



30-08-2022

## VCARE FINAL EVENT:

vCares approach to the  
Virtual Coaching concept

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

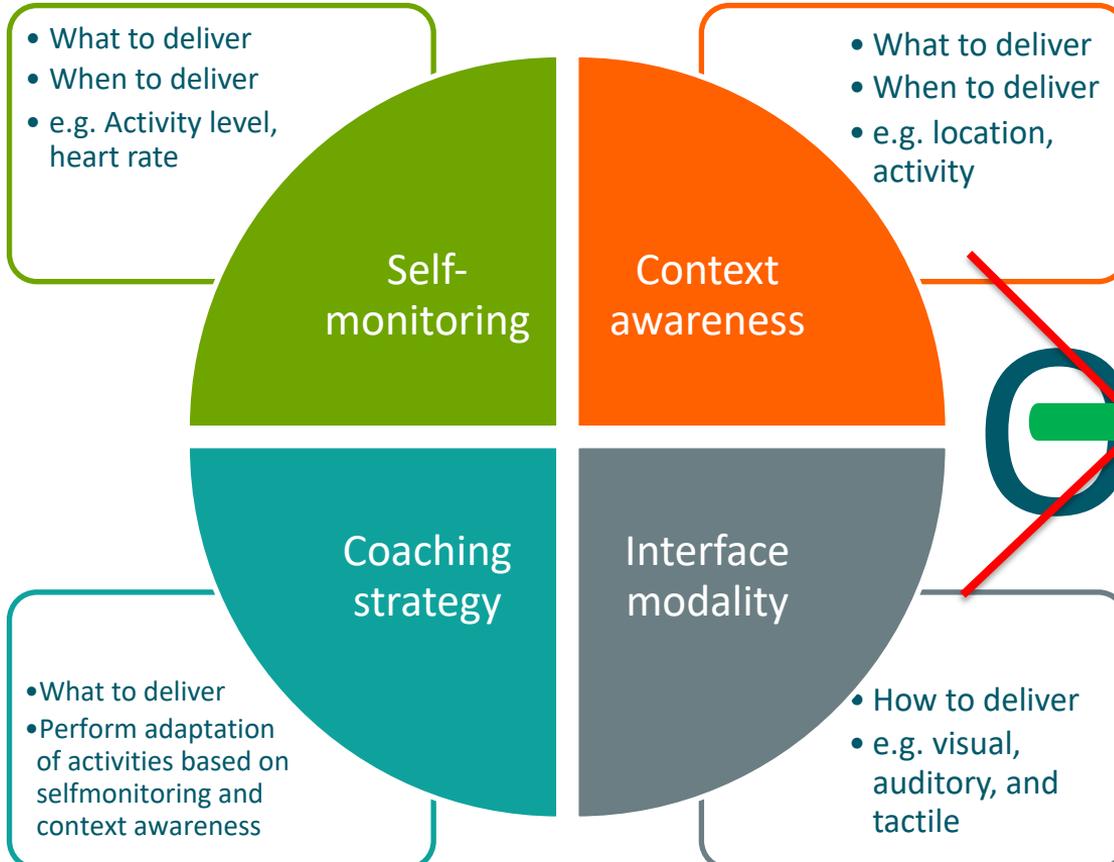


# WHAT TO EXPECT

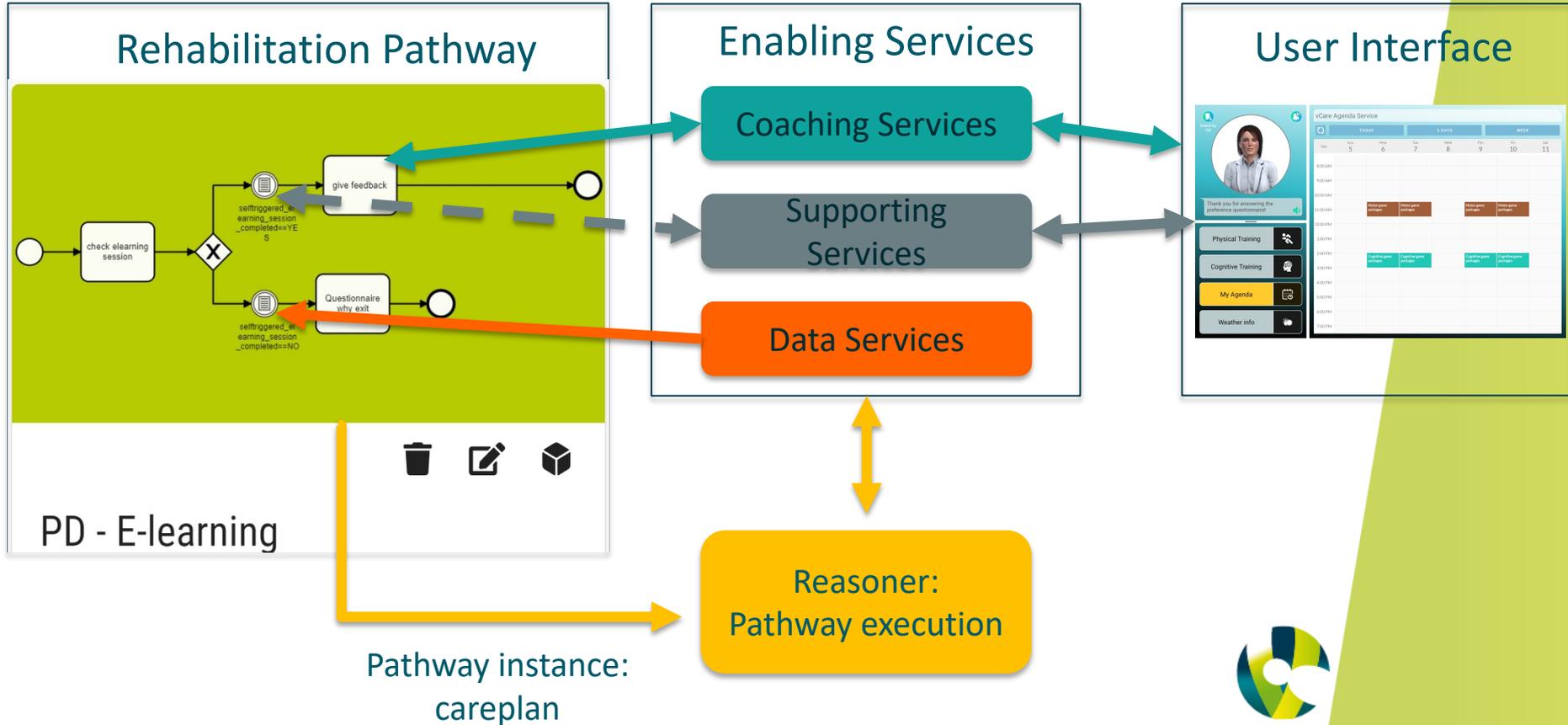
