

# 2024 Annual *report*

# *Introduction*

Dear VPHi friends,  
2024, what a year it has been for our community and our society. Fueled by activities related to the Virtual Human Twin, we have enlarged our ecosystem and created a roadmap that will define our field for the coming decade. We have worked with many of you in projects, initiatives and meetings to disseminate and communicate the great science that is being done and that is now reaching the clinic. We have updated our statutes and structures, and established an executive committee. We have celebrated our community and young scientists at a fantastic VPH2024 conference that has never been bigger, yet still felt like a family gathering. This, and so much more you will discover in this annual report.

And it is not over. We, the VPHi team, are planning exciting activities for 2025, to further serve our membership and the entire community, and to help you get your science to the next level and your message disseminated.

We look forward to hearing from you!



Executive Director  
**Liesbet Geris**  
*ULiege & KU Leuven*

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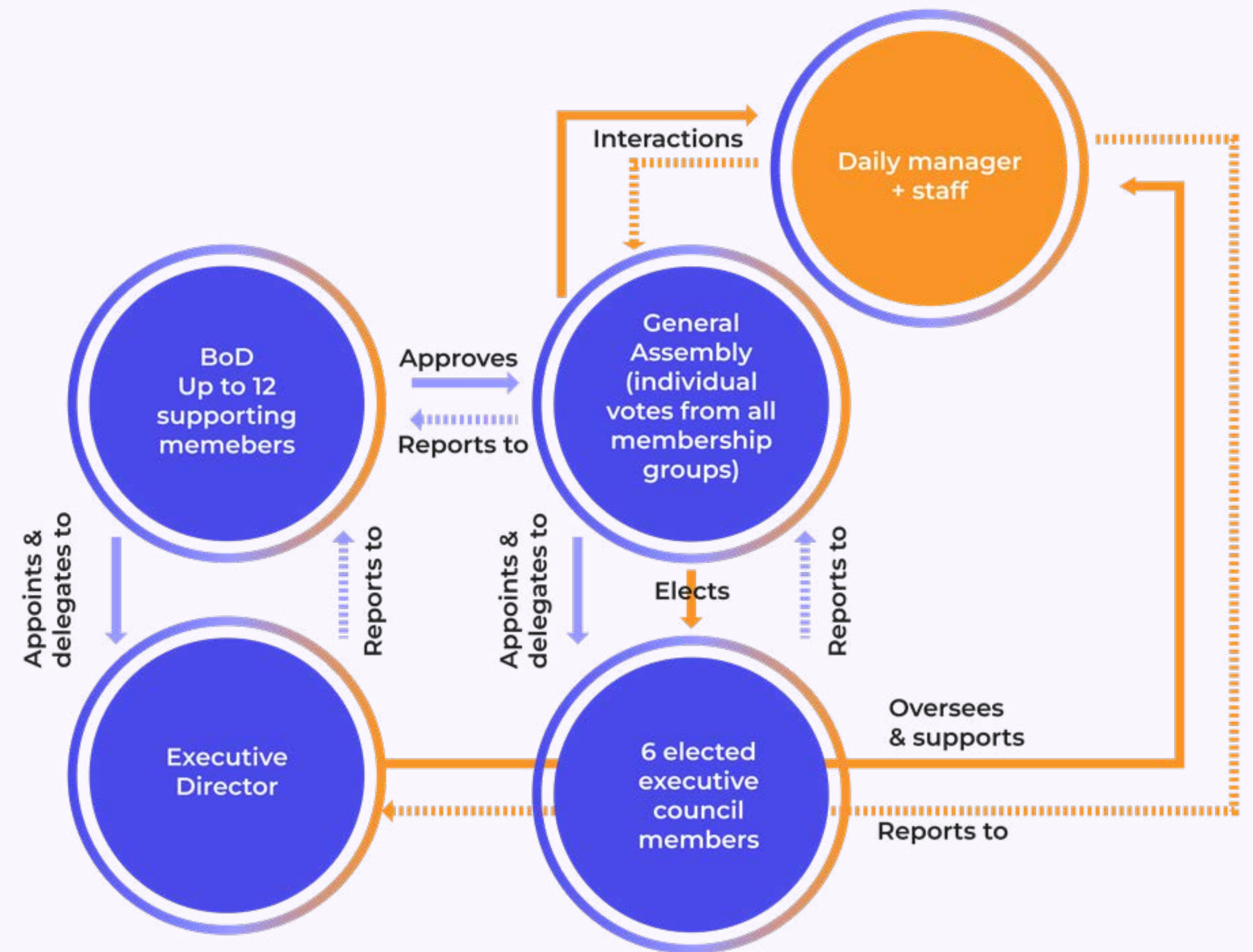
# Institutional *updates*

New Statutes  
Executive Committee  
2025 Board of Directors

# New *Statutes*

To comply with some legal changes for non-profits requested by the Belgian government, the VPHi had to submit a new version of the statutes. For the occasion, a new organisational structure was proposed and officially approved by the General Assembly in Stuttgart this year. The new structure takes into account the desire to have VPHi members more involved in the organisation with the creation of an Executive Committee and sees the removal of the Board of Trustees to make the management more agile.

The new statutes is available at this [link](#).



# Executive Committee

The Executive Committee was introduced in the new statutes to strengthen the interaction between the VPH Institute and its members.

The Executive Committee collaborates with the VPHi Board of Directors and the VPHi staff to implement the goals of our organisation. Each committee member will be assigned to a specific role and an area of activity to focus on, and will be assisted by the VPHi staff in the implementation of their strategies.

