

UNIVERSITY OF TWENTE. | TECHMED CENTRE

Accelerating MedTech innovations – The TechMed Centre approach





**TECHMED @
UNIVERSITY
OF TWENTE**



1600 students
500 professionals



RESEARCH

TechMed, MESA+, DSI
40% Horizon 2020



ENTREPRENEURSHIP

50% new Spin-offs
Novel-T ecosystem
Collaboration industry/SME's



**UNIVERSITY
OF TWENTE.**



TECHNICAL MEDICAL CENTRE

Our aim is to

**IMPROVE HEALTHCARE BY
PERSONALISED TECHNOLOGY**

by

- > Education & Training
- > Research & Development
- > Innovation & Collaboration

TECHMED.EDU PROGRAMMES



Biomedical Technology
Technology development

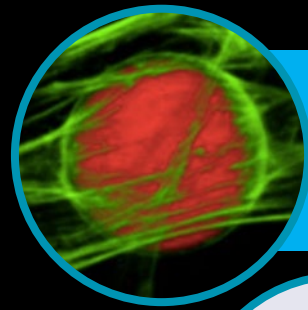


Technical Medicine
Innovative patient care

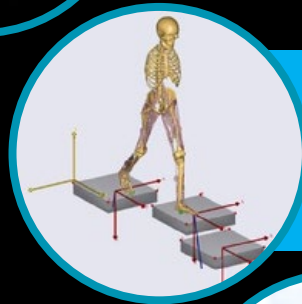


Health Sciences
Healthcare & technology implementation

TECHMED.RESEARCH MAIN DOMAINS



BIOENGINEERING TECHNOLOGIES



HEALTH ROBOTICS



HEALTH, WELL-BEING & TECHNOLOGY



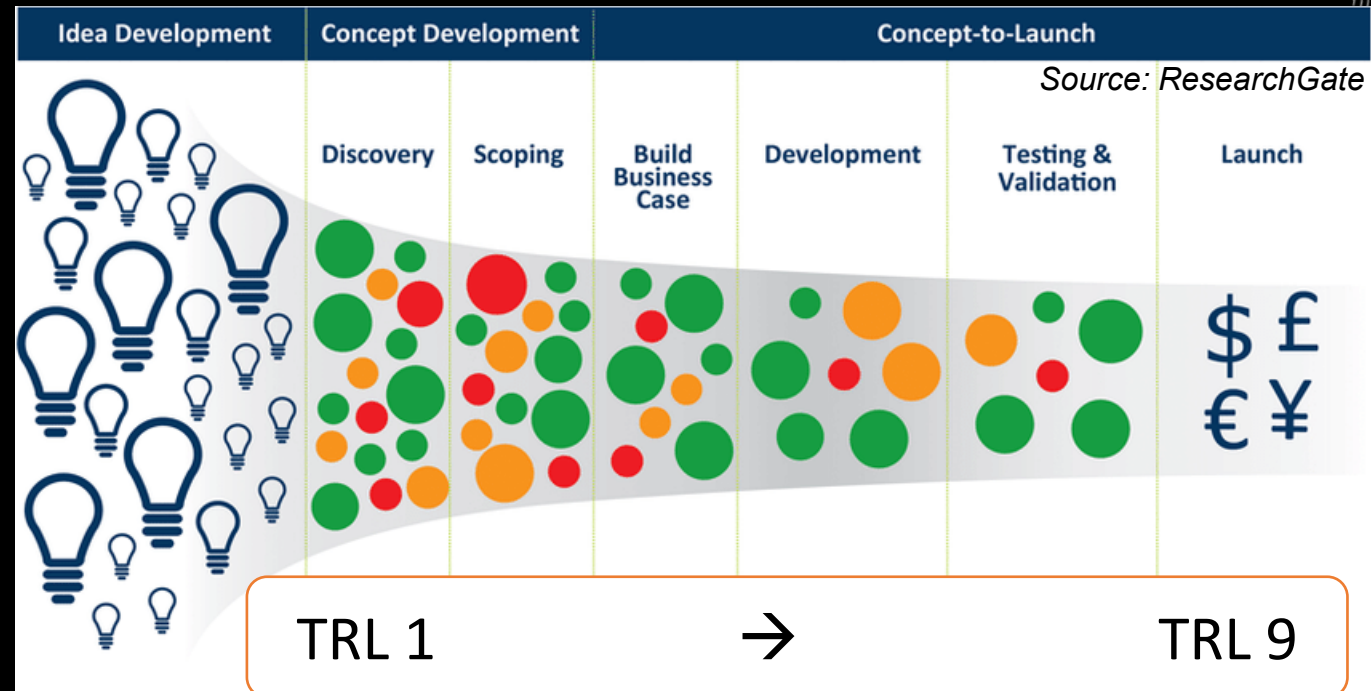
IMAGING & DIAGNOSTICS



MEDICAL PHYSIOLOGY

TECHMED.INNOVATION

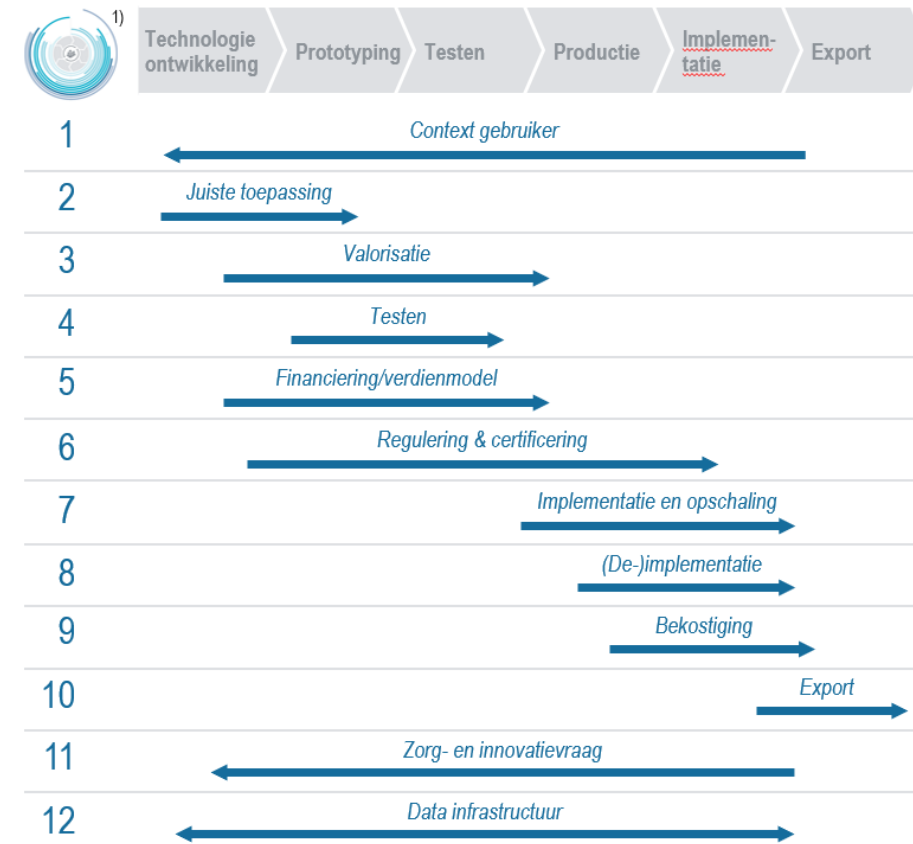
A COMPLEX PATHWAY



MedTech is a challenging market:

- multiple 'death valleys'
- complex innovation pathways
- Many bottlenecks to overcome, e.g.:

