



LIFE SCIENCES & HEALTH

Welcome to the Healthy Ageing Capital of Europe, where a strong green and digital ecosystem is leading in developing ground-breaking knowledge and applications for a healthy society for all.

**TOP
DUTCH**

**A good place
to be great**

As a wealthy and prosperous country with an inclusive culture, it's no surprise we have high standards when it comes to taking care of our people. The Dutch healthcare system has become the number one in the world, built on mandatory health insurance, risk equalization and patient empowerment. Today, insights from the life sciences & health industry have shifted our focus from healthcare, towards healthy ageing - or sustainable health. This means we increase our focus and efforts on optimizing prevention, diagnostics and developing specialized health solutions. TopDutch promotes a healthy society where we all enjoy a long life in good health. Here, we grow young.

1. Best healthcare system in the world

2. Healthy Ageing Capital of Europe

3. BioAnalysis Capital of Europe

4. Strong R&D & knowledge to big industry

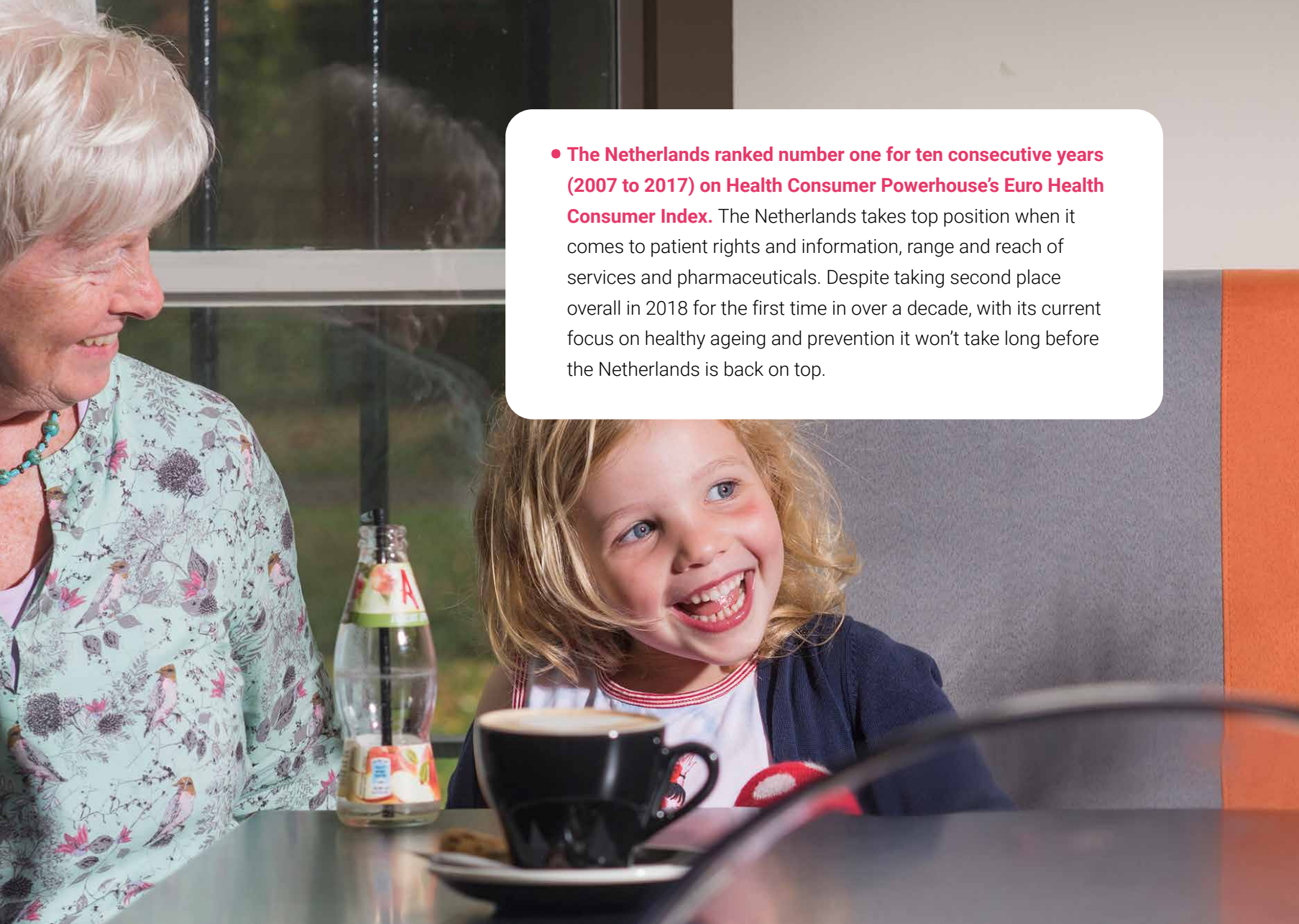
5. Green and digital ecosystem for MedTech