The topics include, but are not limited to the following:

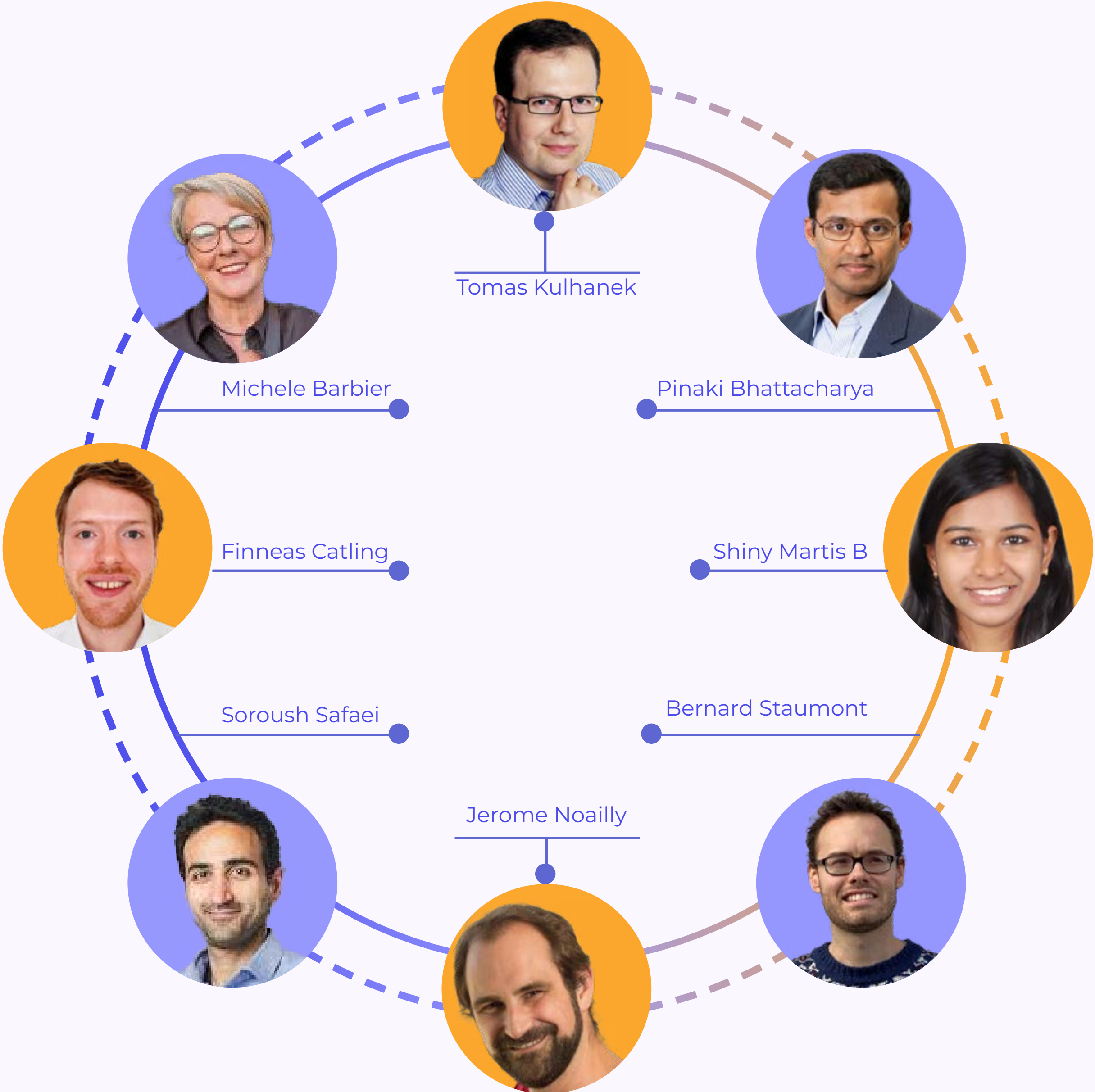
- ▶ Student activities
- ▶ Communication
- ▶ Engagement with industry
- ▶ Engagement with Scientific Societies
- ▶ Public/Patient outreach
- ▶ Education
- ▶ Meetings
- ▶ Awards

Committee members serve for two years, with the possibility of election for two additional mandates, for a total of six years. They will be officially elected by the General Assembly and will be invited to attend Board meetings.

The call for nominations was closed on the 10th of November 2024 and 8 applications were received. Follow this [link](#) and express your vote by the 31<sup>st</sup> of January 2025.

Committee members serve for two years, with the possibility of election for two additional mandates, for a total of six years. They will be officially elected by the General Assembly and will be invited to attend Board meetings.

During the call for nominations (closed on the 10<sup>th</sup> of November, 2024) the following applications were received.



# 2025 Board of *Directors*

The Board of Directors (BoD) runs the general affairs and represents the VPH Institute in all circumstances. Its main duty is to drive the Institute policy, setting the agendas, proposing specific actions and approving the annual business plan.

The Board of Directors is composed of the representatives of the supporting members, eleven prestigious organisations excelling worldwide for their research quality and focus on *in silico* medicine.

The composition of the BoD in 2025 is the following:



**Rossana Alessandrello**  
*AQuAs | Spain*



**Prof. Reinhard Schneider**  
*LCSB | Luxembourg*



**Prof. Ilse Jonkers**  
*KUL | Belgium*



**Prof. Leif Rune Hellevik**  
*NTNU | Norway*



**Dr. Irene Vignon-Clementel**  
*INRIA | France*



**Prof. Alfons Hoekstra**  
*UvA | The Netherlands*



**Prof. Merryn Tawhai**  
*University of Auckland |  
New Zealand*



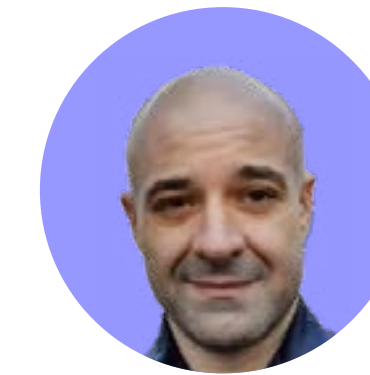
**Dr. Claudio Capelli**  
*UCL & GOSH |  
United Kingdom*



**Prof. Francesco Pappalardo**  
*University of Catania | Italy*



**Prof. Damien Lacroix**  
*University of Sheffield |  
United Kingdom*



**Dr. Sabato Mellone**  
*University of Bologna |  
Italy*

**voting in progress**

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# Young *Scientists* Committee

Webinars  
Awards



The VPHi Young Scientists Committee is a group of active student members whose aim is to promote the VPHi as a community and the career development of the young scientists of this community. The committee focuses on career development, highlighting the excellence within the VPHi and providing student members with a label of quality. It also favours scientific interactions, collaborations, mobility and mentoring.

