



cloudcare2u

A cloud eHealth infrastructure for the wellbeing of chronic disease patients

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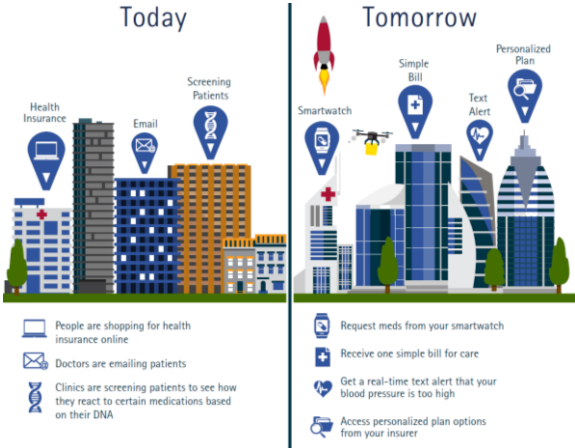
@innovSprint
#iSprint

REHABILITATION OF ELDERLY AT HOME: A GLOBAL OPPORTUNITY
7th June 2018, Bilbao, Spain



Top 5 Health Trends & rehabilitation @ home

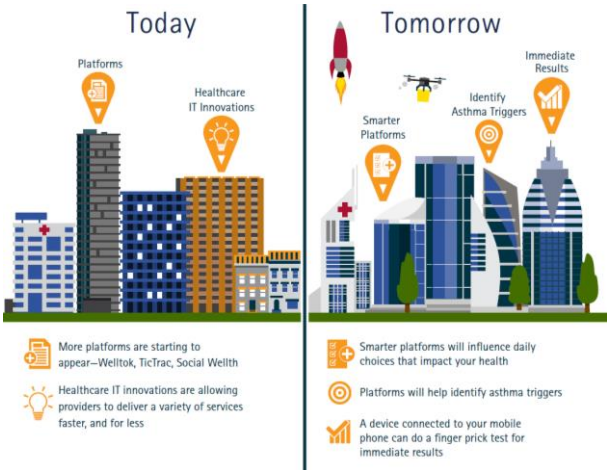
**1.The Internet of Me:
Your healthcare, personalized**



**2.Outcome Economy:
Hardware producing healthy results**



3. The Platform (R)evolution: Defining ecosystems, redefining healthcare



4. Intelligent Enterprise: Huge data, smarter systems, better healthcare



5. Workforce Reimagined: Collaboration at the intersection of humans and healthcare



Trends & Rehabilitation @ home

1. **The Internet of Me:** Your healthcare, personalized
2. **Outcome Economy:** Hardware producing healthy results
3. **The Platform (R)evolution:** Defining ecosystems, redefining healthcare
4. **Intelligent Enterprise:** Huge data, smarter systems, better healthcare
5. **Workforce Reimagined:** Collaboration at the intersection of humans and healthcare

Intelligent e-Coaching systems for rehabilitation of elderly at home should embrace all trends



CloudCare2U
an eCoaching paradigm for
rehabilitation of elderlies @ home

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The challenge

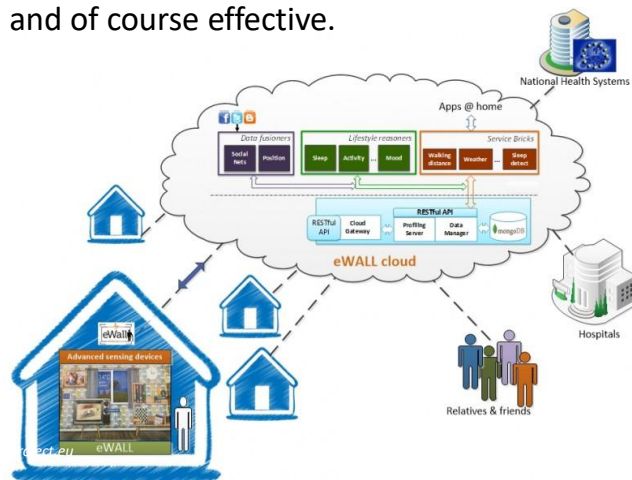
'The daily life of people with chronic diseases and frailty conditions is difficult'

A group of 100+ researchers from 13 countries knows that very well. Having invested around 9M€ over the past 4 years, this group delivered a solution that could change the life of people with COPD, MCI and frailty conditions.



