will be disseminated to healthcare professionals, in order to raise awareness and acceptance among the communities and to communicate the possible added value of the PAL solutions for the current international healthcare processes.

The PAL Consortium, and in particular the stakeholders associations and healthcare organizations involved, undertakes to actively promote a comprehensive dissemination of the results, both towards the scientific organizations and to the care and social environments addressed by this research.

Alongside this strictly *Dissemination*-related activities, WP6 enumerates among its main objectives also the study of the possible impacts of the PAL

solutions on the health outcomes of the target population and health care costs. This part, that can be called as *Proposition* phase (and is strictly linked to T6.8), will run in parallel to the other *Dissemination* phases and will grow trough the project lifetime, focusing both on the analysis of the possible costs/benefits arising from the adoption of the PAL system in the everyday life of young with T1DM and on the refinement and improvement of its services from a value chain perspective.

3 Tasks, objectives, results

3.1 Y1 work plan

During the first year, WP6 focused its efforts on paving the ground for an effective *Dissemination* of the project potentialities, in order to guarantee a long lasting *Valorisation* of the PAL results. The work done in this months was planned to specifically 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), "Partner exchange" (T6.6).

Work on tasks T6.5 - "Dissemination to healthcare, technological, industrial players and policy makers", T6.7 - "Co-creation online tool" and T6.8 - "Ex-ante impact assessment to establish the costs and benefits of the PAL system", has not been yet performed. The Consortium has planned to further work on these tasks in the following project stages, as more concrete results will be achieved alongside the technological developments.

At the moment, as preliminary steps in these contexts, different networking contacts have been made with the healthcare world thanks to the diabetes associations present in the Consortium and the hospitals involved. From the more technical side, instead, the PAL Consortium presence at national and international congresses guarantees a dynamic exchange of ideas and discussions with the leading research institutions in the project's fields of interest.

To summarise, the objectives of this preliminary project phase were to: *(i)* investigate and define the main dissemination channels to target during - and after - PAL; *(ii)* tune accordingly a proper communication language; *(iii)* set up the main on-line PAL dissemination tools according to point *(i)*; *(iv)* define a robust and effective framework for managing the dissemination process internally to the Consortium; *(v)* start to contribute to the Academic dissemination field of interest; *(vi)* begin to organize - or make connections to organize in the future - dedicated PAL events for the general public and health-related audience.

In the following parts of the current Report are reported the main activities carried out to tackle these objectives and the related preliminary achievements, pertinent to the *Design and early Development* project phase (see section 2), divided depending on their nature and main aim.

4 Online *Dissemination*

Dissemination is intended to be an intentional process of communicating materials, results, products and new ideas [3] and relies on the traditional theory of communication, which usually involves a sender, a receiver and an language appropriate to the context [5].

In the last decades, technological advancement (and in particular the rapid growth of the Internet environment) lead to a sharp change in the the way in which people communicate and in the practice of information collection, organization and dissemination [4]. In addition to that, in recent years, *Dissemination* increasingly became a cardinal part of the research processes, in particular the health-related one [1]. Consequently, it is no more treated as a simple projects' added feature, but currently requires new resources and expertise to be effectively carried out. Taking into account the two aforementioned facts, the advantages of exerting online tools of dissemination over more traditional media becomes quite clear: the evolution of Internet has globally proposed a new way of communication, thanks to its flexibility and speed of information exchange.

As example, in the web-based environment users can explore and gain various information from a single search and through newsgroups and forums ideas can be discussed, exchanged among researchers, professionals and public interested groups. Moreover, thanks to the variety of online tools available (e.g.: websites, forums, social networks, chats), this resources turns to be very powerful in providing the right information to the right users, at the right time, in a personalized manner.

4.1 The Online Communication framework

In order to properly disseminate the PAL research among the web and to effectively tackle the main audience targets, a dedicated internal (to the Consortium) strategy of communication has been outlined. Figure 2 reports a schematic overview of the workflow.

Firstly, it was necessary to point out the objectives to be pursued thanks to an Online dissemination campaign. After a preliminary analysis and an internal discussion among the Consortium, the main ones turned out to be: *(i)* improve the online reputation of the PAL project; *(ii)* reach the project's end-users, involve and possibly discuss with them through the web; *(iii)* guarantee an active engagement in the PAL researches in a long term perspective; *(iv)* build an easy to access project's information repository. Then were selected the key target audiences we aim to reach for the project sake: Institutions, Health and Research Professionals (in general and possible PAL stakeholders), children with T1DM, their families and their social environment (e.g.: schools, sport club).

Lastly we investigated the corresponding dissemination means and the

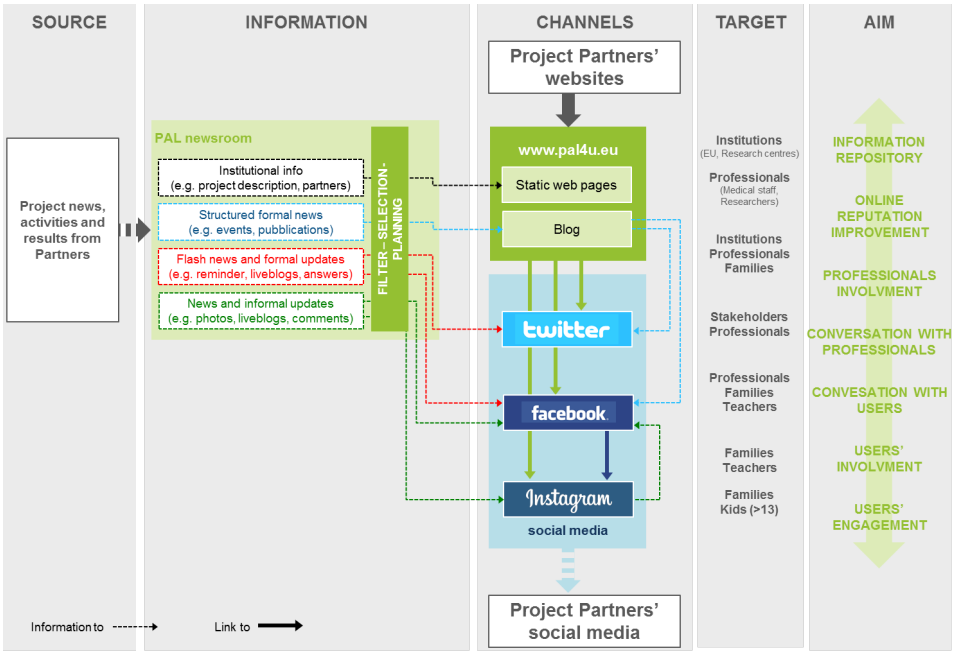

Figure 2: The PAL project On-line Communication Framework.

choice fell on the following channels (which will be described specifically in the following paragraphs):

- the PAL official website and blog - responsible to provide the more institutional information about the project, its participants, the publications, the activities performed etc.;
- the PAL social networks (i.e.: Twitter, Facebook and Instagram) - thanks to their less formal nature, these tools are focused on building communities of people with shared interests and provide them a chance to interact.

After these key strategy-components were selected, an internal action-framework was established to coordinate the efforts of the Consortium. Referring to Figure 2, the *PAL news room* is the core of the project communication process and it is responsible for collecting, selection, formatting, editing and publishing project (or project-related) news/information, which are divided into four categories:

- *Institutional info*: mainly static information about the PAL project and its partners on the official project website. Only few changes in this regard will occur during the project lifetime;

- *Structured formal news*: information to be published as blog post. Blog posts are the first step to deliver persistent structured formal news to project audience (specific url at www.pal4u.eu). They can be related to: (i) PAL project original news: events, publications, congress participation, solution releases, results, etc. (ii) children-technology-diabetes related news from other source;

- *Flash news and formal updates*: they will be published on social media and can be self-standing short project news (e.g. picture) or linked to other websites (verified by the scientific reviewer). Target is made up by professionals (medical staff, researchers), families and teachers/ coaches;

- *News and informal updates*: ludic news (e.g. pictures with the NAO robot, project team activities) and updates about the project. Target is made up by children, parents and teachers/ coaches.

The *PAL news room* involves currently three components: *(i)* a Communication coordinator (Cc - from FCSR), *(ii)* a Blog editor (Be - from TNO), *(iii)* a Scientific reviewer (Sc - from TNO, with the support of both Dutch and Italian healthcare professionals involved in the project, for what concerns the medical domain). The role of the Communication coordinator is to keep the PAL website updated with information, ensure a proper dialogue between the partners' communication offices and solicit and collect interesting news from the Consortium. To this extent, a dedicated mail address has been dressed up (*communication@pal4u.eu*), that will be received by all the communication managers in TNO and FCSR. In addition to the previous tasks, the Cc has to format news for the right channel and publish them, reply to message on social, share/discuss relevant info with the Be. The Blog editor is supposed to edit the PAL blog posts, starting from the project activities, researchers experiences, partners news/events and to look for relevant news to be commented. Lastly, the Sc has to evaluate the scientific trustworthiness of the information to be published on the PAL blog or social media and to support the Communication coordinator in any possible scientific reply on social media.

4.2 PAL project official website

The most important online showcase of the project is its official *website*. It is available at the following address (see Figure 3): http://www.pal4u.eu/. It allows research partners to easily communicate with the PAL public and provides an overview of the project for people outside of it. The official website shows all the aspects of the project and also acts as a repository for the sharing and dissemination of related publications, presentations, and multi-media documentation of the scientific results. It targets a wide range

Figure 3: A view of the Homepage and the Blog of the PAL project web-site.

of audience categories, that could be interested in the project researches: institutions (e.g., EU, other research centers), professionals (e.g.: healthcare-related, new technologies), families which have children with T1DM, schools, diabetes and health-related organizations.

