

Photography: Laurens Kuipers



MEDTECH TWENTE: A HIGH POTENTIAL

TOPCLUSTER

The hightech region of Twente is home to a powerful Life Sciences & Health top cluster. With the ultimate shared goal to improve healthcare, multiple institutions work together everyday to make this a reality: businesses realizing healthcare innovations, healthcare institutions researching with universities, and educational institutions training tomorrow's talent. It's all happening here, in MedTech Twente.

MEDTECH
TWENTE

TWENTE MAKES A GLOBAL IMPACT WITH MEDTECH INNOVATIONS

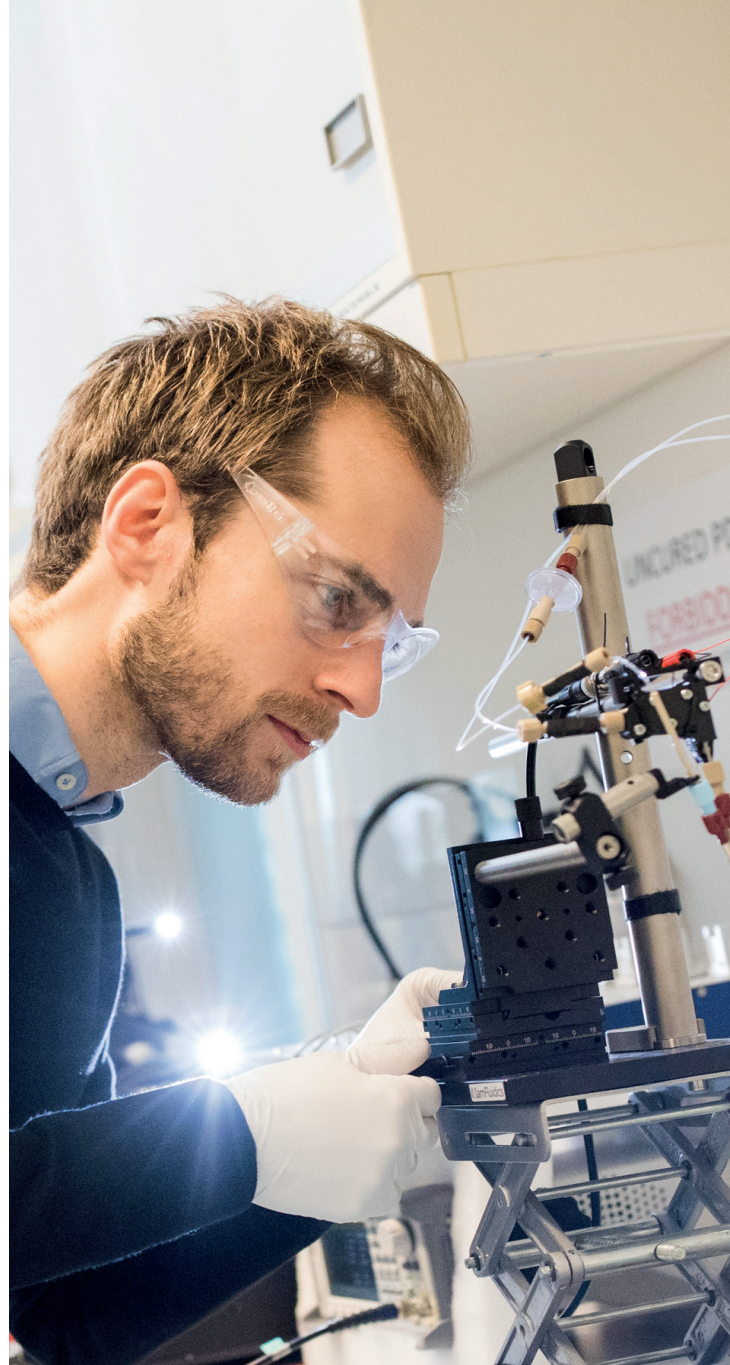
A powerful Life Sciences & Health top cluster has emerged within the high tech region of Twente. Companies, knowledge institutions, and healthcare institutions collaborate through a shared mission and drive to make a significant contribution to improved and more efficient healthcare. In these times of COVID-19, they have shown an enormous ambition for development and strength through short lines of communication and a strong willingness to cooperate. All this confirms the potential of MedTech Twente to grow into an international top cluster. Investments in facilities, capital, and accelerating the validation and implementation of innovations give Twente the right starting points to claim a strong international position on behalf of the Netherlands, together with the MedTech ecosystems of Medical Delta and Brainport Eindhoven. It contributes to the economic profile of and employment in the region, enabling us to better respond to healthcare challenges. The Medical Technology cluster in Twente is traditionally known for its strong high tech sector, often operating from a research base within knowledge institutions. Business in the MedTech sector is growing fast in Twente, partly driven by the emergence of new spinoff companies.