The solution

CC2U is leveraging best-of-breed future Internet technologies (cloud, IoT, BigData) to meet very demanding user needs; among them to be easy, unobtrusive and of course effective.



CC2U is currently a mature platform that improved the life of more than 50 users during its validation phase.



The result

CC2U is a product designed specifically for people with chronic diseases or frailty that brings back a normal and safe life at home. It is simple to use and very effective.

A major outcome of the project was the importance of the User eXperience and the design of patient-centric applications.



INNOVATION
SPRINT

Source: www.ewallproject.eu

CloudCare2U storyline

2013



- eWALL consortium was awarded an EC project to perform R&D activities and develop a cloud infrastructure to support independent living of patients with COPD, MCI and frailty conditions

- 14 partners
- 1,000+ person-months
- ~9M€ investment



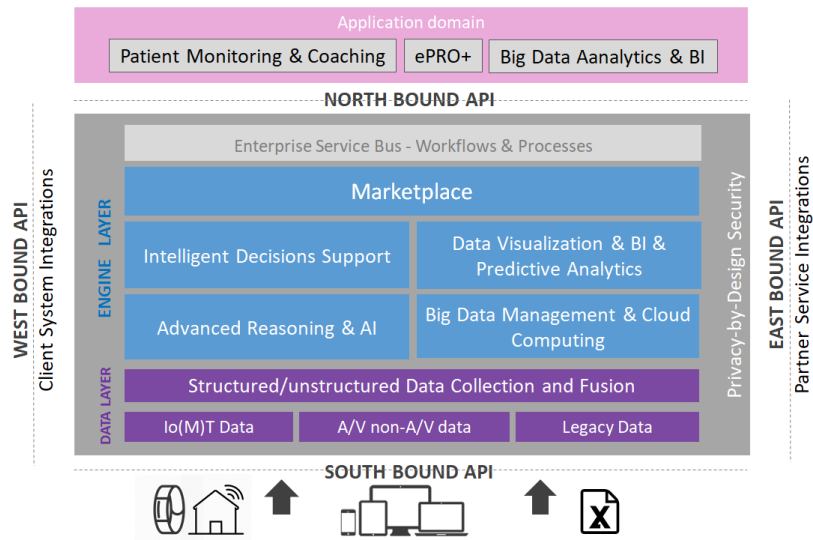
2016



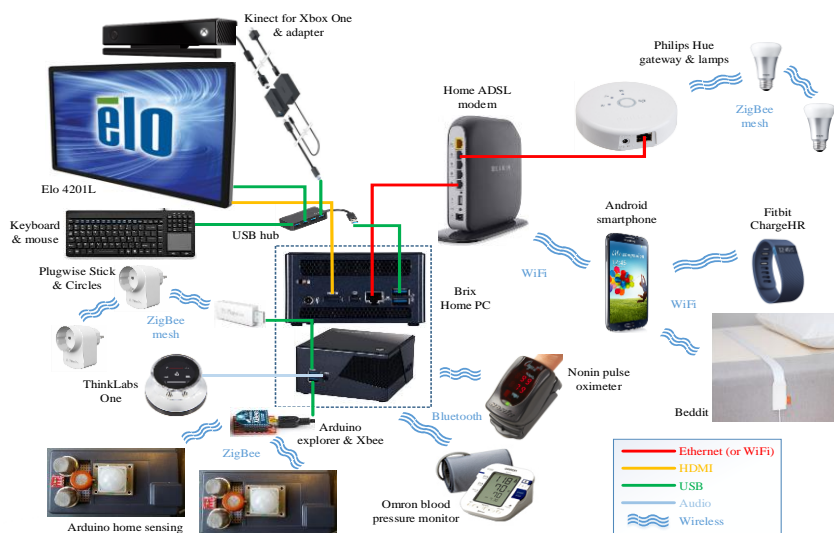
- eWALL approved proposal by Innovation Sprint to exploit eWALL open-source for developing CloudCare2U
- Innovation Sprint is the official exploitation company of eWALL project
- CloudCare2U is developing applications to address other user groups, incl. cancer patients