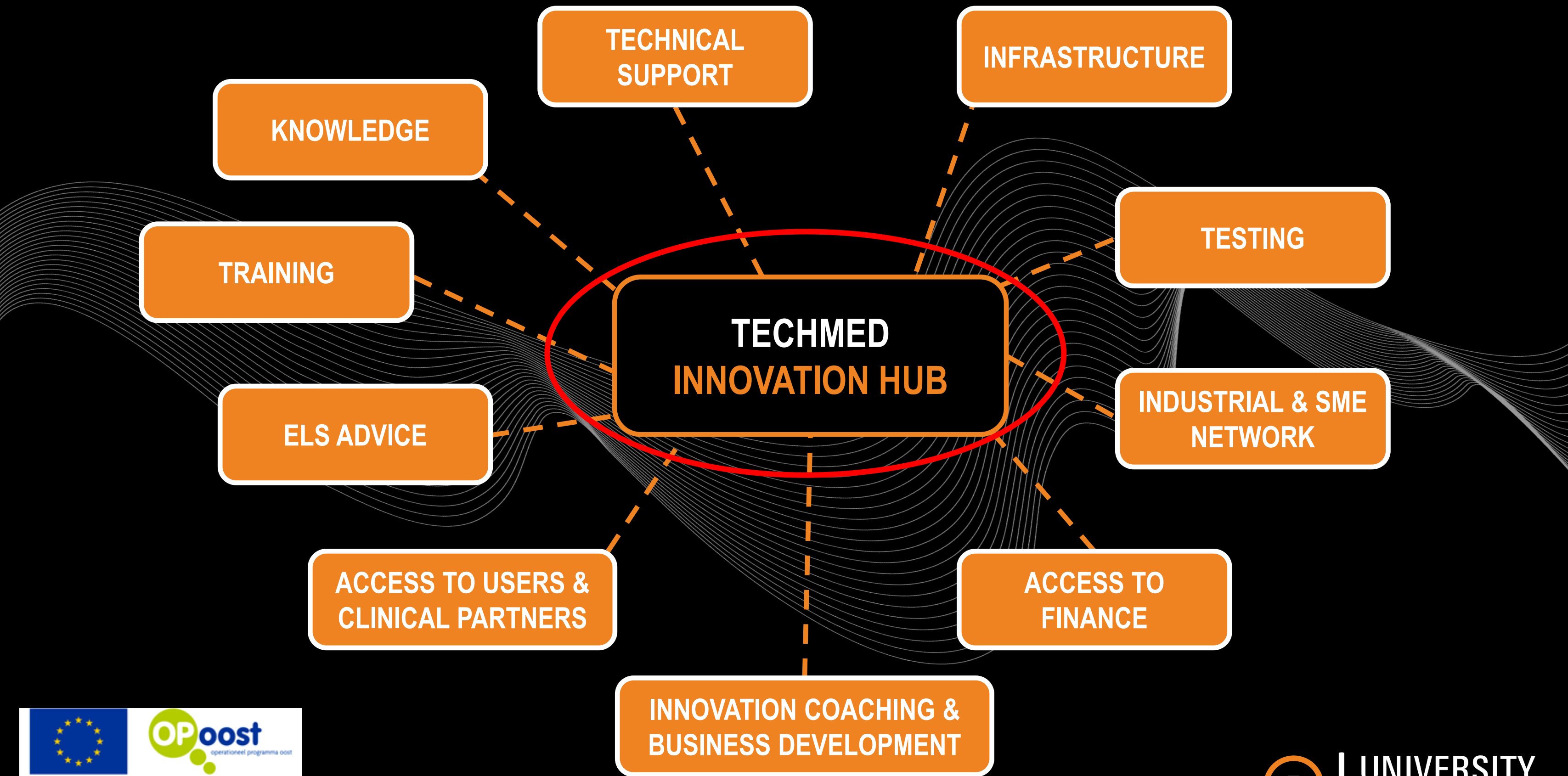
Bottlenecks MedTech innovatie ecosysteem



Source: MedTechNL

- Context gebruiker:** Er wordt te weinig rekening gehouden met de behoeften van de gebruiker en zorgverlener, waardoor innovaties slecht aansluiten, of in de praktijk niet of weinig gebruikt worden
- Juiste toepassing:** Technologie moet een toepassing vinden in de medische sector, naast vanuit (academisch) ontwikkelaars perspectief veelbelovend te zijn
- Valorisatie:** Business case is in vroege fase nodig om partners/financiers mee te krijgen, terwijl vertalen van kennis naar de juiste oplossingen in de praktijk nog niet in voldoende mate plaatsvindt
- Testen:** Ontwikkelaars kunnen moeilijk toegang krijgen tot field labs, living labs, medische testplaatsen en (patienten)data om oplossingen snel en iteratief in de praktijk te testen
- Financiering:** Financiering aantrekken in een vroege fase is lastig door het complexe, langdurige innovatietraject – Voor preventieve technieken is het lastig een sterk business model te ontwikkelen
- Regulering & certificeren:** Het validatie- en evaluatieproces om producten te kunnen ontwikkelen en produceren vergt veel kennis (bv. rondom MDR) en tijd en brengt hoge kosten met zich mee
- Implementatie en opschaling:** Ervaring en de juiste competenties nodig om het productieproces op te schalen, betalende klanten te binden en samen te werken met alle relevante (zorg)partijen
- (De-)implementatie:** Voor implementatie dient ook 'sociale' innovatie plaats te vinden: acceptatie door zorgverleners en -gebruikers – verouderde behandelingen dienen vervolgens gedeïmplementeerd te worden
- Bekostiging:** Ondoorzichtig proces om vergoeding te krijgen van verzekeraars, systeem voorziet niet om producten te vergoeden die ziekte voorkomen
- Export:** Producten die voor de Nederlandse markt zijn ontworpen, sluiten niet direct goed genoeg aan op de internationale markt, bijv. door andere behoeften en regulering
- Zorg- en innovatievraag:** Praktijkkennis wordt te weinig gebruikt bij de start van een nieuw innovatieproces, waardoor snelle aanpassingen met een grote impact niet worden doorontwikkeld
- Data infrastructuur:** Ontbreken van centrale data-infrastructuur en afsprakenstelsel voor FAIR gebruik van data belemmert de ontwikkeling en integratie van nieuwe producten en diensten