- What is virtual coaching and what is its purpose?
- Virtual Coaching in vCare
- Benefits and Risks
- User perception and Feedback
- Key Takeaways



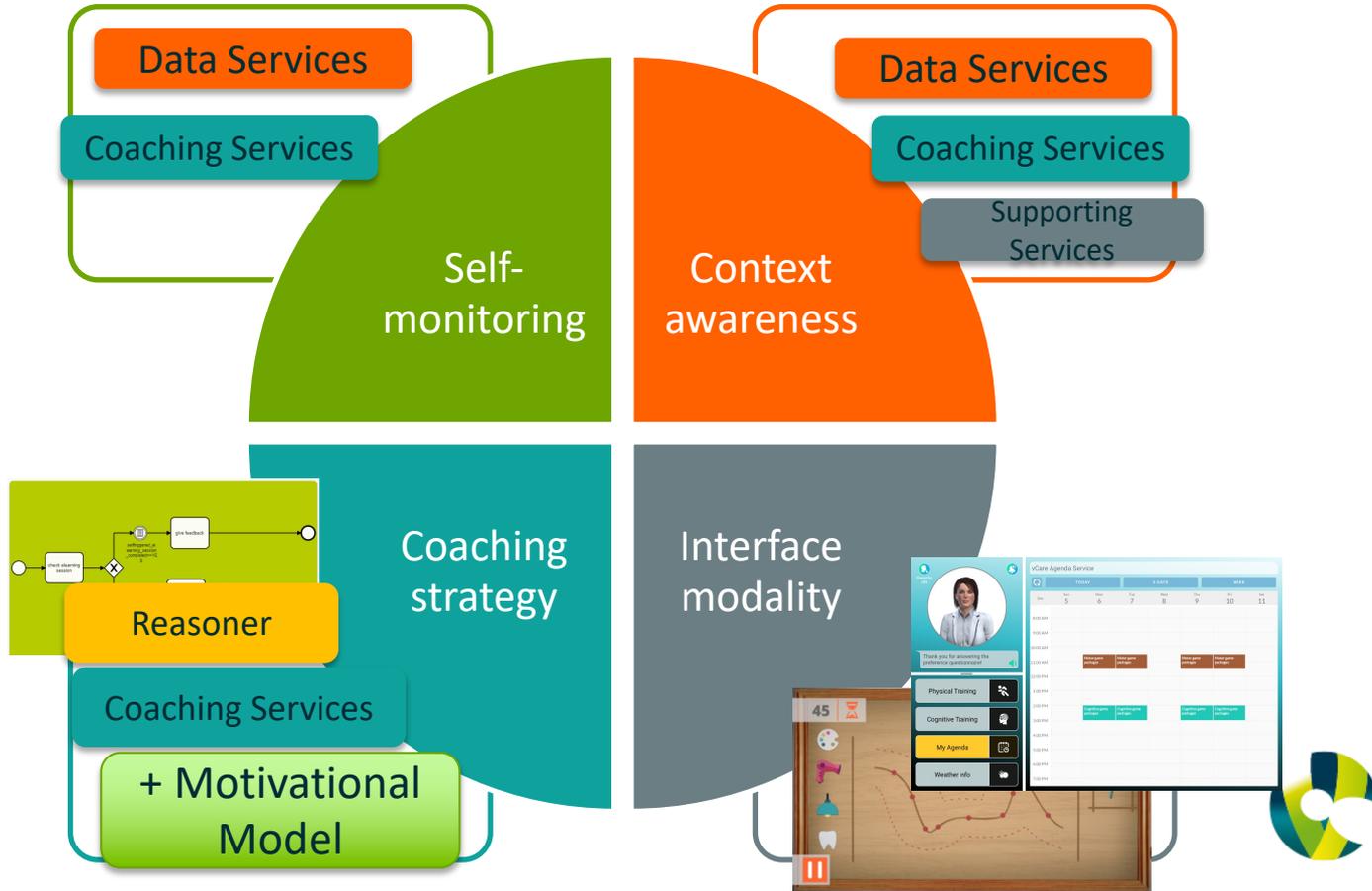
# WHAT IS VIRTUAL COACHING AND WHAT IS ITS PURPOSE?



