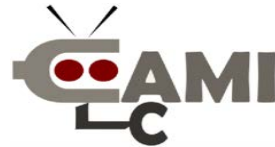# Artificially intelligent ecosystem for self-management and sustainable quality of life in AAL

1.06.2015 – 31.05.2018

AAL Call 2014 – Call for the Future
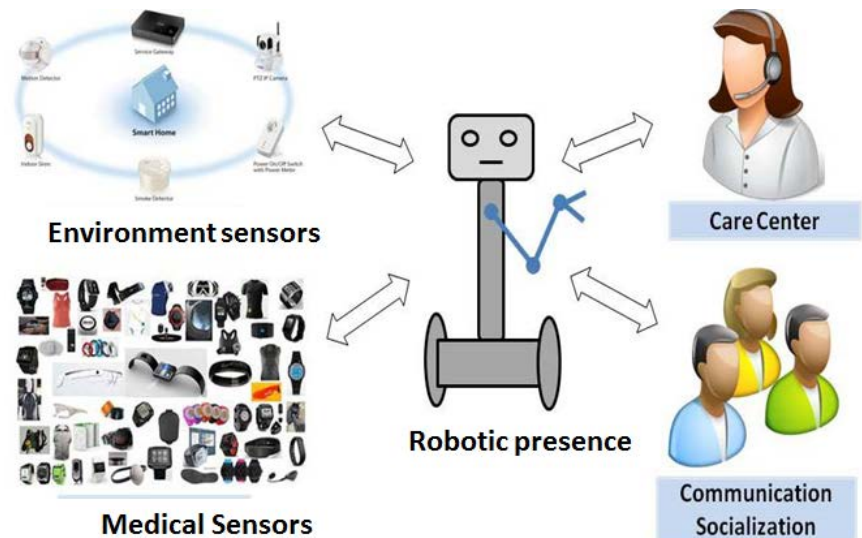
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Added value of CAMI

CAMI creates an innovative framework:

- offering a fully **integrated AAL solution** at the overlap of **tele- care** and **health**, **smart homes** and **robotics**

- Integrate **sensors** and **home appliances** with **commercial robotic platforms**

- autonomous mobile multi-modal interface

- services for **social care**, **health care**, **home care** and **mobility**

Environment sensors

Medical Sensors

Robotic presence

Care Center

Communication Socialization

Added value of CAMI (2)

- Health monitoring

- Fall alarm

- Report and communication to health professionals

- Supervised physical exercises

- Personalized, intelligent and dynamic program management

- Telepresence for communication (video, voice, graphics) with caregivers, family, friends and other users

- Speech Recognition to allow multi-modal interfaces

Target group

- **Primary end-users**:

  – older adults in general

  – adults with cardiovascular diseases, diabetes and mild cognitive impairment in particular

  – The targeted age limits are 55-65 years old:

- **Secondary end-users:**

  – informal caregivers and formal caregivers

- **Tertiary end-users:**

– institutions and private or public organisations

Goals of user integration

- ■ *understanding phase*:

  – the end-user organizations will create a profile of prototypal end-users and stakeholders in each country establishing the needs of the individuals within their natural environment

  – analytic methods will be used for creating the profiles

  – a large scale multinational survey will be designed (Romania, Poland and Denmark) with both primary and secondary end-users

  – statistical analysis on the collected data will reveal user categorization with specific requirements and needs

  – used methods: **self-documentation** and **shadowing**

Goals of user integration (2)

- *conceptualization phase*:

  - An initial set of most relevant concepts will be designed

  - Service concepts will be described in use cases; a limited set of key functionalities and features will be derived

  - primary and secondary users will evaluate the usefulness of core functionalities to test users' acceptance and readiness to pay for these functionalities.

  - A conjoint analysis will be performed, which allows for unobtrusive testing of combinations of functionalities.

  - Stakeholders and lead-persons in relevant fields will be involved to rate the functionalities

  - Used methods: **Selection List** and **Storyboards**

Goals of user integration (4)

- ■ ***testing phase:***

  - – analytic inspection methods will be used

  - – end-users and stakeholders will be involved in prototype evaluation.

    - • laboratory testing in controlled environments and subsequent testing in real environments

    - • pilot sites.

    - • field testing at the users premises will be performed over longer periods of time - analyse the systems' suitability for daily use and its impact on the users' wellbeing.

  - – used methods: **paper prototyping, rapid prototyping, story boards**

User integration procedure

- CAMI system will be extensively tested and validated with end-users

- prototypes will be tested with a small number of primary and secondary users, to allow early-stage adjustments

- several use cases will be tested in a laboratory experiment setting, which will steer final design of the services and platform.

- different scenarios will be conducted: welcome home, wellbeing monitoring, remote control, physical exercise supervision, communication with carers, family and friends

User integration procedure (2)

- pilot trials will take place in real home environments in Romania, Poland and Denmark

- videos will be used to promote the pilots and attract users

- a set of inclusion and exclusion criteria of the pilot end-users will be designed

- ethical aspects will be taken into consideration throughout the testing process and pilot trials

One user's scenario

- Jim is a retired of 60 years old. He has a medical condition and he is alone all day – his wife is still working.

- CAMI has Jim's personalized daily program. CAMI detects that Jim is looking on TV for a too long time and proposes to Jim to make some physical exercises. It tells him to put the Bioharness belt in order to register his heart beat and ECG during the exercises.

- CAMI reminds to Jim the exercises that were prescribed by the physician and registers the duration of the exercises and the physiological parameters.

- CAMI sends a report to Jim's wife on the mobile phone telling her that everything is fine. Moreover, it registers everything in Jim's personal daily report book.

The 8 partners of the consortium look forward to the successful completion of the CAMI project!

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