To achieve such goals, the Young Scientists Committee organises a number of activities including:

- ▶ **A Keynote Webinar Series:** A series of quarterly online seminars featuring high-profile members of the VPHi community;
- ▶ **The VPH Barcelona Summer School:** A yearly event taking place in Barcelona in collaboration with Universitat Pompeu Fabra, providing a thorough overview and hands-on experience in state-of-the-art VPH research under expert supervision;
- ▶ **Mentoring events:** A special opportunity for PhD students to meet and network with senior members of the community to receive insights and career advice.

## The Committee is composed of:

*The latest Young Scientists Committee was elected on the 17<sup>th</sup> of December 2024 and will be in charge for for the next two year.*



**Elena Radaelli**  
*University of Zaragoza*



**Luca Bontempi**  
*Erasmus Medical Center*



**Yogesh Kumaran**  
*University of Toledo  
College of Medicine and  
Life Sciences*



**Linda Cerpenedo**  
*Politecnico di Milano*



**Stephen Creamer**  
*Auckland Bioengineering  
Institute*



**Robin Curnow**  
*University of Manchester*



**Juntong Lai**  
*University of Sheffield*



**Salla Kim**  
*University of California  
Irvine | Henry Samueli  
School of Engineering*



**Rahul Manoj**  
*Norwegian University of  
Science and Technology*



**Anna Ramella**  
*Politecnico di Milano*

The VPHi also wishes to extend its deepest gratitude to the outgoing members of the Young Scientists Committee, who have successfully served over the last two years: **Samuele Gould, Mahdi Jaber, Mojtaba Lashgari, Benjamin Matheson, Robyn May, Anna Ramella, Domitille Princelle**, and the chair of the Committee, **Prof. Jerome Noailly**.

Their dedication, invaluable contributions, and active participation have helped create impactful initiatives and strengthened the VPH community for young researchers.



# Webinars

The VPHi Keynote webinar is a series of online seminars featuring high-profile VPH community members. This quarterly event provides a forum for access to senior community members and their expert competence for young scientists, but also to the VPH community as a whole. Check out all past webinars on our YouTube channel at this [link](#).



VPHi KEYNOTE WEBINAR SERIES

**DISTRIBUTED AND REDUCED COMPUTATIONAL MODELS AND SOFTWARE FOR CARDIAC FLUID-SOLID INTERACTION**

**18 APRIL 2024**  
11 AM - 12 PM CET

Moderator: Benjamin Matheson, VPHi Young Scientists Committee

Dr Ing Marc Hirschvogel  
Politecnico di Milano

The poster features a grid of six icons representing various scientific fields: a network, a laptop, a cell, a gear, a leaf, and a brain.

18/04/2024

**Marc Hirschvogel** from Politecnico di Milano on “Distributed and reduced computational models and software for cardiac fluid-solid interaction”. [Link](#)



VPHi KEYNOTE WEBINAR SERIES  
Live from the Barcelona International Summer School!

**ACCELERATING OSTEOARTHRITIS RESEARCH WITH ARTIFICIAL INTELLIGENCE**

**TUESDAY, JUNE 4TH, 2024**  
9:30-11:00AM CEST

Dr Aleksei Tiulpin  
University of Oulu

The poster features a background image of a hand holding a bone, with a blue and orange color scheme.

04/06/2024

**Aleksei Tiulpin** from the University of OULU on “Accelerating Osteoarthritis Research with Artificial Intelligence”. [Link](#)



VPHi KEYNOTE WEBINAR SERIES  
Live from the Barcelona International Summer School!

**MULTI-OMICS DATA FUSION FOR ENABLING PRECISION MEDICINE**

**THURSDAY, JUNE 6TH, 2024**  
9:30-11:00AM CEST

Prof Natasa Przulj  
Barcelona Supercomputing Centre, ICREA

The poster features a background image of a hand holding a bone, with a blue and orange color scheme.

05/06/2024

**Natasa Przulj** from Barcelona Supercomputing Centre and ICREA on “Multi-Omics Data Fusion for Enabling Precision Medicine”. [Link](#)



VPHi KEYNOTE WEBINAR SERIES

**IN SILICO HIGH-FIDELITY AND SURROGATE MODELS OF THE THROMBECTOMY PROCEDURE**

**23 OCTOBER 2024**  
11 AM - 12 PM CET

Dr Sara Bridio  
Politecnico di Milano

The poster features a grid of six icons representing various scientific fields: a network, a laptop, a cell, a gear, a leaf, and a brain.

05/06/2024

**Sara Bridio** from Politecnico di Milano on “In silico high-fidelity and surrogate models of the thrombectomy procedure”. [Link](#)

# Awards

Each year, the Institute opens several calls to reward the outstanding research efforts of its student members, to help them advance their academic careers and to gain recognition in the field of *in silico* medicine.

In 2024, all awards were presented during the closing ceremony of the Virtual Physiological Human Conference to celebrate the next generation of researchers driving forward the future of *in silico* medicine.



## BEST THESIS AWARD

Sara Bridio (*Politecnico di Milano*), for her thesis titled “*In silico* high-fidelity and surrogate models of the thrombectomy procedure”

## BEST STUDENT AWARD

Finneas Catling (*Imperial College of London*), for his research “Bayesian inversion enables personalised septic shock treatment guided by Noisy Arterial Pressure Waveforms”



## BEST POSTER AWARD

Atefeh Rahimi (*University of Auckland*), for her innovative research on “Utilising self-similarity to model the morphometry of the pulmonary arteries”

This year, the VPH Institute also introduced **six travel awards to support student members** with travel, accommodation and living expenses to foster accessibility and participation among young researchers at the VPH Conference. Here's the list of the awardees:

- ▶ **Priya Jayadev Nair** (*Stanford University*)
- ▶ **Davide Ninarello** (*Politecnico di Milano*)
- ▶ **Julia Musgrave** (*University of Auckland*)
- ▶ **Omkar Athavale** (*University of Auckland*)
- ▶ **Joshua Dillon** (*University of Auckland*)
- ▶ **Mathilde Verlyck** (*University of Auckland*)



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# VPH *Conference*

The VPH2024 Conference was held in Stuttgart hosting **over 400 participants from all over the world** to share cutting-edge research, foster new collaborations, and push the frontiers of *in silico* medicine.

The scientific program covered three days filled with inspiring keynote talks, insightful workshops, and vibrant networking opportunities.