INNOVATION
SPRINT

CloudCare2U architecture

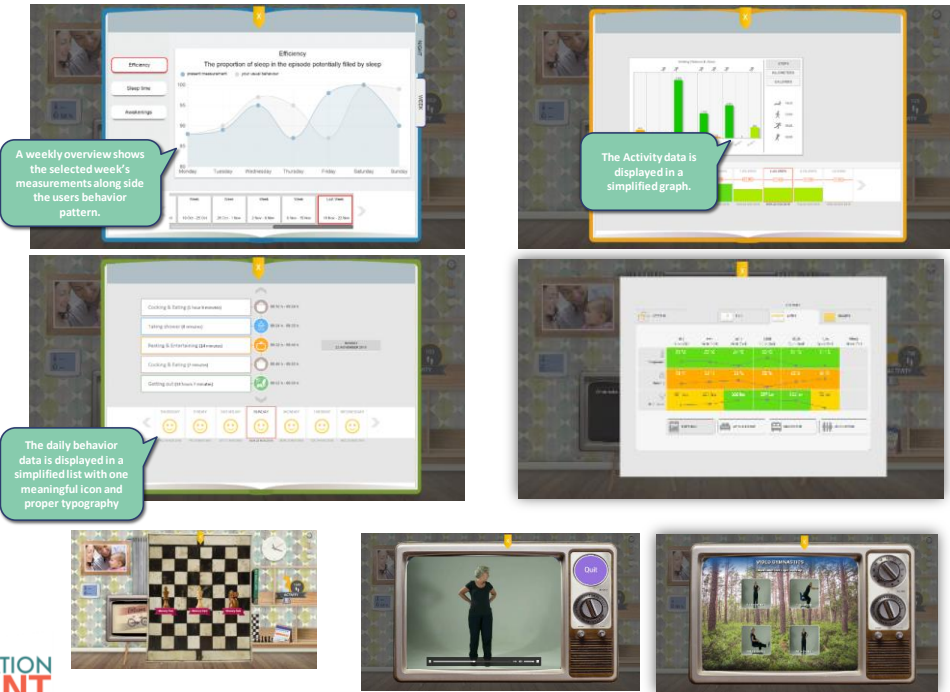


CloudCare2U Home Sensing Environment

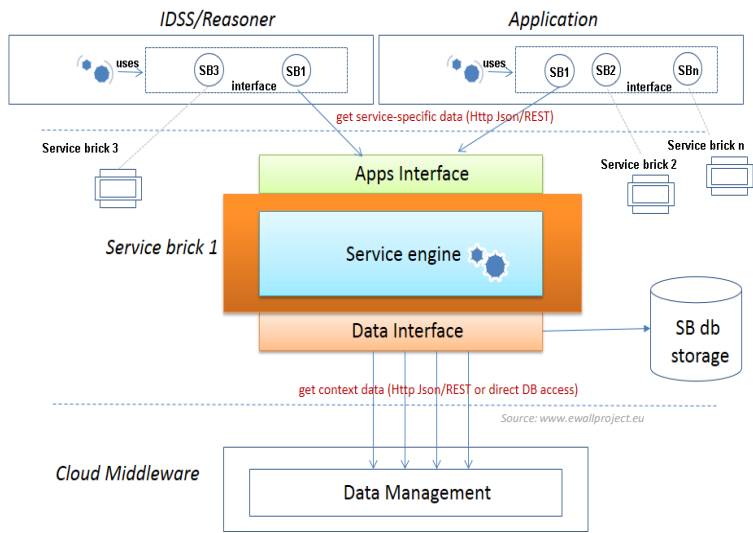


Source: www.ewallproject.eu

CloudCare2U Apps & interaction interface



eCoaching intelligence

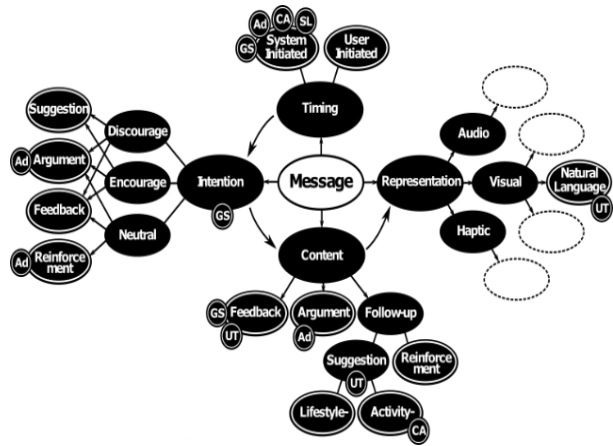


Intelligent Decisions Support Reasoners for:

1. Automatic Goal-Setting
2. Exercise Schedule Generator
3. Sleep Anomaly Classifier
4. Oxygen Saturation Monitor
5. Fall Detection
6. Activity Coach
7. Wellbeing Ads



Coaching engine

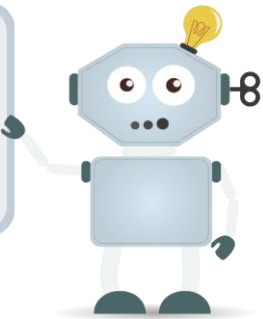


