

Welcome to the Netherlands

Europe's Connected Life Sciences & Health Metropolis



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Let's join forces to make impact in Life Sciences & Health



The Life Sciences & Health sector in the Netherlands is flourishing.

I am proud that our dynamic international ecosystem brings together innovative companies and researchers from around the world to make a vital impact in the field. Now, more than ever, I believe we are truly well positioned to develop advancements for the future of global health.

The Dutch LSH sector received an additional boost with the relocation of the European Medicines Agency (EMA) to our country in 2019. In our continuing commitment to stimulate innovation, we launched the National Growth Fund in 2020 to support sustainable economic growth and future prosperity. This twenty-billion-euro investment is designed to encourage public and private partners to collaborate on coordinated and targeted research. I am pleased that we are already seeing the successful results of this initiative. Examples such as RegMedXB, Health-RI, the Biotech Booster and Oncode-PACT show how the National Growth Fund directly benefits the sector, not only in the Netherlands but in the rest of Europe and beyond.

When I look at the Dutch LSH sector, I see a broad, connected community of highly innovative medical and biotech companies, scale-ups, academic medical centres and research institutions that are collaborating intensively and creatively to drive significant medical advancements. Many work in interactive public-private partnerships, exchanging knowledge and expertise in a typically Dutch way. This Dutch approach is evident in the short lines of communication between laboratories and clinics, with feedback loops linking back to fundamental research and onwards to ground-breaking innovations that reach patients and the marketplace rapidly. What's more, the valorisation of research and innovation enables cutting-edge advances and sustainable healthcare that transforms the treatment of illnesses and diseases and helps people around the globe live happier, healthier and longer lives.

Ultimately, the Netherlands is demonstrating that scientific excellence, affordability of healthcare for patients and sustainable economic activity can go hand in hand. I think I speak on behalf of the entire sector when I say that that we're keen to collaborate on these goals with our international partners. I believe that sharing ideas, and pooling knowledge and know-how, is the only way forward. I encourage your company to continue along that path.

Micky Adriaansens
Minister of Economic Affairs and Climate Policy



Opening of MSD Animal Health Center. Photo by Enrique Meesters.

Innovating for a sustainable healthcare of the future



Innovation is vital to address today's foremost societal challenges.

The Netherlands' mission-driven innovation policy strives to improve health outcomes for all Dutch citizens. The Dutch healthcare system is renowned internationally. We are proud of our many world-class contributions to life sciences and health. However, like many others, we currently face significant obstacles in improving the quality, affordability, and accessibility of healthcare. Demographic changes translate into increased demand for healthcare and healthcare workers. Climate and sustainability issues also impact the sector, and health inequalities are becoming more evident and pressing.

However, these complications also drive the quest for innovative solutions and generate opportunities for fruitful partnerships within our thriving, connected Life Sciences & Health metropolis. The Dutch DNA is primed for collaboration – our history is one of working together to surmount significant challenges. As such, the Netherlands is a perfect environment for entrepreneurs and businesses to engage in out-of-the-box thinking with academic and governmental partners to create novel solutions that

benefit society, at home, throughout Europe, and around the world.

In the coming years, our government will continue to encourage and support public-private partnerships. The 'quadruple helix' approach in the Life Sciences & Health sector is founded on intensive collaboration among knowledge institutes, government, the private sector, and the patient. These strong partnerships lead innovative solutions from early discovery to development, valorization, and implementation.

Maintaining our thriving research and innovation ecosystem is a top priority, and consequently, the government invests significantly in the Life Sciences & Health ecosystem, such as via our National Growth Fund. The solutions we require are not only (bio)technological innovations but also the valorization and implementation of new processes and treatments together with social innovation. It's all about bringing benefits to patients and citizens.

Innovation and collaboration are the twin engines driving our highly successful Life Sciences and Health sector. And it's fast-forward to the future of healthcare. This book displays some of the highlights of this dynamic sector. I hope it encourages you to reach out and connect to our vibrant research and innovation ecosystem and create future health solutions for all!

Yours sincerely,

Ernst Kuipers
Minister of Health, Welfare and Sport



Ernst Kuipers visiting UMCG. Photo by Paul Tolenaar.

Key figures of the Dutch Life Sciences & Health sector



€7bln+

Economic impact

€50bln+

Export value

3,000+

LSH R&D companies

104,000+

Employees

700+

Public-Private R&D projects

40+

Strategic Public-Private Partnerships



1,200+

New patents per year

Home to the

European Medicines Agency



and to the

European Patent Office



13

Universities

|

12

Research universities

|

4

Specialised in Technology and Engineering



7

University medical centres



26

Campuses

2,100+

Ongoing clinical trials



200+

Biobanks and cohorts



What more does the Netherlands have to offer?

#1

Global
Connectedness
Index (DHL)

#1

Quality of Life
Index (NUMBEO)

#1

Most research
papers published
per capita in EU
(SJR)

#2

Healthcare in high-
income nations
(Commonwealth
Fund)

#2

Growth Promise
Indicator
(KPMG)

#2

Global
Entrepreneurship
Monitor (GEM)

#3

Digital Economy
and Society
Index (European
Commission)

#4

Global
Competitiveness
Report (WEF)

#5

Global Innovation
Leader (WIPO)



S.H.A.
N.S.A.





Three reasons why you should join our vibrant Life Sciences & Health ecosystem



A well-connected hub

The Netherlands offers a prime geographical location at the heart of Europe linked globally via excellent digital and physical infrastructure. It consists of a large network of knowledge institutions, industry, government, and citizens, who all play a key part in our economic and social ambitions. With a high concentration of excellence across our regions, we can connect you to whoever you need to make your business grow and thrive.



With seamless collaboration

We are always looking for new ways to approach disease prevention, cure, and care so that we can improve everyone's quality of life while keeping healthcare affordable. We believe knowledge sharing is key to achieve this goal. That's why we are proud to offer an ecosystem of Public-Private Parties that focus on sharing prime learnings in innovation. We can't do it alone. We believe that international collaboration is key to solving global challenges. So, let's partner up!



Creating drivers of innovation

As a small but highly versatile country, we have an ongoing commitment to innovate. It's in our DNA. With a wide array of leading knowledge institutions, top-notch talent and thriving test labs, new technologies are created in the field of Life Sciences & Health. Welcome to the Netherlands. Together, anything is possible!



Welcome to the Netherlands, Europe's Connected Life Sciences & Health metropolis

The Netherlands is a vital and dynamic partner in generating sustainable solutions for today's global challenges. We may be a small country; however, establishing one of the world's leading economies has shaped our collaborative approach to working in innovative partnerships that deliver holistic, effective, and profitable solutions. By joining forces with our international partners, we strive to tackle the many varying threats facing our planet, from water and energy to health and security. With an open-minded, inventive, and inclusive approach to novel challenges, the Netherlands has flourished into a robust, stable, and resilient society that is open for collaboration all over the world.

