

DIGITAL INNOVATION HUBS IN HEALTHCARE ROBOTICS

URINERSITY OF TREENTE



Maren Bödding Project Manager DIH-HERO University of Twente

Agenda

- Short overview of DIH-HERO
- Current situation and Clinical needs resulting thereof
- Info about the special COVID-19 FSTP open call
- Q&A



DIH – HERO *Digital Innovation for All*

- 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 *About*



Independent platform which connects Digital Innovation Hubs across Europe to create a sustainable network

- Support small and medium-sized enterprises
- Connecting businesses and healthcare stakeholders
- Support development of innovative products and services according to needs of the healthcare systems across Europe
- **Engaging** in necessary standardization for robotics in healthcare, including ethical, legal and societal issues

www.dih-hero.eu



DIH – HERO *Core partners*



DIH – HERO

THE STRATEGY

- Strengthening market players through partnerships and networks
- Supporting through services offered by the network partners
- Offering education and consulting
- Harmonizing international standards
- Offering financial support



DIH – HERO *MAJOR APPLICATION DOMAINS*





Diagnostics

"A physical robot or software expert system as diagnosis tool"

- Capsule endoscopy
- human-machine hybrid Al diagnostic system



Source: Euchiasmus/Wikimedia Commons



Intervention

"Robotics applied to act of intervene, interfere or intercede with the intent of modifying the outcome, and usually undertaken to help treat or cure a condition."

Davinci: Robot Assisted Surgery

- Surgeon console
- Patient-side cart
- Vision cart
- Verb surgical
- Mako





Source: https://www.davincisurgery.com



Rehabilitation

"Robotics applied to restore someone to health or normal life through training and therapy after imprisonment, addiction, or illness"

- Actuated and sensory prostheses
- Robotic exoskeletons
- Manusarm
- Ekso bionics powered exoskeleton
- Lopes







Support patients

"Robotics solutions applied to support patients"

- Robot companions
 - Paro, jibo, Pepper, Dinsow, Buddy



Source: <u>BuddyTheRo</u> <u>bot</u>



Par

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Support professionals

"Robotics solutions applied to support professionals"

- Blood drawing robot (SHIVA)
- Reminders shallow drugs (Mabu)
- Transport (TUG robot, Robocourrier)
- Disinfection (Xenex robot)
- Lift and move patients (RoBear robot)
- Clinical Training Bots



Source: <u>Xen</u> <u>ex</u>



Source: pixab ay



DIH – HERO

What is in there for YOU?

- A sustainable platform for all stakeholders active in the healthcare ecosystem
- Extended networking and collaboration opportunities
- Harmonised standardisation for robotics in healthcare, including ethical, legal and societal issues

- Easy access to information, expertise and services
- Expanded innovation opportunities through efficient technology transfer
- Financial support regarding travelling, technology demonstrators and technology transfer





DIH-HERO

SERVICES

나라 영리 상태 같은 이 한 가장 일었다.



Brecht Vermeulen (imec)

DIH – HERO *OUR SERVICES by DIH-HERO partners and 3rd parties*



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

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

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

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

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

DIH – HERO Service directory: <u>https://services.dih-hero.eu/</u>

- You can register your own service
- Our goal is to keep the database online the project

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Current Situation

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Mare Mechelinck University Hospital Aachen

COVID-19 Challenges

Europe is strongly affected, although the burden on health system varies considerably between regions
In many countries the existing capacities of the health care system are overloaded

Challenges:

Lack of equipment (intensive care beds with all corresponding equipment (ventilators, ECMOs, dialysis machines...))
materials (protective clothing, disinfectants, drugs),
trained staff and space
Contagiosity of the virus

Delayed detection rate of diseased





COVID-19 Advantages of Robotic Solutions

•Relief of healthcare personnel:

•Reduction of virus exposure and work load

- •Improvement of patient care for example through
 - communication possibilities with relatives and medical staff
- Less protective clothing required
- •Reduction of the transmission rate through more careful and frequent automatic disinfection



COVID-19 Advantages of Robotic Solutions



Examples for 3 selected application domains:

Diagnostic Robotics	Robots supporting patients	Robotics supporting healthcare professionals			
e.g. robots supporting the testing for COVID-19 and its symptoms (taking fever, throat-swab, PCR)	e.g. transport of goods from relatives to patients	e.g. automated robot systems (disinfection of rooms and equipment, laboratory, transport of contaminated goods)			
	e.g. robots offering telemedical support (for both medical staff and patients)				