6. World-class education & highly skilled labor

1. BEST HEALTHCARE SYSTEM IN THE WORLD

**The Netherlands has offered the best
healthcare system of the world, for over
a decade.**





- **The Netherlands ranked number one for ten consecutive years (2007 to 2017) on Health Consumer Powerhouse's Euro Health Consumer Index.** The Netherlands takes top position when it comes to patient rights and information, range and reach of services and pharmaceuticals. Despite taking second place overall in 2018 for the first time in over a decade, with its current focus on healthy ageing and prevention it won't take long before the Netherlands is back on top.



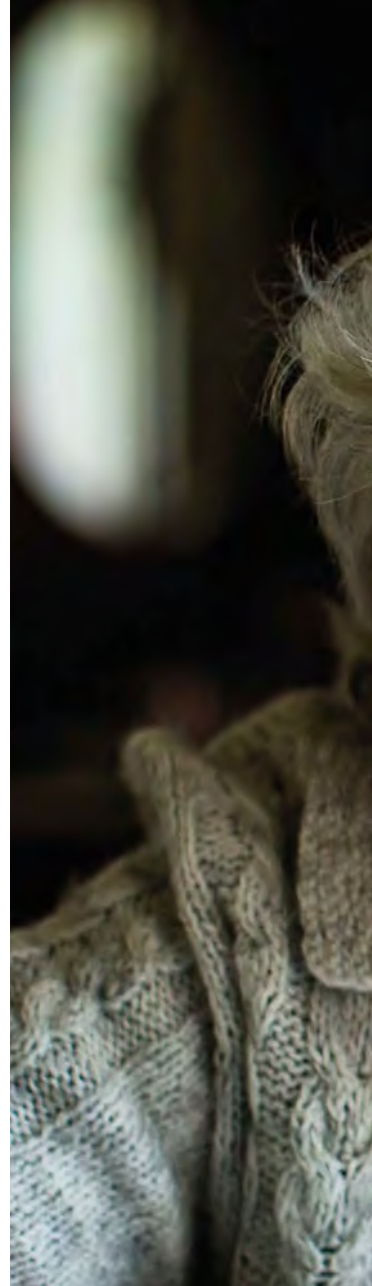
Healthy Ageing Campus



- **The Dutch healthcare system is efficient, accessible and affordable.** By making health insurance mandatory, promoting stability, predicting healthcare costs as adequately as possible and taking several risk-sharing mechanisms, the Dutch healthcare system is one of the most efficient and affordable in the world.
- **The Netherlands offers the most patient-friendly healthcare.** The Dutch healthcare system ranks number one in patient rights and information on Health Consumer Powerhouse's Euro Health Consumer Index. With an excellent information infrastructure and a culture of shared decision-making, patients are informed and involved in every step of their healthcare journey. Patient empowerment and coordinated care shared by healthcare professionals and loved ones makes the Netherlands the most patient-friendly healthcare system in the world.
- **The TopDutch region is home to a global top 100 University Medical Center,** the University Medical Center Groningen (UMCG) is the core of healthcare in our region where R&D and business can flourish.

2. HEALTHY AGEING CAPITAL OF EUROPE

The Healthy Ageing Capital of Europe, with more scientific and applied research of genetic implications and lifestyle interventions to extend the human lifespan with healthy years than any other region.