# VIRTUAL COACHING IN VCARE

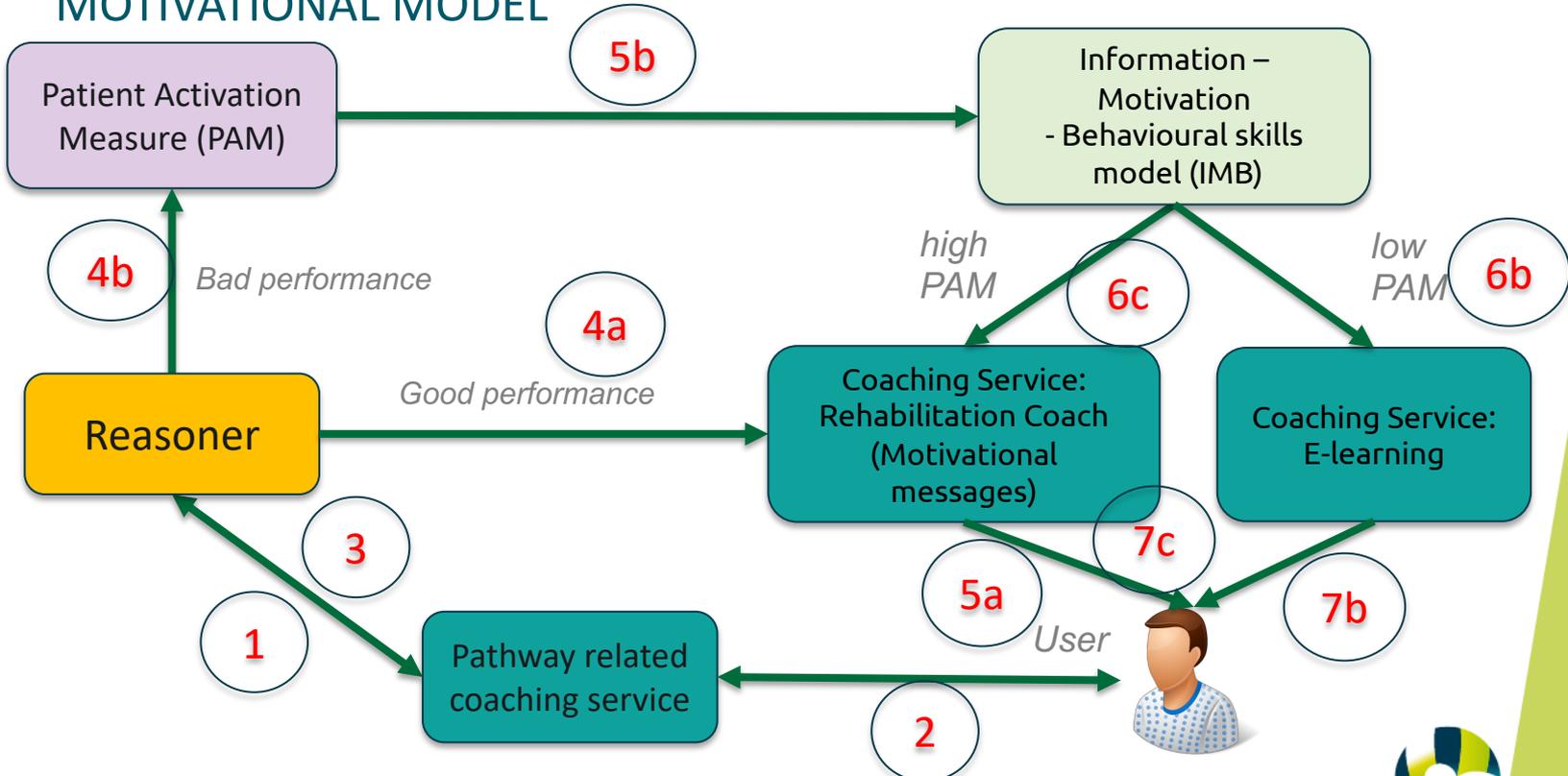


# VIRTUAL COACHING IN VCARE



# VIRTUAL COACHING IN VCARE

## MOTIVATIONAL MODEL



# BENEFITS AND RISKS

## Benefits

- Clinicians are actively involved in rehabilitation process
- Reduced risk factors
- Increase in quality of life
- Increased adherence to the home care and rehabilitation plan
- Multi-domain

## Risks

- Technical difficulties can lead to frustration and drop-out
- difficult approach to technology by some patients with impairments



# USER PERCEPTIONS AND FEEDBACK

- Overall, System Usability Scale (SUS) score was positive (> 68)
- Technology Acceptance Model (TAM) shows a perceived usefulness and ease of use > 70%
- User Experience Questionnaire (UEQ) results were at least neutral or higher depending on the domain „More instructions by the lady“

Patients like the Avatar and think it is friendly but seemed a bit serious.