Our 'quadruple-helix' approach ensures that knowledge institutions, industry, government, and citizens all work together to find sustainable, future-savvy solutions.

The partners in the ecosystem work in open collaborations, and the essential translation from fundamental research to ultimate daily practice often takes place by interposals of companies. The citizen in her or his context is the main attractor of all efforts, from academia to business. With the quadruple helix approach, the Netherlands has built a well-coordinated and successful public-private innovation ecosystem in recent years.

Collaborations should not be confined to our boundaries. What we discover and develop here in the Netherlands can be deployed and, when and where necessary, adjusted to the

local context in other parts of the world. With our smooth hierarchies and innovation-friendly policies, the Netherlands can be seen as an accessible and interconnected metropolis for sharing knowledge and innovations, fueling options for transformative change wherever needed.

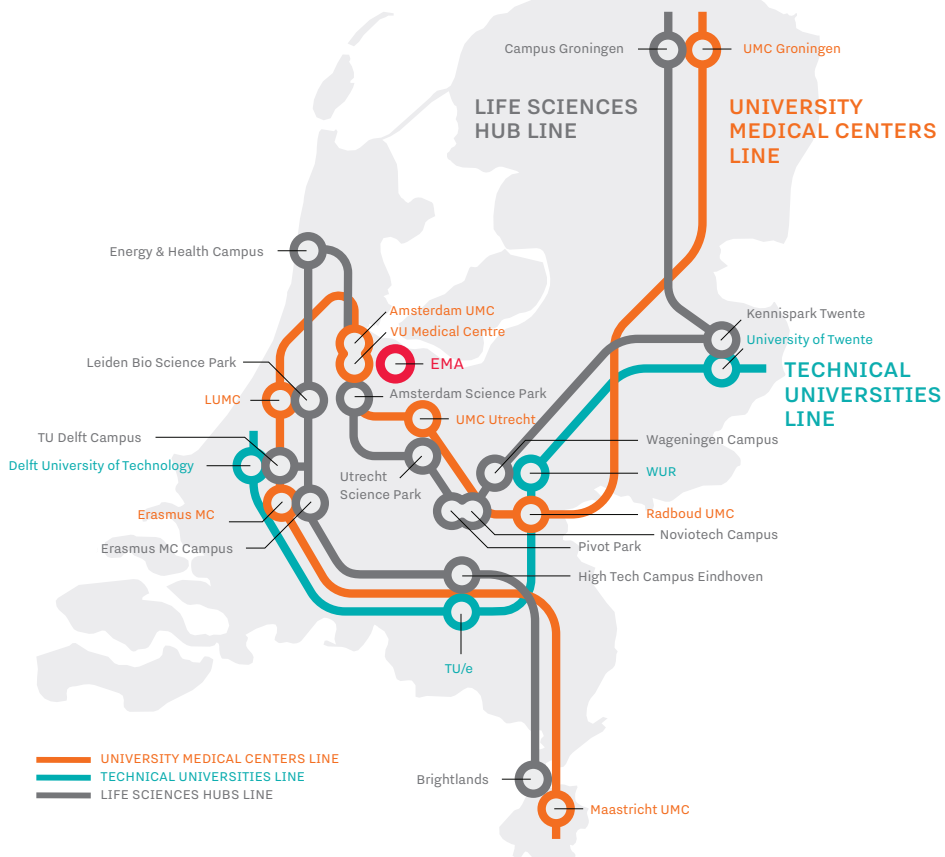
A high concentration of our 'from lab to life'-initiatives in the Life Sciences & Health sector, combined with the Dutch cultural DNA of proactive collaboration, puts us in a unique position to contribute to good health and well-being for and with people everywhere for generations to come. The ultimate goal is to improve outcomes for millions of people, wherever they live and whatever their challenges.



“We are located at the heart of Europe and globally connected via excellent digital and physical infrastructure. What makes us unique, are the quadruple helix collaborations in which citizens, researchers, government and entrepreneurs are working together to drive innovation in healthcare.”

Carmen van Vilsteren

Chair Top Sector Life Sciences & Health (Health~Holland)





1. A vital and dynamic sector

The Dutch Life Sciences & Health sector is dynamic, innovative and collaborative. It is characterized by outstanding hubs and clusters linked by first-class physical and digital infrastructure. Home to 3000+ innovative Life Sciences businesses, including 400+ biopharmaceutical companies, the European Medicines Agency, and thousands of MedTech companies, the Netherlands is one of the most concentrated Life Science & Health clusters in the world, all situated within a 2.5-hour drive radius!

Situated at the heart of Europe, with world-class physical and digital infrastructure and a robust services sector, the Netherlands is the ideal location for establishing global or European operations in Life Sciences & Health. This compact, thriving, and collaborative LSH ecosystem is a perfect example of the openness and willingness of the Dutch to form creative partnerships, share knowledge and generate innovative solutions. Overseas companies established here are often encouraged by the open-door policies and flat organizational hierarchies that stimulate collaborative ventures. Competitive advantages often result from the pragmatism of the Dutch approach, which involves thinking out of the box and going the extra mile.

The availability of dynamic and diversified industry players in direct proximity enables companies to outsource non-core activities

and focus on key drivers of value. In addition, the intense inter-sectoral and intra-sectoral collaborative way of working in the Netherlands encourages an inclusive and holistic approach to problem-solving.

Tradition of innovation

The Netherlands is one of the most innovative countries in the world thanks to its propensity for collaborative ventures and its forward-thinking culture that is traditionally open to experimentation and new ideas. As a result, the Dutch have made numerous contributions to the world of medicine, including the microscope (that also led to the discovery of blood cells by another Dutch scientist), the first European blood bank, the artificial heart, the artificial kidney, electrocardiograms, and organoids. A Mission-driven Top Sectors & Innovation Policy helps guide the process of innovation by providing focus and direction for

“It is very appropriate that Nikon, with over 100 years of expertise in optical technology, should open its first European Nikon BioImaging Lab (NBIL-Leiden) here in the Netherlands, the home of Antonie van Leeuwenhoek, the ‘father of microbiology’, whose systematic and extensive research laid the foundations of medical and scientific research.”

Takaharu Sasaoka

Director and Executive Vice President, Nikon Europe B.V.

social, scientific, and business innovation processes. Furthermore, traditionally short lines of communication facilitate 'feedback loops' that link back into fundamental research and onwards into innovative solutions that deliver improved patient outcomes and market potential.