On the home page, visitors receive a summary of the main project information and are led to discover the site contents, clustered in the following sections:

- *Partners*: provides a brief description of the partners involved and of their specific research field in the project;
- *Project*: explains the aim of the project, its research objective and expected impact (i.e.: *About*). It provides also an informative background on Type I Diabetes Mellitus (i.e.: *Background about Diabetes)*, validated by the paediatric & diabetological units of Hospital Gelderse Vallei (NL) and Ospedale San Raffaele (IT), in order to better contextualize PAL researches and aims. Finally this section contains a repository of the project-related publications and deliverables, information about Co-creation tools developed during the project lifetime (i.e.: *Apps and Co-creation*);
- *In the news*: in this section the visitor can find information regarding the project, which could be published on the media: radio, press, social networks, television and web;
- *PAL Blog*: provides informal updates on the projects, directly written by PAL researchers, giving their own point of view on the work per-

Indicators	**Results**
Number of Visitors	242
Returning visitors	8
Average session duration	00:00.24
Number of posts on the blog	5
Number of posts in the section *"In the news"*	2
Top 5 countries	GB; DE; NE; SP; IT

Table 1: Summary of the PAL website indicators - updated to January 2016

formed. The blog aims at raising awareness and interest in the visitors through a more confidential communication.

We used Google Analytics to extract the stats for the project website, covering the entire lifetime of the project page. The last update is dated back to the end of January 2015. Table 1 summarizes the currently available information, which are going to be update year by year.

4.3 The Social Network channels

The decision to exert Social media as additional dissemination channels was pondered 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 [2] and social networks are currently motivating new forms of social interaction, dialogue, exchange and collaboration among the users [4].

Actually social networking is a social structure that allows users to interact and work collaboratively with each other, providing a wide variety of communication languages and means which can be chosen from time to time depending on the context and on the type of users (e.g.: teenagers, professionals, researchers, companies, etc.). For example, some of them give the possibility to upload pics or videos, some are equipped with private/ public chats, other are designed specifically for blogging.

For these reasons the Consortium decided to enumerate, beyond the more classical communication channels, also these latter for building an effective *Dissemination* strategy. In particular, the rationale was to provide the PAL public with some informal channels of communication and update, through which they could freely decide to interact, depending on their general characteristics (e.g., age, gender, profession, etc.).

The choice for the first year fell on three of the main social network used nowadays:

- *Facebook*
- *Twitter*

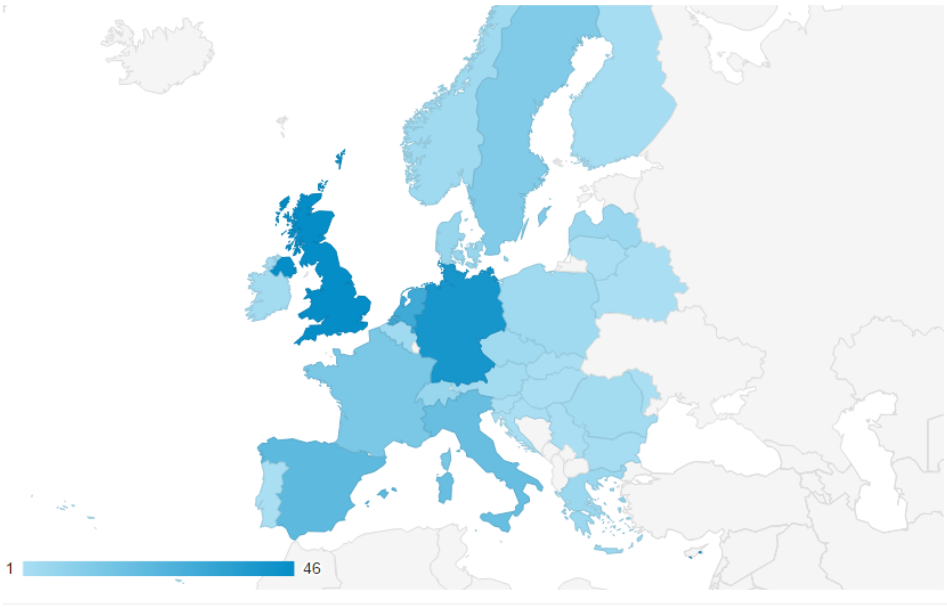

Figure 4: The European Countries most frequently visiting the PAL website (the darker the colour, the more frequent the views).

- *Instagram*

We decided to select these ones in particular because they turn out to be or the most popular (especially Facebook) - and then capable to reach the greatest number of users -, or those which have experienced in the last years a substantial increase in use and are more popular among young people (i.e., Instagram and Twitter). Figures 5 and 6 show the overall percentage of usage per social media per year and the detail of its frequency [2].

Through these tools we want to create a community of people interested in the development of PAL, not strictly scientific, but also involving the real end-users of the project solutions: healthcare professionals of diabetological centers, families and children with T1DM, schools. The aim is to disseminate contents about type 1 diabetes mellitus and project steps or achievement as frequently as possible and with a more friendly approach. In addition to the strictly PAL-pertinent news, the social media are intended also to share contents by other sources (validate by the Scientific reviewer), in order to have a continuous flow of information that could keep people updated and engaged.

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

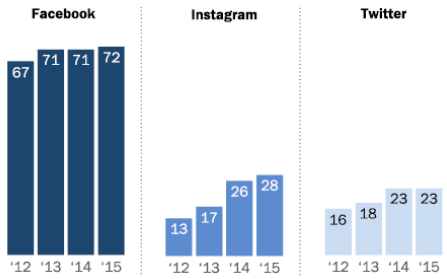

Figure 5: Percentage of popularity per social network per year - starting from 2012 - among the users (Adapted from [2]).

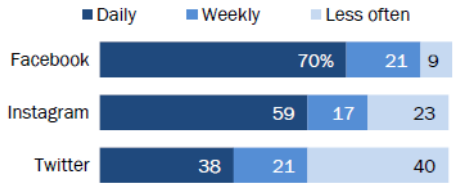

Figure 6: Frequency of use of per social network, among the related users (Adapted from [2]).

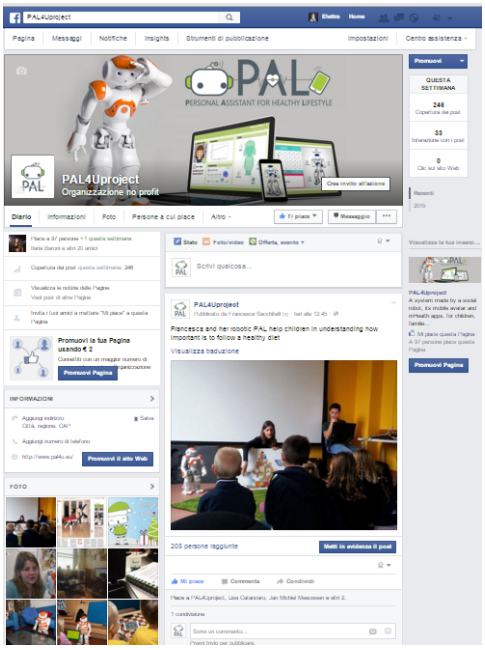

Figure 7: A view of the homepage of the Facebook project page.

Indicators	**Results**
Number of posts	51
Number of followers	113
Average coverage of the posts	74
Average coverage of the photos	314
Average coverage of the links	113
Average interactions	33
Total average coverage	92
Age range with more engagement	25-34 y.o.
Top 3 countries	Netherlands; Italy; Germany
Gender of the followers	66% female; 34% male

Table 2: Summary of the PAL Facebook page indicators - updated to January 2016

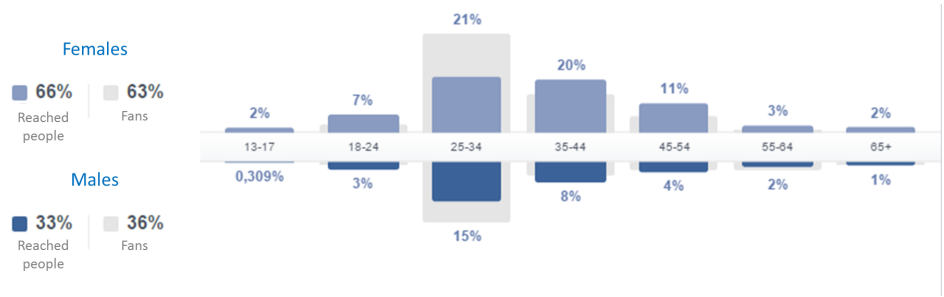

Figure 8: Average age of the PAL Facebook page visitors.

4.4 Facebook

A dedicated project page has been created, with the nickname *PAL4Uproject* (see Figure 7). 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 are shared updates on the project activities and type 1 diabetes-related initiatives (both organized by the project or to which PAL researchers participated and international events - e.g.: World Diabetes Day -) through pics, videos and interactive links. The Facebook PAL page is intended to reach a portion of the public variously composed, from the general (e.g.: families and people with T1DM, people interested in project issues) to a more specialized one (e.g.: healthcare professionals or institutions or associations, researchers, schools, theme-related projects, etc.), promoting an impactful communication and stimulating discussions on the posts.

Statistics for Facebook, for what concerns the interactions, coverage of the posts and the number of likes, are available for a period which covers the last 180 days. This overview has been obtained directly by the Facebook Analitycs tool available on the page and reported in Table 2. Also in this case these parameters are going to be update year by year.