The MedTech cluster in Twente distinguishes three substantive focal points:

1. Nano Biotech
(including lab & organ-on-a-chip technology)
2. Artificial Intelligence/e-Health
3. Health Robotics

We have a powerful ecosystem at our disposal, in which innovations can be quickly validated, tested, and implemented. Front runners in the industry are Demcon, Micronit, Med-Spray, Baat Medical, Malvern Panalytical, Benchmark, and Thales, closely followed by numerous young growth companies such as Lipocoat, VyCap, U-Needle, and IamFluidics. For more than 15 years, various partners in the ecosystem have been investing and working together to improve the adoption of MedTech innovations in practice. This is reflected in the study program of the University of Twente and Saxion University of Applied Sciences. The new TechMed Center is also of great importance. As a leading innovation hub, it supports innovation processes of companies and hospitals on an international scale.

**MEDTECH
TWENTE**



DEMCON
Bianca Screever
Director operations

"Demcon has multiple branches worldwide, but remains a Twents company at heart. We want to continue to grow in Twente in a sustainable way, and contribute to the development of the region. That way, we continue to invest in a good work environment together, because the synergy and cooperation between different companies arise on campus. Through attractive employers and the right lab facilities we make sure we attract talent of all levels to the region and keep them here."

JOINING FORCES FOR ECOSYSTEM GROWTH AND IMPACT

By 2030, we want to be the number one MedTech cluster of Europe. That is beneficial to the Netherlands, Europe, and the world. After all, healthcare becomes more and more expensive and unmanageable. Furthermore, the importance to be able to anticipate and innovate quickly has been proven due to the recent COVID-19 pandemic. MedTech could be a crucial solution to this problem.

MedTech Twente contributes to the Netherlands' top position for the best performing healthcare system in the Euro Health Consumer Index. It also contributes to the Health-Holland ambition to belong to one of the top 3 Life Sciences & Health sectors internationally by 2030. The enforcement of the national ecosystem has to lead to new health innovations, more business and jobs in this sector, and ultimately better and sustainable healthcare.

MedTech Twente has the following ambitions:

1. 25% more jobs in research, development and production.
2. A doubling of the export of medical technology compared to 2020.
3. An above average efficiency in medical treatments and cost structure at the associated healthcare institutes compared to the Dutch norm.

UNIVERSITY OF TWENTE

Albert van den Berg
Scientific director MESA+



"The Twente region has an exquisite reputation on both NanoTech and MedTech, from which a great number of successful spinoffs and scaleups have been originated. On the intersection of top institutes TechMed Centre and MESA+, investments in the regional infrastructure for bio nano technology are of great importance to accelerate growth and make the difference for patients."



MICRONIT
Ronny van 't Oever
CEO

"Developing medical solutions is complex enough as it is. As an entrepreneur, you want the conditions for development to be optimal. You would rather invest capital in product development and marketing, than in purchasing valuable medical facilities. Furthermore, it's essential to create an entrepreneurial environment, in which chain partners know where to find each other. To do so, flexible lab facilities, the right financing, and active coaches are necessary. That way you create the highly necessary regional medical supply chain together."



ECOSYSTEM INSIGHTS BY MEDTECH TWENTE

- Most enterprising and best valorizing university in the Netherlands with the highest number of spinoffs, of which more than 50 percent are MedTech.
- Globally, Twente ranks fifth (and tops the rank in the Netherlands) of most peer-reviewed scientific publications on the lab-on-a-chip theme.
- Driven by the power of the ecosystem, the TechMed Innovation Hub is stated by the European Commission as an example to others.
- The TechMed Center employs 350 FTEs, which equates to approx. 450 researchers.
- The output in 2019: 6 patents, 3 spinoffs and approx. 500 publications.