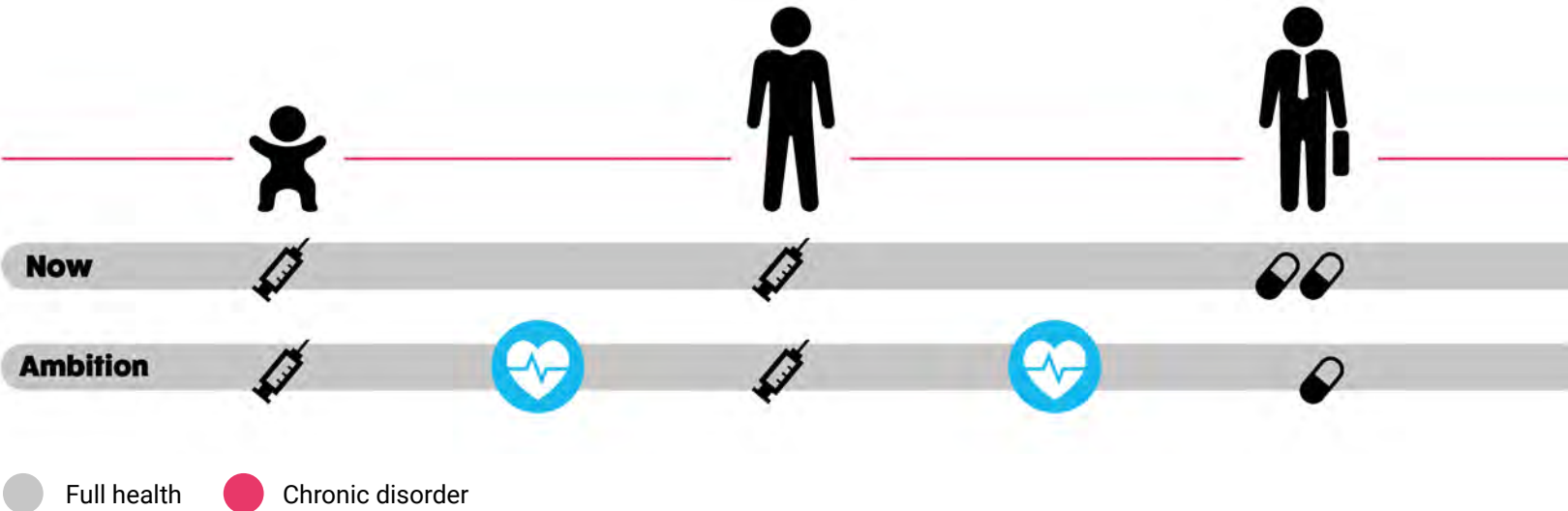
- **Long-term focus on healthy ageing and prevention.**

The TopDutch region has had a focus on Healthy Ageing for more than three decades.

- **The TopDutch region has been designated as a four-star region in the field of Active and Healthy Ageing by the European Union.**

This designation is not only proof of our joint efforts over the years but also offers additional opportunities for European co-financing. The region leads the field of healthy ageing by example and welcomes businesses, governments and talent from all over the world.

Biological and lifestyle interventions

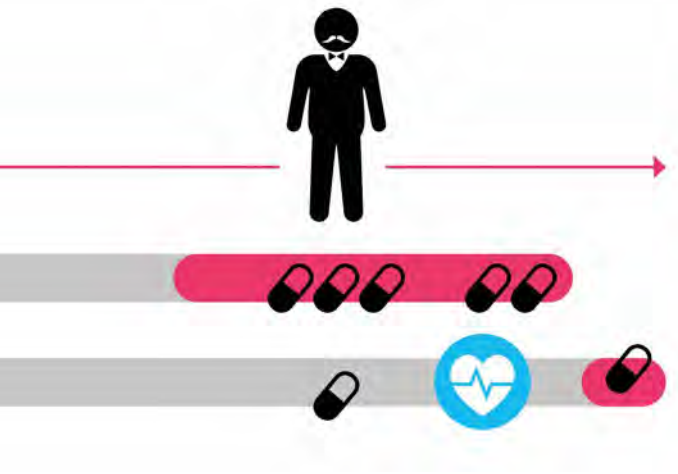


Traditional

- Treatment
- Prevention

New interventions

- Biological and lifestyle interventions



- **The TopDutch region is home to the European Research Institute for the Biology of Ageing (ERIBA).** This internationally renowned institute performs fundamental research on the genetic aspects of the process of ageing and the illnesses that evolve from it.
- **The largest and longest intergenerational healthy ageing research in the world.** Lifelines is the region's unique research cohort and biobank, which collects samples and data from 167,000 participants from the TopDutch region, for over 30 years. This unique data- and biobank offers researchers and companies enormous possibilities for development of new (and personalized) products and the validation of new diagnostic methods and devices.
- **Accelerating with the Healthy Ageing Network Northern Netherlands.** Within the HANNN, regional knowledge institutions, governments, society and over 170 businesses, we collaborate extensively in search of innovative and economic activities and in implementing sustainable health solutions. This unique network accelerates the development and implementation of healthy ageing solutions.