4.5 Twitter

Twitter is a powerful mean to bring the project *Dissemination* out of the strictly scientific publication world. It can be used to showcase the project-related literature work (or a summary of it) and it is useful to provide information about the project milestones or to describe the linked developments. To this extent, for what concerns PAL, Twitter messages are designed to be as more 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 deepen 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 available Twitter indicators obtained directly by the Twitter Analitycs, to be updated yearly. Coherently, also for Twitter the project account corresponds to *PAL4Uproject* (see Figure 9).

4.6 Instagram

Also in Instagram, an *PAL4Uproject* account has been created. In this social network the focus is strictly visual: the basic idea is to use images and hashtags that are characterizing the project, to raise the interest of the public, especially the younger one, who is the main user of the service (children with families and teens/young with T1DM).

Figure 9: A view of the homepage of the Twitter project page.

Indicators	**Results**
Number of posts	86
Number of followers	49
Tweets visualization	2132
New followers last month	10
Number of profile visits	199

Table 3: Summary of the PAL Twitter account indicators - updated to January 2016

Indicators	**Results**
Number of posts	30
Total Likes	147
Number of followers	31
Gender of the followers	53 % females, 47% males
Top 3 Countries	Italy, Netherlands, Australia

Table 4: Summary of the PAL Instagram account indicators - updated to January 2016

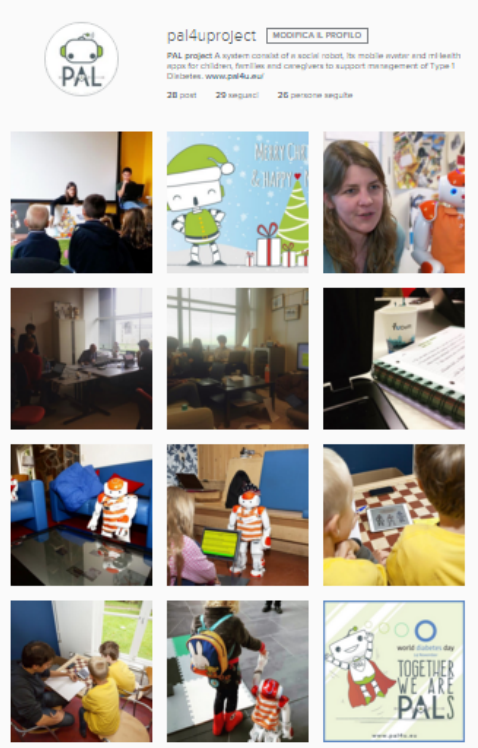

Figure 10: A view of the homepage of the Instagram project page.

We extracted Instagram's stats by using a specific software, Minter (*https://minter.io/*) and these are reported in Table 4.

5 Publications and Proceedings

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

5.1 Journals & Books

Not currently available.

5.2 Conferences

During the first project year, the PAL Consortium produced the following publications, related to papers that have been presented during international conferences/ congresses. In the following list are reported the corresponding abstracts and is highlighted the type of public reached in these occasions. Please find in Table 5 the publication details.

- **Let's Be Friends: Perception of a Social Robotic Companion for children with T1DM** - *"We describe the social characteristics of a robot developed to support children with Type 1 Diabetes Mellitus (T1DM) in the process of education and care. We evaluated the perception of the robot at a summer camp where diabetic children aged 10-14 experienced the robot in group interactions. Children in the intervention condition additionally interacted with it also individually, in one-to-one sessions featuring several game-like activities. These children perceived the robot significantly more as a friend than those in the control group. They also readily engaged with it in dialogues about their habits related to healthy lifestyle as well as personal experiences concerning type 1 diabetes. This indicates that the one-on-one interactions added a special quality to the relationship of the children with the robot".*

  This extended abstract was presented during the New Friends 2015 Conference. In particular, the international and multidisciplinary conference New Friends 2015 brings together researchers, professionals, students from different disciplines of health, social welfare and education and developers in the fields of AI social robotics, ICT and business. The location was Almere, NL and it was presented during the days between 22th and 23rd of October, by researchers from FCSR and DFKI.

- **How do diabetic children react on a social robot during multiple sessions in a hospital?** - *"In the European project ALIZ - e, many aspects of social robot interaction were evaluated, mainly with healthy children. In this paper, we take the lessons learned and apply them in a field experiment with diabetic children. The observations*

showed that a robot requesting help added to the bonding, that the children with diabetes acquired relevant knowledge, seemed to appreciate the robot more than the healthy children in earlier experiments and showed to have different profiles between them that set requirements for personalisation".

Also this extended abstract was presented during the New Friend conference by the researchers of TNO university.

- **Young Users Perception of a Social Robot Displaying Familiarity and Eliciting Disclosure** - *"Establishing a positive relationship between a user and a system is considered important or even necessary in applications of social robots or other computational artifacts which require long-term engagement. We discuss several experiments investigating the effects of specific relational verbal behaviors within the broader context of developing a social robot for long-term support of self-management improvement in children with Type 1 diabetes. Our results show that displaying familiarity with a user as well as eliciting the users self-disclosure in off-activity talk contribute to the users perception of the social robot as a friend. We also observed increased commitment to interaction success related to familiarity display and increased interest in further interactions related to off-activity talk."*

  This paper, a joint work from DFKI and FCSR researchers, was presented during the ICSR 2015 conference, in Paris. The International Conference on Social Robotics brings researchers and practitioners together to report and discuss the latest progress in the field of social robotics, focusing on the interaction between humans and robots and the integration of robots into our society. The theme was "Individual Differences".

- **Childs Culture-related Experiences with a Social Robot at Diabetes Camps.** - *"This paper investigates the experiences of Italian and Dutch children while interacting with a social robot that is designed to support their diabetes self-management. Observations of childrens behaviors and analyses of questionnaires at diabetes camps, showed positive experiences with variation (e.g., Italian children seemed to be more open and expressive, and more close to the robot compared to the Dutch children). A culture-aware robot should be sensitive to such differences."*

  This extended abstract, a joint work between TNO and FCSR researchers, has been accepted for being presented during the upcoming HRI 2016 Conference, from 7^{th} to 10^{th} of March, in New Zeland. The HRI Conference aims to reach a significant participation from communities that include robotics, human-computer interaction, human

factors, artificial intelligence, engineering, social and behavioral sciences.

Publication Title	**DOI**	**Authors**	**Title of the Journal or equivalent**	**Open access**
Let's Be Friends: Perception of a Social Robotic Companion for children with T1DM	N.A	Kruijff-Korbayová, I. et al	New Friends Conference	Yes
How do diabetic children react on a social robot during multiple sessions in a hospital	N.A	Looije, R. et al.	New Friend Conference	Yes
Young Users Perception of a Social Robot Displaying Familiarity and Eliciting Disclosure	10.1007/978-3-319-25554-5_38	Kruijff-Korbayová, I. et al.	Springer	No
Childs Culture-related Experiences with a Social Robot at Diabetes Camps	Accepted but still to be published	Neerincx, A. et al.	IEEE	-

Table 5: List of the Conference-related PAL publications

6 PAL *Dissemination* events

During this first year of the project, the Consortium participated to various initiatives and events in order to promote awareness and raise interest towards PAL's fields of research and objectives among different types of audience, ranging from the strictly academic to the more various group of the project's final stakeholders. In the following Table 6 are reported the details for each *Dissemination* event. Moreover in the next Sections6.1 and6.2 are highlighted and described in particular the attended Workshops and Invited Lectures.

Event	**Promoter**	**Where**	**When**	**Audience**	**Partner**	**How is the PAL project promoted**
Week van de ondernemer	KvK (Chamber of Commerce)	Utrecht	04/14-16/2015	Entrepeneurs of SMEs	TNO	Robot demonstration and flyers
RoboNed	Robot network Netherlands (RoboNed)	Veldhoven	06/04/2015	Researchers and companies interested in robotics	TNO	Robot demonstration and flyers
Student tour	TNO	Soesterberg	06/09/2015	Students in the field of psychology	TNO	Robot demonstration and flyers
Week van de ondernemer	KvK (Chamber of Commerce)	Groningen	06/10-11/2015	Entrepeneurs of SMEs	TNO	Robot demonstration and flyers

Continues in next page

Event	**Promoter**	**Where**	**When**	**Audience**	**Partner**	**How is the PAL project promoted**
Week van de ondernemer	KvK (Chamber of Commerce)	Enschede	06/24-252/2015	Entrepeneurs of SMEs	TNO	Robot demonstration and flyers
Open day at TNO	TNO	Soesterberg	06/27/2015	TNO employees and their families, students, neighbours of TNO Soesterberg and retired TNO personnell	TNO	Robot demonstration and flyers
Visit board TNO and University of Twente	TNO	Soesterberg	07/02/2015	TNO and Twente University Board members + professors	TNO	Robot demonstration
Week van de ondernemer	KvK (Chamber of Commerce)	Eindhoven	09/23-24-2015	Entrepeneurs of SMEs	TNO	Robot demonstration and flyers

Continues in next page

Event	Promoter	Where	When	Audience	Partner	How is the PAL project promoted
Technical creative lesson	Postiljon primary education	Soesterberg	10/2 and 9/2015	Children aged 8-12	TNO	Robot demonstration and explanation
Bergamo Scienza 2015	Associazione Bergamo-Scienza, scientific association	Bergamo	10/06/2015	Schools	FCSR	Robot demonstration
Week van de ondernemer	KvK (Chamber of Commerce)	Rotterdam	10/14-15/2015	Entrepeneurs of SMEs	TNO	Robot demonstration and flyers
Wetenschapsdag Delft	DUT science center	Delf	10/25/2015	General public	DUT TNO	Robot demonstration
World Diabetes Day MMC	Meander MC	Amersfoort	11/14/2015	Adults and children with T1DM or interest in diabetes	MeanderMC TNO	Robot demonstration and flyers

Continues in next page

Event	**Promoter**	**Where**	**When**	**Audience**	**Partner**	**How is the PAL project promoted**
Vrouwelijke leiders in de zorg	Young Girls Community	Zeist	11/19/2015	Female managers from care and cure institutes	TNO	Interview during plenary, 2 pages in magazine, demonstration and flyers
Reunion Diabetes camp DVN 2015 in the Netherlands	Diabtes Vereniging Nederland (DVN)	Leusden	11/25/2015	Organizers and volunteers of DVN diabetes camps 2015	TNO, DVN, Meander MC	Presentation of results DVN diabetes camp 2015
Week van de ondernemer	KvK (Chamber of Commerce)	Amsterdam	11/25-26/2015	Entrepeneurs of SMEs	TNO	Robot demonstration and flyers
DRItti a voi	Ospedale San Raffaele, DRI, SOS70	Milan	01/30/2016	General public, doctors, children with T1DM and their families	FCSR SOS70	Robot demonstration (interactive lesson with children) and flyers

Continues in next page

Event	**Promoter**	**Where**	**When**	**Audience**	**Partner**	**How is the PAL project promoted**

Table 6: Summary of the PAL Events

6.1 Workshops

During the current reporting period, the PAL Consortium attended some workshops in order to disseminate the project potentials and results. In the following table7 are reported the corresponding events, highlighting the type of public reached in these occasions.