Therapy development

For decades, the Netherlands has been a primary location for medicine development. Based on the strengths of its ecosystem, it has been particularly successful in the areas of biopharmaceuticals, regenerative medicines and cell therapy, infectious diseases, and vaccine development for human and veterinary use.

Its leading position in these areas is underpinned by broad-ranging digitalization, making optimal use of data & AI. The many cohorts and biobanks that have been established make it possible to leverage patient data and implement new analytics and diagnostics effectively.

There are sufficient facilities and knowledge hubs available in the Netherlands for it to function as a one-stop shop for every phase of therapy development, ranging from initial discovery in the lab to industrial-scale production.

Key hub destination for European market access – With its stable political structure and powerful economy, the Netherlands has long been considered a strategic hub for accessing the European marketplace. As a result, many organizations establish their headquarters in the Netherlands. Numerous leading multinational pharmaceutical businesses have based their operations in the Netherlands, covering everything from R&D and production to logistics and marketing. Many smaller companies have followed their example when seeking a location for their first European office. They are often quick to expand after becoming acquainted with the region and the opportunities for business development. The availability of talent and a multi-lingual population also combine to make the Netherlands a safe, robust, and logical choice for locating European operations.

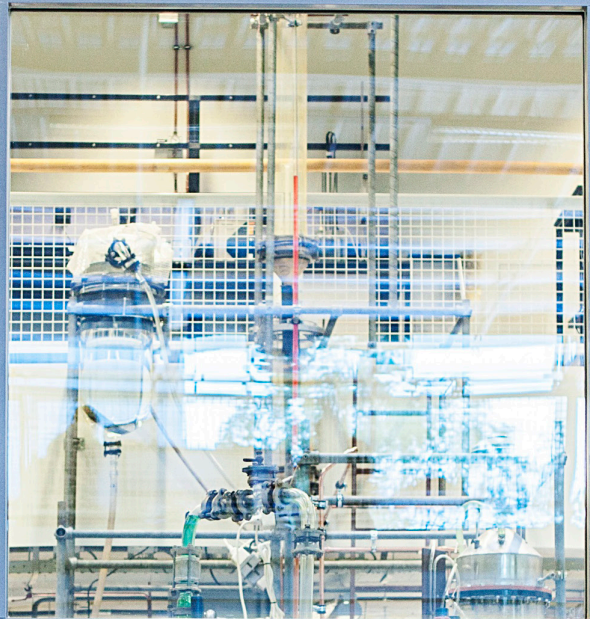
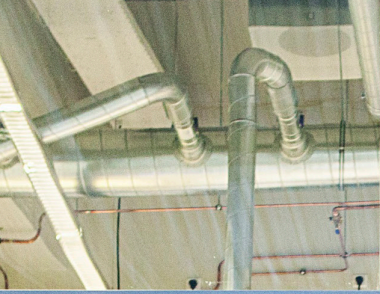


“FAST’s core activity is to strengthen innovations that offer opportunities to improve therapy development, where the Netherlands can excel and take a leading position.”

Benien Vingerhoed
Director FAST

Centre for Future Affordable Sustainable Therapy Development (FAST)

FAST is initiated to foster faster, smarter, and sustainable development, production and access of new therapies for patients, commissioned by the Dutch government. The centre bundles and unlocks expertise and stimulates connectivity in the ecosystem. Opportunities and hurdles are identified, prioritized and subsequently tackled in an integrated manner, for example in use cases, experiments and pilot studies. FAST connects stakeholders who are actively involved in the process of innovative therapy development, such as researchers, patients, entrepreneurs, science parks and regulatory authorities.



Success story

How the Netherlands became a key player for vaccine development

Primed for invention, collaboration and production, the Netherlands has built a rich legacy in the story of vaccines. But it will not stop there; reflecting on lessons learned from COVID, the Dutch are putting their heads together to form a Deltaplan Pandemic Preparedness and Response in order to tackle future pandemics even faster. Meanwhile, more labs, cold storage facilities and production sites are being built throughout the country and there continues to be plenty of room for new companies.

The Netherlands is home to some of the largest and most innovative pharmaceutical companies supporting the development of vaccines, such as Janssen and Lonza. Abbott has been operating in the Netherlands for over 60 years and is now producing its influenza vaccine for South America in the Netherlands. Bilthoven Biologicals (BBio) has also played a crucial role in vaccine development and is now an essential supplier of the Inactivated Polio Vaccine (IPV) for the World Health Organization's Global Polio Eradication Initiative (GPEI). An estimated 30% of polio vaccines produced globally are made with technology developed in Bilthoven. Such success of vaccine development and related pharmaceutical breakthroughs and distribution in the Netherlands reflects the combined power of companies, researchers and institutions working together in the Dutch life sciences & health ecosystem.



“We deliver most of our volume outside the Netherlands, so we are very dependent on the logistics system. As it is a cold chain product, it has to be well handled, and that’s a prime benefit of our location here.”

Jan-Eric Zandbergen
CEO Bilthoven Biologicals

Interested to read the full story?
Scan the QR code below.



Success story

How the Netherlands allows cell- and gene therapy businesses to scale up

The Netherlands provides excellent opportunities for cell and gene therapy companies. Following decades of heritage as a frontrunner in regenerative medicine research, the Dutch ecosystem has been strengthened in recent years by the establishment of, amongst others, the European manufacturing sites of Kite, Fujifilm Irvine Scientific and Bristol Myers Squibb (BMS).

These and many other major companies, assert that the knowledge and talent present in the Netherlands, combined with excellent logistics and being close to the European Medicines Agency (EMA), are the key factors influencing the decision to establish their facilities in the Netherlands. The growth of cell- and gene therapy companies in the Netherlands is further boosted by the National Growth Fund, which allocates tens of millions of euros in funding for setting up a pilot factory to advance the development and manufacturing of cell therapies, biomaterials and micro- and macro-tissue. Various national and global collaborations, such as RegmedXB and the reNEW consortium, seek to bring together knowledge and expertise and pave the way for future therapies.

“The Amsterdam’s four hospitals are in close proximity and, if you include the centers of Utrecht and Leiden, there are several world-leading (academic) institutes within a 50-kilometer radius of our facility. This all adds up to a highly educated medical talent pool, with an international background.”



Chris Crowell
VP Operations & Site Head, Kite

Interested to read the full story?
Scan the QR code below.



MedTech development

In the Netherlands, unique local conditions have provided fertile ground for the establishment and growth of many MedTech businesses. As a result, various clusters in the Netherlands work together to create an exceptional value chain for the development, production, and distribution of MedTech innovations. Consequently, the comprehensive, complementary, high-value, low-volume MedTech value chains in clusters in the Netherlands are closely interwoven. MedTech companies that locate here can tap into this rich and fertile network and benefit from collaborative associations in both industry and academia, which can help accelerate progress.

