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# DIH-HERO - Robotics in healthcare

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The logo of the University of Twente, consisting of a yellow hexagon with a black horizontal bar across its center containing the text 'UNIVERSITY OF TWENTE.' in white.

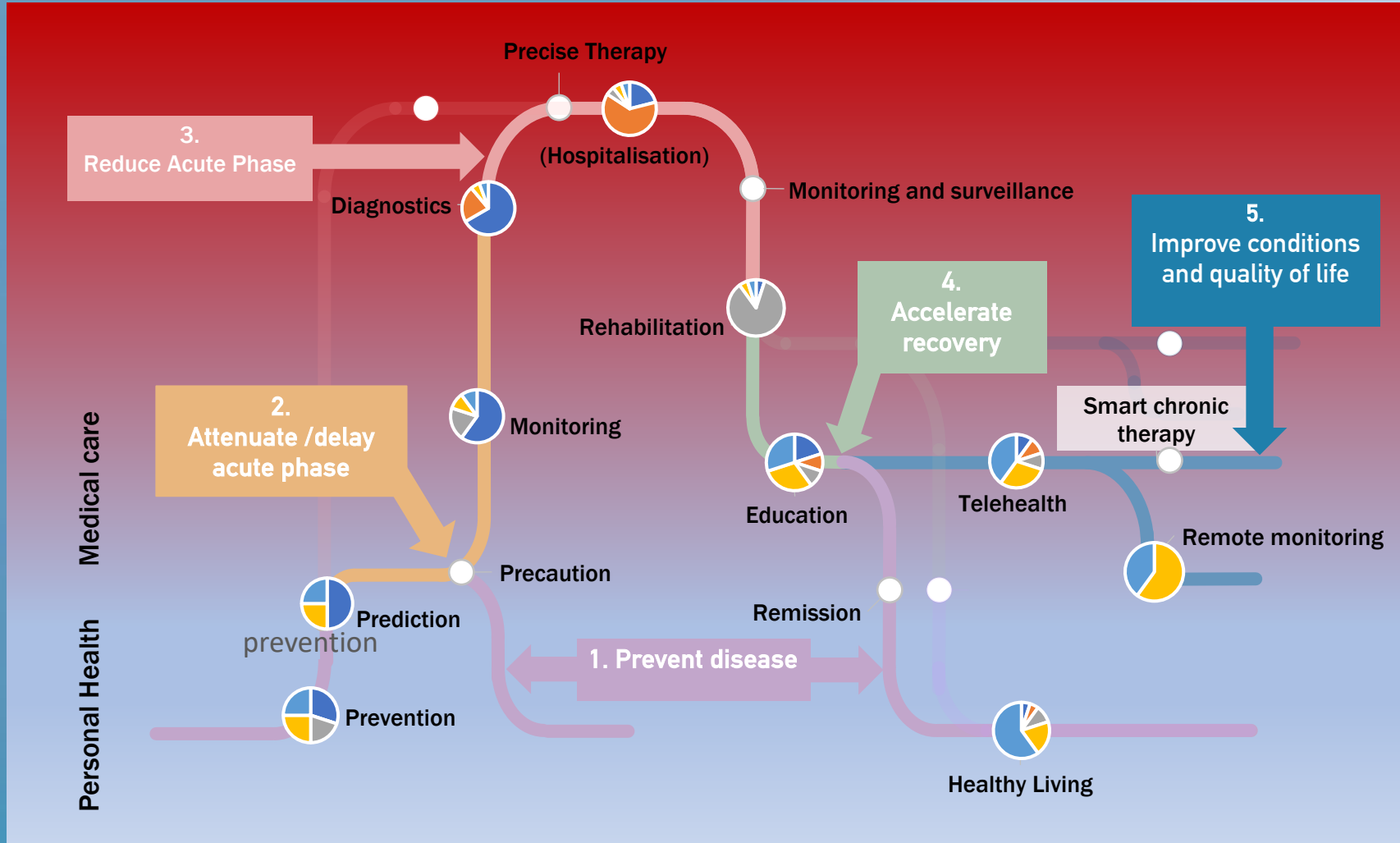
UNIVERSITY OF TWENTE.