3. BIOANALYSIS CAPITAL OF EUROPE

**We are the BioAnalysis Capital of Europe,
with the **largest BioAnalytical capacity**
and **diversity** in Europe.**



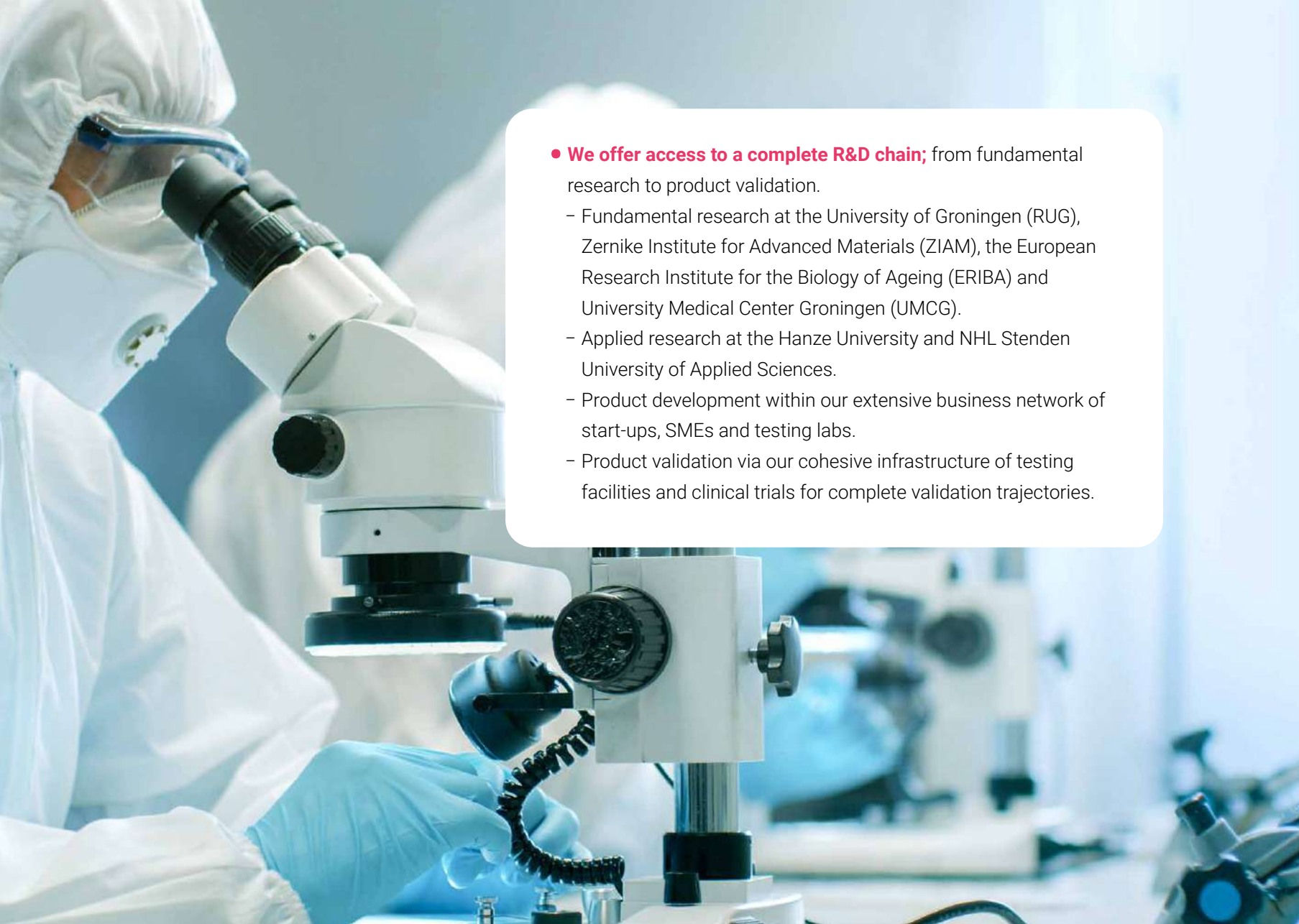


- **Over 100 LC-MS/MS machines are operational** in the region, together having the largest BioAnalytical capacity in Europe.
- **Largest biobank available from Lifelines longitudinal research cohort**, making biodata available not only during, but also in the build-up to the emergence of diseases.
- **Home to Biomarker Bay**, a unique consortium in research, development and application of new biomarkers, which supercharges the development and admission of new individualized and tailored diagnostic methods and drugs.
- **An expanding business network of high quality CRO's**, emerging from knowledge institutions, research consortia, bio- and databanks, the University Medical Center, innovation labs and business networks Life Cooperative and Bio Cooperative.

4. STRONG R&D AND KNOWLEDGE TO BIG INDUSTRY

**Our Life Sciences & Health industry is
founded on ground-breaking research
by a continuously growing pool of highly
educated and dedicated talent.**





- **We offer access to a complete R&D chain;** from fundamental research to product validation.
 - Fundamental research at the University of Groningen (RUG), Zernike Institute for Advanced Materials (ZIAM), the European Research Institute for the Biology of Ageing (ERIBA) and University Medical Center Groningen (UMCG).
 - Applied research at the Hanze University and NHL Stenden University of Applied Sciences.
 - Product development within our extensive business network of start-ups, SMEs and testing labs.
 - Product validation via our cohesive infrastructure of testing facilities and clinical trials for complete validation trajectories.

- **We offer six unique research programs and opportunities for partnership**, feeding developments in pharma and medical technology:
 - **Biomarker Bay**, a unique consortium in research, development and application of new biomarkers, which supercharges the development and admission of new individualized and tailored diagnostic methods and drugs.
 - **ERIBA**, the European Research Institute for the Biology of Ageing, answers to the question 'why organisms age'.
 - **Lifelines** is the region's unique research cohort and biobank (with 167,000 participants), which offers researchers and companies enormous possibilities for the development of new (and personalized) products and the validation of new diagnostic methods and devices.
 - **Health Hub Roden**, where the educational/knowledge institutions UMCG and Hanze UAS work together with colleges on developments and training in the field of medical technology. It is a practical environment where solutions for technical questions about medical applications are worked on, with and through the knowledge institutions.

