vCARE
VIRTUAL COACHING ACTIVITIES FOR REHABILITATION IN ELDERLY

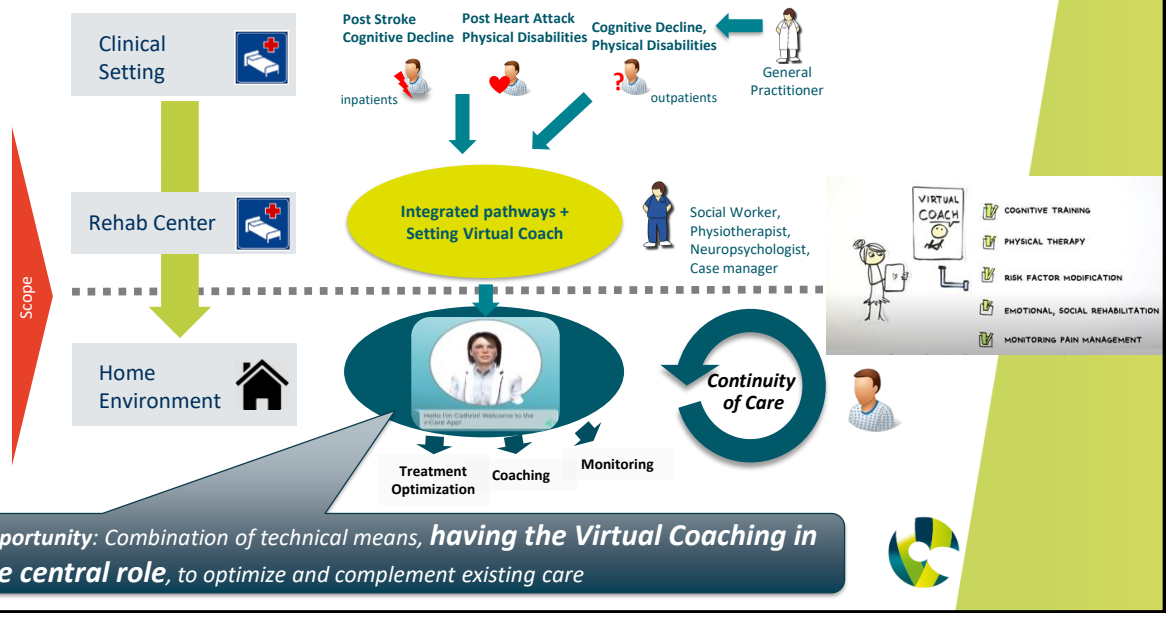
29-08-2022

VCARE FINAL EVENT EXPLOITATION PATH(S)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 769807.

1

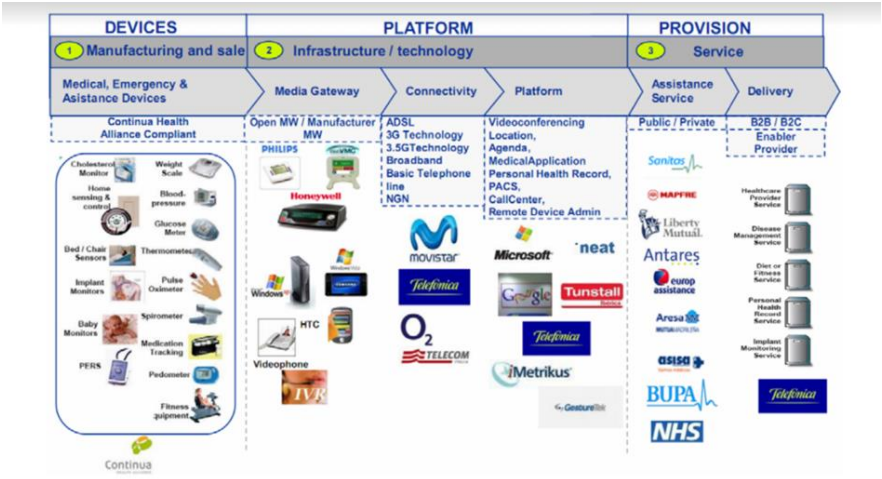
WE HAVE A SOLUTION !