- Demand driven innovation (professionals, citizen)
- Early stage validation & testing
- Fast track innovation pathways



FIGHTING COVID 19 CRISIS

DIHs in the fight against COVID19

The fight against COVID19 requires innovative thinking and breakthrough technologies. In this context DIHs specialised in medical technologies and eHealth could be of great help to the regional/national health systems and industry's research efforts to provide better treatments and advances towards beating the virus. In the example below you will see how a specialised DIH in The Netherlands has responded timely to this health crisis with several initiatives aiming to support the health ecosystem during the fight against COVID19.

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CENTRE

TechMed DIH¹⁵ (Netherlands) is a non-profit collaboration of partners, coordinated by the TechMed Centre of the University of Twente that stimulates the development and implementation of digital technologies to the healthcare sector.



JRC SCIENCE FOR POLICY REPORT

DIGITAL INNOVATION HUBS AS POLICY INSTRUMENTS TO BOOST DIGITALISATION OF SMES

A PRACTICAL HANDBOOK & GOOD PRACTICES
FOR REGIONAL/NATIONAL POLICY MAKERS
AND DIH MANAGERS



Authors: Kalpaka A., Sörvik J., Tasigiorgou A.
Editors: Kalpaka A., Rissola G.

TECHMED CENTRE

INNOVATION ECOSYSTEMS

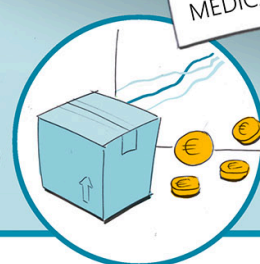
MISSION:

IMPROVING HEALTHCARE BY
PERSONALISED TECHNOLOGY

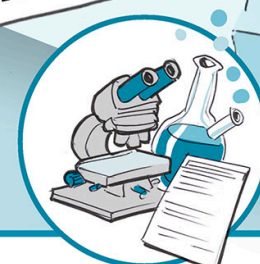
IMPACT:



SOCIETY/HEALTH



ECONOMY



SCIENCE

ENGINE FOR TECHNICAL
MEDICAL INNOVATION

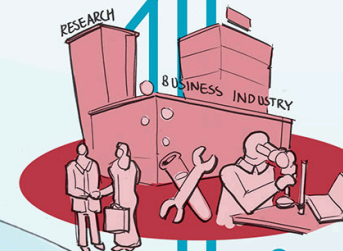
TECHMED INNOVATION HUB

STIMULATES COLLABORATION AND
CONNECTIVITY WITH MULTIPLE
INNOVATION ECOSYSTEMS IN ORDER
TO SERVE SOCIETY



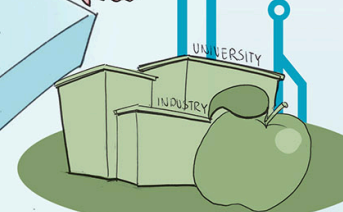
TECHMED CENTRE
INSTITUTE@UNIVERSITY
EDUCATION, RESEARCH & INNOVATION

UNIVERSITY
OF TWENTE. **TECHMED
CENTRE**



MEDTECH CLUSTER TWENTE
REGIONAL CLUSTER
VALUECHAIN FOR MEDICAL
TECHNOLOGY INNOVATION

**MEDTECH
TWENTE**



TOPFIT
MISSION DRIVEN INNOVATIONSYSTEM
2 ADDITIONAL HEALTHY LIFE YEARS BY
FOCUS ON PREVENTION IN EASTERN NL

TOPFIT



TECHMED HEALTHCARE NETWORK
KNOWLEDGE ECOSYSTEM
EDUCATION, RESEARCH AND PATIENT CARE FOCUSED
ON TECHNOLOGICAL INNOVATION & IMPLEMENTATION