„Tell me more what to do“

Complex UX (too many sections and sub sections to browse)

Too strict interaction possibilities, more flexibility would be appreciated

→ i.e., there is room for improvement 😊



# KEY TAKEAWAYS

- Observed clear benefits of using a Virtual Coach in the clinical domain
  - Better rehabilitation outcome for patients
  - Cost-effective tool for rehabilitation
- Risk of drop-outs due to technical obstacles
- Applicability in multiple domains
- Promising motivational model for virtual coaches but needs further development and testing



THANK YOU!

 [contact@vcare-project.eu](mailto:contact@vcare-project.eu)

 [www.vcare-project.eu](http://www.vcare-project.eu)



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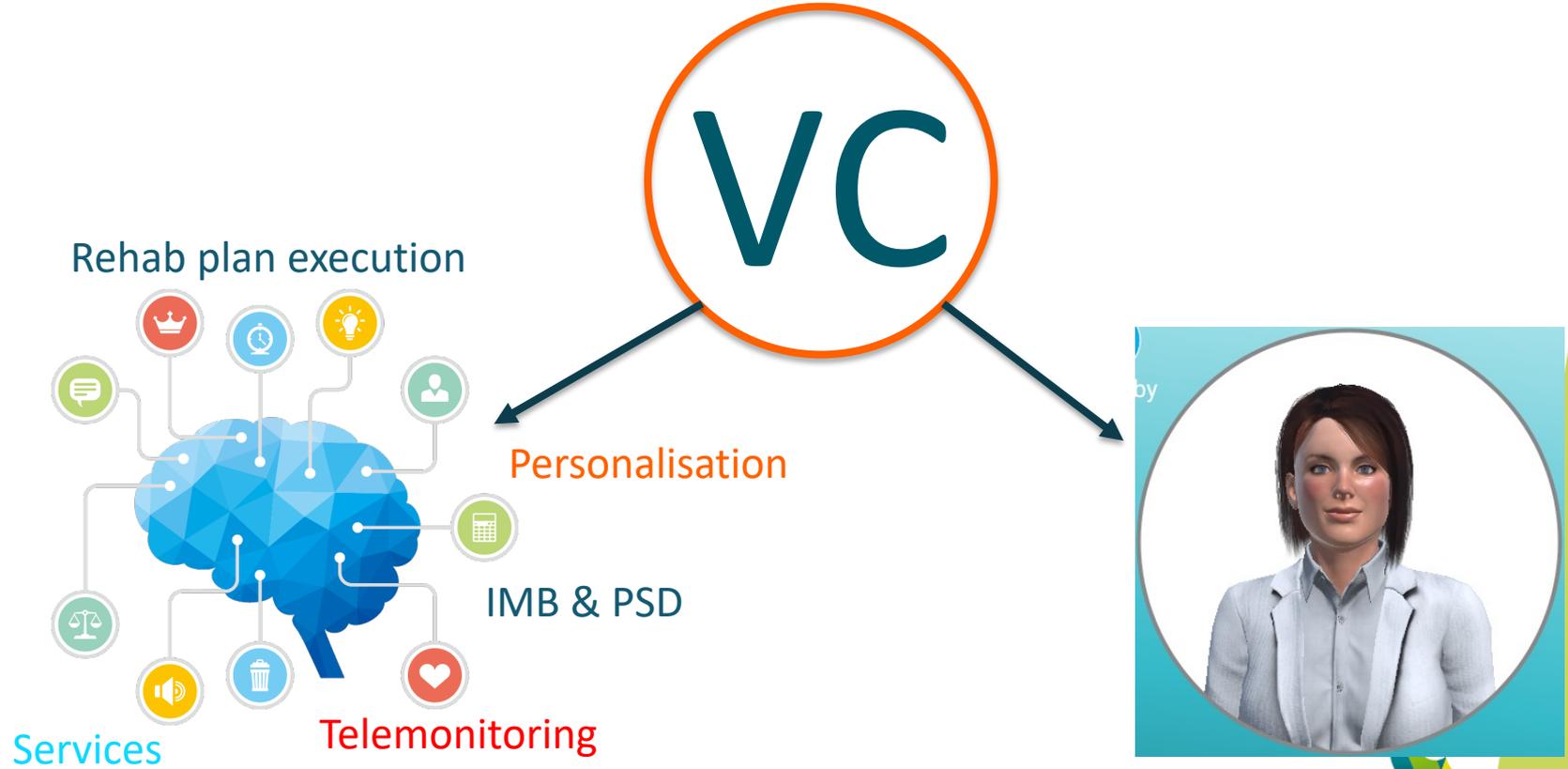