FSTP open calls

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Maren Bödding University of Twente

DIH-HERO Open Calls

Travel Voucher Call

Technology Demonstrator Call

Technology Transfer Experiment Call

Special call: COVID-19



DIH-HERO Special call COVID-19

Special call for special circumstances

- Although in line with the DIH-HERO objectives, not comparable to the other calls of DIH-HERO
- No consortium required for cross-border collaboration (single applicant)
- Short timeline for proposal submission, evaluation and project implementation



FSTP: COVID-19 Open call purpose

Currently we are facing a global pandemic. DIH-HERO is aimed to support healthcare professionals and save lives. Therefore, it has been decided to open an additional short call for robotics-based technologies that bear the potential to contribute in the fight against COVID-19 in the short-term.

 This specific call is targeted at robotic technologies and solutions in the later stages of development that can be deployed in the healthcare sector to support healthcare professionals in the fight against COVID-19, satisfying a current clinical demand or need.



FSTP: Definition of an SME

- According to the general SME definition stated in article 2 of the annex to Recommendation 2003/361 EC
- "To count as an SME, your organisation must be engaged in an economic activity and must have:
 - fewer than 250 employees and
 - an annual turnover of no more than €50 million and/or a balance sheet of no more than €43 million
- Whether you count as an SME may depend on how you count your workforce, turnover or balance sheet. Please note that you must take account of any relationships you have with other enterprises. Depending on the category in which your enterprise fits, you may then need to add some, or all of the data."



FSTP: Definition of a slightly larger company

According to the European Commission

• To count as a slightly larger company than an SME, your organisation must be engaged in an economic activity and must have:

- fewer than 500 employees and
- an annual turnover of no more than €100 million

• Whether you count as a slightly larger company than an SME may depend on how you count your workforce and turnover. Please note that you must take account of any relationships you have with other enterprises. Depending on the category in which your enterprise fits, you may then need to add some, or all of the data.



FSTP: COVID-19 Open call: Project start & duration

This short call is designed to accelerate existing technical development that can directly add value in the fight against COVID-19. Therefore:

- The applicant is expected to be ready to start within one week after approval.
- The first demonstrators are expected to be finalized preferably within 4 weeks,
- The whole project is expected to be completed within preferably 8 weeks.
- Deadline for proposal submission via the DIH-HERO call platform:

17th of April 2020, 23:59 CEST

For more information please go to: www.dih-hero.eu/calls and download the applicant guide



FSTP: COVID-19 Open call

Framework

Similar to the Technology Demonstrator and Technology Transfer Experiments also the COVID-19 project must be tailored towards at least one of the following application domains in Healthcare Robotics:

- Diagnostic Robotics
- Interventional Robotics
- Rehabilitation Robotics
- Robotics supporting patients
- Robotics supporting healthcare professionals



FSTP: COVID-19 Open call – Eligibility criteria

- Third parties receiving financial support must be a legal entity, being an SME or slightly larger companies from EU (incl. associate countries / EEA countries;
- The proposal must clearly state the relevant clinical demand and the healthcare problem related to COVID-19 to be solved by the intended robotic solution and the added value of the solution;
- The proposed solution must be an already existing technology that is in the later stages of development and deployable by the healthcare end-users in the fight against COVID-19;
- The proposal must fit to the call text;
- A third party may not receive more than 300k FSTP for the entire action duration;
- Proposal must be written in English and submitted via the portal before the deadline;
- There must be no conflicts of interests with DIH-HERO consortium partners.
- Third parties receiving financial support should be financially healthy (they have to sign a declaration of no financial problems).



FSTP: COVID-19 Open call – Cost categories

Costs incurred in the following cost categories will be regarded as being eligible for reimbursement according to EC guidelines:

- Direct personnel costs
- Direct costs of subcontracting whereas,
 - o subcontracting has to be necessary to implement the action.
 - o subcontracting may cover only a limited part of the action.
 - o awarding of subcontracts must be done ensuring the best value for money or, if appropriate, the lowest price principle.
 - o any conflict of interests must be avoided.
- Other direct costs
 - o travel costs and related subsistence allowances
 - o equipment costs
 - o costs of other goods and services
 - o indirect costs (25% of direct personnel costs and other direct costs)



FSTP: COVID-19 Open call – Evaluation

Phase 1: Eligibility check (approx. 1-2 days)

Phase 2: Review panel (internally) (approx. 3 days)

- Excellence
- Impact
- Implementation

Phase 3: Consensus & Ranking (approx. 2 days)

FSTP: COVID-19 Open call – Proposal submission

Read the COVID-19 Call Announcement

WELCOME TO THE FIGHTING COVID-19 OPEN CALL 2020 FOR HEALTHCARE ROBOTICS!