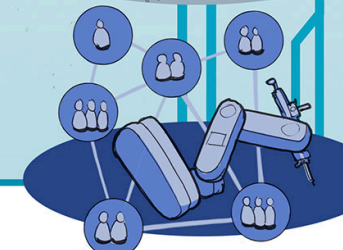
MEDTECHNL
NATIONAL INNOVATIONSYSTEM
MEDICAL TECHNOLOGY FOR A BETTER HEALTHCARE
AND ECONOMY

MedTechNL



NOVEL-T
ENTREPRENEURIAL ECOSYSTEM
HIGH-TECH INNOVATION POWER FOR COMPANIES
FROM SPIN-OFFS TILL SCALE UPS

NovelT



DIH-HERO
EUROPEAN DIH NETWORK
DIGITAL INNOVATION HUBS FOCUSING ON
HEALTHCARE ROBOTICS

DIH-HERO

REGIONAL ECOSYSTEM TWENTE
LIFE SCIENCE & HEALTH

East Netherlands Region:
Concepts for a healthy life



September 2018 version 1.0. Disclaimer: this diagram is subject to changes. Senders are not responsible for any missing parties on the diagram.

MEDTECH
TWENTE

TOPFIT Programme

- 1 One step ahead of disease and disease burden
- 2 Two more healthy life years
- 3 Three domains connected: Tech – Health – Behavior

- Strategic open innovation consortium
- Cross-over collaboration to speed up innovation
- Horizon of 2 – 5 – 10 years

Iconproject East Netherlands

Think East Netherlands

Citizenlab TOPFIT
Looking for health & happiness together



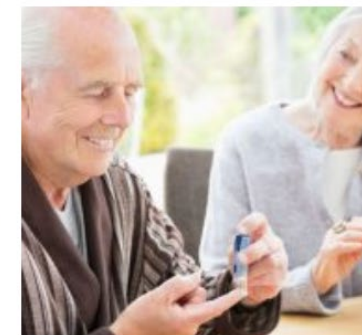
RHEUMATOID ARTHRITIS

Together we get
rheumatoid arthritis
under control



GRIP ON DIABETES

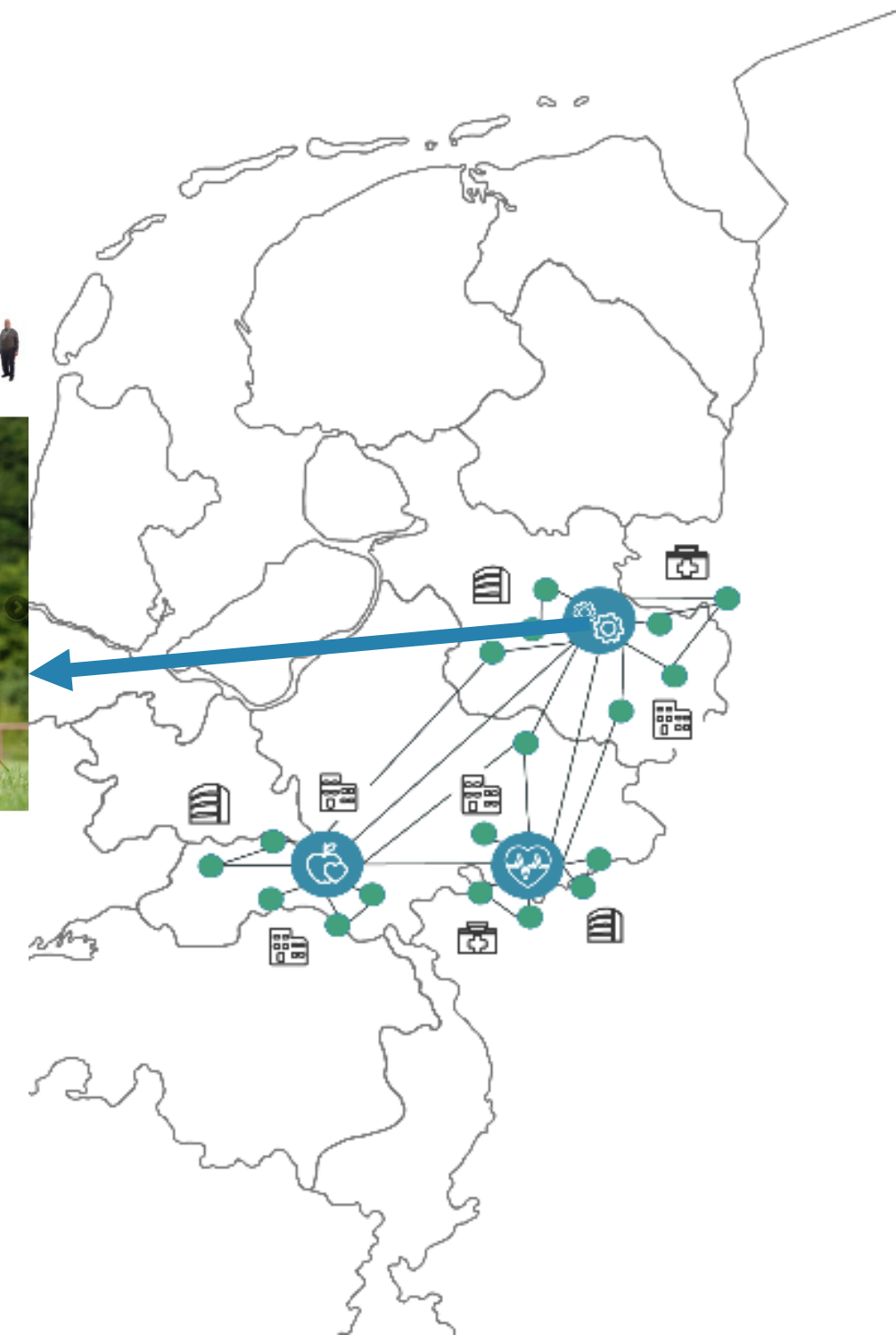
Collaborate on a
better grip on
diabetes