Photography: Eric Brinkhorst



Based on **organ-on-a-chip technology**, the **NanoBio Research Group** of the University of Twente, together with its partners **Micronit**, **LocSense** and **Ionovation**, developed a resealable platform for screening the heart when using medication.

InkBeams came up with a way to inject ink or medicines without a needle.

Startup **Moovd** developed a treatment method for people with a trauma or anxiety disorder. VR glasses are used for clients to relive their trauma in a way that is true to life, making treatment more effective.

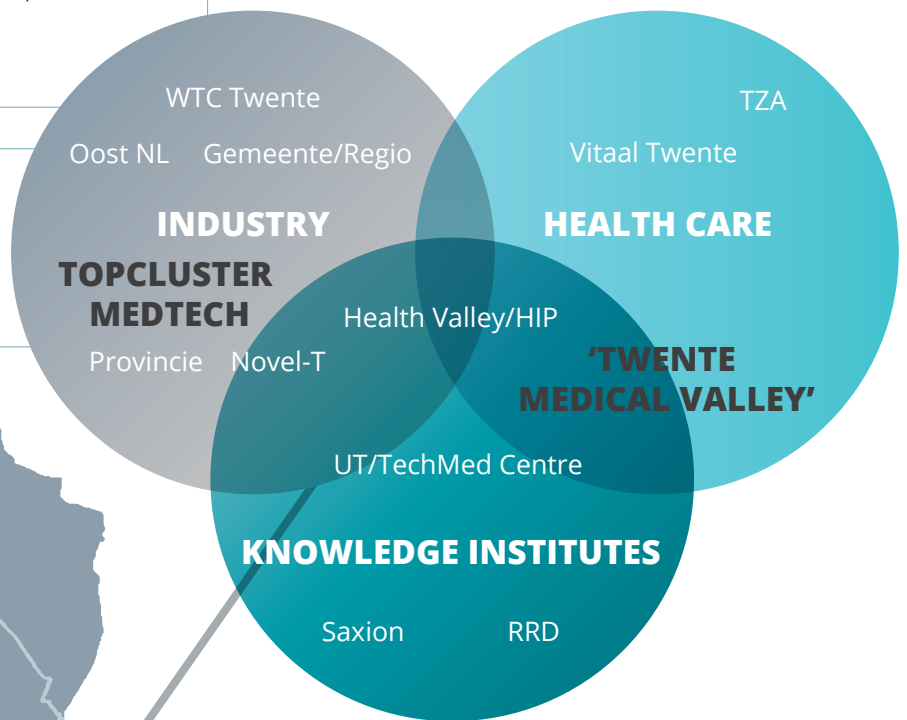
Anne4Care enables elderly people to make video calls using a tablet. The virtual assistant Anne replies when someone asks a question, listens to what people say, and carries out simple tasks.

U-needle designs and produces an user-friendly and patient-friendly injection method with microneedles.