**Iddo Bante**

Business director  
Digital Society Institute  
University of Twente

# Healthcare shifting towards a Continuum of Integrated Care

Well-being Pre-acute Acute Post-acute Homecare



## Robotics

- Diagnostics
- Intervention
- Rehabilitation
- Support professionals
- Support patients

# Main application domains



**Diagnostic  
Robotics**

e.g. Robots for  
human function  
analysis;  
Automated  
imaging robots

**Interventional  
Robotics**

e.g. Surgical  
robotics;  
Image guided  
robotics;  
Training robots

**Rehabilitation  
Robotics**

e.g. Wearable  
exoskeletons;  
Stationary devices;  
Mobile training  
devices

**Robotics  
supporting  
patients**

e.g. Functional  
support robots;  
Robot assistance;  
Communication  
robots

**Robotics  
supporting  
healthcare  
professionals**

e.g. Ergonomical  
robots;  
Tele-presence  
robots;  
Workflow  
optimization

# Our role in the European smart health industry



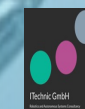
## Central platform (one-stop shop) – Healthcare robotics

- A **sustainable platform** for all stakeholders active in the healthcare ecosystem
- **Networking and collaboration**
- **Easy access** to information, expertise and services
- **Innovation opportunities** through efficient technology transfer
- **Innovation and deployment support**
- **Awareness and alignment across Europe**
  - Harmonized **standardization** for robotics in healthcare, including ethical, legal and societal issues
  - Removing barriers and **reduce fragmentation**

Facilitating and accelerating the application of robotic technologies across healthcare

Improving outcomes and the quality of care for European citizens

Building global market potential



# DIH-HERO services

## Business Capital and Incubation

Providing access to public and private funding to help transform innovative ideas into market-ready products.



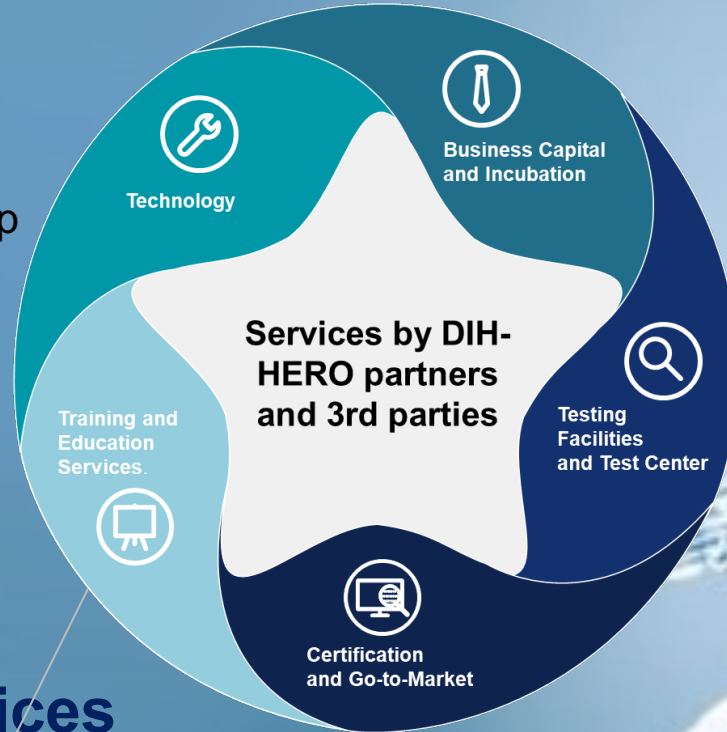
## Technology

Offering prototyping, research & development, and/or manufacturing expertise to speed-up the development of healthcare robotics products.



## Training and Education Services

Helping enable knowledge building both for healthcare professionals as well as technology developers.



## Testing Facilities and Test Center


Enabling product testing, service testing and validation in specialized labs and/or realistic test environments.

## Certification and Go-to-Market

Helping innovators understand customer segments, regulations and value chains to create a perfect market entry strategy.

# Knowledge database





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## Diagnostics

Diagnostics provides the information needed to make a diagnosis. Robotics can play an important role in

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- 1 Application Sub Areas
- 2 Use Cases (Diagnostics)
- 3 Diagnostics Robots
- 4 Showcase for Diagnostics
- 5 State of the Art in Diagnostic Robotics
- 6 Key Challenges
- 7 Organisations Excellent in Diagnostics

**Application Sub Areas** [\[ edit source \]](#)

**Biopsy** (Has Description: Robotics can be used to collect tissue samples from sites within the body very accurately because they can be guided by MRI or Ultrasound location information in real-time.)

**Use Cases (Diagnostics)** [\[ edit source \]](#)

**Patient Positioning** (Description: Robotics is used to accurately position a patient. This is mainly used inside radio therapy systems to ensure the beam is accurately targeted or in scanners to provide accurate scanning localisation.)

**Diagnostics Robots** [\[ edit source \]](#)

◆	Description	◆	Website	◆	Maker	◆	Status	◆
	<b>Murab</b>	A robot that assists in carrying out biopsy sample capture in MRI and Ultrasound Environments	<a href="https://www.murabproject.eu">https://www.murabproject.eu</a>		University of Twente		Research Prototype	

**Showcase for Diagnostics** [\[ edit source \]](#)

**State of the Art in Diagnostic Robotics** [\[ edit | edit source \]](#)

**Key Challenges** [\[ edit | edit source \]](#)

**Organisations Excellent in Diagnostics** [\[ edit | edit source \]](#)

University of Twente

Category: Healthcare Domain



Category [Discussion](#)

## Category:Healthcare Domain

These are the primary areas of Healthcare where robotics applications can be found

### Pages in category 'Healthcare Domain'

The following 5 pages are in this category, out of 5 total.