INFORMAL CARE

Working together
towards balance in
informal care

TOPFIT



Visit www.topfit.life

TECHMED CENTRE HEALTHCARE NETWORK

KNOWLEDGE ECOSYSTEM

EDUCATION, RESEARCH AND PATIENT CARE FOCUSED
ON TECHNOLOGICAL INNOVATION & IMPLEMENTATION

OVER 500 MEDICAL
PROFESSIONALS GET
TRAINING



SIMULATED HOSPITAL,
TESTING FACILITIES AND LABS

> 40 TRANSLATIONAL
SCIENTIFIC STAFF



500 ANNUAL
INTERNSHIPS



COLLABORATIONS WITH
OVER 50 (INTER)NATIONAL
HEALTHCARE PARTNERS



MORE THAN 25 HOSPITALS,
UNIVERSITY MEDICAL CENTRES
AND SPECIALIZED CLINICS

NATIONAL CORE PARTNERS

- | | |
|-----------|------------------------------|
| ENSCHEDÉ | MEDISCH SPECTRUM TWENTE |
| ALMELO | ROESSINGH |
| DEVENTER | ZGT |
| ZWOLLE | DEVENTER ZIEKENHUIS |
| ARNHEM | ISALA |
| UTRECHT | RIJNSTATE |
| NIJMEGEN | UMC UTRECHT |
| GRONINGEN | RADBOUD UMC |
| AMSTERDAM | UMCG |
| | NETHERLANDS CANCER INSTITUTE |