# BACKUP SLIDES

- The following slides are just for backup and discussion purposes

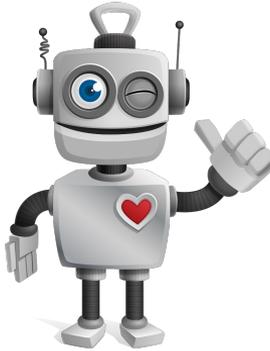


# VCARE'S VIRTUAL COACH, I.E. "THE AVATAR" I



# VCARE'S VIRTUAL COACH, I.E. "THE AVATAR" II

- VC can have different visualisations



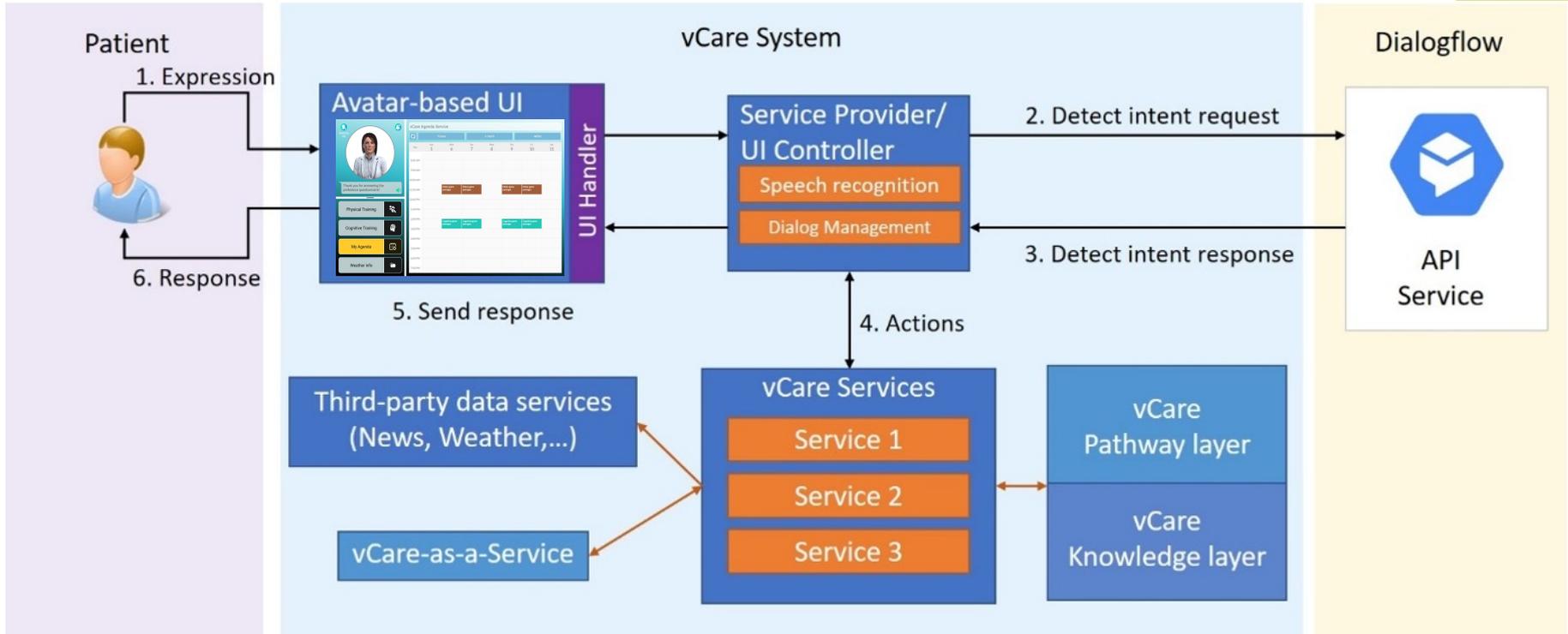
This is a simple text based visualisation



- Goal: have a trustworthy and relatable "face" as VC visualisation



# VIRTUAL COACHING IN VCARE INTERACTION MODEL

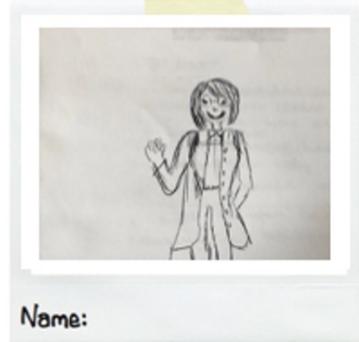


# VCARE'S VIRTUAL COACH, I.E. "THE AVATAR" III

- **Avatar Design Workshop**

- General characteristics of the Virtual Coach

- Qualities, faults, and interaction with patients



# VCARE'S VIRTUAL COACH, I.E. "THE AVATAR" IV

- **General characteristics**

- Age: 30 – 40

- Gender: female

- Resemble

- Physician
- "gym" trainer



# VCARE'S VIRTUAL COACH, I.E. "THE AVATAR" V

- **Qualities**

- relational skills

- Patience
- Friendly
- Open-smile

- Professionalism

- Punctual
- Precise
- Authoritativeness

- **Faults**

- VC shouldn't seem to be too

- Proud
- Strict
- Directive

- VC shouldn't exhibit bad human characteristics like greed.