- **XVII workshop in Endocrinologia e Metabolismo dell'età evolutiva**, Milan (Italy), 21st and 22nd May 2015. This workshop mainly focused on some pediatric diseases, including childhood obesity and Type 1 Diabetes Mellitus and their relation with a proper dietary regimen and physical exercise. The FCSR researchers presented the PAL project to the attendees through dedicated brochures and posters.

- **Include**, Hague (the Netherlands), 6th August 2015. This workshop was centered on how the expectation to use ICT in the society can be a barrier to groups of people with special needs and how design patterns and guidelines can support the development of ICT that is accessible for all. The PAL project was shown, by TNO researchers, as an example of how user centered design is used to acquire user requirements and design accordingly.

- **Inspiratiedag serious gaming**, Soesterberg (the Netherlands), 23rd September 2015. The theme of the workshop was: "How can serious games be used for the blind and mentally challenged?". The TNO research team presented the PAL project as an example of a project specifically designed for a user group with special needs.

- **ICSR workshop**, Paris (France), 26the October 2015. A dedicate workshop on Child-Robot Interaction was held by TNO researchers; in the following is reported the corresponding 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 multimodal evaluation of child-robot interaction. Connected questions that we would like to tackle are for*

example: What are reliable metrics in CRI? How can we overcome the pitfalls of survey methods in CRI? How can we integrate qualitative approaches in CRI? What are the best practices for in the wild studies with children?

Event	Promoter	Where	When	Audience	Partner	How is the PAL project promoted
XVII workshop in Endocrinologia e Metabolismo dell'età evolutiva	Endocrinology and Diabetes unit of the Paediatric Department of San Raffaele Hospital	Milan	05/21-22/2015	Healthcare professionals	FCSR SOS70	Divulgative project material and possible one to one discussion
Include	Include Project	The Hague	06/08/2015	Companies/institutions interested in ICT for people with special needs	TNO	Robot demonstration and flyers
Inspiratiedag serious gaming	Link4All	Soesterberg	09/23/2015	Healthcare professionals (projectleaders and managers) in domain of mentally challenged and blind	TNO	Robot demonstration and information
ICSR workshop	ICSR	Paris	10/26/2015	Organisation and presentation	TNO FCSR	Organisation and presentation

Table 7: Summary of the PAL Workshops

6.2 Invited Lectures

As well as Workshops, during the first year of the project, were carried out even several Invited Lectures which are described in the following list and in Table 8.

- **IROS 2015. Personalising assistive robotics for people with disabilities.** *"To personalise the interaction with human users and maximise the impact of the assistance they can give, robots need to develop life-long user models that can be used to recognise human actions, predict human intentions and assist intelligently, while constantly adapting to changing human profiles."*

  This invited lecture has been held during the International Conference on Intelligent Robots and Systems, among 28$^{\text{th}}$ September and 2$^{\text{nd}}$ October 2015, in under the theme "Gateway to the Era of Robots". The location was Hamburg (Germany) and it was held by a researcher from Imperial College (London), describing the latest research in generative models for embodied action perception, social cognition and machine learning mechanisms for humanoid robots and smart robotic wheelchairs, with a particular focus on their application towards adaptive robotic assistants for children and adults with disabilities and long term medical conditions.

- **HRI Summer school. Personalising interactions with assistive robotics.** *"Robots are increasingly establishing their credibility as useful assistants outside traditional industrial environments, with new challenges emerging for intelligent robotics research. To personalise the interaction with human users, robots need to learn life-long user models that can be used to recognise human actions, predict human intentions and assist intelligently, while constantly adapting to changing human profiles."*

  This invited lecture has been held during the HRI Summer School 2015, among 24$^{\text{th}}$ and 28$^{\text{th}}$ August 2015. The location was Aland (Finland) and it was held by a researcher from Imerial College (London). In this lecture, were mainly described latest research in adaptive embodied cognitive architectures that combine action perception, social cognition and machine learning mechanisms for humanoid robots and smart robotic wheelchairs, discussing their application towards adaptive robotic assistants for children and adults with lifelong illnesses and disabilities."

- **NSPOH** *This event is considered as an additional education for company doctors to keep in touch with new technologies.*

  This invited lecture has been held during NSPOH 2015, on 7$^{\text{th}}$ December 2015. The location was Amsterdam (the Netherlands) and it was

held by a researcher from TNO. The PAL project has been promoted by showing how interventions can be used in ICT and that new technologies such as robots can provide new ways to promote motivation.

Event	**Promoter**	**Where**	**When**	**Audience**	**Partner**	**How is the PAL project promoted**
IROS 2015	IEEE and RSJ	Hamburg	10/2/2015	Researchers and students in the field of of assistance and service robots	IMPC	Presentation of the PAL project, and its objectives and interdisciplinary methodology
HRI Summer school	IEEE Robotics and Automation Society, EU projects DREAM and Robot-ERA	Aland	09/24-28/2015	About 60 PhD students and postdocs in the fields of Human Robot Interaction, Psychology and Computer Science	IMPC	Presentation of the PAL project, and its objectives and interdisciplinary methodology.
NSPOH	NSPOH	Amsterdam	12/07/2015	Company doctors	TNO	Robot demonstration

Table 8: Summary of the PAL Invited Lectures

Figure 11: The PAL project official logo.

7 PAL project official material

7.1 PAL logo

The first step undertaken to launch the project in its early lifetime was to design an appropriate logo (see Figure11).

The logo consists of an iconic component that merges with a textual component to get an *illustrative* logo. It was created by the desire to synthesize the graphical content of the claim: "Personal assistant for healthy lifestyle". The iconic component consists of a robot connected by a direct link to a portable device (that could be either of the PAL technologies, e.g.: a tablet, a smartphone) to reinforce the meaning and purpose of the project (create a supportive multi-component platform). Between the two connected iconic elements it's inserted the textual component *"PAL"* showing the letter A in the shape of a heart, positioned in the exact meeting point between the two connected technological elements. It is intended to represent the purpose of the project to become an effective support in the real daily lives of final-users. The adopted style is simple, basic and focused, easy to remember and usable. The colors are chosen as, despite their neutrality, add vitality to the entire logo.

7.2 PAL Poster & Brochures

The project brochure and poster are meant to be tools for "marketing purposes". They represent an efficient communication instrument for the field-experts of PAL solutions (i.e.: technology researchers and healthcare professionals), as well as children with T1DM, their parents and other general stakeholders. They are 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. Moreover, to make this possible, poster and brochures have been properly constructed to highlight the value and the impact of the PAL outcomes.

Figure 12: The PAL informal brochure front and back pages.

To achieve the wider public and to have flexible dissemination material, one general poster and two brochures are produced. The PAL official poster (see Figure 14) is intended to reach mainly the field-expert public and to be shown during exhibitions and congresses.

Two types of brochures have been designed, each targeting a different populations: 1) a formal version for experts, such as developers and health care professionals (see Annex 10.1) and 2) a informal version for lay persons, such as children and their parents (see Annexes 10.2 and 10.3). The former is meant to be a complementary tool to the PAL official poster, so it was designed with a more simple and elegant layout. The latter is instead directed to children and their families, so it was realized using a more colourful an charming graphic. As the PAL project is aimed to reach two precise groups of stakeholders through its experimental activities (Italian and Dutch children and families with T1DM), the informal brochure has been realized in both the languages. Figures 12 and 13 show, instead, the English version of the informal brochure.