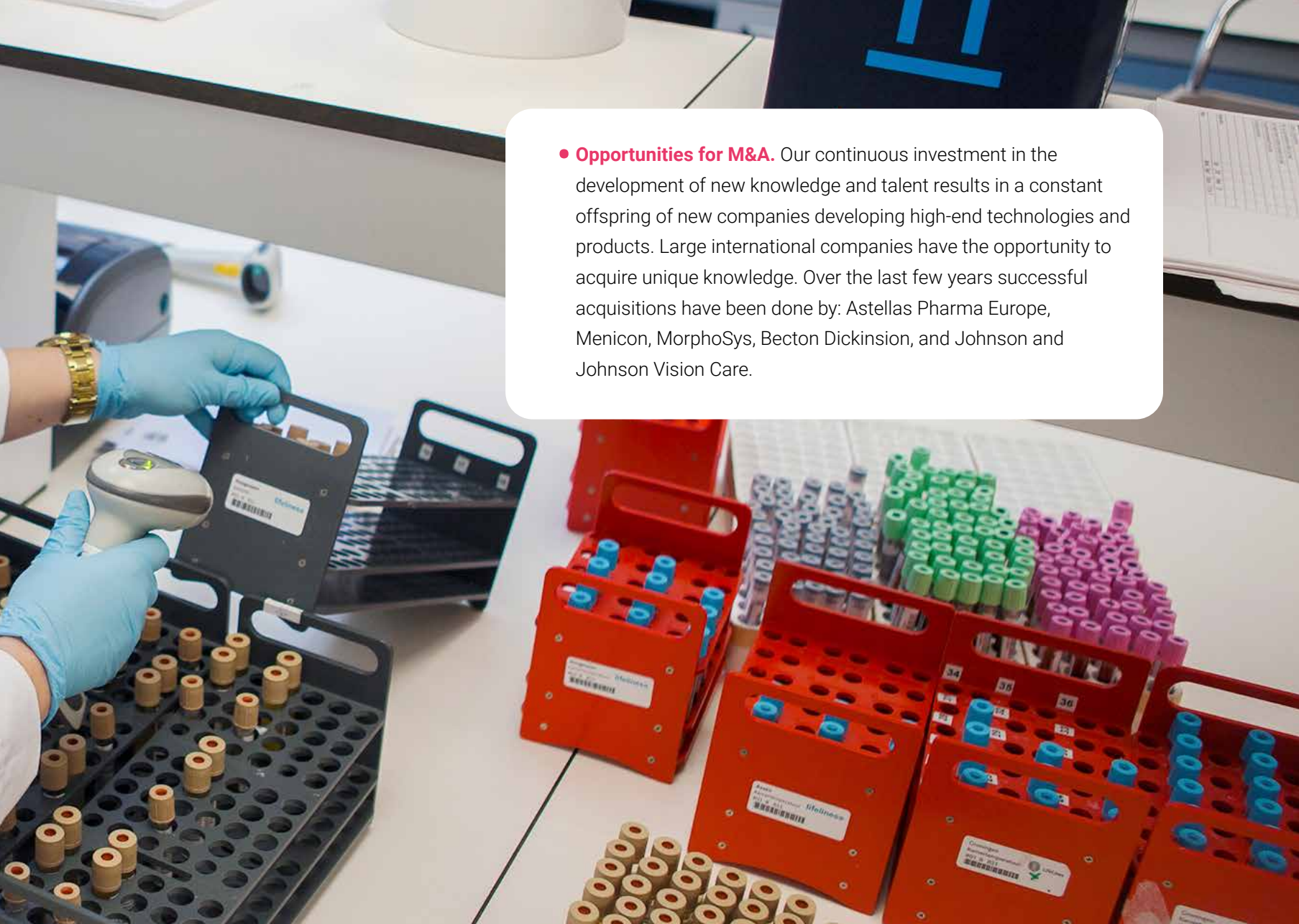
*Arjan van der Plaats of OrganAssist,
a TopDutch company making more and
better organs available for transplant*





- **SpringBoard association** aims to stimulate the further development of the medical technology sector in the Northern Netherlands into a top sector for industry, knowledge and skills. The focus here is on medical products and applied research for active and healthy ageing. This allows it to make connections and open doors both in the Netherlands and abroad. Specific knowledge is available within this network with regard to regulations.
- **HANNN**, the Healthy Ageing Network Northern Netherlands, which was established in 2009, connects companies, knowledge institutions, healthcare parties and governments. From MedTech, Life Sciences and Food, to Care & Cure, Healthy Lifestyle and the gamification research institute Serious Gaming.

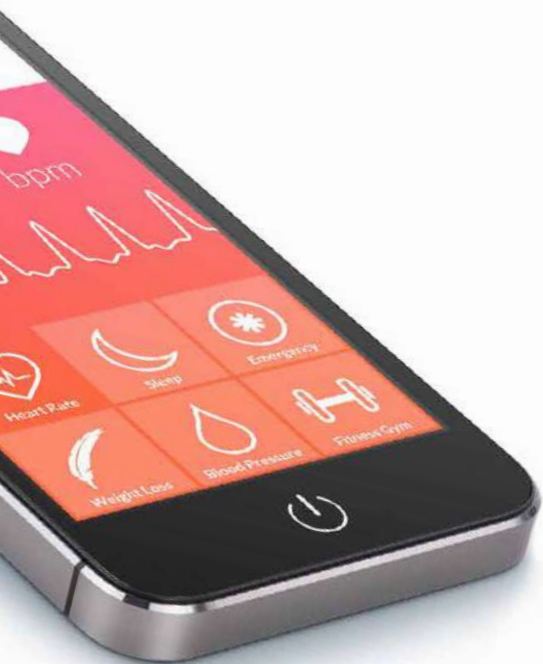


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- **Opportunities for M&A.** Our continuous investment in the development of new knowledge and talent results in a constant offspring of new companies developing high-end technologies and products. Large international companies have the opportunity to acquire unique knowledge. Over the last few years successful acquisitions have been done by: Astellas Pharma Europe, Menicon, MorphoSys, Becton Dickinson, and Johnson and Johnson Vision Care.