The complete book of abstracts is available at this [link](#).

Key Highlights include:

- ▶ **Avicenna Days:** For the first time an industry-driven event took place at the VPH Conference, featuring an impressive list of speakers creating an opportunity to discuss recent progress and reflect on the future;
- ▶ **VPHi Panel Discussions:** This year's discussion focused on the importance of community work in advancing





science and healthcare. Prestigious speakers from a variety of fields, including policymakers, industry & academia representatives, HTA representatives, healthcare professionals and patient advocates offered insights sparking deep conversations among attendees;

- ▶ **Meet-the-Mentor Luncheon:** Organised by the VPHi Young Scientists Committee, this luncheon gave PhD candidates and early-career researchers a unique opportunity to connect with senior experts in the field offering career guidance and helping young professionals navigate their paths;
- ▶ **ASME V&V 40 Training:** Key members of the ASME VVUQ40 subcommittee gave a four-hour training session on the V&V40-18 standard “Assessing Credibility of Computational Models through Verification and Validation: Application to Medical Devices”. This event has proven once again crucial for the community;

- ▶ **High-quality technical workshops** on many different *in silico* medicine fields;
- ▶ **VPHi giveaway, photo booth, and picture contest:** Over 200 t-shirts originally designed by the VPHi were distributed in just two days! Participants also had the opportunity to enjoy fun times with a photo contest where the authors of the best pictures were awarded with hoodies replicating the t-shirts designs.



If you like the t-shirts we brought at VPH2024 but you couldn't get one, drop us an [email](#).

The VPHi deeply thanks the conference chairs, **Prof. Oliver Röhrle** and **Prof. Tim Ricken**, and the entire organising committee at the University of Stuttgart, especially **Sina Schorndorfer**, for the successful realisation of the conference. All the speakers, mentors, and participants made VPH2024 an exceptional experience!

The momentum built over the four days of the VPH2024 conference promises to carry forward to VPH2026, taking place on **1-4 September 2026 at Politecnico di Milano**. We are excited to continue shaping the future of *in silico* medicine together, advancing healthcare innovations and creating new opportunities for collaboration thanks to our members.

Watch the [video trailer](#) for VPH2026 in Milan.



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# Communication

Info kit  
Code & Cure video series  
The digital twin theory podcast  
In silico characters  
Success stories  
Clinical survey

# Info Kit

In recent years, the VPH Institute has conducted a diverse range of stakeholder engagement activities as part of its involvement in EU-funded projects. The insights and experiences gained from such activities were compiled into the **In Silico Medicine Info Kit**, a free resource designed to empower researchers, project managers, and directors involved in the proposal, training, planning and execution phases of *in silico* medicine-related projects.

This handbook provides clear instructions, guidelines, and resources to navigate the complexities of stakeholder engagement effectively.

The info kit is available at this [link](#).

This is a living document and will be regularly updated to reflect the latest advancements in the field.

Contributions from the *in silico* community are therefore highly encouraged. If you'd like to participate in this collective effort, please [email](#) us.



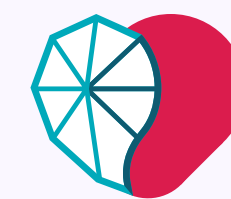
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INSILICO  
WORLD

# Code & Cure video series

*In silico* medicine is a topic not widely known yet among the lay publics. To better promote and explain the various facets of *in silico* medicine in a coherent and accessible manner, the VPHi is producing a series of animated videos covering a diverse range of topics, including what *in silico* medicine is, different modelling technologies, *in silico* trials, clinical applications, along with discussions on data, trust, and ethical issues. This video series, titled “**Code & Cure: Understanding in silico medicine**” can be accessed in a dedicated YouTube playlist at this [link](#).