Deventer
ziekenhuis



Rijnstate

Radboudumc

OVER 400 JOINT
PUBLICATIONS ANNUALLY

RESEARCH
INSTITUTES

EDUCATION

TECHMED
CENTRE

NETWORK

HEALTHCARE
PROVIDERS

MEDICAL

INDUSTRY

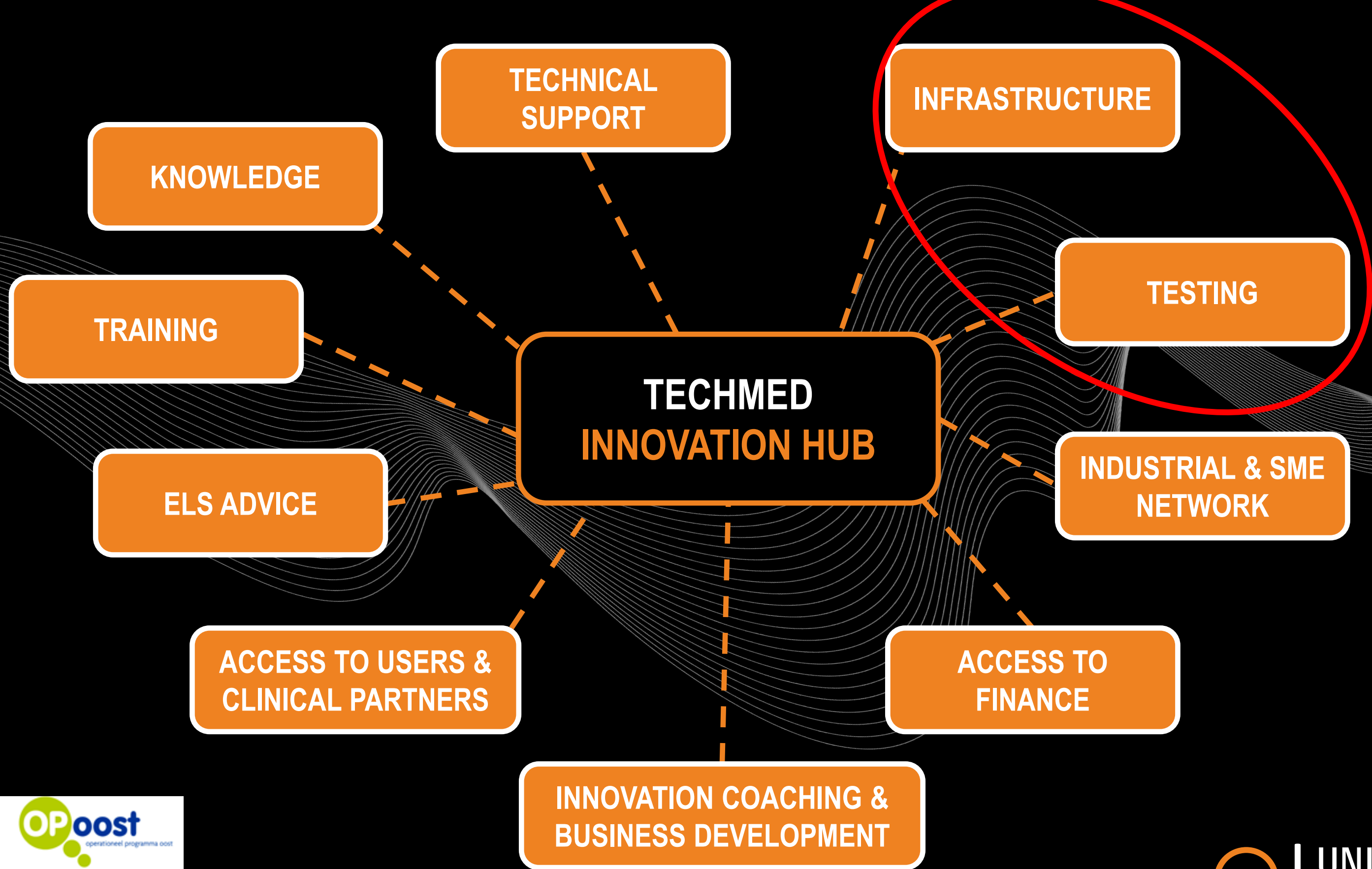


INTERNATIONAL CORE PARTNERS

- | | |
|------------|-------------|
| MUENSTER | UKM |
| STRASBOURG | IRCAD IHU |
| BOSTON | MGH |
| MINNESOTA | MAYO CLINIC |
| LONDON | NHS |

CONNECTING RESEARCHERS
WITH HEALTHCARE PROFESSIONALS
AND VICE VERSA

CREATING IMPACT FOR PATIENTS



STATE OF THE ART FACILITIES



State of the art facilities for Imaging & Image Guided Treatment

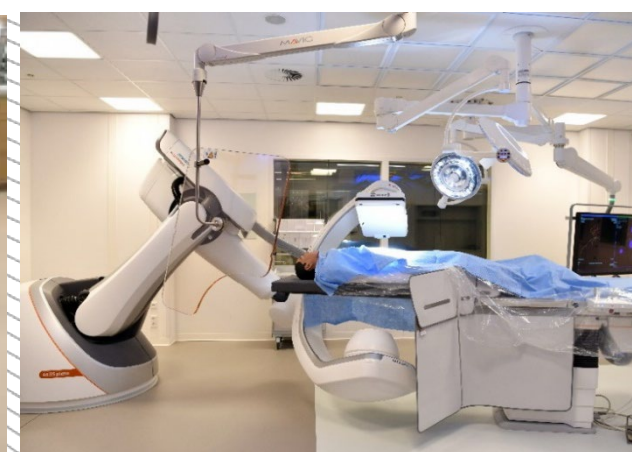
MedTech R&D infra Simulated & pre-clinical research + training infra Real World clinical research infra