***Opportunity**: Combination of technical means, **having the Virtual Coaching in the central role**, to optimize and complement existing care*

2

COOPERATIVE MODEL: A MUST !



Credit: Continua health Alliance

"vCare offers a unique opportunity to engage traditional players in integrating innovative new technologies with a solution which has the capacity to transform and modernise their existing business models"

3

3

WE ARE NOT YET READY FOR THE MARKET

Our ambition:

- **Make current TRL7 more robust and improve user experience**
- **Scale up to TRL8 and collect much needed clinical evidence**
- **Be open to other use cases**

4

4

HOW DOES IT COMPARE ?

- **R&D projects developing solutions using virtual coaches with components similar to those developed by vCare and with sometimes elements more developed than in vCare, but most of these solutions are not commercially available yet.**
- **No existing product which currently combines all the features proposed by vCare with similar value proposition (Focus on care):**

→ 1) gap in the health system
→ 2) Current clinical pathways are incomplete or insufficiently followed
→ 3) Pathways are static and not sufficiently holistic

- **Already commercially available products support mainly the physical rehabilitation functions**
  - Physical rehabilitation is often the **"vitrine"** of advanced coaching systems although in some countries mental health has also been an important entry door.

5

5

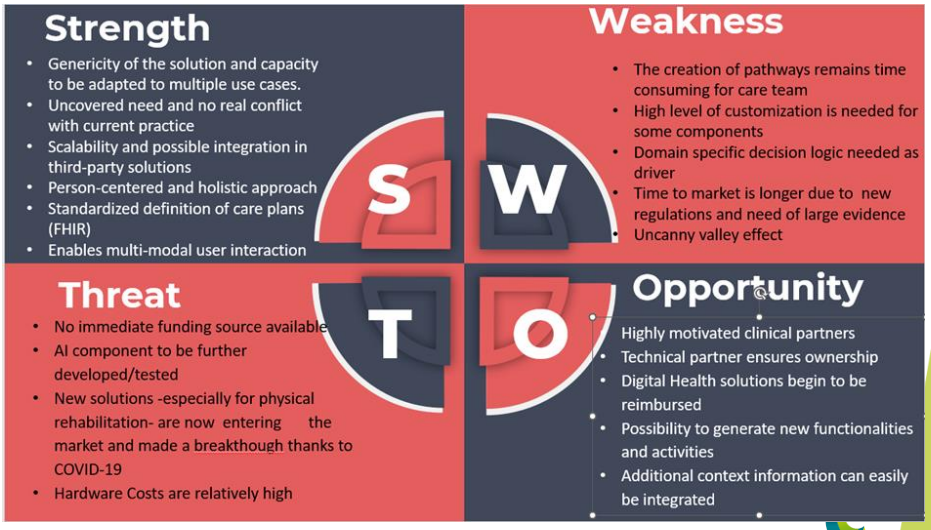
BASELINE MARKET

- **A similar or at least approaching user experience to existing products**
- **AI component which proposes a high and intuitive level of interaction with the patient.**
- **Additional evidence on the pertinence of activities, their impact and the capacity of the coach to integrate all the data of the home environment**
- **A pricing which needs to remain attractive and not too far from what most advanced competitors (even if their offer is more limited).**

6

6

VCARE SWOT ANALYSIS



7

7

VCARE MVP

A minimum viable product (MVP) is a version of a product with just enough features to be usable by early customers who can then provide feedback to the developers for future product development.

- **vCare goes beyond state of the art because it provides an:**
  - Adaptive integration, orchestration and use of the coaching services according to a personalised, evidence-based pathway applied to 3 medical conditions but that could be freely structured and applied to any kind of disease.
  - With the following key features:
    - A holistic approach to patient needs and coaching eco-system
    - Automatic knowledge aggregation and mediation
    - Integration of sensor and users' data
    - International perspective
    - Structured interactions with the care team.
  - All activities but 4 (pain, mood, voice, fun cognitive support) are to be part of the MVP. Those 4 however add value to the product.