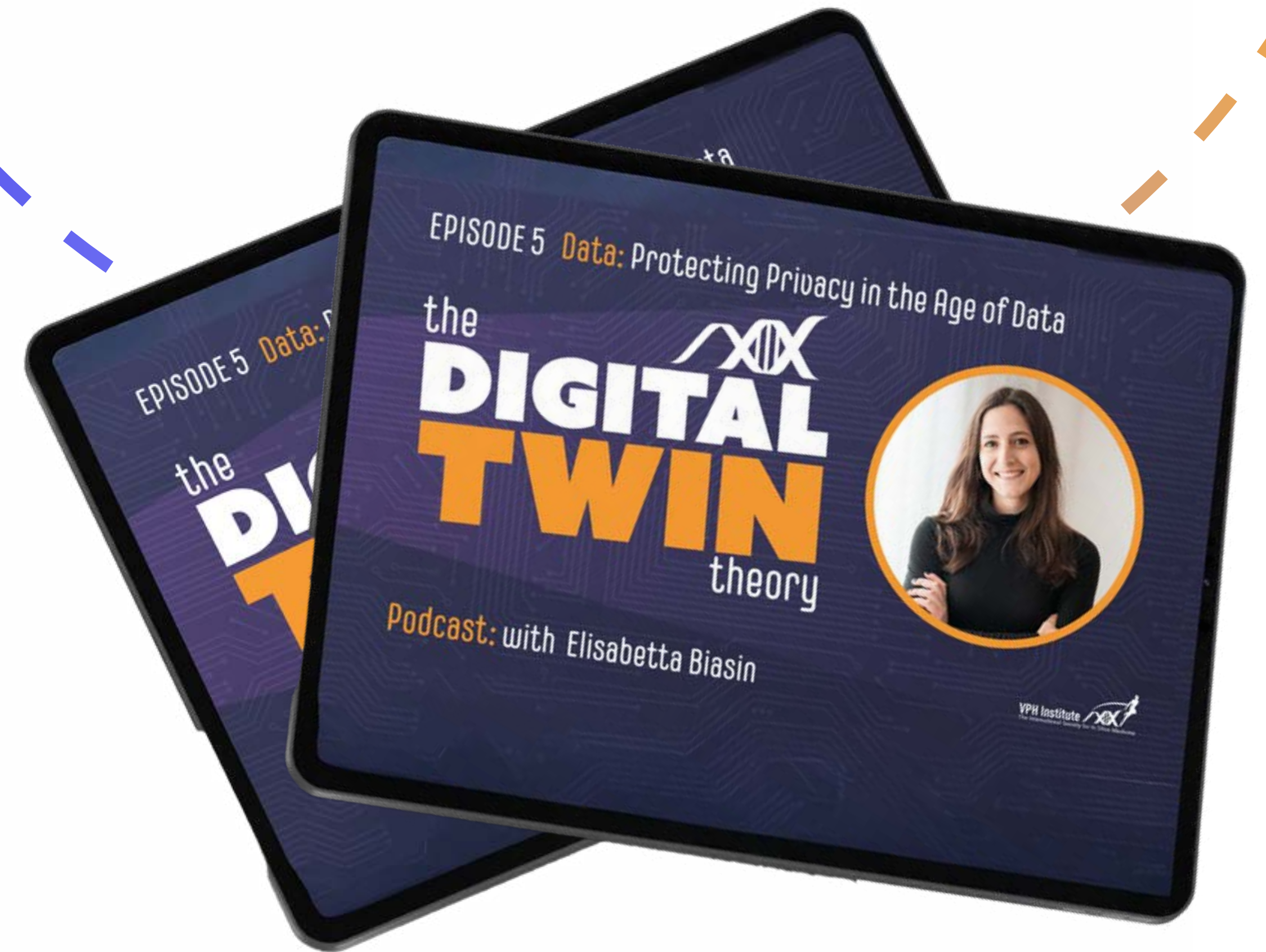


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WORLD

# The Digital Twin Theory Podcast



Since April 2024, the VPHi is producing **The Digital Twin Theory** podcast to inform and involve the research community and to bridge between the latter and a wider public of science curious and patients, curious but not directly involved *in silico* medicine.

This is also reflected in the title of the podcast inspired from the tv show “*The Big Bang Theory*”, which popularised the figure of the scientist and made

accessible and fun topics commonly perceived as complex and inaccessible.

Each episode of the podcast, available on [Spotify](#), includes an engaging and accessible discussion about an *in silico* medicine topic with young scientists, experienced professors, clinicians, policymakers, social scientists, philosophers, patients, and more.

# *In silico* visionaries

Since the 2023 Ada Lovelace Day, the VPHi was inspired to highlight the profiles of influential scientists from the past and the present of *in silico* medicine. The **In Silico Visionaries series** is composed of an original graphic and a short narrative to celebrate, together with our community, the greatest achievements in our field.

All such profiles are disseminated on [LinkedIn](#), [X](#), [Instagram](#), [Facebook](#), and in our newsletter.



# Success Stories

Success stories are a powerful tool for communicating and engaging with different audiences, especially non-specialised ones. They allow us to showcase real-life applications of *in silico* technologies, helping promote *in silico* medicine among clinicians, patients, and policymakers. Moreover, a storytelling format focusing on specific cases enables a deeper, emotionally resonant, connection with the narrative.

Success stories are published in the VPHi newsletter. The archive can be accessed at this [link](#).

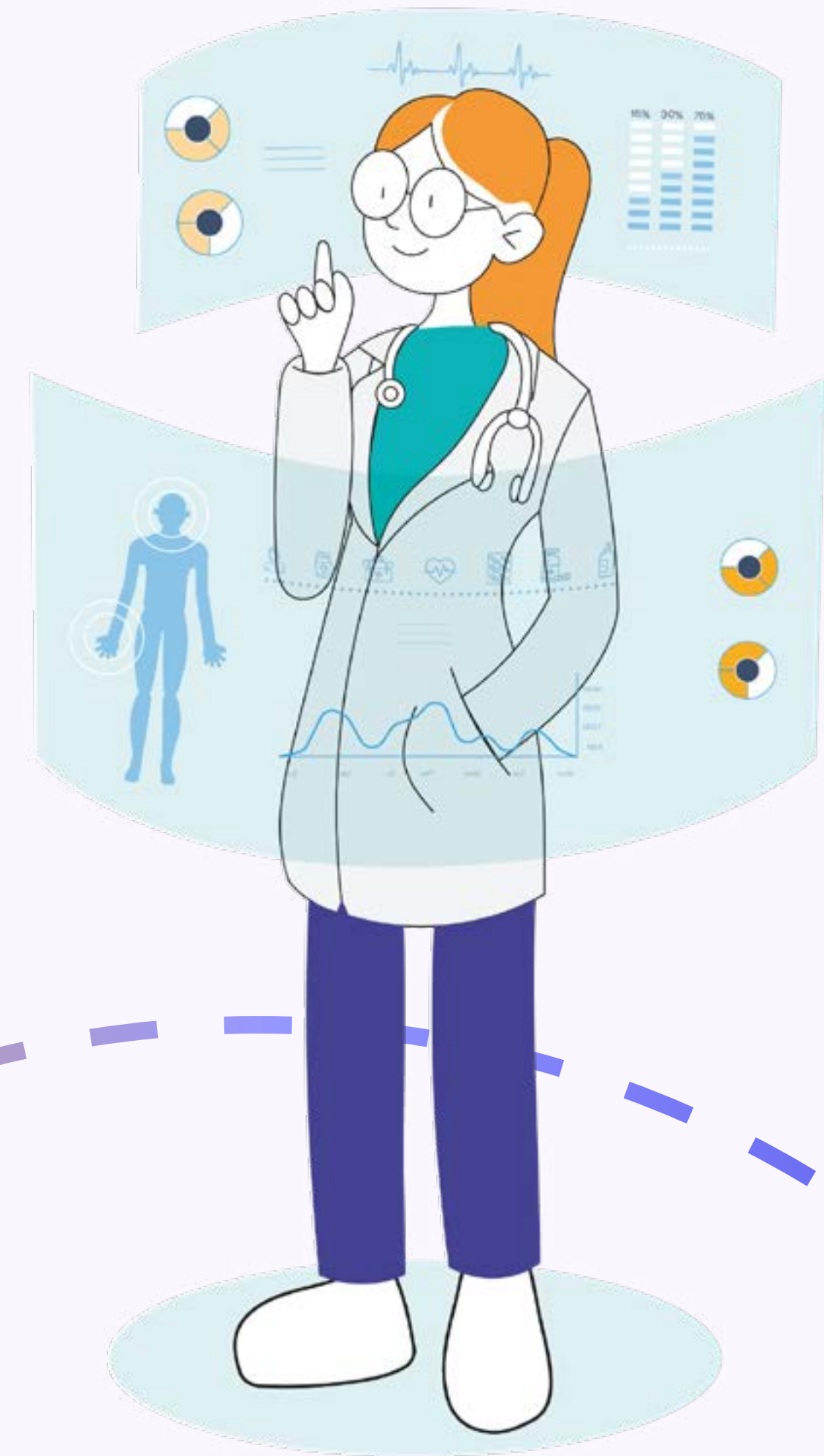




# Clinical *Survey*

In 2021, the Virtual Physiological Human Institute conducted a clinical survey among clinicians to collect feedback regarding their knowledge, experience, and opinions about Computer Modelling & Simulation in the clinical practice. At the end of 2023, and continuing for all of 2024, the VPHi realised a second larger survey aiming at involving medical doctors worldwide.