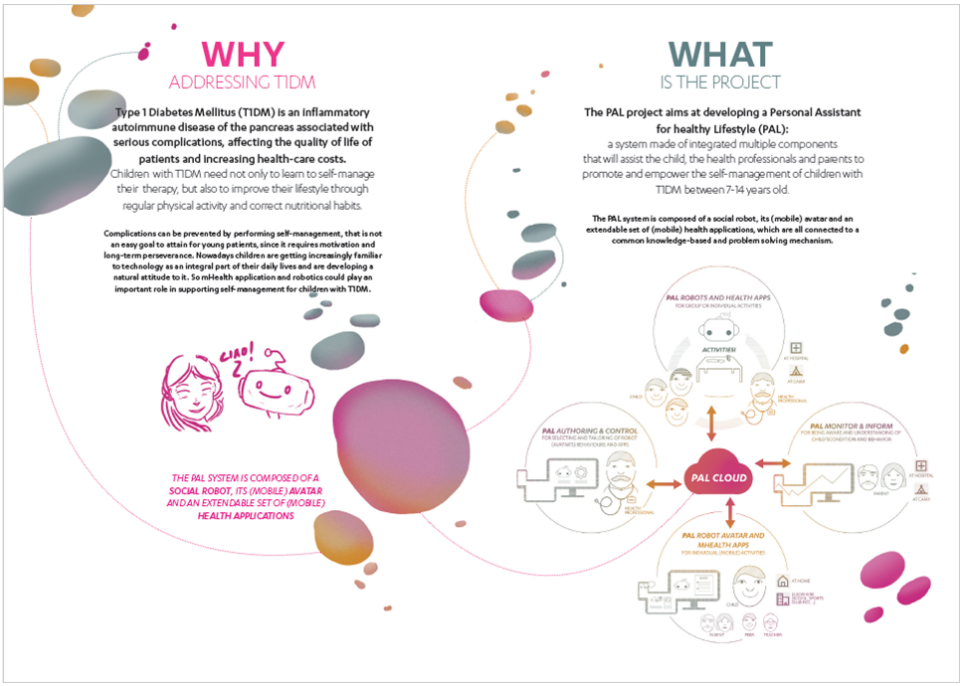

Figure 13: Inner view of the PAL informal brochure.

8 Partners' exchange

Effective communication between partners within the Consortium is an essential goal of *WP6*. The internal communication strategy is based on three pillars: the day-to-day communication (i.e. mail exchange or Skype calls), the web based communication (e.g. SharePoint-based) and the project meetings.

8.1 Meetings

The project meetings are of key importance to actively stimulate and facilitate a smooth communication and interaction between all the researchers involved in the project. In the following are listed the project meetings are organized in the first project year.

1. *Kik Off Meeting.* The purpose of the Kick Off Meeting is to formally notify to all the PAL partners that the project is started and make sure everyone understands what their role is and their responsibility are. During this meeting, held in Delft from 11th and 12th March 2015, the Consortium discussed about:

    - Project overview (see Annex 10.4)

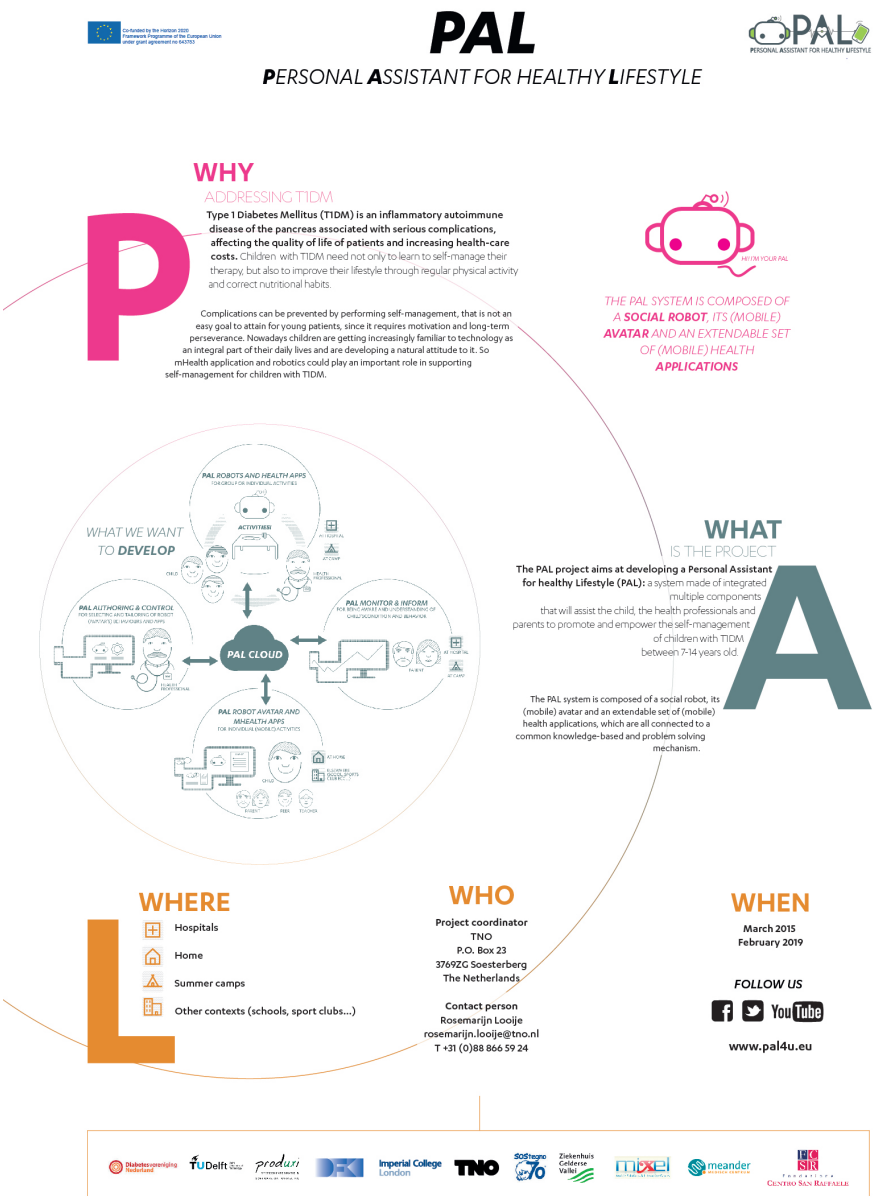

Figure 14: The PAL official poster.

- Possibilities
- Technical aspects
- Planning for Y1
- Timeline for Y1
- Decision Points
- Action points

2. *General Assembly Meeting* This meeting was held in Milan, at San Raffaele Hospital, from 8th to 9th of October 2015, to discuss the progresses made in the first half of the year and schedule the next steps to be undertaken.

   The agenda was structured for discussing about:

   - Objectives
   - Overview of the work done
   - Diabetes camps in Italy and in Holland (see Annex 10.5)
   - Situated Cognitive Engineering introduction
   - Design Rationale introduction
   - Stakeholder Workshop
   - Requirement Workshop
   - Future plans
   - Future meetings plan
   - Timeline for the Y1

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

   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

- *Y1 dry run and Annual Review - 24th and 25th May 2016*
- *Y2 General Assembly June 2016*

8.3 The project SVN

In order to facilitate the exchange of information and data among all the partners, a common *SVN* was set up through the open source Tortoise SVN program. This software allows to store documents securely, preventing the download by other people eternal to the project. Data secured in the *SVN* can be 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

9 Future steps

In the next project year, efforts will focus on increasing the numbers of the public interested in the project and the related dissemination events promoted by the Consortium itself. In addition to that, concrete actions to define the work relating to task following tasks will be taken: 6.5 "Dissemination to healthcare, technological, industrial players and policy makers", 6.7 "Co-creation online tool", 6.8 "Ex-ante impact assessment to establish the costs and benefits of the PAL system".

References

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10 Annexes

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

10.1 PAL formal *Dissemination* Brochure

Availability Unrestricted.

10.2 PAL informal *Dissemination* Brochure, Italian version

Availability Unrestricted.

10.3 PAL informal *Dissemination* Brochure, Dutch version

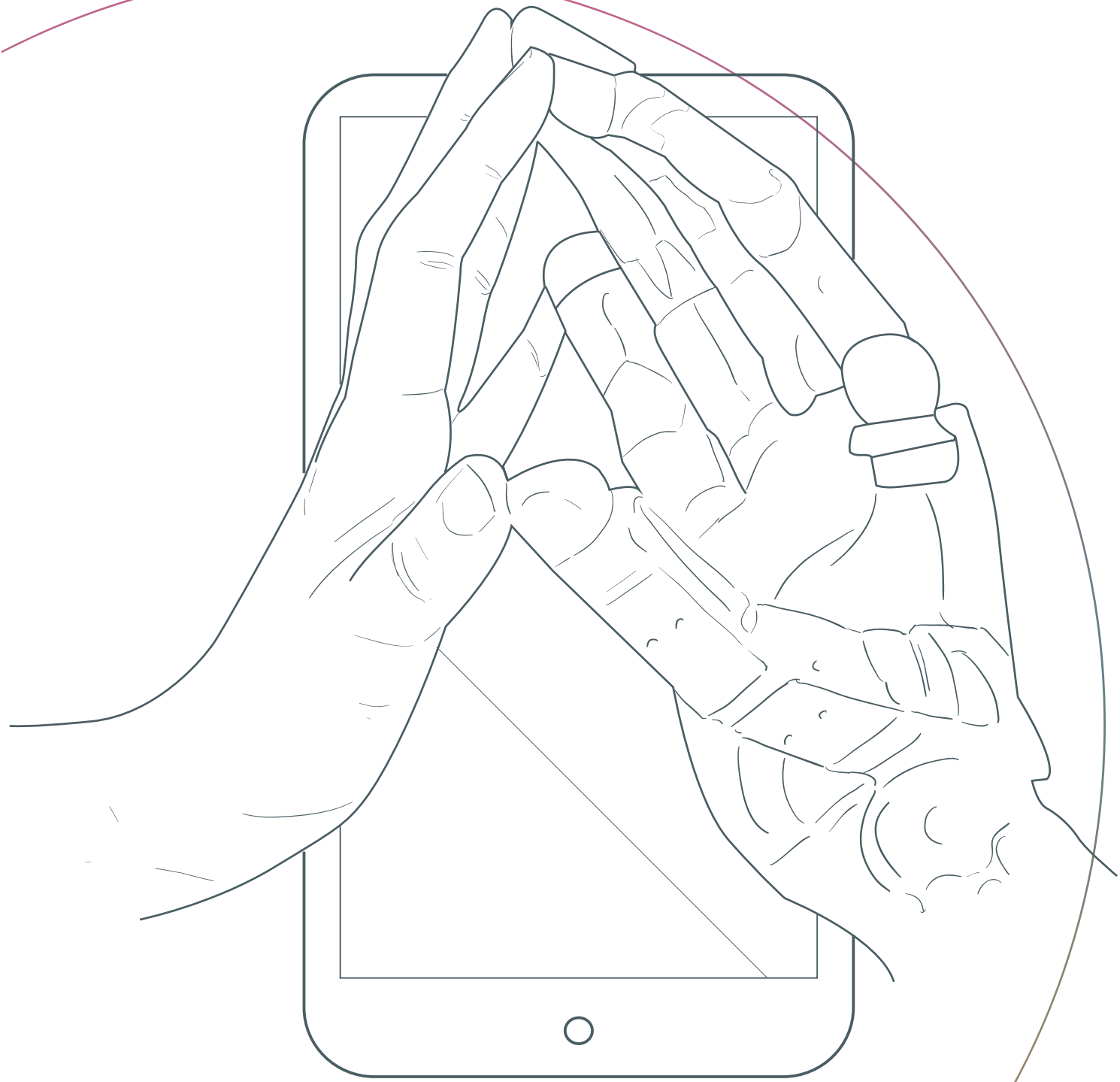
Availability Unrestricted.