8

8

vCare Business Modelling Canvas (BMC)

KEY PARTNERS

Current Technical partners (MYS, SIM, AIT; FZI, TUD, IMA)

- IMA: 3 new serious games modules
- FZI: Pathway Reasoner (Executer)
- FZI: vCare Activity Recommendation Framework
- AIT: Avatar User Interface
- AIT: Coaching services server
- AIT: KIOLA professional carer platform
- MYS: vCare smart home
- SIM: Home Health aggregator
- TUD clinical pathway modeler and repository

SIMAVI as main entry point for end-users

Current clinical partners (OSA, CCP, UMFCD):

- Pathways for 3 use cases
- RCT organisers

EIP-AHA (New clinical partners)

- DIHs at national/regional & European levels and other knowledge driven hubs
- Connected health Alliance (Continua)
- Active regional platforms
- New projects
- Digital health reimbursement schemes (e.g., DIGA)

KEY ACTIVITIES

Maturing and improving the solution:

- Machine learning (Reg/data/validation)
- Single sign-on and overall usability
- Centralized asset/device management
- Integration location sensors in TM
- Professional portal
- Integration with native systems/customization
- Legal and Regulatory compliance
- Define/Adapt roles and support structure (+ training)

Identify new financial resources and sign a new MoU (3-4 years)

- Define IPR and background /foreground conditions of use
- Consider MTAs

Piloting & Collecting the necessary evidence:

- Initiating RCT in at least 4 different sites
- Refining the BC
- Documenting organisational blueprint (change Mgt)

Promoting the concept

- Liaising and finding synergies with major deployed and operational public and private platforms.
- Participation in targeted events.
- Organize targeted promotion workshops

VALUE PROPOSITION

We Fill an important gap in the health system.

vCare has the capability to improve the quality of life and to slow down the symptomatology and adds value compared to the state-of-the-art:

- Support treatment adherence and avoid relapse
- Improve QoL
- Decrease inequalities in care by complementing professionals
- Improved interaction with the care team
- With a limited but focused investment from the care team
- With possible major cost-efficiency gains.

Adaptive integration, orchestration and use of the coaching services according to a personalized, evidence-based pathway applied to 3 medical conditions but that could be freely structured and applied to any kind of disease.

CUSTOMER RELATIONSHIP

Partnership

HC organisations willing to test the solution and collect evidence and companies involved in the further maturing of the solution (TRL8)

Communities:

(E)DIHs, AHA, Integrated Care platforms, Hospital associations, CSAs, Think-tanks; TEFs

Contractual:

-On the basis of a non for profit basis to reach TRL8

-Fair compensation (new investor taking over all assets) when going to market.

CUSTOMER SEGMENTS

Healthcare organisations (public vs private)▪

- **Rehabilitation units at hospitals** (First focus on stroke, heart failure, Parkinson departments)
- Rehabilitation ambulatory units
- Nursing homes
- Home care service providers*

Healthcare authorities

(Regional/local)

- **Focus on those engaged in innovative approaches such as AHA**
- The decentralized nature of health systems may here also play a role especially in bigger countries (Austria, Italy, Spain, Scandinavia)
- Beveridge Health systems (UK, Ireland, Scandinavia) or mixed systems (Spain, Italy, Greece, Portugal) are more prone to adopt innovations such as vCare as they can modify the care process more easily

Health Insurers:

- Insurance companies
- The Patient himself/herself

Projects:

9

30-08-22

9

New clinical partners interested by rehabilitation pathway for other diseases.

KEY RESOURCES

- Knowledge and expertise of the involved staff in the different organisations (with a risk of turnover)
- Components technical description and demonstrators/infrastructure
- Access to multiple networks (AHA, DIH, Professional societies etc.)
- Contact point for end-users/customers and technical integration ensured by MYS/SIMAVI (Spain, Romania) and new MoU
- Possibly TEFs

- Holistic approach to patient needs and coaching eco-system
- Machinal knowledge aggregation and mediation
- Integration of sensor and users data
- International perspective
- Structured Interactions with the care team

CHANNELS

- Active communication from Reference sites
- Direct Social media and marketing from involved companies
- Newsletters and social media from Rehabilitation societies, DH and AHA
- Patients organisations (associated with priority use cases)
- Regional healthcare Authorities (eHealth eco-system meetings)
- Twinning initiatives in AHA domain
- Workshops and seminars organized by Digital Innovation Hubs
- Targeted international conference
- European Investment Project Portal (EIPP)
- European Institute of Technology- Health/Digital