The four Dutch Technical Universities in Delft, Eindhoven, Twente, and Wageningen (TU Delft, TU/e, TU Twente, and WUR) work closely with the Dutch seven University Medical Centers on technological solutions for health and care. In addition, there is the profound legacy of a rich industrial and manufacturing past, headed by the likes of Philips, and the medical excellence of University Medical Centers, such as Radboud UMC, Erasmus MC, Maastricht UMC+, and Amsterdam UMC. This, combined with world-class logistical operations, means that there is an innate propensity for collaboration and innovation at the interface of technology and medicine. This thriving culture makes the Netherlands particularly attractive to medical device companies.



Health Innovation Netherlands (HI-NL)

HI-NL is a multi-stakeholder infrastructure via which patients, healthcare providers, methodologists, CE-experts, entrepreneurs, insurers, investors, and regulatory authorities can contribute to bringing better medical devices to users faster. Its Round Table service is designed to give innovators early insights into the path to market and requirements of stakeholders along the way. In particular, HI-NL supports innovators in the medical technology space, including eHealth, AI, and diagnostics.

Digital health development

The Netherlands is pre-eminent globally in the field of digital healthcare. The quality of data-driven research and digital health provide excellent opportunities for foreign digital health companies. It is the mission of the Dutch government to become the undisputed testing ground for digital health companies and their innovations, which is reflected in the fact that the Netherlands ranks in the top 3 of eHealth technology implementation by healthcare professionals - around 98% of health care professionals in the Netherlands use digital health records in the Netherlands.

To enable the digital exchange of patient information, the Netherlands has a highly advanced electronic healthcare infrastructure and a system called AORTA.

Through this network, healthcare institutions and care providers can request information registered in each-others systems. The key feature of AORTA is that data is not stored centrally. Healthcare professionals can keep working in their proprietary information systems and exchange information through the LSP (National Exchange Point). All requests are registered and logged. All hospitals have an Electronic Health Record (EHR), and a substantial amount of health data is digitized. This high level of digitalization means that the Netherlands is driving eHealth advancement by encouraging the migration of data to cloud-based systems and subscription services. This helps hospitals to optimize budgets, stay at the cutting edge of technology, and to provide patient benefits through efficient and timely data sharing.



GO FAIR

Connecting data from different sectors within the life sciences requires not only technical interoperability of research infrastructures, but first and foremost also semantic interoperability. In an increasingly data driven, and thus machine assisted, global ecosystem this means that we need to make data and services FAIR (Findable, Accessible, Interoperable and Reusable) for machines and for people. The Netherlands is leading the GO FAIR initiative since its inception at the Lorentz conference in Leiden in 2014. Meanwhile, with the GO FAIR initiative spreading around the world and the foundational article from 2016 approaching 10,000 citations, 'FAIR is everywhere'. The Leiden based GO FAIR Foundation is the center of FAIR innovation, international coordination and knowledge transfer. The key approach in the Netherlands, with large infrastructure projects such as Health-RI and the Centre of Excellence for Data Sharing and Cloud, can be summarized as: FAIR based, GDPR compliant and distributed analytics. This approach has the potential to connect all data repositories around the world as 'data spaces', enabling a small but extensively connected country to continue to play a global role.

Living Labs

Living Labs play a key role in research and development across many sectors in the Netherlands and are generally the result of research partnerships formed to generate innovative solutions. Here, diverse players meet early in the process and offer companies the opportunity to develop and test solutions in a real-life (physical or digital) environment. This approach helps reduce the time to market for optimally designed and effective healthcare innovations. Living Labs assist businesses in making successful market entries and contribute to efficiency in the healthcare sector. The Netherlands is an excellent testbed because of its controllable scale and easy access to data.

Clinical research

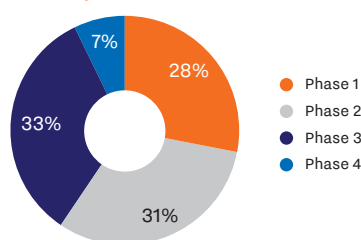
The Netherlands plays a significant role in conducting clinical trials for novel drugs, therapies, and medical technology. This is the result of excellent scientific knowledge, involved physicians and scientists, and the cooperation of patients. The country's dense network of research institutes and general practitioners also helps to ensure a high level of patient registration. Supporting this all is the Dutch government's quadruple helix

approach to aligning the sector. The quadruple helix ensures that perspectives from knowledge institutions, industry, government, and citizens are all considered so as to ensure optimal alignment of objectives. This holistic approach facilitates rapid and effective results in getting health benefits from the laboratory to the patient.

Clinical drug trials

The Netherlands is renowned for its expertise in early-stage clinical research but performs equally well in other clinical phases. Around 600 new clinical drug trials are initiated annually, with approximately 60,000 participants.

Clinical phases



Source; CCMO Annual Report, 2022



The National eHealth Living Lab (NeLL)

NeLL provides an interactive platform where healthcare consumers and professionals, the industry, and public organizations connect to share knowledge, information, and experiences for the advancement of eHealth tools. The platform aims to provide an overview of what is being developed and what opportunities arise in the field of digital health, helping to avoid fragmentation. At NeLL, co-creation with the end-user is essential in developing practical new healthcare applications, exemplifying the quadruple helix approach that characterizes the Dutch approach to Life Sciences & Health.

University Medical Centers (UMCs)

This fertile environment for research is partly due to a particularly Dutch phenomenon: the UMC, where fundamental medical biological research and high-quality patient care come together. Whereas in most countries there is a large physical distance between fundamental laboratories and the clinic, in the Netherlands they are often co-located under one roof or within walking distance of each other.

Accessible key opinion leaders

There is a sizeable network of internationally recognized key opinion leaders in the Netherlands, many of whom are active as Principle Investigators in clinical research. Their expertise is highly valued in designing and conducting trials, especially in the early

stages of clinical research. In addition, clinical research networks and platforms make it easy to connect and share knowledge.

World-class researchers & output

The Netherlands has the highest number of research papers published per capita in the top 10 of the Science Citation Index (1785.33). Furthermore, an impressive 42% of all scientific papers in the Netherlands are in the domain of health and care. Foreign companies have stated that they directly benefit from locating their R&D efforts here. This is because the typically pragmatic Dutch approach to problem-solving and thinking out of the box often delivers novel solutions. Dutch researchers are also known for going the extra mile and not settling for the first solution that comes to light.