5. A GREEN AND DIGITAL ECOSYSTEM FOR MEDTECH

Supporting innovation and product and material development via the region's cross-linked green and digital ecosystem.

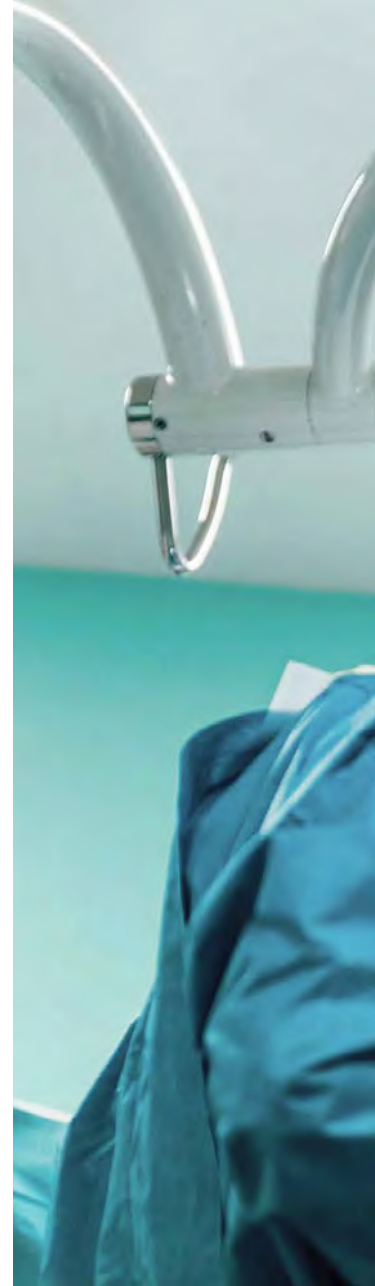




- **Cross-over with Green Chemistry for (bio)polymers.** Cross-linked with our strong Green Chemistry industry, the TopDutch region has an excellent position in the development of all kinds of medical devices, medical and polymer solutions. With ZIAM (Zernike Institute for Advanced Materials) and the Biomaterials Development Center as linking pins between fundamental research and business, we are able to develop all types of specialty polymers advanced biomedical and pharmaceutical appliances (Innocore, Polyvation, Polyorganics, etc.).
- **Cross-over with Smart Data.** As BioAnalysis Capital of Europe with our large scale studies for data collection and an industry focus on personalized health and diagnostics (with players like UMCG, Certe, Philips, KPN), we have developed advanced data capabilities cross-linked with our regional Digital Innovation ecosystem focused on smart data.
- **Cross-over with High Tech and Smart Materials.** Cross-linked with our Digital Innovation ecosystem focused on High Tech and Smart Materials, we are able to develop highly innovative products and technologies. Examples include a revolutionary inhaler device developed by PureIMS and perfusion technology for organ transplantations by Organ Assist.