- **Future large scale rehabilitation/healthcare pilots**

Companies:

- Iot segment and integrators
- **SMEs** (additional services)
- **Companies active in the care@home segment**
- **Private Platforms** integrating innovative services with added value (with a focus on care@home)

Research Centres:

- Active in the AHA domain and involved in AI and advanced UI technology

COST STRUCTURE

- Go to market implementation (3-4 years): **Up to 80% Human resources costs**
  - Management costs
  - Personnel costs for increase TRL and adding necessary features
  - Cost breakdown structure for the yearly maintenance▪
  - Certification CE medical device (given positive results from clinical studies)
  - Outreach and communication costs
  - Licence and devices purchase costs
  - Consultancy service for go to market

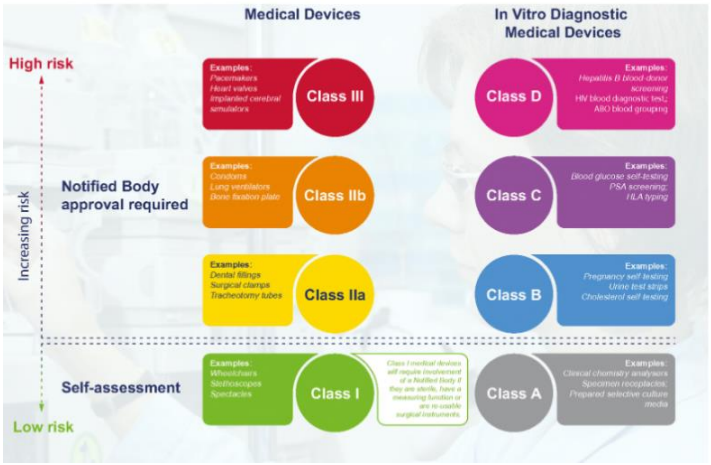
REVENUE STREAM(S)

Resources need to be available no later than 6 months after the end of the project. No resources foreseen before 3-5 Years.

- Defined but limited own resources of partners (See MoU)
- Grants and subsidies:
  - Regional European Funds (Interreg North, Central and/or Med)
  - Fast Track scheme to apply for the EIC Accelerator (One SME to take leadership)
  - National/Regional Innovation Funding schemes
  - Open Calls (New LSPs)

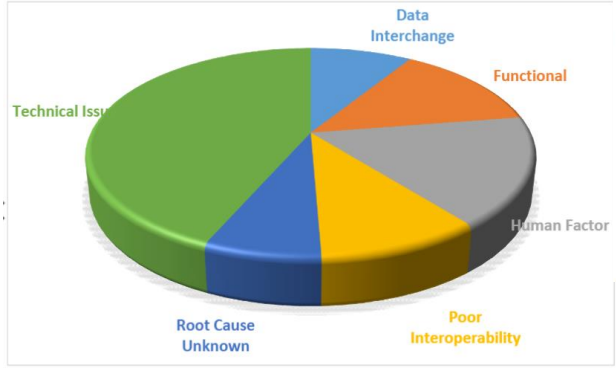
10

MEETING THE CE-MARKING CHALLENGE



- Although the vCare services remain potentially affected by security and connectivity issues, it should thus be globally considered a priori as a class 2a
- AI in vCare to have only direct impact on well-being and quality of life activities

MDR TYPE OF RISKS AND BUILDING BLOCKS



- **Virtual Coaching app**
- **Games component**
- **Vital signs processing**
- **AI modules**

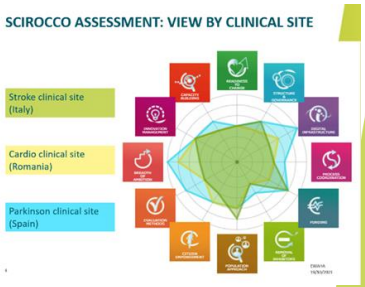
IDENTIFIED IMPROVEMENT AREAS

- **REDUCING SYSTEM COMPLEXITY**
- **REDUCING INSTALLATION AND TRAINING COMPLEXITY**
- **COLLECTING MORE PATIENT DATA**
- **OTHERS:**

- Document the conditions and requirements of **integration of additional third-party solutions applications** which would add new functionalities/activities.
- Implement specific measures to **guarantee the local storage and portability of personal health data**.
- Consider **improvement of the current Professional Dashboard** (meaningful summaries of activities, impact etc.) in order to (a) increase its usability by the care team and (b) implement customisable push/pull procedures so as to increase reactivity and efficiency.