“The combination of research and clinic makes it possible to translate lab or research results directly into clinical research. This is the strength of our institute.”

Sofie Boutkan

Clinical Alliance Manager NKI



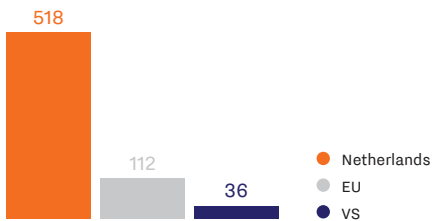
The Netherlands Cancer Institute (NKI)

The NKI is a world-class, comprehensive cancer center that combines a research institute and a dedicated cancer hospital under one roof. NKI believes that close collaboration between its fundamental, translational, and clinical researchers is the surest and fastest way to translate new scientific insights into patient impact. The NKI is home to more than 50 professors, 240 medical specialists, and 745 researchers.

Close to patients

The Netherlands is one of the most densely populated countries in the world. As a result, more than six in ten people in the Netherlands live within 5 km of a hospital. More than 200 active biobanks, cohort studies, and patient registers can be accessed to.

Popn. per km²



Source; Worldbank, 2020



“With the Biotech Booster project the Dutch Biotech ecosystem will increase the impact of biotechnology on society.”

Nettie Buitelaar
Managing Director Biotech Booster



Biotech Booster

Biotech Booster is a national program focusing on accelerating the commercialization of biotechnology findings. Biotech Booster supports innovative, very early-stage projects by providing initial funding and expert support, in order to develop the projects to proof-of-concept phase. Biotech Booster is funded by the Dutch National Growth Fund and it will run until 2031; the funding available is almost € 250M. Biotech Booster will support the existing Technology Transfer Offices by adding dedicated work force and by running the early-stage projects as virtual start-ups with seasoned biotech entrepreneurs playing a dominant role.

Regulatory science & innovation

Regulators need the optimal tools at their disposal to keep pace with scientific and technological advances and ensure the rigorous assessment of ground-breaking, ever more complex therapies. 'Regulatory science' aims to develop and validate new standards and tools for assessing the efficacy and risks of medicines.

Pioneering bodies

The Dutch Medicines Evaluation Board (MEB) has been pioneering the field of regulatory science and leading research efforts within the European network of regulatory authorities. The Netherlands benefits from a close-knit network in the field of regulatory science, and several Dutch initiatives focus on improving the regulatory system and facilitating regulatory innovation.

Proximity to EU decision making

The Netherlands had the honor of welcoming the European Medicines Agency (EMA) following its 2017 decision to relocate to Amsterdam. The presence of EMA helps bolster the Netherlands in its role as Europe's connected Life Sciences & Health metropolis, as a leader of European initiatives, and a gateway to Europe for other countries, foreign companies, and patients. The Dutch National Medicines Agency (MEB) has been working closely with the EMA, ensuring optimal benefit of the Dutch expertise in advanced therapy development, cohorts, regulatory science, and other themes.

The presence of EMA offers considerable opportunities for organizations to benefit from collaborative ventures and to enhance the already thriving ecosystem.



European Medicines Agency, Amsterdam.

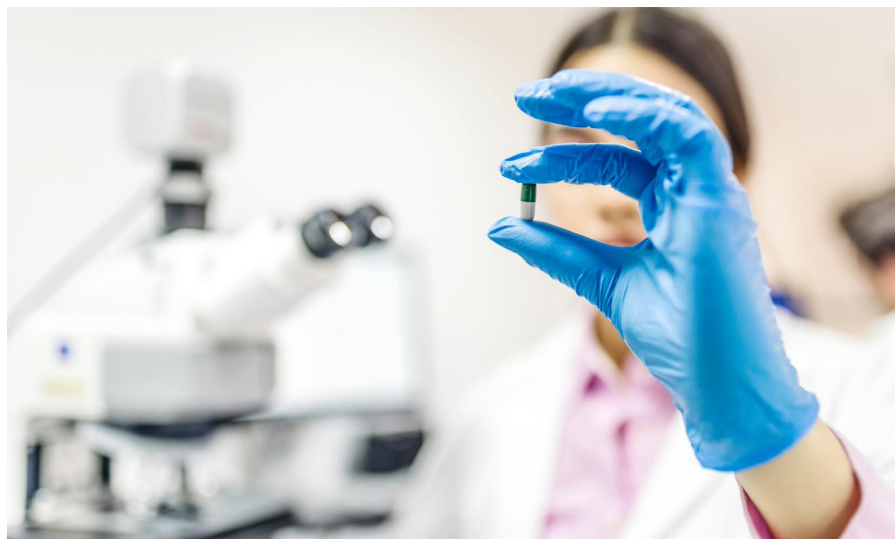
Many biopharmaceutical companies that benefit from proximity to the EMA have already decided to be located in the Netherlands.

In addition, three notified bodies have now been designated in the Netherlands for the certification of medical devices: BSI Group, DEKRA Certification, and Kiwa Dare.



“The Netherlands is home to the largest production facility of Organon worldwide. More than 1,200 dedicated and experienced employees are committed to the innovative manufacturing and packaging of women's health products and distribution to 140 countries in the world.”

Petra Willems
Managing Director, Organon Benelux



Regulatory Science Network Netherlands (RSNN)

The Regulatory Science Network Netherlands (RSNN) comprises a network of regulatory science experts from industry, academia, governmental bodies, and the broader regulatory science field. RSNN is a unique platform to advance an efficient and effective regulatory system to support medicines development, marketing authorization, access, and appropriate use of medicines, by sharing and disseminating knowledge among all stakeholders and setting the agenda for further research.

Manufacturing & distribution

The combination of a favorable geographic location, high-quality expertise, and excellent logistics infrastructure makes the Netherlands an attractive strategic base for setting up manufacturing and distribution operations. The unparalleled connectedness of the Dutch Life Science & Health ecosystem is also mirrored by physical connectivity and logistical services that essential to many LSH businesses. This is borne out by the fact that the Netherlands has topped DHL's Global Connectedness Index every year since 2005.

This world-class physical and digital infrastructure supports connections via air, land, and sea to many destinations inside and outside Europe. The transport of medicines and medical devices is a significant growth market that has attracted an elaborate network of logistics service companies

specialized in handling pharmaceutical products. As a result, a well-functioning cold chain (a critical demand for many pharmaceutical companies) ensures that temperatures are kept between 2-8 degrees Celsius during all stages of transport.