Currently, we are facing a global pandemic, and we as DIH-HERO together with our extensive Robotics in Healthcare European network are fighting against COVID-19 to support healthcare professionals and save lives.

With the current emergency call to support the fight against COVID-19 DIH-HERO is aimed to explore which medical needs robotics can meet with existing solutions that can be deployed timely, rather than on developing new solutions.

The COVID-19 call is targeted at supporting robotic technologies and solutions in the later stages of development that can be deployed in the healthcare sector quickly, to support healthcare professionals in the fight against COVID-19, satisfying a current clinical demand or need. (the applicant should be aimed to finalise the first demonstrator within 4 weeks, while the whole project must be completed preferably within 8 weeks).

Call duration: 10th of April 2020 - 17th of April 2020

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To be eligible for taking part in the Fighting COVID-19 Open Call 2020 within the DIH-HERO project all of the following criteria must be fulfilled:

- a. Third parties receiving financial support must be a legal entity, being an SME or a slightly larger company from EU (incl. associated countries) or EEA countries;
- b. The proposal must clearly state the relevant clinical demand and the healthcare problem related to COVID-19 to be solved by the intended robotic solution and the added value of the solution:
- c. The proposed solution must be an already existing technology that is in the later stages of development and deployable by the healthcare end-users in the fight against COVID-98, oxidative.
- d. The proposal must fit to the call text;
- A third party may not receive more than 300k FSTP for the entire action duration;
- The Proposal must be written in English and submitted via the portal before the deadline;
- g. There must be no conflicts of interests with the DIH-HERO consortium partners.
 h. Third parties receiving financial support must be financially healthy (they have
- to sign a declaration of no financial problems).
- For further information and requirements please see the Applicant Guide.

If you are sure to fulfil all the criteria given above, please continue with the next section.

NEXT Seve and Continue Later



FSTP: COVID-19 Open call – Proposal submission

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REQUIRED INFORMATION

The following information will be required in the submission form:

- Administrative Data: Basic contact data (e.g. full name of legal entity, type of company, company registration number, place of registration, address, company website, as well as the name, telephone number and email address of the main contact person of the SME or slightly larger company);
- Key Data of the of the COVID-19 Project: (e.g. full title of the COVID-19 solution; short name; short abstract (approx. 10-15 lines); targeted application domains; current TRL; project duration; Statement on the COVID-19 announcement for publication (checkbox given in the online form)
- COVID-19 Project Description (e.g. a description of the clinical problem to be solved, clinical letter of support the added value of the solution, the expected impact, a detailed description, an implementation plan and financial resource planning)
- Signed Declaration of Honour saved in pdf format and uploaded in the online form;
- Signed Declaration of informed Consent for Data Processing saved in pdf format and uploaded in the online form;
- 6. Questions for statistical purposes (given in the online form)

PREVIOUS

Save and Continue Later





Q&A

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Backup slides

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Problem COVID-19

Currently we are facing a global pandemic. DIH-HERO is aimed to support healthcare professionals and save lives. Therefore, it has been decided to open an additional short call for robotics-based technologies that bear the potential to contribute in the fight against COVID-19 in the short-term.

 This specific call is targeted at robotic technologies and solutions in the later stages of development that can be deployed in the healthcare sector to support healthcare professionals in the fight against COVID-19, satisfying a current clinical demand or need.



Problem: COVID-19

Currently we are facing a global pandemic that affects many countries around the world.

Current problems:

- Lack of doctors/nurses
- Lack of face masks (devices for personal protection) and ventilators
- Lack of emergency resuscitation places/equipment for intense therapy

DIH-HERO is aimed to support healthcare professionals and save lives. Besides focusing on emergency resuscitation places, equipment for intense therapy, we use our network for finding, produce and boost the right equipment. Specifically, we explore which medical needs robotics can meet with existing solutions that can be deployed quickly. We worked on this internally with our great DIH-HERO team, 17 partners across Europe, together with EU robotics and the European Commission, but also would like to involve you.



Examples how robots could support

Good examples might be robotic technologies involved in:

- disinfection,
- logistics,
- patient monitoring,
- automated technologies for contactless delivery etc