6. WORLD-CLASS EDUCATION & HIGHLY SKILLED LABOR

**Home to world-class knowledge
institutes educating the health and
medical professionals of the future.**





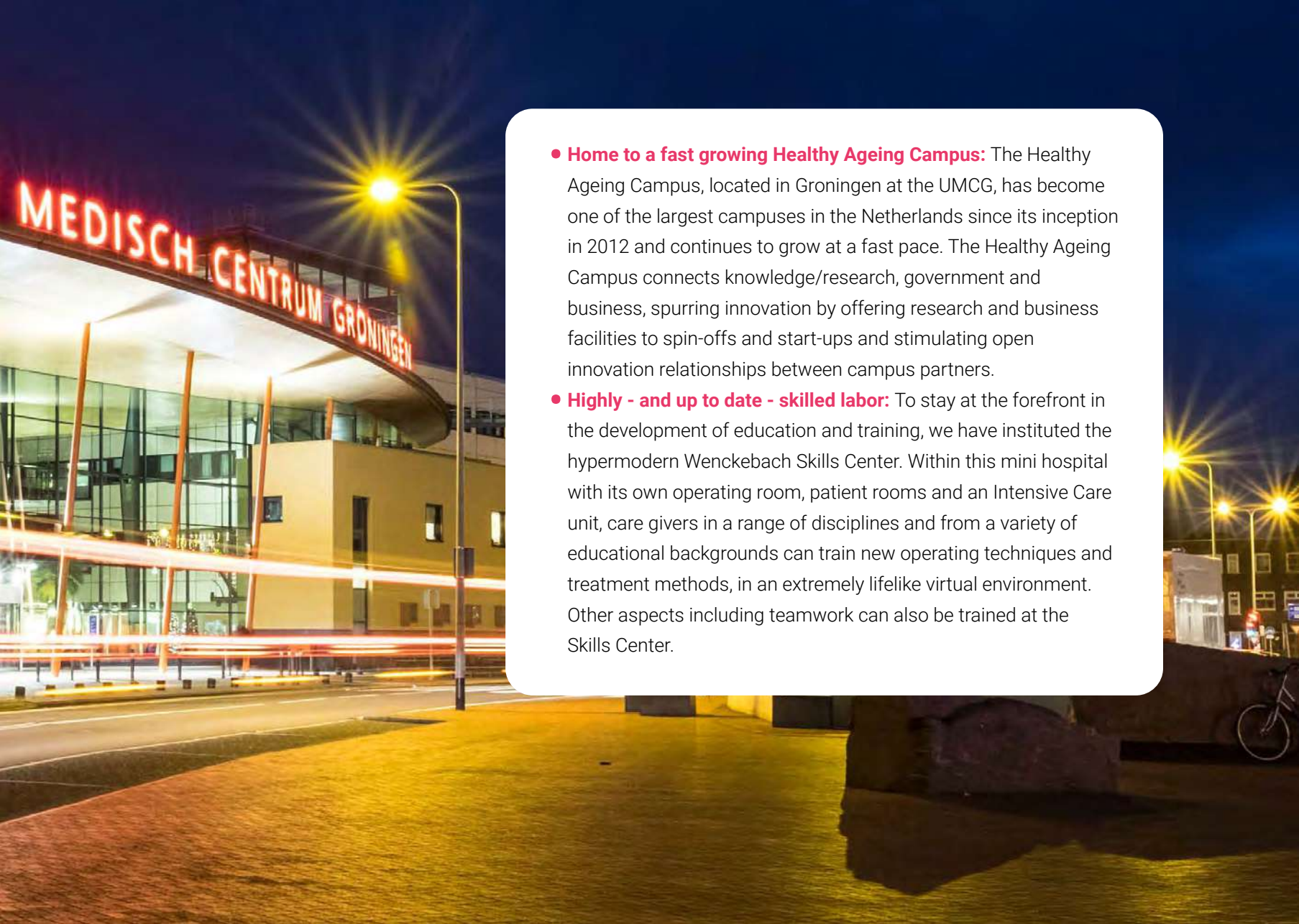
- **Large number of students:** The TopDutch region is home to >75,000 students, of which >25,000 are research university students and >50,000 are university of applied science students. The UMCG offers education to >4,000 medical students.
- **Home to a global top 100 University Medical Center**, the University Medical Center Groningen (UMCG) from the University of Groningen (#67) consistently ranks within the top 100 of medical schools, with a ranking of #39 on Medical Technology, #49 on Clinical Medicine and Pharmacy & Pharmaceutical Sciences on the Academic Ranking of World Universities 2019 in Medical Sciences.



UNIVERSITAIR

P

taxi



- **Home to a fast growing Healthy Ageing Campus:** The Healthy Ageing Campus, located in Groningen at the UMCG, has become one of the largest campuses in the Netherlands since its inception in 2012 and continues to grow at a fast pace. The Healthy Ageing Campus connects knowledge/research, government and business, spurring innovation by offering research and business facilities to spin-offs and start-ups and stimulating open innovation relationships between campus partners.
- **Highly - and up to date - skilled labor:** To stay at the forefront in the development of education and training, we have instituted the hypermodern Wenckebach Skills Center. Within this mini hospital with its own operating room, patient rooms and an Intensive Care unit, care givers in a range of disciplines and from a variety of educational backgrounds can train new operating techniques and treatment methods, in an extremely lifelike virtual environment. Other aspects including teamwork can also be trained at the Skills Center.



**Are you interested in exploring what
your business possibilities could be?
Connect with Gerard Lenstra,
our Life Science & Health expert.**

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