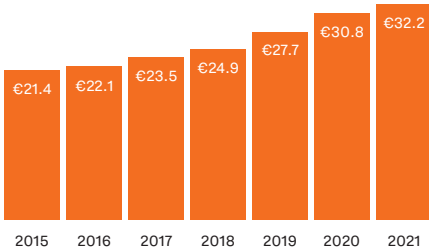
Next to logistics, there are multiple reasons why companies set-up their Life Sciences & Health manufacturing location in the Netherlands. The Dutch work ethic, adaptability to new methods and continuous process optimization with a bottom-up approach leads to an efficient way of working which is crucial for production facilities. As a result, the export of Dutch medicines, vaccines and medical devices is growing rapidly. It is astounding to realize that it now accounts for a greater volume than the combined exports of traditional commodities such as cheese, flowers, and meat!



Pharma Gateway Amsterdam (PGA) and Vaccines Gateway Netherlands (VGN)

PGA and VGN are two unique, innovative collaborations in the Netherlands. PGA consolidates more than 20 active logistics carriers; in VGN, there are approximately 60. Through compliance with specific certifications, the PGA participants ensure a 'closed-loop' air cargo chain. Around 125,000 square meters of temperature-controlled storage space is already available at and in the vicinity of Schiphol Airport, with onward connections to 326 destinations worldwide and excellent transport options via sea, rail, and road.

Export value (in bln euros)



Source: CBS, export value for SITC54- Medicines and Pharmaceutical products

University Medical Centers (UMCs)

The Netherlands is home to seven UMCs, all of which have a more comprehensive range of responsibilities than regular hospitals. UMCs offer Bachelor and Master courses for medical students, training for physicians

specializing in a particular medical field, and both basic and advanced nursing courses.

Academic leaders

UMCs are the 'academic driver' in their region, fostering a culture of mutual support and working together with other knowledge institutions in Europe and the rest of the world. Each UMC has a prominent role in research. The UMCs cover a wide range of topics in the (bio)medical and health sciences fields, along with public health. They each have their focus and area of expertise. Consequently, they complement each other in their diversity. They are also highly successful: UMCs are responsible for 40% of the total scientific output in the Netherlands. This is a considerable contribution to the reputation of the Netherlands as a 'knowledge country'. These respected and renowned institutions are geared to engaging in collaborative



“Jointly, the Dutch University Medical Centers, with their partners, have created a unique ecosystem in the Netherlands to advance education, science and innovation, placing us internationally at the forefront to create the future of health.”

Wiro Niessen

Dean of the Faculty of Medical Sciences, University Medical Center Groningen



69

Hospital organizations

113

Hospital locations



147

Outpatient clinics



The Netherlands has around

1.6

general practitioners per 1,000 inhabitants which is higher than the

1.1

average for ten countries with equal welfare.

ventures that help drive innovation and as such provide a valuable resource for research partnerships. As such, they play a key role in collaborative partnerships between industry and academia that boost the thriving LSH ecosystem and extend beyond its borders to collaborative alliances from around the world.

Impact of research

The Dutch UMCs all have high citation scores and compete in the top echelon in terms of worldwide and European comparisons for medical science. The strength and efficacy of Dutch Public-Private Partnerships (PPPs) are borne out by the fact that more than 700 PPPs are currently thriving in the LSH ecosystem here. The open-door policy of many academic institutions lowers the barriers to collaboration and enables companies to tap into a rich vein of knowledge and resources. In addition, the Dutch government offers research grants to stimulate collaborative projects between companies and universities (see Section 3).

First-in-class hospital care

The Netherlands is by many standards one of the best performing countries when it comes to healthcare. The accessibility of care, including affordability and speed are unmatched.

Hospital care in the Netherlands is provided by 71 hospitals, 116 hospital locations, and 129 outpatient clinics. The Netherlands has around 1.6 fulltime general practitioners per 1,000 inhabitants, which is higher than the 1.

Science parks

One of the critical success factors contributing to the flourishing Life Sciences & Health sector in the Netherlands is the dynamic community proactively networking throughout specialized science parks across the country. Each science park is an active ecosystem that is home to a cluster of small- medium- and large-sized businesses, start-ups, a university, and a University Medical Center or Technical University.

Each park's governing body supports its local businesses and facilitates networking and cooperation. This enables high levels of seamless cross-fertilization and collaboration, allowing researchers to work together to develop joint solutions for emerging and urgent matters in Life Sciences & Health. Companies, choosing to locate within these science parks, can often literally cross the street to access their collaborative partners or link with academic research in the nearby UMCs or technical universities.

Making contact with key LSH resources in other such clusters is also generally rapidly achieved as the clusters are generally close to each other (the farthest apart being roughly a 2.5-hour drive). The flat Dutch topography and excellent road and rail networks mean that your close collaborators are never that far away.

“Thanks to a large group of start-ups and scale-ups in the field of biotechnology, pharma and medical technology, the Netherlands can continue to play its leading role within the national and international Life Sciences & Health domain, also in the future.”



Len de Jong

Top Team member, Top Sector Life Sciences & Health (Health~Holland)
and CEO Enraf-Nonius

Show cases

MSD: At the heart of Dutch society

MSD has been at the heart of Dutch society for almost 100 years: today, MSD employs over 5,000 people in the Netherlands, who deliver on our purpose to save and improve lives with heart, soul and pride. As an important and valued employer, MSD's innovation and production power make it a major economic player at a local, national and international level. From its four Dutch sites, MSD develops, researches, tests, manufactures, and packages medicines and vaccines – exporting products to over 140 countries worldwide. In Haarlem, vaccines and medicines are manufactured. This is also where MSD's sustainable cold store and innovative laboratory is built. Together, the locations in Boxmeer and De Bilt are MSD's largest R&D facility for animal health solutions worldwide. In Oss the focus is on biotechnology: a field in which MSD was one of the pioneers 25 years ago, contributing substantially to the early development of immunotherapy and still playing an important role in the production of this innovative cancer treatment.



“MSD’s solid footprint in the Netherlands is a result of the country’s rich history and innovations, a large pool of highly qualified talent, good business conditions, strong infrastructure, and top researchers and clinical institutes.”

Leonardo Mallmann | General Manager MSD Netherlands

Genmab: Powered by an innovative ecosystem

Openness and a willingness to collaborate are two of the key elements driving the ongoing success of the international company Genmab, one of the largest biotech companies by market capitalization head-quartered in Europe. The company, specialized in the creation and development of differentiated antibody therapeutics for treatment of cancer and other serious diseases, has operations in Utrecht, the Netherlands, Denmark, the US and Japan. From the outset, Genmab has had a solid R&D base in the Netherlands, being close to Utrecht University.



“There is a great openness to work together with academic teams and with other companies, and I think that’s quite unique to this vibrant innovation ecosystem, that’s why the Netherlands is a very good place to be. This eagerness to communicate and connect is one of the central reasons that we are so successful.”