# VCARE'S VIRTUAL COACH, I.E. "THE AVATAR" VI

- **Interaction with patients**

→ "push" and "pull" mechanisms: either party can start an interaction

→ Planned activities

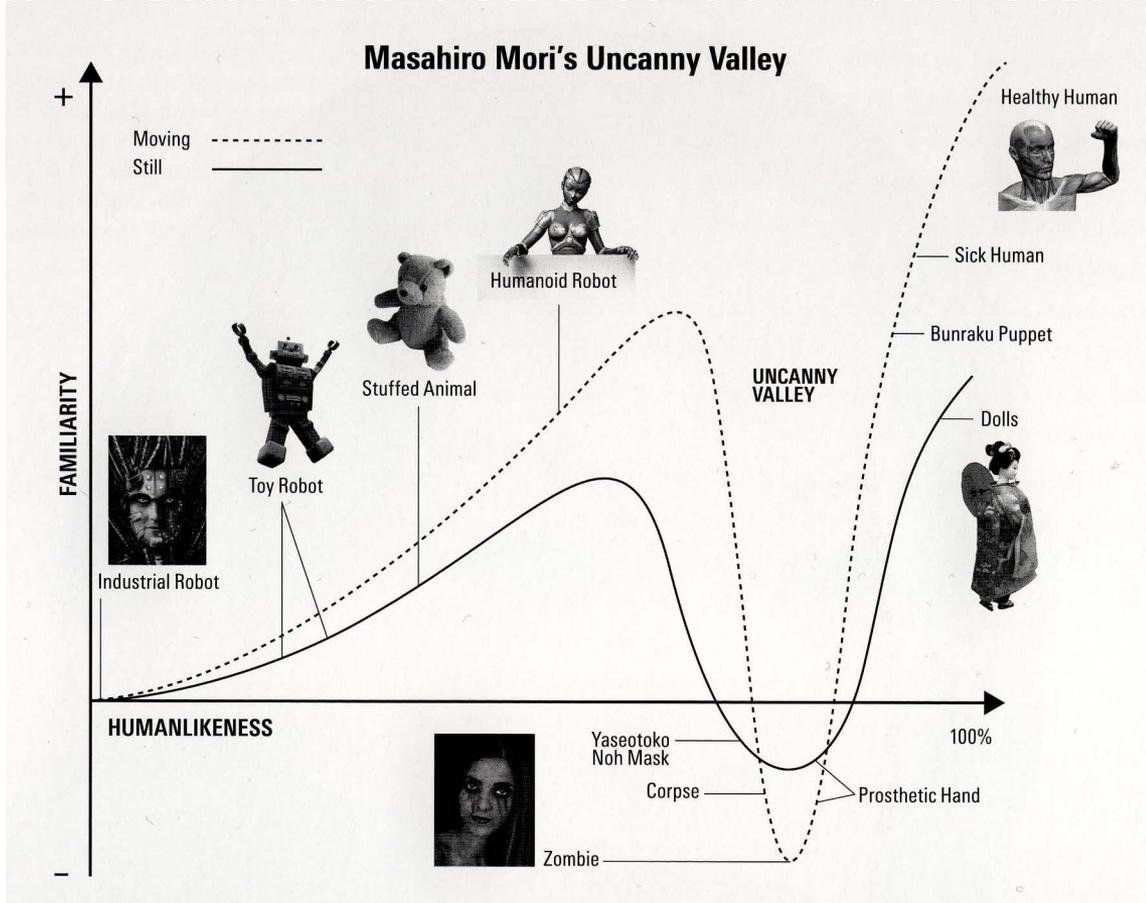
- „Before Activities“ → send alerts
- „During Activities“ → support, suggestions
- „After Activities“ → feedback