10.4 PAL project overview presentation during the Kick-off meeting, Delft, March 2015

Availability Restricted. Not included in the public version of this deliverable.

10.5 PAL project WP1 overview presentation during the General Assembly meeting, Milan, October 2015

Availability Restricted. Not included in the public version of this deliverable.



PAL

PERSONAL ASSISTANT FOR HEALTHY LIFESTYLE

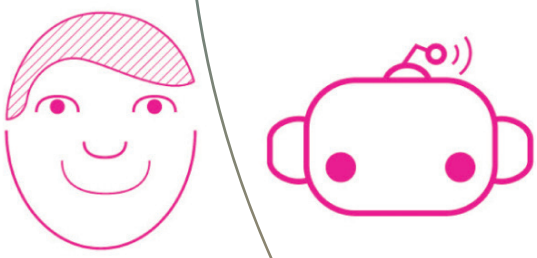
WHY

ADDRESSING T1DM

Type 1 Diabetes Mellitus (T1DM) is an inflammatory autoimmune disease of the pancreas associated with serious complications, affecting the quality of life of patients and increasing health-care costs.

Children with T1DM need not only to learn to self-manage their therapy, but also to improve their lifestyle through regular physical activity and correct nutritional habits.

Complications can be prevented by performing self-management, that is not an easy goal to attain for young patients, since it requires motivation and long-term perseverance. Nowadays children are getting increasingly familiar to technology as an integral part of their daily lives and are developing a natural attitude to it. So mHealth application and robotics could play an important role in supporting self-management for children with T1DM.



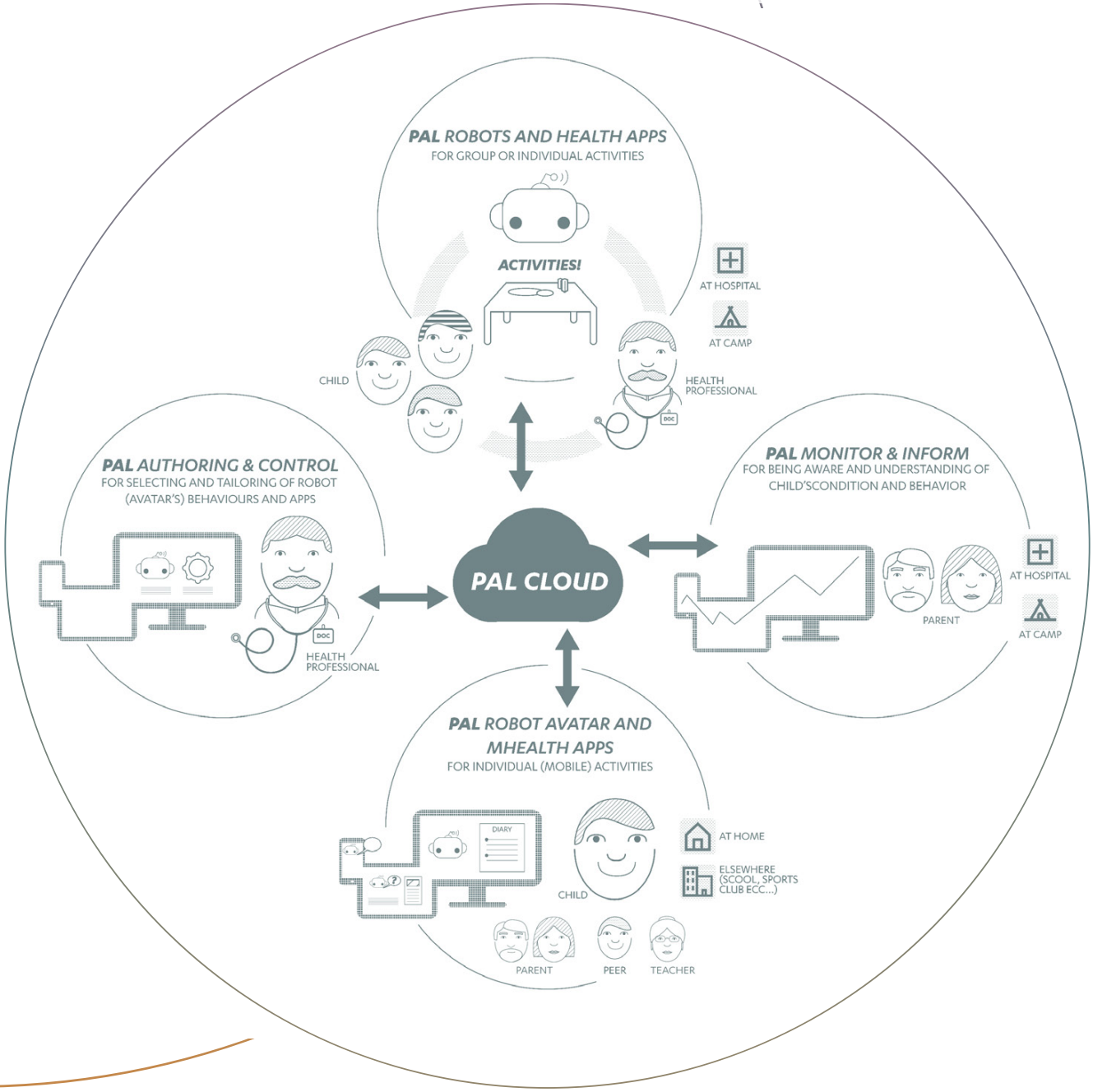
THE PAL SYSTEM IS COMPOSED OF A ***SOCIAL ROBOT****, ITS (MOBILE)* ***AVATAR*** *AND AN EXTENDABLE SET OF (MOBILE)* ***HEALTH APPLICATIONS***

WHAT
IS THE PROJECT

The PAL project aims at developing a Personal Assistant for healthy Lifestyle (PAL):

a system made of integrated multiple components that will assist the child, the health professionals and parents to promote and empower the self-management of children with T1DM between 7-14 years old.

The PAL system is composed of a social robot, its (mobile) avatar and an extendable set of (mobile) health applications, which are all connected to a common knowledge-based and problem solving mechanism.



WHERE

Hospital

Summer camps

Other contexts (schools, sport clubs...)

Home

WHO

Project coordinator
TNO
P.O. Box 23
3769ZG Soesterberg
The Netherlands

Contact person
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Co-funded by the Horizon 2020
Framework Programme of the European Union
under grant agreement no 643783