**D**

- [Diagnostics](#)

**I**

- [Intervention](#)

**P**

- [Patient Support](#)
- [Professional Support](#)

**R**

- [Rehabilitation](#)

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# Ethics guidance



## Robotic devices evaluation with human beings – ethical and legal approvals needed

The following tool has been designed and developed for summarizing the directives, regulations and laws applicable for any research projects involving human beings. It is focused on research with human beings, and other pre-clinical trials (in-vitro, in-vivo, laboratory test, ...) are not considered. The tool is also focused only for humans involvement in technological development research. Any new pharmacological development or therapy test (rehabilitation, psychological, ...) are neither considered. The development of this tool is on the robotics development field, but other technological developments have been also included.

The aim of the tool is facilitating the decision of the needed ethical and legal approvals to the researchers. This tool is a questionnaire format with the objective of simplifying the procedure.

This questionnaire is provided by TECNALIA Research & Innovation. Data collected in this questionnaire will be anonymous.

1

Will human beings participate in the research? \*

- Yes  
 No

2

Will the participants use a device, software or system? \*

*It will be considered that the participant will use the device, software or system when he/she is taking some benefit of it, directly or indirectly. If a professional asked him/her to use it for collecting some data, it will be also considered to be in use.*

- Yes  
 No

3

Will the system be used to collect anonymous data (questionnaire, survey, ...)? \*

- Yes and it is not foreseen any risk for the participants  
 Yes, but the questions included could provoke psychological risks  
 Yes, and this tool will be used in combination with other device, system and/or software  
 No

# Safety guidance



## Free quick check of your robot's safety

With this questionnaire, you can get a free quick check of the safety of your robot application. To start the evaluation, please specify the type of your application. After that, you receive information, which standards may be applicable for your application and how a CE mark can be obtained. This evaluation is non-binding and without guarantee.







If you like, you can leave your contact data at the end of the questionnaire, so that we can contact you to further discuss your robot application.

This questionnaire is provided by Fraunhofer Institute for Manufacturing Engineering and Automation IPA. This data processing in response to your inquiry is necessary for the purposes of our legitimate interests pursuant to Art. 6 (1) lit. f GDPR. For inquiries regarding data privacy please contact [datenschutz@ipa.fraunhofer.de](mailto:datenschutz@ipa.fraunhofer.de).

1

In which environment is your robot supposed to operate? \*



-  The robot is designed to be used in an industrial environment, for example for welding, assembly, handling or transport tasks in an industrial shop floor or areas which are designated for trained personnel.
-  The robot is designed to be used in domestic environments or public spaces (e.g. offices, airports, train stations, shopping malls).
-  The robot is designed to be used in farming or forestry, e.g. in agriculture or livestock farming.
-  The robot is designed to do medical tasks, for example diagnosis or treatment of diseases, measuring of medical data (e.g. blood pressure) or compensation of injuries or disabilities.
-  The robot is an exoskeleton (covering the full body or a part of the body) or a body-worn lifting aid. This applies to any environment.
-  My application is not mentioned or I am not sure about the classification.



# Specialized innovation coaching



Choose you region

United Kingdom & Ireland

Larger Scandinavian Area

North East Europe

Netherlands

**COACHING**

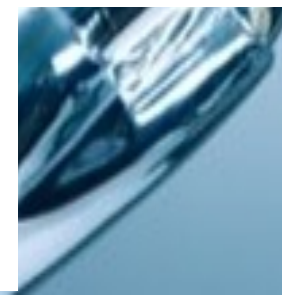
Belgium & Luxe. MOTIVATION

COACH POTENTIAL DEVELOPMENT SKILL SUPPORT KNOWLEDGE ADVICE

South East Europe

Italy, France & Malta

Spain & Andorra



# IMPACT - DIH-HERO connects healthcare robotics accross Europe!



- Strong **connections** across Europe with extensive spread across **23 countries**
- Detailed analysis of **clinical centres** of 12 countries: costs, stays, reimbursement
- Knowledge about healthcare robotics **innovation chain**
- **250 entries** in **service directory** by 152 organizations
- Organisation of **webinars** with +/- 110 **attendees** from **20+ countries**
- **65** technology applications were boosted to at least **2 TRLs higher**
- At least **450 new cross border** activities
- **32 full new deployment tracks** executed in parallel in several countries
- High quality innovation and deployment **coaching** in **25 countries**
- **Action** based on **market developments** on European level



# FUTURE - DIH-HERO connects healthcare robotics accross Europe!



## Unique central Healthcare Robotics platform (one-stop shop)

High quality & fast action accross Europe

Think global act local

Boost true innovation and avoid false innovation

## More information? Questions?

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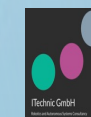
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