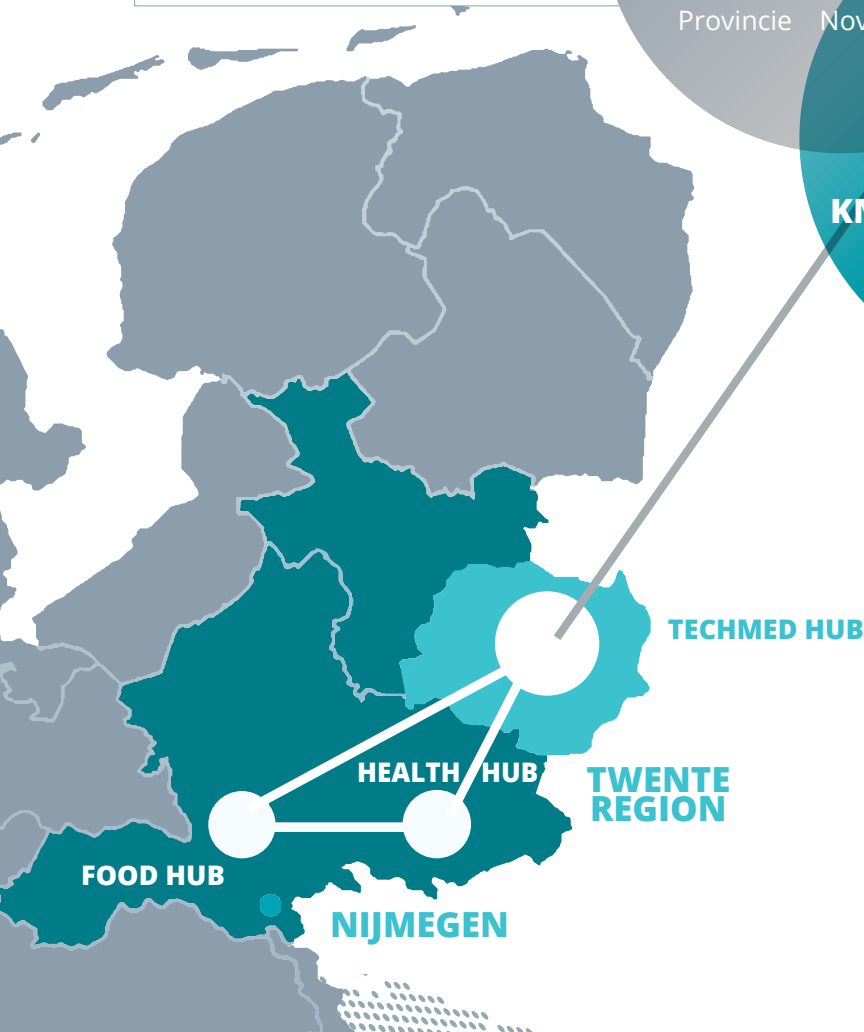


River Biomedics has developed a technology to create a 3D miniature heart with human body cells, which allows for better testing of heart medicines.

UT spinoff **LipoCoat** develops a revolutionary coating technology that protects material surfaces against micro-organisms and protein deposition.



In 2030, the Twente region will create 25% more jobs in research, development and production, as well as double its exports.



Fotografie: Eric Brinkhorst



Last year, **Robin Koops of Inreda Diabetics** was named a national icon in recognition of the artificial pancreas that he developed with his team. It was CE-marked in February 2020, bringing its application much closer to a broad market introduction.

Ultrasound images create up to twenty times more contrast using an ultrasound contrast fluid developed by **Solstice Pharmaceuticals**. This reduces the need for a more invasive MRI or CT scan, because the ultrasound already provides a clear picture of the problem.

UT researchers, ZGT and Machnet have developed an MR-safe robotic system for breast biopsies as a proof of concept.

MEDTECH SOLUTIONS

THAT CONTRIBUTE TO THE FIGHT AGAINST COVID-19

Viralert

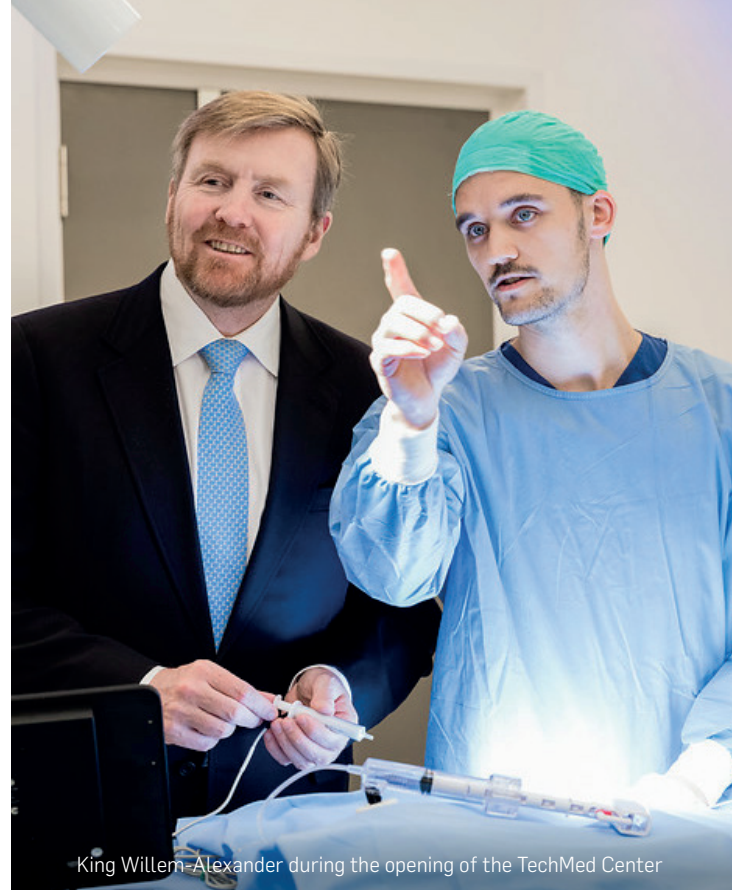
As part of the Viralert initiative, companies from Twente such as Micronit, Demcon, LioniX International and VyCAP work together with various knowledge institutions from all over the Netherlands to jointly develop rapid tests and other relevant matters for present and future pandemics.