WHEN

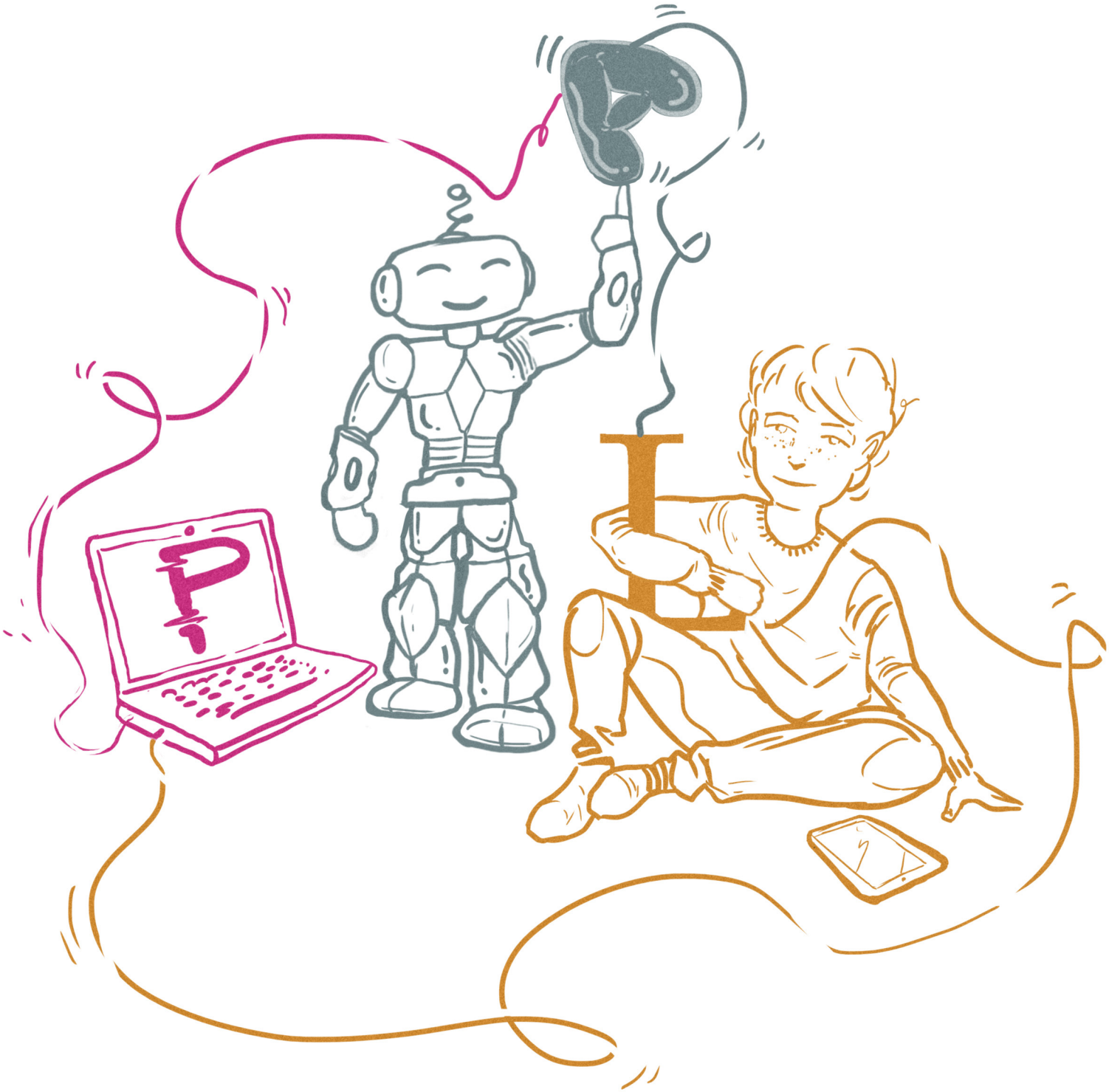
March 2015 - February 2019

FOLLOW US

www.pal4u.eu

PAL

PERSONAL ASSISTANT FOR HEALTHY LIFESTYLE



A CHI CI RIVOLGIAMO

Il diabete di tipo 1 (T1DM) è una patologia autoimmune che porta ad una mancata produzione d'insulina da parte delle cellule del pancreas e di conseguenza a uno squilibrio dei livelli di glucosio nel sangue.

Si manifesta prevalentemente nel periodo dell'infanzia e dell'adolescenza con un grosso impatto sulla qualità di vita dei piccoli pazienti e delle loro famiglie. Per i bambini e i ragazzi con T1DM l'obiettivo principale è quello di raggiungere una corretta autonomia nella gestione della terapia, che comprende anche un sano e attivo stile di vita.
Il raggiungimento di tale obiettivo richiede motivazione, adeguate conoscenze e impegno costante, per i pazienti e le loro famiglie.

Al giorno d'oggi i bambini e i ragazzi diventano sempre più portati all'utilizzo della tecnologia, mostrando una naturale attitudine verso quella che ormai è parte integrante della loro quotidianità. Così la robotica e le applicazioni informatiche possono giocare un ruolo importante nel percorso di acquisizione di autonomia nella gestione del T1DM.

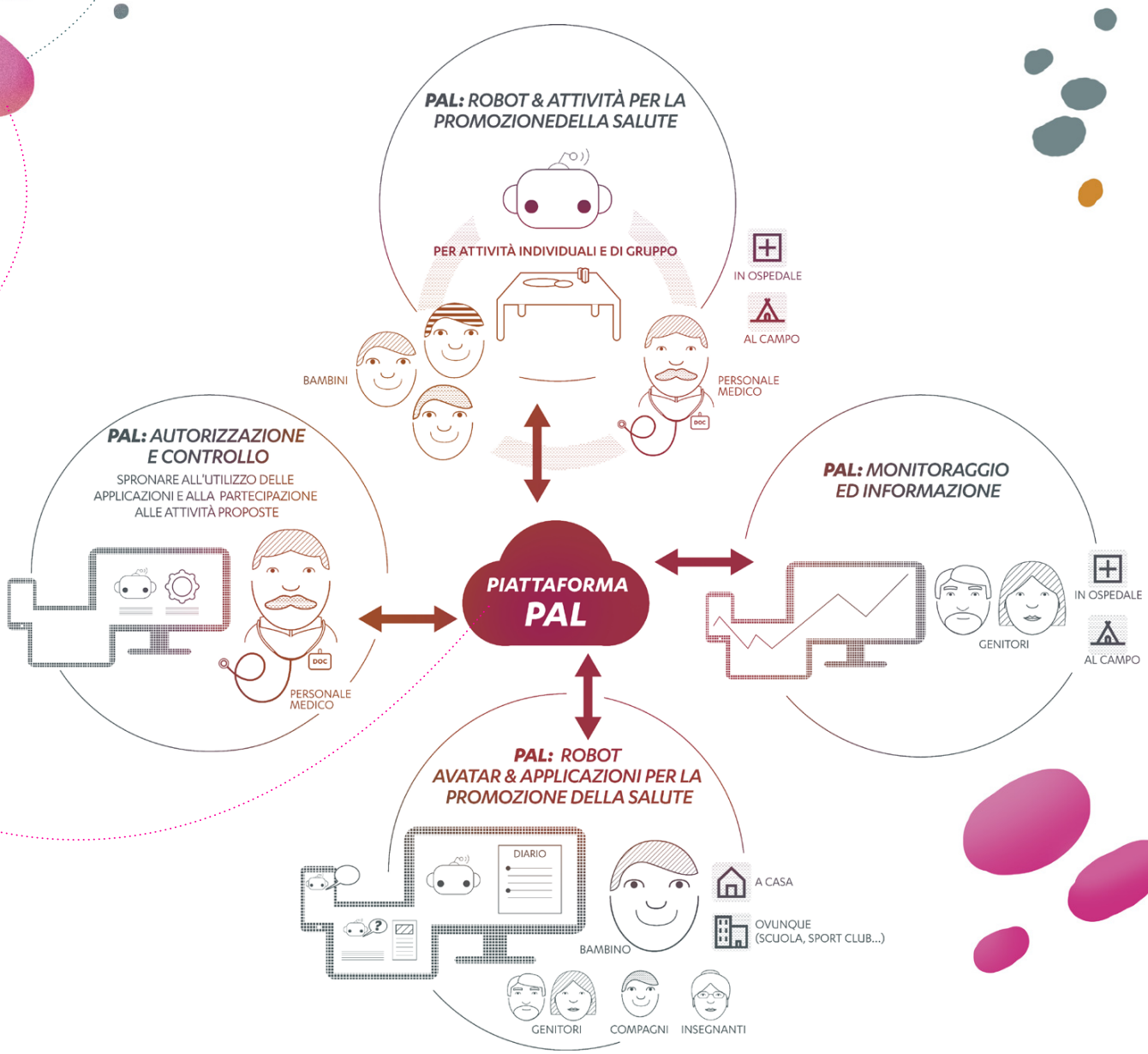
*IL SISTEMA **PAL** È COMPOSTO DA UN ROBOTTINO UMANOIDE, IL SUO AVATAR VIRTUALE E UN INSIEME DI APPLICAZIONI INTERATTIVE PER LA SALUTE*

IL PROGETTO

Il progetto PAL (Personal Assistant for healthy Lifestyle) ha come obiettivo lo sviluppo di una piattaforma informatica integrata per supportare i bambini/ragazzi di età compresa tra i 7 e i 14 anni, le loro famiglie e il personale medico/sanitario nella promozione e consolidamento di una corretta gestione del diabete.

Il sistema PAL costituirà anche un supporto motivazionale per l'adozione di stili di vita salutari ed è costituito di una piattaforma interattiva che si articolerà in: applicazioni web (es: diario virtuale, glicemico e alimentare), applicazioni per smartphone e tablet (es: giochi e applicazioni) e un robottino capace di interagire in maniera giocosa con i bambini.

Tale piattaforma integrata rappresenterà uno strumento utile per medici e genitori come supervisione, per i bambini/ragazzi come automonitoraggio e "allenamento" all'autonomia.



CONTESTI D'USO

Ospedale

Campo estivo

Altri contesti (scuola, centro sportivo...)

