



## Serious Games for Rehabilitation: REHABILITY and the State of the Art

Lucia Pannese, CEO imaginary srl

vCARE final event, August 2022



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## imaginary

- **18 years experience** in serious games and enabling technologies
- Combine enabling technologies with **games psychology** and **mechanics**
- Aims at **influencing motivation**, understanding and behavioural change
- 3 markets: **eHealth, Smart Cities, Training & Education**
- Awarded **>30 EU research projects**
- Awarded **14 international awards**
- **Multi-disciplinary team**

imaginary is one of the best practices chosen by the European Commission for the sector **Silver Economy**

imaginary is under the **Innovation Radar** of the EU




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## The Need for Tele-Rehab

### European health systems are seriously challenged!

- Raising number of (chronic) patients
- Stable / decreasing number of specialists
- Long waiting lists
- Short therapy periods
- Patient's quality of life decreasing
- Productive capacity decreasing

Eurostat health office trends **acknowledging an increasing number of home caring professionals** → **NOT SCALABLE!**

Then comes also...



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## REHABILITY NEURO: characteristics



- Scalability
- Highly personalised therapy plans
- Patient-centric
- Security and constant care
- Adherence to therapy
- Proven to boost motivation
- Raising QoL
- Enriches data collection

**Data** shows significant tendencies for

- increasing of motivation
- patient engagement
- rehabilitation progress: efficacy is the same as traditional therapy

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## REHABILITY NEURO: figures



- CE medical device class I
- 4 types of patients: post stroke, MS (both relapsing remitting and secondary progressive, Parkinson's, Spinal Cord Injury)
- 22 scientific papers published
- 6 international awards
- 14 languages
- 32 game based exercises
- Motor exercises: upper limb, lower limb, balance
- Neuro-cognitive stimulation
- Recently under study for long-covid patients

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## International Awards



Best Presentation Award at [Healthtech Invest Europe](#), Helsinki, March 2017



Awarded at the Pitch Competition [Frontiers Conference 2017](#)



1<sup>st</sup> prize in AboutPharma Digital Awards (Oct 2015) for the category “reorganization of the NHS” and is in the **top 3** nominations in the category of “Tech for Patients”.

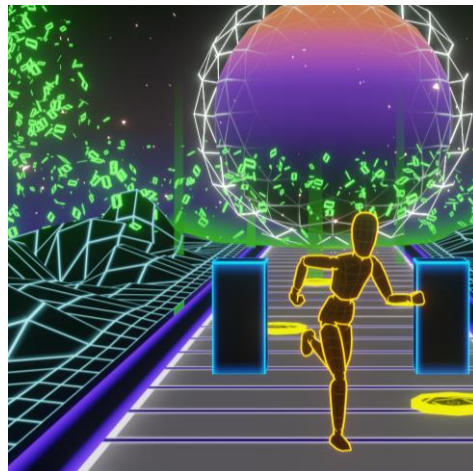


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## REHABILITY: next versions

- **Kids** version completed
- **Cardiac** version: prototype available
- **Cognitive** version: prototype available
- **Rare Diseases**: under study
- **Rheumatology**: investigation in Berlin with patient association revealed great similarity with NEURO version
- **Respiratory** and **Orthopaedic** versions planned in the production pipeline



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## Main Use Cases

- **Tele-rehabilitation to increase scalable offer of personalised therapy to patients at home**
  - Increase therapy duration
  - Decrease costs of therapy
  - Increase patients' quality of life
- Rehabilitation to patients in their rooms during hospitalisation
- Integrated with tele-medicine solutions (e.g. home monitoring, tele-visits, virtual tutors...)
- Active Ageing
  - in daily centres (e.g. socialisation)
  - at home



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## SoA / Main Competitors

- **Game-based:** mostly with weak scientific background, not co-designed with patients, often too generic in the medical objective
- **Tele-conference** with therapist: is not scalable
- Solutions with **wearable devices:** are not easy to use, not cheap
- **Immersive VR** (glasses): too high risk for patients, no scientific validation
- **Video based** (e.g. app): not interactive, no analytics to check, no personalised therapy, not motivating



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## Contact



 [lucia.pannese@i-maginary.it](mailto:lucia.pannese@i-maginary.it)

**Lucia Pannese, CEO imaginary**



 [www.i-maginary.it](http://www.i-maginary.it)     [imaginary.italy](https://www.facebook.com/imaginary.italy)    piazza Caiazzo, 3  
20124 Milano  
PH. +39 02 89458.576  
MOB +39 338 8785839

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