AN ORGANISATIONAL BLUEPRINT TO CONVINCE HCP

- **Two dimensions immature in organisations:**
  - **Removal of Inhibitors**
  - **Readiness to change**

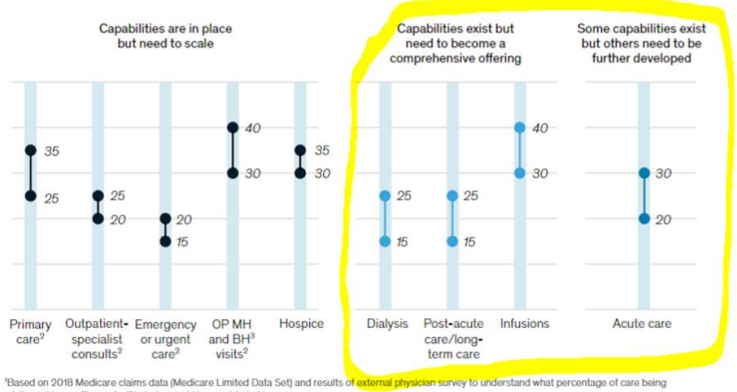


- **a vCare organisational blueprint needs both to reassure health professionals and make all efforts needed to provide the evidence on the efficacy and cost-benefit for the patient, the HCP, the organisation and the system in a fully transparent way.**

INTEGRATING THE @HOME CLINICAL SERVICES

A substantial amount of care currently being performed in clinics, facilities, and physicians' offices could shift to the home across service categories.

Shift to Care at Home,[1] % range of shift, by individual category



[1]Based on 2018 Medicare claims data (Medicare Limited Data Set) and results of external physician survey to understand what percentage of care being delivered in an office or facility today could be provided at home.
[2]Categories have experienced substantial growth in telemedicine as a result of the COVID-19 pandemic. For more, see Oleg Bestsennyy, Greg Gilbert, Alex Harris, and Jennifer Rost, "Telehealth: A quarter-trillion-dollar post-COVID-19 reality," McKinsey, July 9, 2021.
[3]Outpatient mental-health and behavioral-health visits.

15

McKinsey & co, February 2022

30-08-22

15

INDIVIDUAL COMPONENTS HAVE THEIR OWN LIFE

COMPONENT NAME	MATURITY LEVEL reached at the end of the project
• **IMA: 3 new serious games modules: COGNI, CARDIO & NEURO PRO**	TRL7
• **FZI: Pathway Reasoner (Executer)**	TRL6 (7)
• **FZI: Activity Recommendation Framework**	TRL6 (7) – need 10.000 data points of real patients for each pattern to have a stable algorithm
• **AIT: Avatar User Interface**	TRL6
• **AIT: Coaching Services server**	TRL6 (Framework =7 but implementation could vary 4-8)
• **AIT: KIOLA professional platform**	TRL7