Casa

CONTATTI

info@eservices4life.org
info@sostegno70.org

Co-funded by the Horizon 2020 Framework Programme of the European Union under grant agreement no 643783

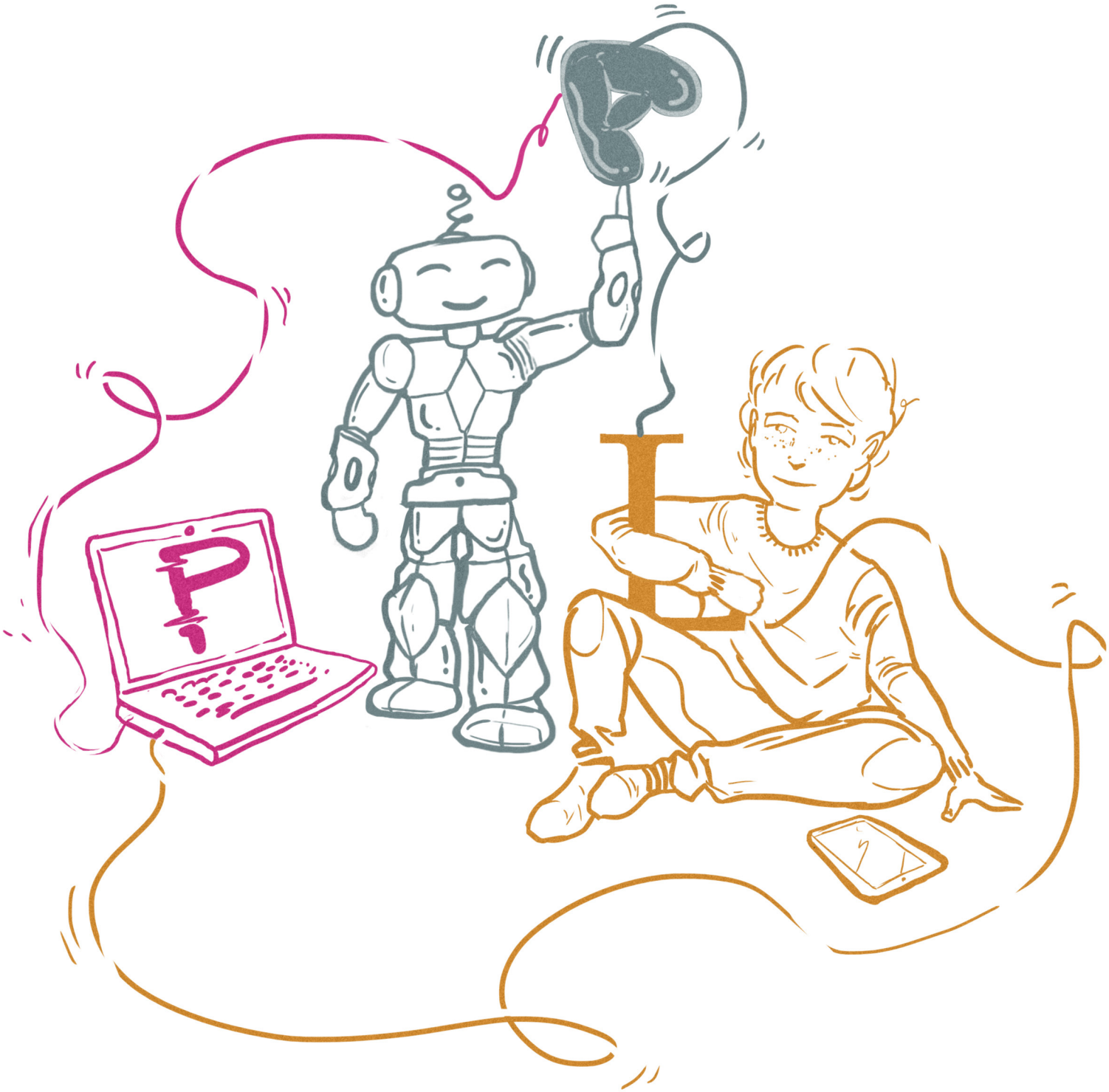
Marzo 2015 - Febbraio 2019

Seguici su

www.pal4u.eu
www.eservices4life.org
www.sostegno70.org

PAL

PERSONAL ASSISTANT FOR HEALTHY LIFESTYLE



KINDEREN MET DIABETES

Diabetes mellitus is een chronische ziekte, waarbij het lichaam onvoldoende energie uit glucose (suikers) kan halen. Glucose hoort bij de groep koolhydraten die in ons eten zitten. Bij Type 1 diabetes mellitus (T1DM), dat meestal in de kinder- of pubertijd wordt vastgesteld, komt dit doordat het lichaam geen of zeer weinig insuline maakt . Het hormoon insuline zorgt ervoor dat de energie uit glucose in onze lichaamscellen komt.

Om complicaties te voorkomen is een goede behandeling van groot belang. Hiervoor is het nodig om dagelijks koolhydraten te tellen, gezond te eten, genoeg te bewegen en regelmatig het bloedglucose niveau te meten en insuline te spuiten. Bij kinderen zullen eerst de ouders deze taken op zich nemen, maar voor therapietrouw op de lange termijn is het belangrijk dat kinderen deze taken zelfstandig uitvoeren voor hun puberteit.

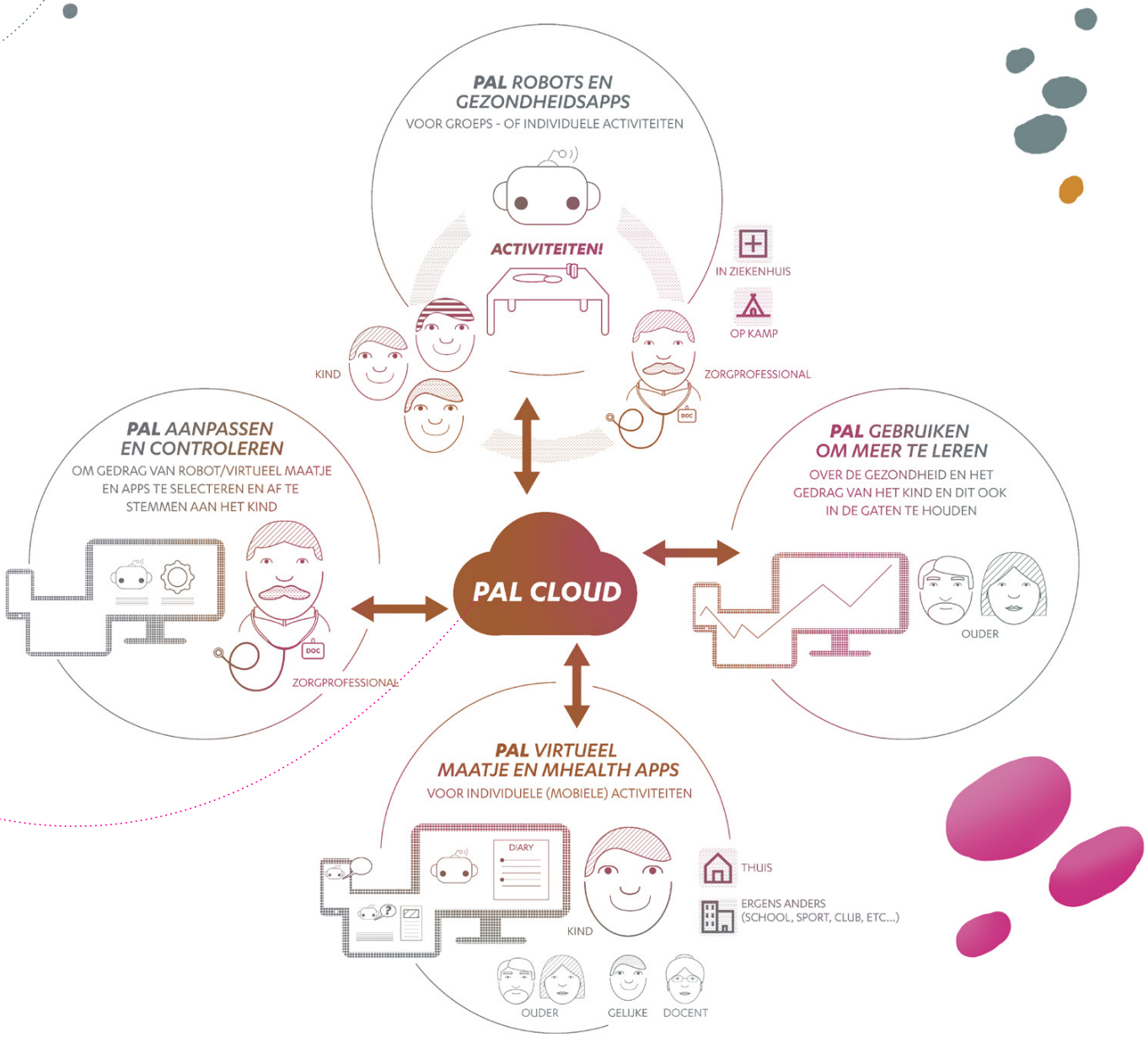
Dit vraagt veel zelfdiscipline, zeker omdat bij kinderen het bloedglucose niveau sterk wisselt. Hun activiteiten en hormoonbalans zijn nog niet goed te voorspellen, waardoor hun bloedglucose niveau sterk schommelt. Daarnaast vinden veel ouders het moeilijk om de verantwoordelijkheid over te dragen aan hun kind.

HET PAL SYSTEEM BESTAAT UIT EEN KLEINE MENSACHTIGE ROBOT, DE ROBOT OP HET SCHERM EN EEN AANTAL APPS

HET PROJECT

In het PAL project leren we het kind om op een goede manier zelfstandig met hun ziekte om te gaan. Tegelijk leren we de ouders hun kind te vertrouwen. Om dit te bereiken ontwikkelen we een maatje die in de vorm van een robot of als digitaal maatje op het scherm het kind kan ondersteunen. Met het maatje zal het kind verschillende activiteiten kunnen doen, zoals het bijhouden van een dagboekje en spelen van een quiz, om bepaalde doelen te halen. Zorgverleners kunnen deze doelen, samen met het kind, vaststellen en bijhouden hoe de gezondheid van het kind zich ontwikkelt. Ook kunnen ze de inhoud van de activiteiten aanpassen aan het kind. Ouders kunnen de informatie over de gezondheid en de doelen ook bekijken. Het systeem kan aangepast worden aan de verschillende in doelen, problemen, interesses en ontwikkelingsfases van het kind.

Onderstaand figuur geeft een beeld van wat we gaan doen. De robot wordt ingezet in het ziekenhuis en op het kamp, waar kinderen 1-op-1 maar ook in een groep activiteiten uitvoeren met de robot. In andere situaties, zoals thuis en op school, kunnen ze met een digitaal maatje een deel van dezelfde en ook andere activiteiten uitvoeren.



GEBRUIKERSCONTEXT

in ziekenhuis

op kamp

ergens anders (school,sport, club, etc...)

thuis

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Volg ons

www.pal4u.eu
www.tno.nl
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