TechMed Center & Minivalve

TechMed Center researchers, together with IC specialists, have investigated under which conditions and in absolute emergency situations 2 people can still be ventilated on a single breathing machine, as safely as possible. The smart valves are produced by the Twente company Minivalve. The valves fulfill critical functions in respirators and face masks worldwide.

PVC Group & TechMed Center

For corona patients who are not ill enough for IC, but too sick to be in a normal ward, PVC Group, in collaboration with researchers from the TechMed Center, developed a re-spiration hood so that patients need not be referred to IC as quickly or not at all.



King Willem-Alexander during the opening of the TechMed Center



SUCCESS STORY OF THE THE VENTILATORPAL PRO

Specialists from the University of Twente, Radboud UMC and the company FreeBreathing have been able to demonstrate in the TechMed Center of the University of Twente that the VentilatorPAL Pro can be used in the treatment of COVID-19 patients suffering from severe respiratory problems. In the past, this equipment had to be squeezed manually, but the new machine is able to take over the hand movements of the intensivist. The validation of the VentilatorPAL Pro is an important step in the accelerated certification procedure of the Ministry of Health, Welfare and Sport. The system is currently used in several other countries.



Micronit

Micronit produces chips that have been used by customers globally since the beginning of the crisis to determine the genetic makeup of the COVID-19 virus. They are used for test equipment in laboratories and hospitals.

VyCAP

VyCAP developed a device to isolate cancer cells. They can also use this device to detect B cells, which make the right antibodies against the coronavirus, much faster in the blood of recovered patients.

ECsens

ECsens has developed the most sensitive and reliable sensor that can detect small biomarkers such as viruses and bacteria. This means that diseases like COVID-19 can be detected quicker.

LioniX International

LioniX International, together with Surfix and Qurin Diagnostics, is developing a fast and reliable test for large groups of people.

Demcon

Demcon supplies vital ventilation modules worldwide and within one month will produce and test, in the Netherlands, a complete ventilation system for the treatment of corona-virus.

Designlab en BMS Lab

Professor Peter-Paul Verbeek and Professor Van Gemert worked with the Designlab and BMS Lab team on the development, introduction and monitoring of the Corona Detector.

Benchmark Electronics

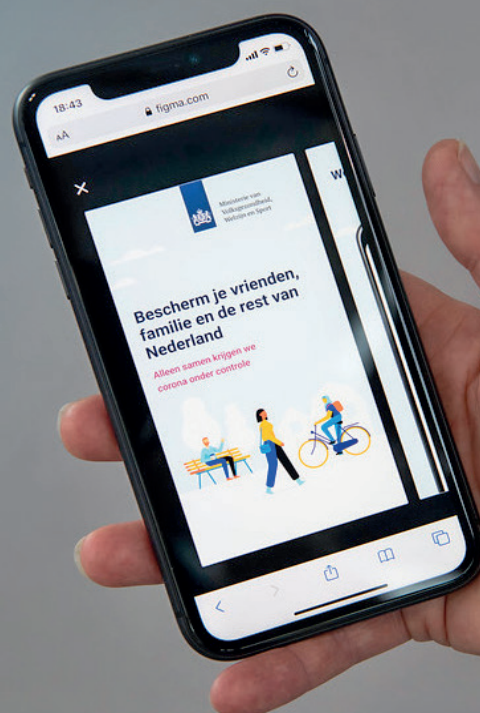
Benchmark Electronics produces the equipment for a corona test based on DNA technology for the British company DNANudge, at a cost of EUR 50 million.

Medspray

Medspray marketed an atomizer that effectively delivers the corona drug into the lungs.

The potential of the Twente MedTech ecosystem has become clear in the fight against COVID-19.

Based urgent demands from practice and responding quickly through the network of knowledge, business and medical professionals, we can achieve fast and meaningful innovations.





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