The survey will soon be closed and the results will be analysed in order to produce a follow-up paper in 2025.





# EU-funded *projects*

The year 2024 marks the successful conclusion of some EU-funded projects in which the VPHi has been involved, together with the implementation of a number of important initiatives. Here are the main activities held during last year.



*#Scientific Coordination*  
*#Outreach*  
*#Roadmapping*

*01/10/2022 - 31/12/2024*

EDITH was a Coordination and Support Action (CSA) which capitalised on the developments of digital technologies, high-performance computing, availability and access to research and healthcare data in Europe, with the mission of defining a roadmap to data-driven and knowledge-driven fully integrated multiscale and multiorgan whole-body twin.

**First ecosystem meeting Paris**

**Final meeting Amsterdam**

**VHT Manifesto**

**Technical meeting Athens**

**Roadmap**



*#Communication & Dissemination*  
*#Responsible Research & Innovation*  
*#Stakeholder Engagement*  
*#Policy & Regulation*

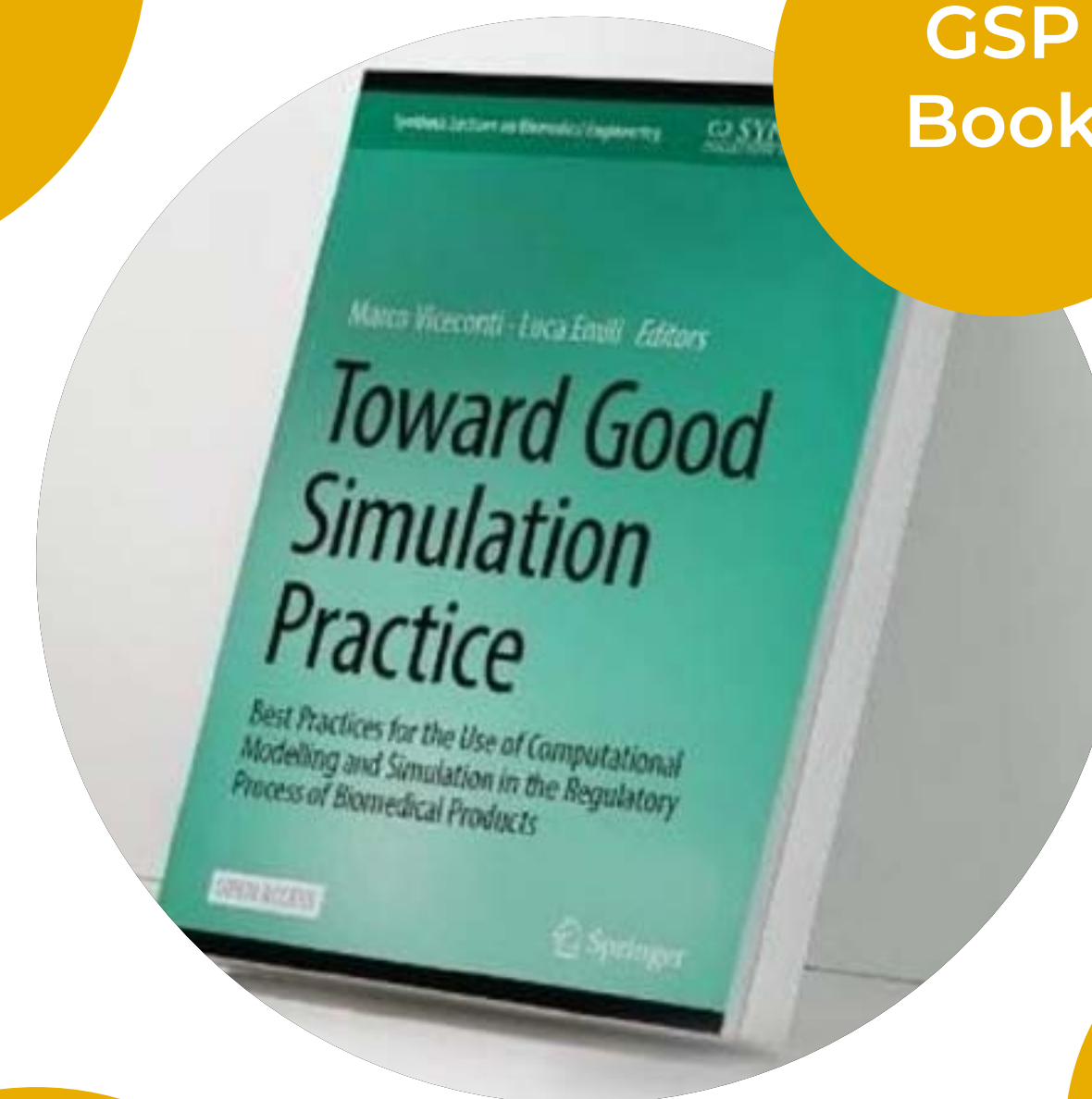
*01/01/2021 - 31/12/2024*

The In Silico World project focused on accelerating the uptake of modelling and simulation technologies used for the development and regulatory assessment of medicines and medical devices, by lowering seven identified barriers: development, validation, accreditation, optimisation, exploitation, information, and training.

