Periodic Reporting for period 2 - ACCRA (Agile Co-Creation of Robots for Ageing)

Reporting period: 2018-06-01 to 2020-03-31

Summary of the context and overall objectives of the project

The mission of ACCRA is to enable the development of advanced ICT Robotics based solutions for extending active and healthy ageing in daily life by defining, developing and demonstrating an agile co-creation development process.

The term agile has been used in the last 15 years in software development to promote adaptive planning, evolutionary development, early delivery, and continuous improvement. Agile development encourages rapid and flexible response to change. As stated by Jim Highsmith:

The Agile movement is not anti-methodology, in fact many of us want to restore credibility to the
word methodology. We want to restore a balance. We embrace modelling, but not in order to file some diagram in a dusty corporate repository. We embrace documentation, but not hundreds of pages of never-maintained and rarely-used tomes. We plan, but recognize the limits of planning in a turbulent environment.

The term co-creation was popularized in the last 15 years as well. It refers to the joint creation of value by the company and the customer; allowing the customer to co-construct the service experience to suit their context, integrating the principles of dialogue (interaction with users), access (allow customer to access data), risk (monitor risk and gaps between customer and firm) and transparency (information barriers eliminated).

A number of challenges have to be addressed:

- Agile programming and co-creation imply important changes at development and at organisational level
- Ageing applications necessitate a co-creation approach that is fully multidisciplinary, to ensure Ethical, Legal, and Social Issues (ELSI). This is not only a co-creation between business and customers, but co-creation between social science, legal, policy makers, engineers, users and carers.
- Robotics solutions are based on complex ICT environments integrating sensor networks, handling of big data in the cloud. The concept of flexible platform must be taken into account to fully participate to the agile co-creation process. In other words, agile co-creation must also somehow extend to the platform level, not only to the application level. Issues such as interoperability must be taken into account.

**Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far**

Work performed during this reporting period includes the following phases and achievements:

* Pre-needs Study:
  - Refinement of three applications scenarios and recruitment criteria.
  - Preparation of ACCRA methodology and materials for needs study.
* Needs study:
  - 57 Elderly, 57 formal caregivers and 33 informal caregivers involved in interviews for the Needs study in four countries (JP, ND, IT, FR)
  - Analysis and translation into requirements for applications.
* Cocreation phase:
  - 5 cocreation meetings in EU and 4 face to face cocreations in JP.
  - Agile cocreation process created
  - 57 Elderly, 40 formal caregivers, 24 Informal caregivers and 46 partners/pilots staff involved in cocreation meetings in four countries (JP, ND, IT, FR)
* Platform:
  - Architecture high level
- ROS FIware connection
- SDN for quality of services first developments
* ACCRA Methodology defined and applied: needs study and cocreation phases.

Progress beyond the state of the art and expected potential impact (including the socio-economic impact and the wider societal implications of the project so far)

Positive reactions after second cocreation meetings of elderly, adaption of services based on cocreation results. These results contribute to improve the extension of well-being and healthy ageing. Impact on Health systems by the improvement of ASTRO services according to elderly needs.

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