Jan van de Winkel | CEO Genmab

Janssen: Collaboration for a healthy future

Together, as pharmaceutical company of Johnson & Johnson, Janssen regards end-to-end activities for medicines and vaccines from lab to patient. This covers research & development at Janssen Vaccines & Prevention, manufacturing at Janssen Biologics, and distribution and marketing at Janssen the Netherlands. Parent company Johnson & Johnson settled on the Leiden Bio Science Park in 1999 after acquiring Centocor, which has been present with its production facility for biological medicines since 1984. A second major step was the acquisition in 2010 of the Dutch biotech company Crucell, which focused on the development of vaccines. Since then, Janssen has been investing substantially in R&D supply-chain capacity in the Netherlands. With investments of €413 million in 2019 and almost €500 million in 2020, Janssen is in the Top 3 of biggest private investors in R&D in the Netherlands. On top of that, investments were made to expand laboratories and manufacturing sites. Including, most recently, the construction of a new facility in Sassenheim for lentiviral vector production, the drug substance or active ingredient in novel CAR-T treatments.

“The Dutch Life Science & Health ecosystem is attractive, because of the presence of highly educated talent, top science, and a vibrant biotech start-up community, all close to each other providing ample opportunities for cross-fertilization and innovation. We are committed to fuel this ecosystem through our partnerships with hospitals, universities, and research institutes such as TNO, Radboud University and Radboud UMC, University of Leiden and LUMC. We firmly believe that by collaboration, we’re creating a future where disease is a thing of the past.”



Michel van Agthoven | Head Janssen/Johnson & Johnson Campus The Netherlands

MIDA Biotech

MIDA Biotech, a global innovator in cell and gene therapy, established its research and development facility in the Netherlands in 2022. MIDA Biotech is affiliated with Orgenesis, a pioneering global biotech firm developing personalized therapies for critical medical conditions. Orgenesis works to bring cell and gene therapies to the market to treat, prevent or cure serious health issues like cancer, genetic disorders, immunodeficiencies, rare diseases, and more. The company has chosen to connect to the vibrant Dutch life sciences & health ecosystem where it aims to collaborate with public and private partners to advance regenerative medicine. The Netherlands' access to a high concentration of world-leading research talent, its business-oriented R&D facilities, startups and multinationals, and a supportive government, all make the country an ideal base to develop cell and gene therapy, helping to treat patients around the globe.

“The Leiden Bio Science Park is an excellent operating base where we can find local collaborators in novel cell therapies with medical centers throughout the Netherlands and Europe.”



Malin Stridh | General Manager of MIDA Biotech B.V.

Eodyne: Bridging science to societal impact

Barcelona-based company Eodyne is specialized in real-time interactive systems and technologies for virtual and augmented reality offering a solution for the integrated treatment of impairments resulting from brain damage. Founder Paul Verschure opened an entity Nijmegen in 2022, in order to bridge the science to societal and commercial impact. The company is already well-connected to the ecosystem, working together with Roessingh research & development and rehabilitation center together with Sint Maartenskliniek, a renowned clinic with a focus on rehabilitation.



“We expect our expansion will grant us better access to the Dutch market, as well as prepare for continuous internationalization to North America. There are valuable partners nearby that can help us improve and expand our products.”

Santiago Brandi | CEO Eodyne

Alnylam: Changing the way to treat disease

Founded in 2002 and headquartered in Boston, Alnylam Pharmaceuticals has pioneered the development of an innovative new class of therapeutics for rare genetic diseases, based on the Nobel Prize-winning science of RNA interference (RNAi). To bolster the market and supply its products, Alnylam established a European hub in Amsterdam to support our growing business and supply of medicines to patients. Since then, Alnylam has four commercialized drugs in Europe and has made significant investments in the Netherlands across its technical operations, supply chain, and finance activities. The Netherlands is now a core hub for European operations, with several Phase 3 clinical trial sites, and Alnylam's relationship with the Dutch capital continues to blossom.



“Alnylam's focus is currently on rare genetic defined diseases. Some of the world's top experts on these diseases happen to be here in the Netherlands. That says something about the quality of research going on here. The Netherlands has all the ingredients: it has top academic medical centers and life science companies that are developing potentially transformative medicines. On top of that it is a great place to attract international talent: we currently have 55 employees from 20 different nationalities, and this keeps on growing.”

Marco Fossatelli | Country Manager, Alnylam Netherlands

Medtronic: Together to the future

With an attitude for innovation, collaboration and cross-fertilization, Medtronic has been a leader in MedTech in the Netherlands for the last 50 years. When, in 1969, Medtronic co-founder Earl Bakken was looking for a location for the first facility outside of US, he came to the Netherlands and opted for South-Limburg because of its centralized location and the rapid and easy connections with the rest of Europe. Key considerations, both then and now, included direct access to excellent road, rail and air infrastructure. Additionally, the proximity of the major sea harbors of Rotterdam and Antwerp, combined with the very close proximity to air hubs of major global transport integrators, made South Limburg the ideal location to establish operations.

“Medtronic the Netherlands is located mainly in Limburg, ‘the balcony of Europe’. This accounts for the international mindset of the inhabitants. There is a broad spectrum of knowledge institutes and educations. This caters for the ample availability of diversely talented and well-trained labor force with the necessary language skills. This continues to contribute significantly to Medtronic’s global growth.”