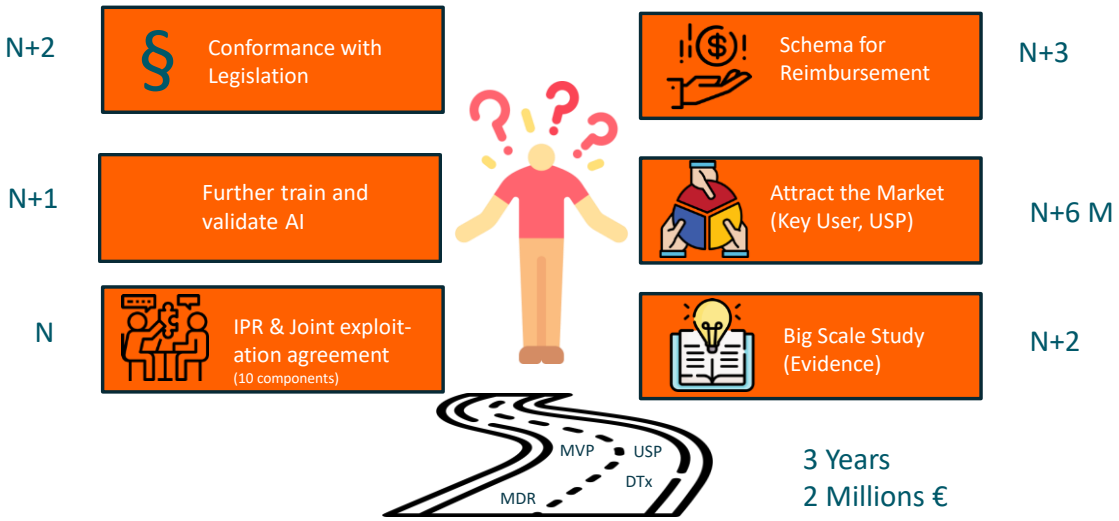
COMPONENT NAME	MATURITY LEVEL reached at the end of the project
• **MYS: vCare smart home**	TRL7
• **MYS: Security components and Integrator (broker MQTT) (Open source)**	TRL8
• **SIM: Home Health aggregator**	TRL7
• **TUD: Basic clinical pathway modeller**	TRL 7
• **TUD: Integrated clinical pathway modeller and repository**	TRL 7
• **OSA/CCP/UMFCD: Clinical Pathways (and PK in particular)**	TRL7 (a large RCT is needed)