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Radboudumc



Intelligent Imaging technologies



Experimental Hybrid OR



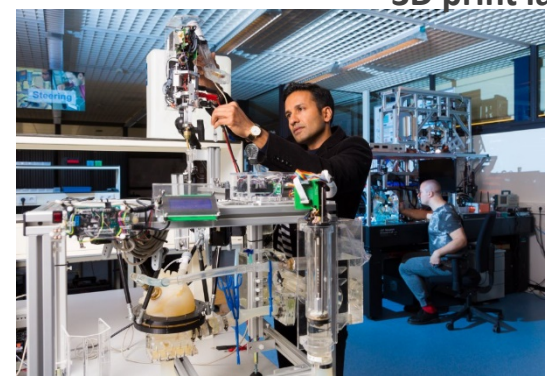
Imaging Facilities (0,25-1,5T MRI / Ultrasound / Photo accoustics)



Clinical molecular imaging



3D print labs



Medical Robotics technologies



Advanced Phantom imaging validation & test labs



Simulation Training



MITEC clinical research facilities

Health Technology Assessment

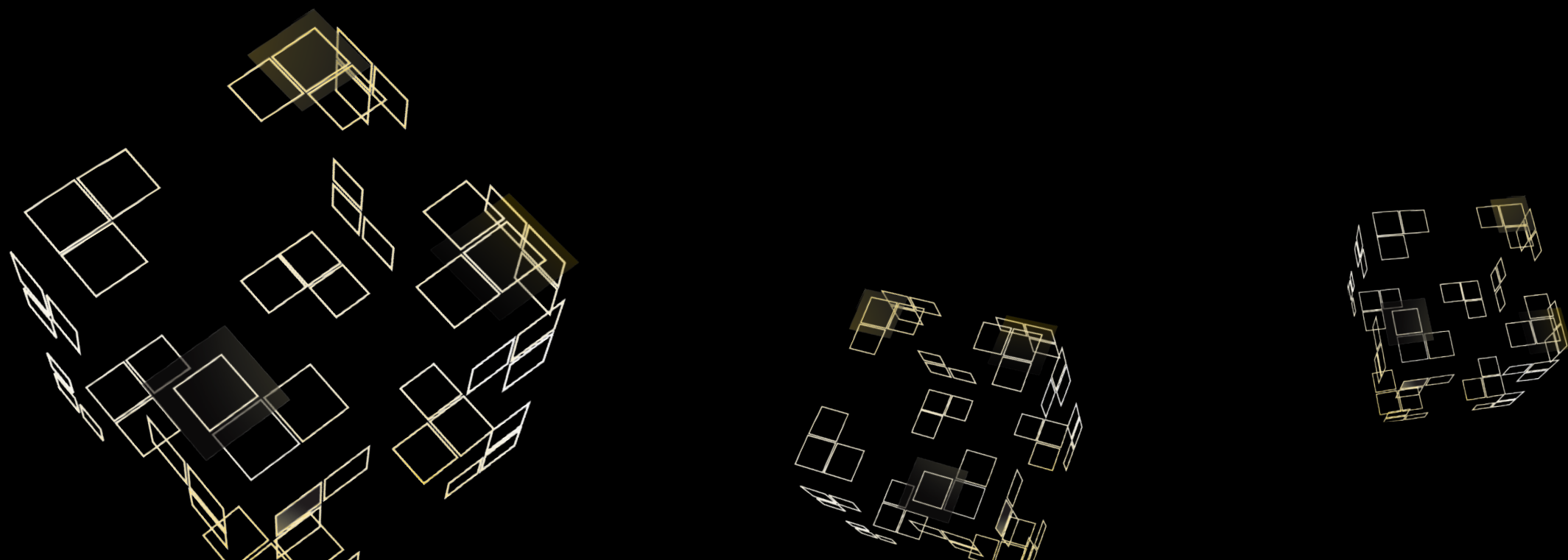


CMI-NEN clinical research facilities

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