Good morning Bob!

You have done 3,427 out of 7,500 steps.

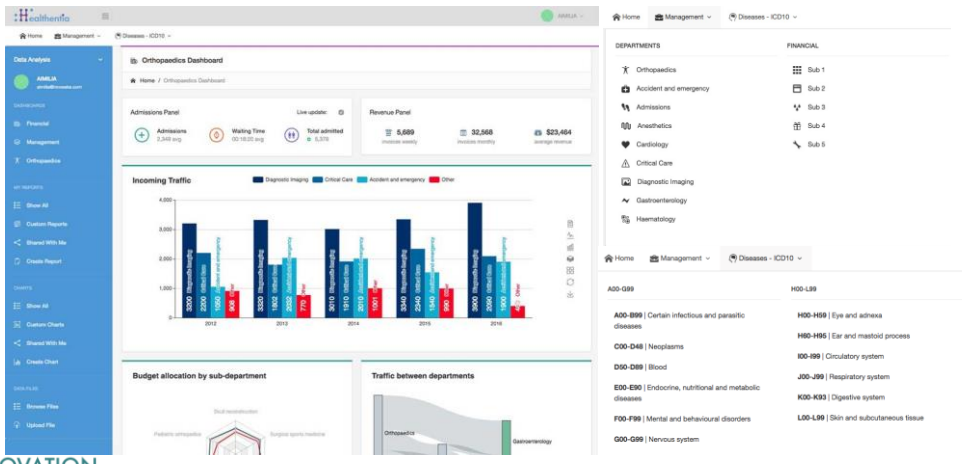
Try to reach your step goal everyday: healthy body, healthy mind!

The weather outside is nice, why don't you go cycling for a bit?



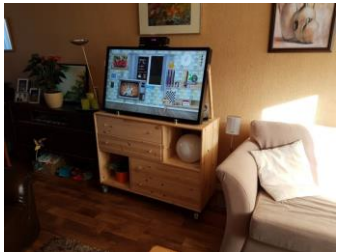
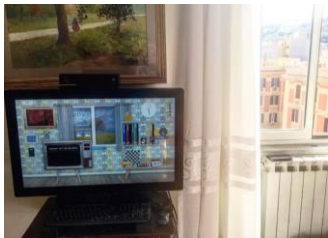
Big data analytics

Powerful R-based dashboard with advanced Big Data processing for statistical evaluation and predictive health analytics



Validation study

Large scale validation study was carried out during the eWALL project, involving subjects from 4 countries.