# VCARE'S VIRTUAL COACH, I.E. "THE AVATAR" VII

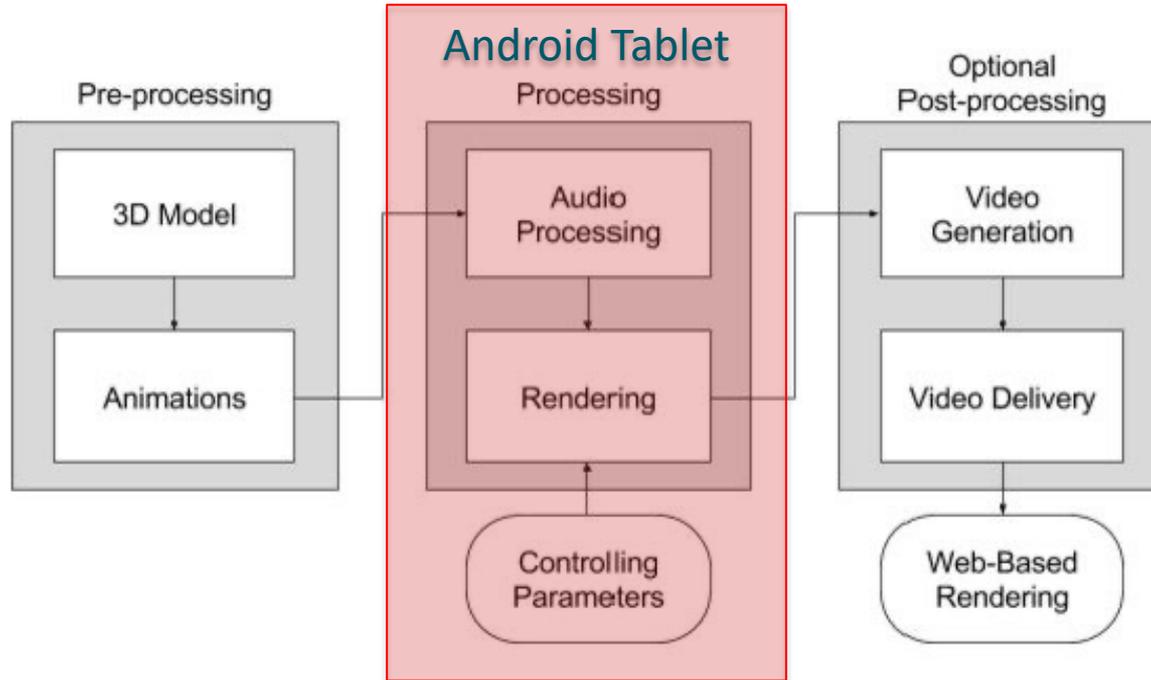


# VCARF'S VIRTUAL COACH I F "THE AVATAR" VII



# VCARE'S VIRTUAL COACH, I.E. "THE AVATAR" VIII

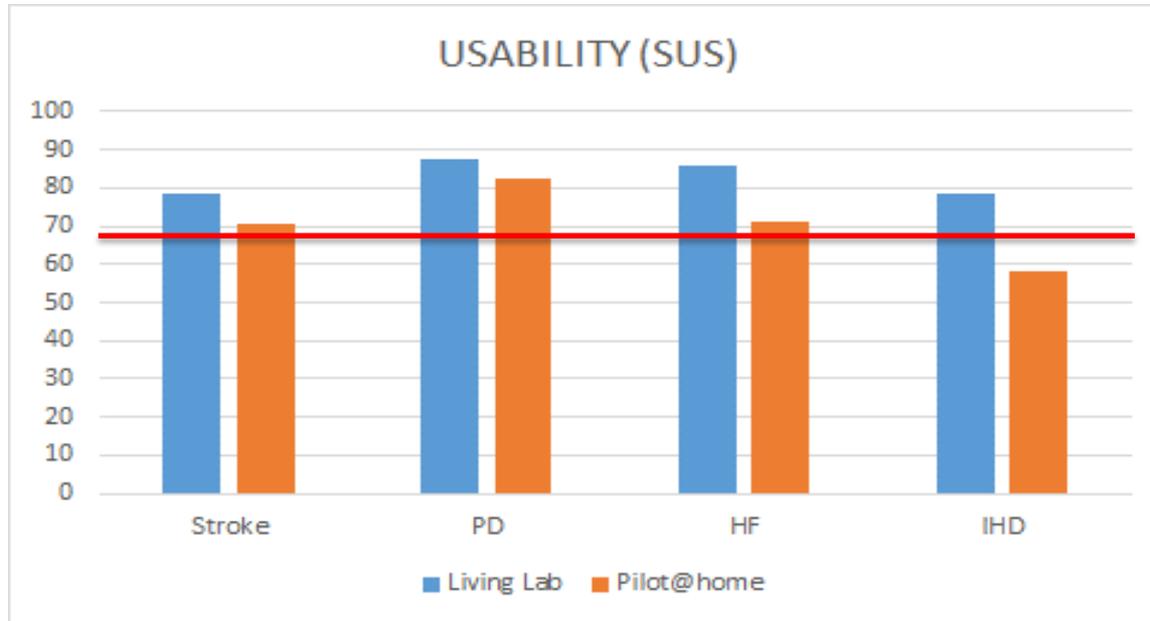
- **Technical realisation of the Avatar UI**