Solution  
Dossier

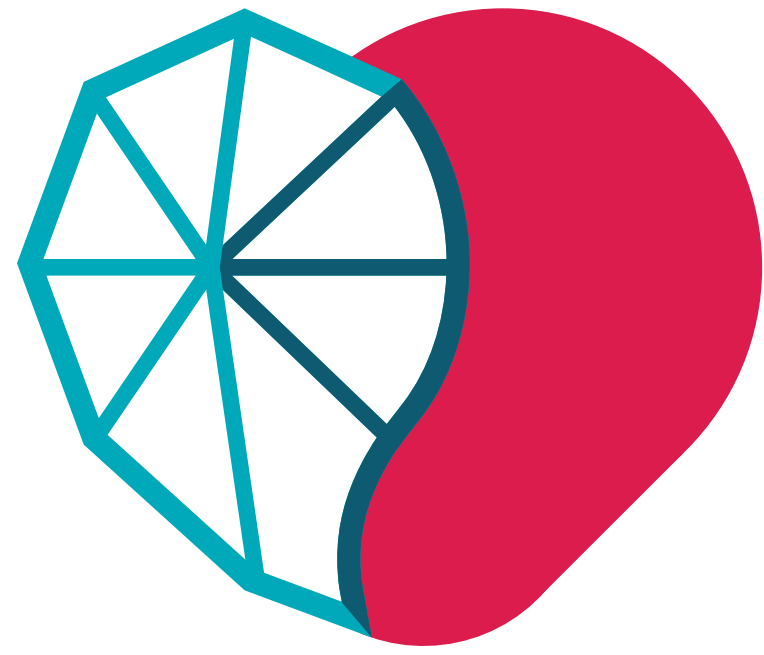
GSP  
Book

SWOT  
Analysis



Videos

Policy brief



# SIM CARDIO TEST

*#Outreach*  
*#Stakeholder engagement*  
*#Responsible Research & Innovation*  
*#Policy & Regulation*

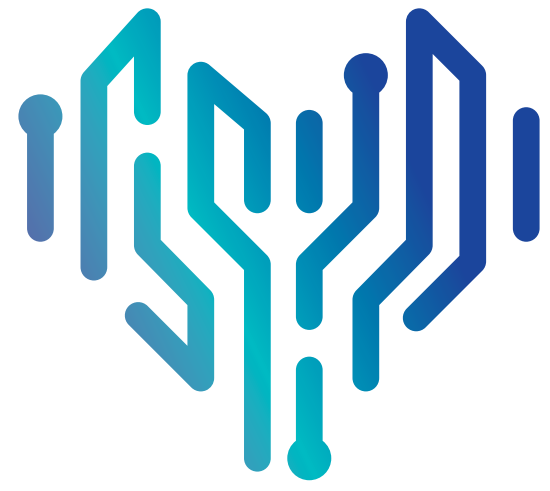
*01/01/2021 - 30/06/2025*

SimCardioTest aims to provide new insight into designing new predictive tools in cardiac pathologies and will accelerate the uptake of computer simulations for testing medicines and medical devices.

Cardiac Care  
Event  
in Paris

Innovaheart  
2024

Cardiovascular  
session at  
VPH2024

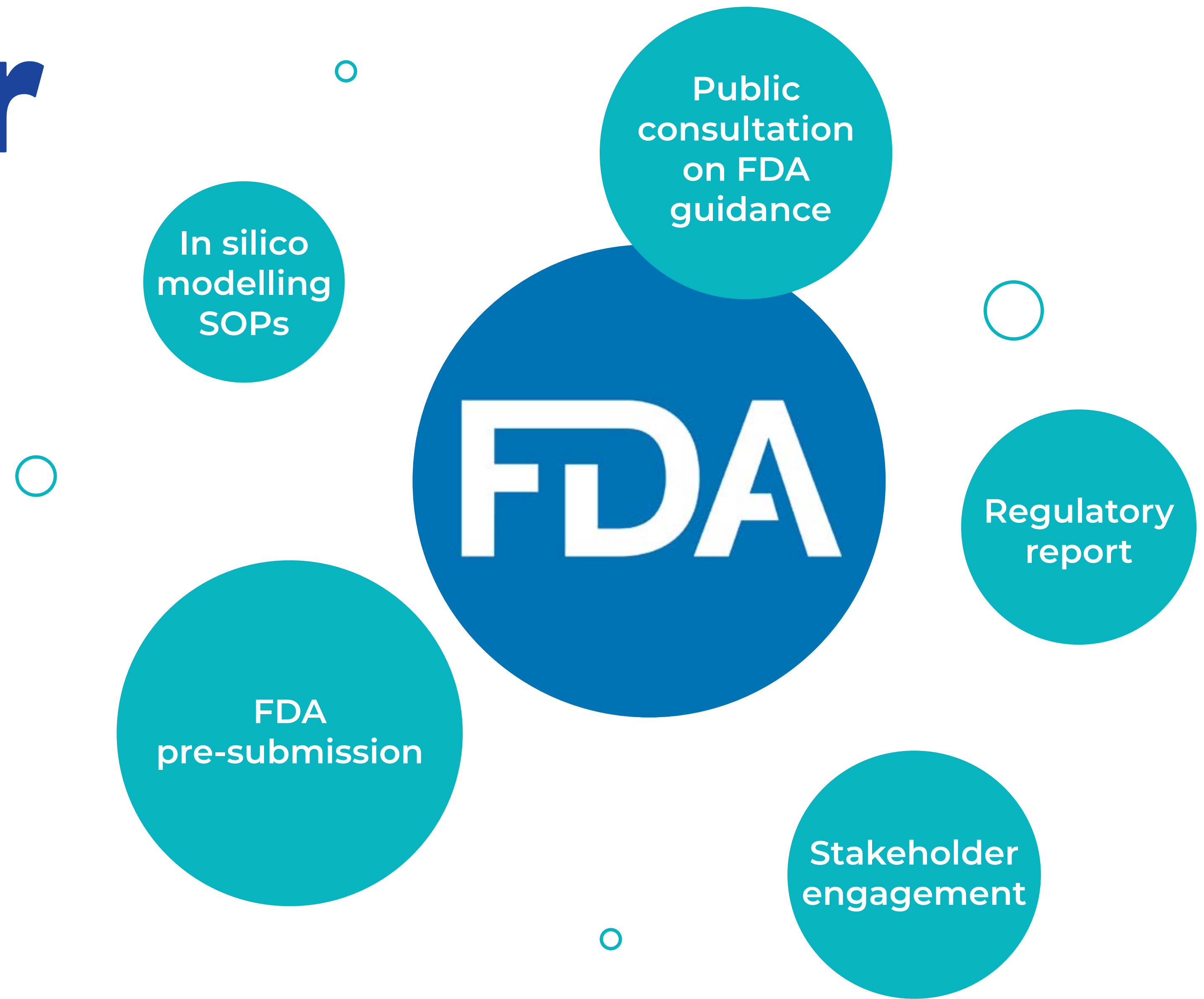


# SIMCor

#Standard operating procedures  
#Standardisation  
#Stakeholder outreach  
#Policy & Regulations

01/01/2021 - 30/06/2024

SIMCor aimed at establishing a computational platform for *in silico* development, validation and regulatory approval of cardiovascular implantable devices.