Summary of evaluation methods

	T ₀	T ₁	T ₂	T ₃
<i>User experience:</i>				
Questionnaire based on the Technology Acceptance Model (TAM+)	X	X	X	
Interviews	X		X	
<i>Potential clinical effect:</i>				
Quality of life (SF-36)	X		X	X
Instrumental Activities of Daily Living (iADL)	X		X	X
Physical capacity (6 Minutes' Walking Test and Timed-Up-and-Go Test)	X		X	X

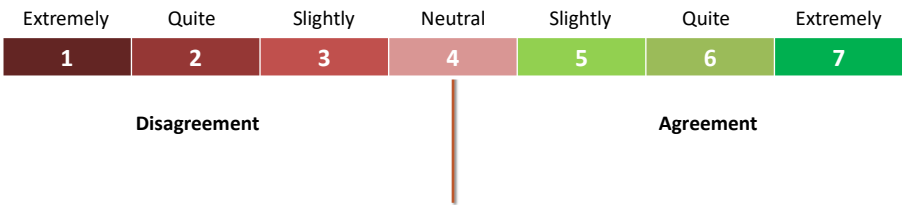
Source: www.ewallproject.eu

- T₀ = Pre-measurement, the day of the system installation.
- T₁ = Mid-term evaluation moment (half-way during the trial period).
- T₂ = Post-measurement, final day and pickup of the system.
- T₃ = Follow-up measurement, 6 weeks after T2.



User experience / TAM+

The agreement of responders to the 7 parameters assessed by the questionnaire were ranked according a **7 items scale**, with each subjects attributing a **score from 1 to 7**, meaning that he/she was extremely, quite, slightly, in agreement/disagreement with the assessment concerning the 7 parameters described above.



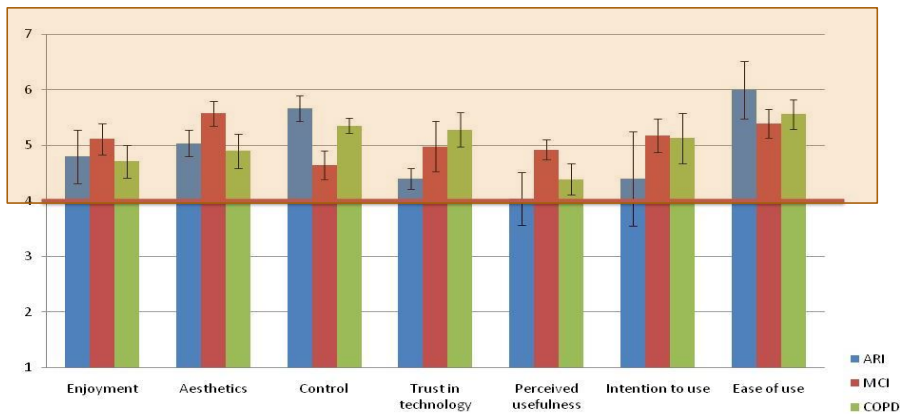
A score of 4 indicated that the subjects was indifferent to the question, and he/she had no clear opinion about that issue.



Source: www.ewallproject.eu

User experience / TAM+

The analysis of the acceptance of the technology after using the system showed an **overall positive result over all three user groups**

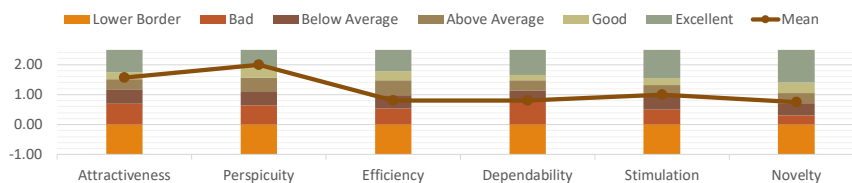


Source: www.ewallproject.eu



User experience / UEQ

- The measured scale means are set in relation to existing values from a **benchmark data set** from 9905 persons from 246 studies concerning different products.
- The comparison of the results with the data in the benchmark allows conclusions about **the relative quality** compared to other products