16

AENEAN SCELERISQUE
MASSA VIVERRA
30-08-22

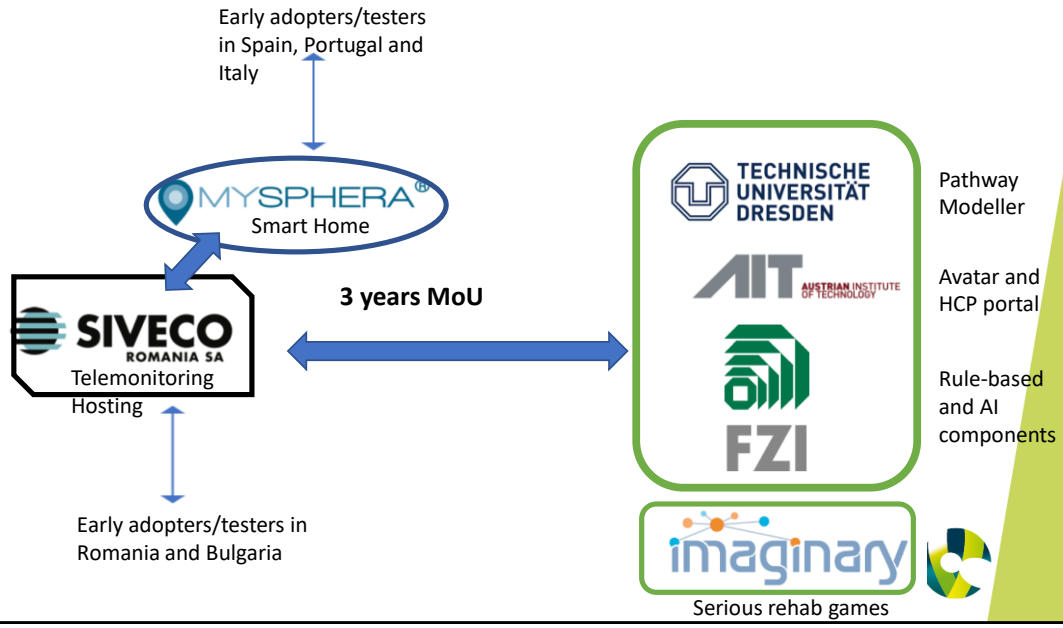
16

DIRECT EXPLOITATION



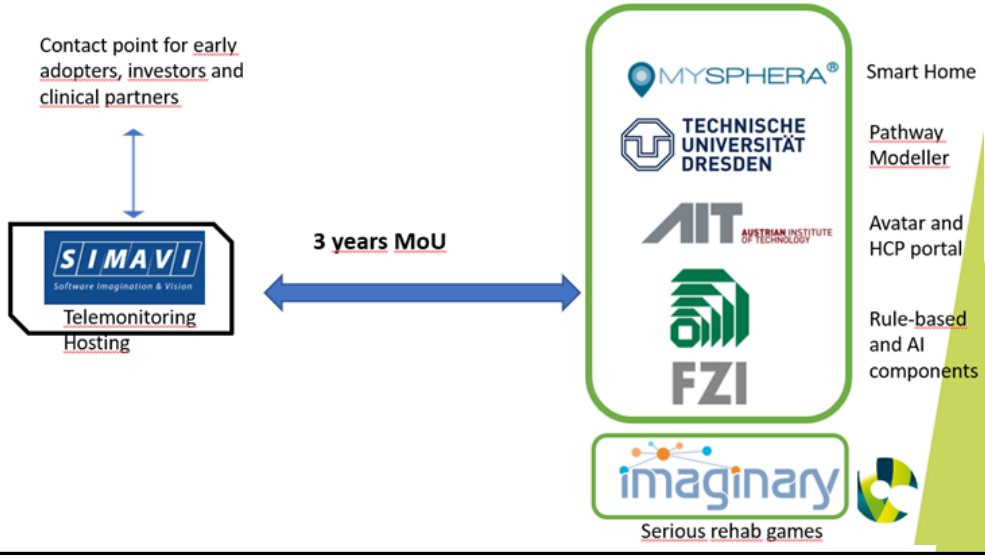
17

TRANSITIONAL SETUP: TRL7->TRL8



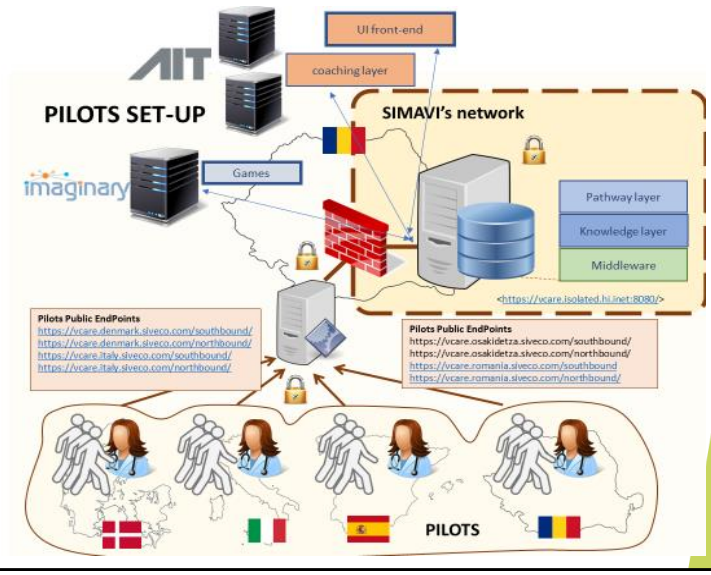
18

TRANSITIONAL SETUP: TRL7->TRL8



19

CURRENT ARCHITECTURE

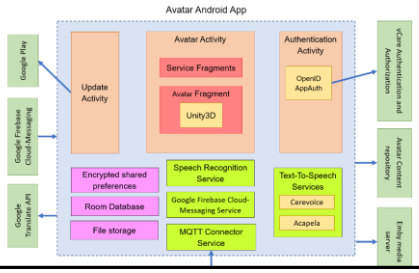


20

INDIRECT EXPLOITATION

- **PROVIDING A FULL TRANSPARENT DOCUMENTATION OF THE SOLUTION**
  - **Support to new products/developments/projects**
  - **Detailed Content meant for external interested readers and investors**
  - **Integration with other @home services**
  - **Communication tool with DIHs**

- via this link



21

CONCLUSIONS

- TRL7 considered as globally achieved although some components - such as machine learning - have today not yet reached that level
- Access to a robust documentation on clinical, patient well-being and socio-economic benefits are a pre-condition to convince health authorities and healthcare organisations to invest in vCare
- vCare opens now a transition period of 3 to comply with all the remaining “to dos” but external funding is needed.
- Exploitation of vCare can thus follow different paths and the MoU concluded between all projects partners has been built in such a way that it can support each of them.

22

THANK YOU!

contact@vcare-project.eu

www.vcare-project.eu

vCARE
VIRTUAL COACHING ACTIVITIES FOR REHABILITATION IN ELDERLY

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 769807.

23