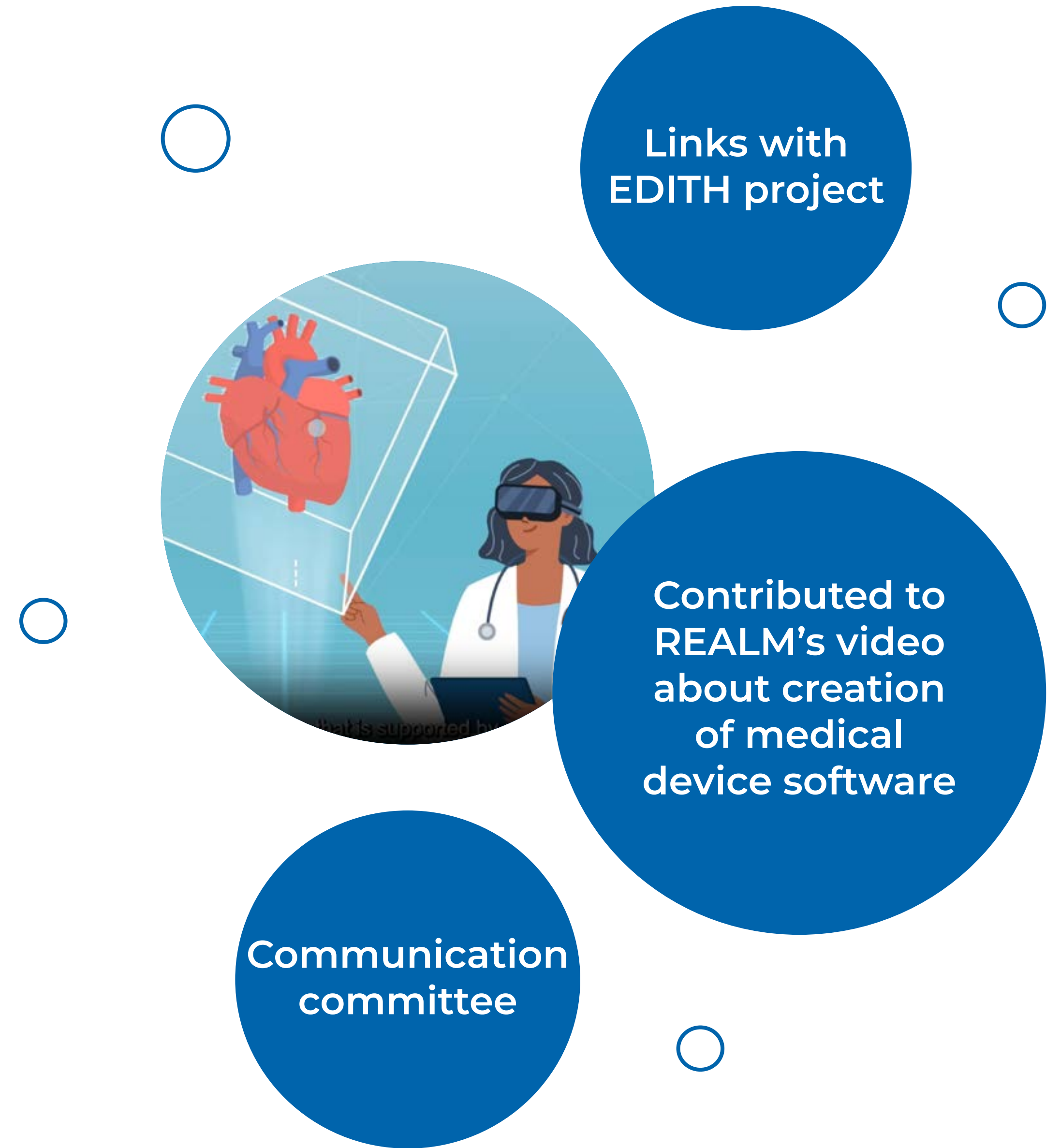




*#Outreach*  
*#Real-World Data*  
*#Sinergies with EDITH*

*01/01/2023 - 31/12/2026*

REALM aims to develop a collaborative framework through which regulatory authorities, software developers, healthcare professionals and policy offers can jointly create and evaluate innovative medical device software – for the direct benefit of patients and healthcare practitioners.



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# Value *proposition*



The VPHi is dedicated to advancing *in silico* medicine through a combination of scientific, policy & regulation, stakeholder engagement and outreach initiatives.

Our efforts are strengthened through a formal and equal partnership with the Avicenna Alliance, an industry association representing the software, device, and pharmaceutical sectors. Moreover, the VPHi maintains active and regular interactions with key members of the European Commission, particularly within the Directorate General for Research and Innovation and the Directorate General for Communication, Networks, Content, and Technology. These collaborations aim to showcase the latest success stories in computer modelling and simulation for healthcare while addressing challenges to enhance the adoption of *in silico* medicine.

The VPHi offers extensive expertise and resources to support Horizon Europe consortia in several key areas:

- ▶ Stakeholder assessment and outreach
- ▶ Regulatory and policy development
- ▶ Communication and dissemination
- ▶ Connections with other *in silico* medicine projects



The VPHi can serve as a strategic partner or take a leading role in project management, dissemination, and outreach work packages. Our multidisciplinary team—comprising biomedical engineers, social scientists, communication experts, and a graphic designer—ensures the capability to manage a broad range of activities in-house.

If you are considering VPHi for your Horizon Europe project, please feel free to [reach out](#) for further discussion.