# USER PERCEPTIONS I

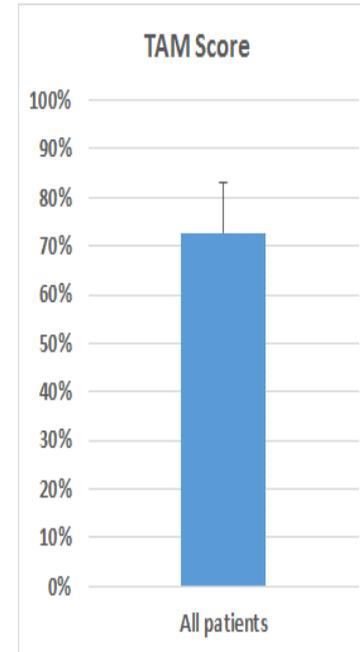
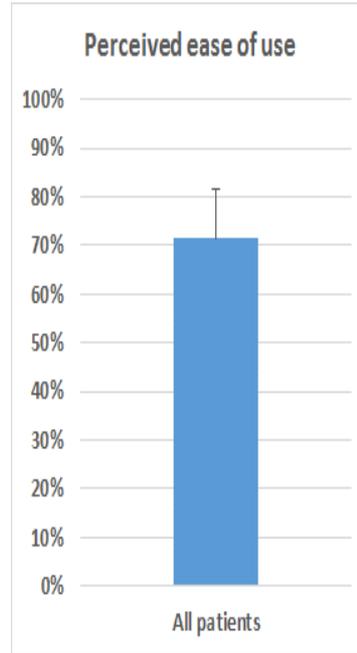
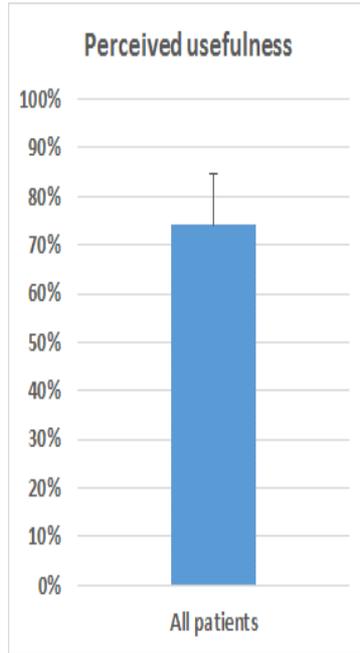
## SUS (SYSTEM USABILITY SCALE) SCORE

- Overall, usability was positive (> 68), with the exception of IHD
- The shift from the lab to home always impact on the usability



# USER PERCEPTIONS II

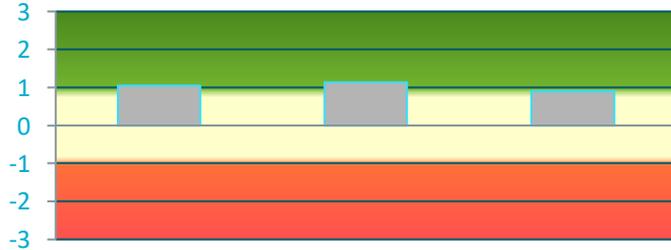
## TAM (TECHNOLOGY ACCEPTANCE MODEL) SCORE



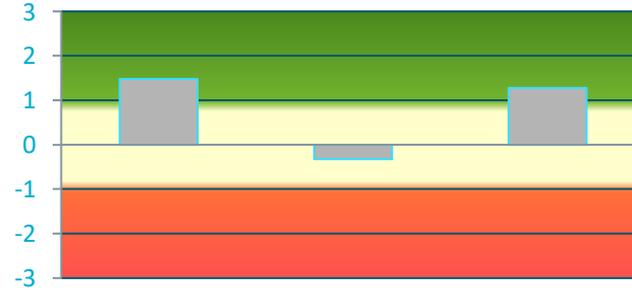
# USER PERCEPTIONS III

## QUALITATIVE UEQ (USER EXPERIENCE QUESTIONNAIRE)

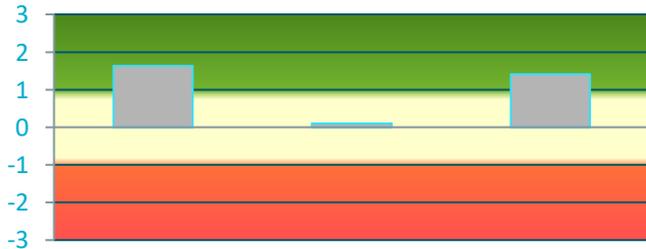
### Stroke



### Ischemic Heart Disease



### Heart Failure

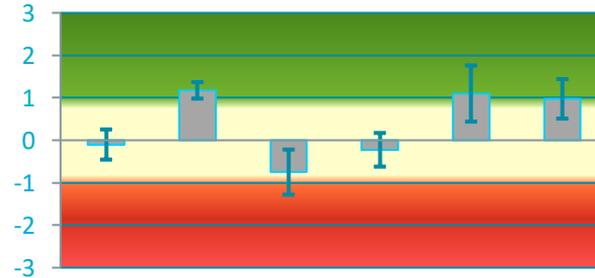


Attractiveness

Pragmatic Quality

Hedonic Quality

### Parkinsons Disease



Attractiveness

Perspicuity

Efficiency

Dependability

Stimulation

Novelty



# TECH CHALLENGES I

- **Good quality human-like Avatar → beware of the “Uncanny Valley”!**
- **Multiple points of attention: Look, Animation (movement, gestures, facial/emotion expression, lip synchronisation), Behaviour**
- **Smooth and natural transitions**



# TECH CHALLENGES II

- **Comprehensive and natural dialogues**
- **Good quality real-time Text-To-Speech synthesis**
- **Speech recognition, natural language understanding, language support**
- **Natural language generation**

