FRONT-VL

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FROm empoweriNg To Viable Living

As Europeans live longer and have fewer children, the proportion of working-age people will fall significantly over the next few decades. This demographic transition is viewed as one of the major challenges to European economies and welfare systems. FRONT-VL will focus on advanced IoT technologies to support improving independent living for elderly persons at home.

Main focus

The decrease of vitality of people - due to aging, accidents, diseases or social isolation - easily leads a person to a negative cycle, where mental, social and physiological impairments reinforce each other. FRONT-VL uses advanced IoT technologies to support detection of persons in such a negative cycle and supporting a way back to a positive empowering cycle. Based on a number of use cases I) Rehabilitation, II) Fall Prevention, III) Mental Health, an *open services delivery framework* has been defined and developed to support the end-user with ICT relevant to their life situation. The analysis and data interpretation supported by the system, enables preventive and predictive care on both a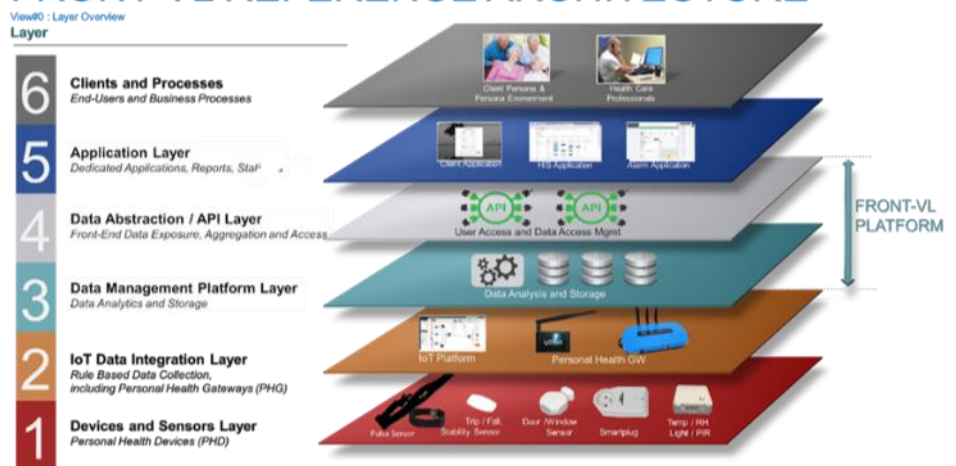n individual level (through on-line monitoring of the individual's data) and on a structural level (through machine learning and big data analysis). FRONT-VL ensures highest standards of privacy and data ownership of the individual.

Approach

FRONT-VL is innovative both on a technical level and with the particular services for end-users. The major innovation of FRONT-VL lies in the development of an open service framework for supporting independent living of older adults in their own dwellings. The service framework is developed based on existing standard interfaces and protocols, such as Continua and the Nordic Health Reference Architecture. Service development is based on findings of user centred design and data analysis and will be provided to individuals for their benefits rather than kept inside big companies and institutions.

The flexibility of the FRONT-VL service framework, which is one part of the technological innovation, follows the Continua's open implementation framework for interoperability of personal connected health devices and solutions. By using this methodology, it is possible to create different versions of end-to-end solutions by combining different hardware (sensors,

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devices), communication equipment (smartphones, HGW boxes), services (analyses, packaging) and distribution channels to the customer (self-care systems, quality registries). The concept is validated by being applied on the use-cases mentioned under *Main focus*.

Front-VL approach this development with an integrated technical, human and organizational design process, with the aim of viable business evolving around these services. Close interactions between these aspects on the intended information system are key to a successful outcome. A general co-design approach (included in the framework) is applied in order to ensure a high level of user influence on the design process, which ensures a final product that will have a high impact on society and at the same time be commercially viable.

Achieved results

Front-VL results includes:

- **A highly user-centred Service Delivery Framework -** creation of a common platform/framework with standard protocols and interfaces, as per the requirements and needs of both customers and end-users. The platform is open, flexible and adapted for modular.

- **Solutions for different use cases -** end-to-end solutions for the use cases in the project, are currently being developed, and piloted; with sales dialogues already started for some.

- **Health and environment related data –** Systems for collection of large sets of data originating from the use cases, have been established, to be used for creation of new services utilizing analytics tools/solutions.

- **Creation of eHealth Living Labs** - test-beds have been created for the project, these will be used for future studies and tests for new services.

Impact

Front-VL has an impact on society by the increased knowledge, which can be levelled into better decision in care, home care, self-care, and everyday living among elders. By collecting individual data, pairing this with general data, a level of collective wisdom is emerging, which provides a basis for improved actions in care and at home.

- Enable an active, empowered and enhanced healthy and independently living elderly population.

- Contribute to a substantial reduction of public costs with improved health and reduced need for organized care (e.g. at hospitals or nursing homes).

- Enhanced learning for proactive life, work and care for citizens, patients, employees, human resource professionals and care professionals.

This has been achieved by integrating the latest technology of IoT, big data analytics and social media with user-interfaces that allow natural, seamless interaction for users and that provides them the learning opportunity that will help them to achieve their aims.

About Celtic–Plus

Celtic-Plus is an industry-driven European research initiative to define, perform and finance through public and private funding common research projects in the area of telecommunications, new media, future Internet, and applications & services focusing on a new „Smart Connected World" paradigm. Celtic-Plus is a EUREKA ICT cluster and belongs to the intergovernmental EUREKA network. Celtic-Plus is open to any type of company covering the Celtic-Plus research areas, large industry as well as small companies

or universities and research organisations. Even companies outside the EUREKA countries may get some possibilities to join a Celtic-Plus project under certain conditions.

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