**Virtual Coaching Activities for Rehabilitation in Elderly**

Call: H2020-SC1-2016-2017

Grant Agreement Number: 769807



# D7.2 Translation to technical requirements (final version)
# Extended summary

The ***vCare*** project starts from the assumption that rehabilitation provides an ideal setting for the adoption of a Virtual Coach. Rehabilitation at home, supported by virtual coaches, can improve a patient's transition from clinic to home.

In this second (final) iteration of the technical requirements (D7.2), a process of consolidation has enabled the medical and technical partners to fix the scope of the ***vCare*** system.

A new set of requirements have been prioritised, and categorised in three phases. A final set of requirements will form the basis for the definition of the consolidated high-level architecture that will be produced in the next technical deliverable, D7.4.

In summary, this report provides the consolidated foundations of the ***vCare*** architecture. It supplies a high-level guideline for the technical partners, which is based on a consensus arrived at among the ***vCare*** medical partners.

## BACKGROUND

During summer 2018, concerns relating to the high dynamism of the market surrounding the Internet of Things (IoT), and the different solutions available, have been overcome by the ***vCare*** consortium.

A deeper understanding has been reached regarding the status of each aspect of the IoT open platform, and discussions have been held with key people working in the field.

In the first iteration of this report (D7.1 Translation to technical requirements), an analysis of the current status of various IoT platforms was presented. Instead, D7.2 ends with a new subsection that proposes the approach to follow throughout the project.

## METHODOLOGY AND DEVELOPMENT APPROACH

A prioritisation method based on the MoSCoW methodology has been applied[1]. It defines the requirements scope of each of the development phases of the ***vCare*** project.

As part of the agile development strategy of the project, ***vCare*** will grow incrementally. This incrementalism will diminish the risk of implementing a service that is not suitable for the end-users.

For this reason, each phase of the project will:

- Consolidate a first round of requirements.
- Test new requirements.

Three phases of work have been defined. The first phase, called **Tech Labs**, will be focused on solving the core technical issues and enabling the essential value of ***vCare***. The second phase, **Living Labs,** will start by working on this basic product and test the new user interface features with end-users. Finally, in the **pilots** phase, a consolidated version of the system will be validated with end-users during tests.

Overall, the following table describes this three-stage, incremental approach, and the profiles and requirements for each phase:

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[1] A methodology used in business management, and often used by agile software developers:
https://en.wikipedia.org/wiki/MoSCoW_method

| Tech Lab | Living Lab | Pilot Test |
|---|---|---|

**Tech Lab**

Context:
R2-x Fall
…

Avatar:
R3-3: Verbal Interaction
R3-7: Visualization of Feedback
…

Games and Training :
R5-9 Physical Training
…

User Interaction (Avatar, UX) **must**

Context **must**

Games and Training **must**

vCare - TechLab

Condition **should**

Pathway **should**

Telemonitoring:
R2-x Fitbit Integration
…

Games and Training :
R6-x Provision of Pathway Template
…

*The requirements are selected as examples

**Living Lab**

Avatar:
R3-3: Verbal Interaction
R3-7: Visualization of Feedback
**R3-8: Messages and Reminder**
**R3-10 Interchangable Interface**
…

Context & Reasoning :
**R2-1: Room Tracking**
**R2-9 Movement**
…

Games and Training :
R5-9 Physical Training
**R5-6: Motivational Messaging**
**R5-10: Cognitive Training Games**

User Interaction (Avatar, UX) **must**

Context **must**

Games and Training **must**

vCare - LivingLab

Condition **must**

Pathway **must**

Telemonitoring:
**R2-x Fitbit Integration Blood Pressure**
…

Pathways:
R6-x Provision of Pathway Template
**R6-3: Health Profionals Interface**
…

*The requirements are selected as examples

**Pilot Test**

Avatar:
R3-3: Verbal Interaction
R3-7: Visualization of Feedback
**R3-8: Messages and Reminder**
**R3-10: Interchangeable Interface**

Context:
R2-x Fall
R2-1: Room Tracking
**R2-9: Movement**
**R2-10 Weather info**
…

Games and Training :
R5-9 Physical Training
R5-6 Motivational Messaging
R5-10: Cognitive Training Games
**R5-3 Educational content**
**R6-4 Messaging, and Supporting Functions**

User Interaction (Avatar, UX) **must**

Context **must**

Games Training **must**

vCare - Pilot

Condition **must**

Pathway **must**

Knowledge Layer:
4-1 Data Structure
4-2 Data Collection
4-3 - 4.12: Data Prcoessing
4-13 Broker

Telemonitoring:
R2-x Fitbit **Integration Blood Pressure**
…

Pathways:
R6-x Provision of Pathway Template
**R6-3 Health Professionals Interface**
…

*The requirements are selected as examples

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**Profile:**

- Provision of main technical components with basic features, as depicted above
- First User Interface Showcase
- Feedback by professionals (see Task1.4)

**Profile:**

Tech Lab Profile, plus:

- Physician Backend
- Comfort Features
- Accessible Pathway Templates
- Integration of Conditions

**Profile:**

Living Lab Profile, plus:

- Sophisticated functions related to the smartness of the coaching service included (i.e. personalisation and anticipation)

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**Requirements scope:**

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| | | |
|---|---|---|
| • MUST requirements cover the main/essential features already outlined in the *vCare* project proposal | • MUST requirements extend the core functionality<br>• Integration of advanced reasoning features<br>• Physician backend<br>• Modification and notification Features | • Assurance of non-functional requirements, like scalability and security<br>• *vCare-as-a-Service* support<br>• Integration tests<br>• Defined deployment |

## MATCHING THE THREE-STAGE APPROACH TO THE PROJECT CALENDAR

The three stages, **Tech Labs** (blue), **Living Labs** (yellow) and **Pilots** (green), will take place at different stages of the *vCare* project schedule (see Figure 1 below). The Tech Labs phase will be conducted in three institutions over a five-month period (February to June 2019). The Living Labs will take place over almost one year in four locations (July 2019 to May 2020). The four pilot tests will take place in four locations over a six-month period (June 2020 to December 2020).