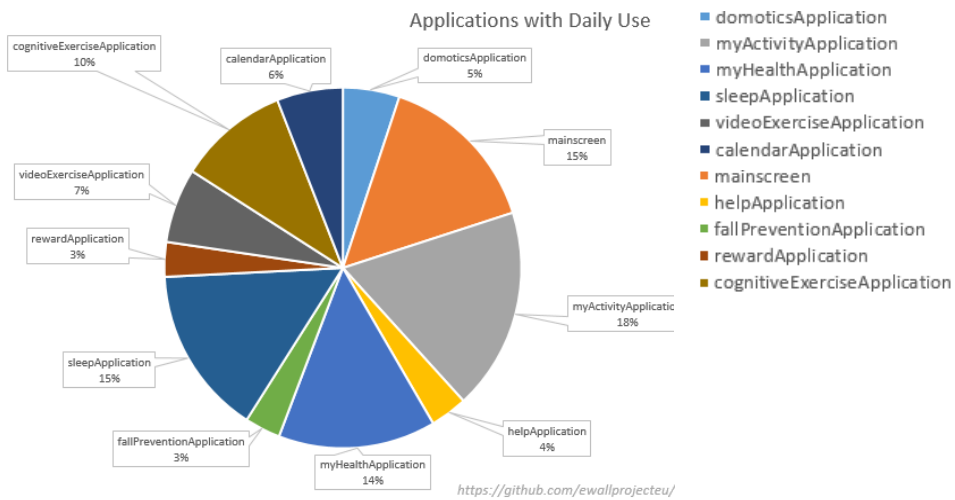


- Results show an **excellent outcome for perspicuity**, meaning that it is very **understandable and easy to learn**.
- The participants rate the system as **very attractive, thus, pleasant and friendly**.



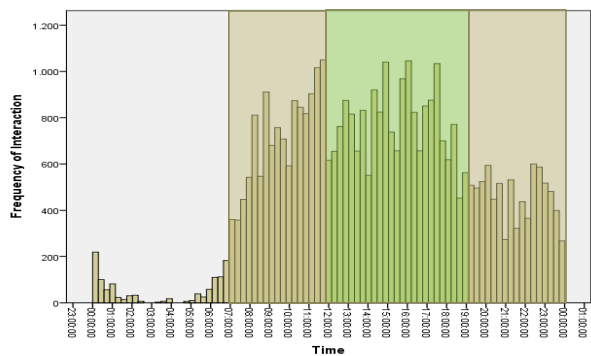
Source: www.ewallproject.eu

Use of CloudCare2U applications



Source: www.ewallproject.eu

Use of CloudCare2U over the day



The analysis shows that interactions occur evenly over the day, picking up between 07:00 and 08:00 in the morning and showing a **stable number of interactions until 19:00** in the evening. The **evening period between 19:00 and 00:00** shows a slightly lower, but again stable use.



Source: www.ewallproject.eu

CloudCare2U applications



ACTIVITY 2 U

Daily activity monitoring based on advanced reasoning.



HEALTH 2 U

Integration of eHealth applications, e.g. pulse meter, oxygen saturation.



GAMES 2 U

Educational and Cognitive Games, training and leisure.



SHOPPING 2 U

Create wishlists and easy online shopping.



DOMOTICS 2 U

Home automation and Safety application.



SLEEP 2 U

Sleep monitoring and quality evaluation.



FITNESS 2 U

Daily fitness coaching and monitoring



REMINDERS 2 U

Daily calendar and reminders for medication & meals.

cloudcare2u.com



CloudCare2U solutions



SaaS

- iOS and Android apps
- Supporting tablets and smartphones
- Smart TV versions
- Access to numerous services
- Freemium model
- Targeted to patients and family members and caregivers



PaaS

- Customization for branded solutions
- Integration with 3rd party systems
- Clinical Research Organizations
- Smart Home Service providers
- Hospitals & Pharma industry



CC2U-in-a-box

- Pre-configured, ready-to-use version
- Medical devices
- Ship and market
- Domotic sensors
- Easy-to-install

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