Frank Schaapveld | VP EMEA Customer Care & Order Operations

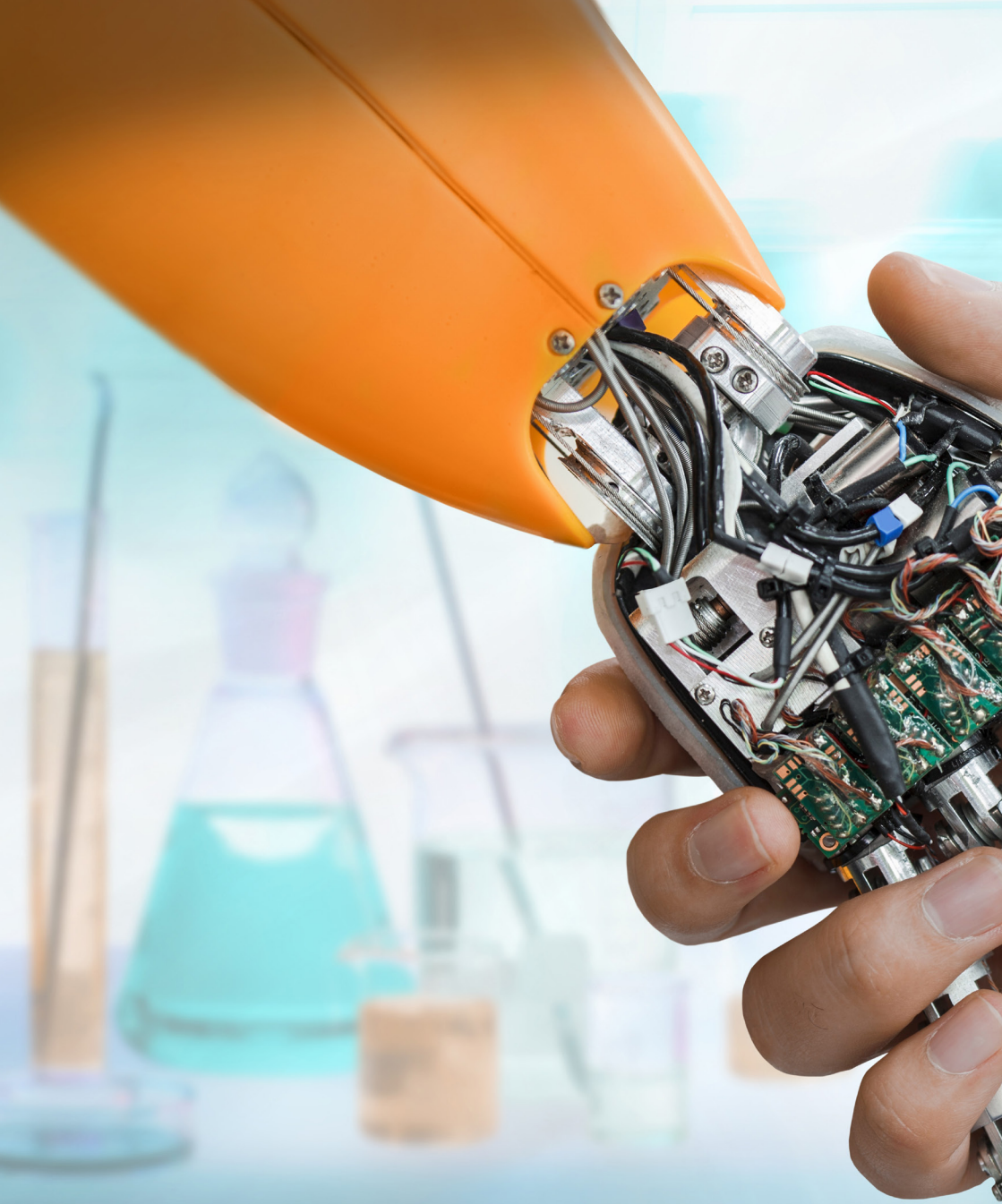
Fujifilm: Sustainable value from innovation

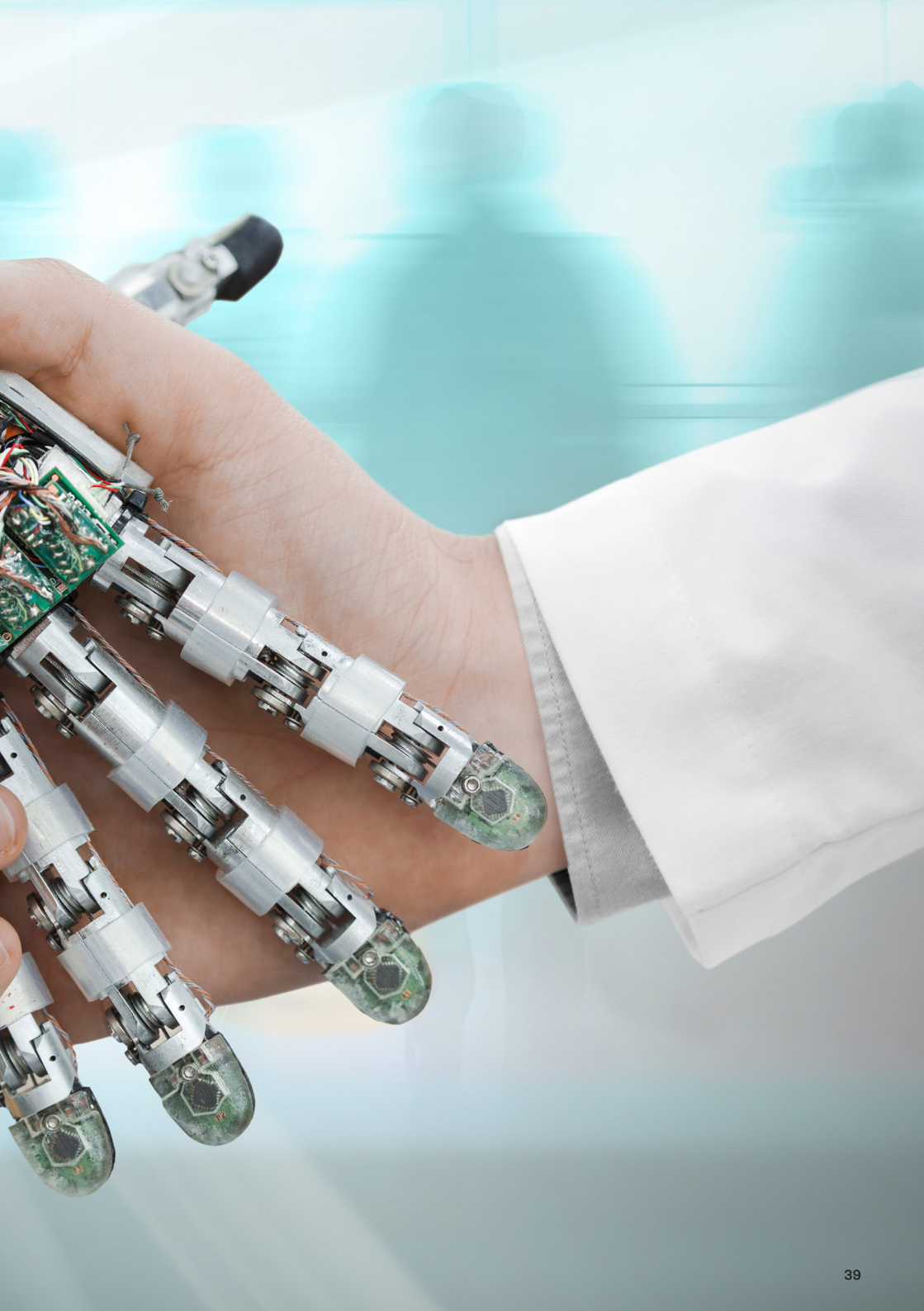
After 35 years in the Netherlands, Fujifilm Manufacturing Europe has established deep roots in the local and regional communities and already made history there. The former photo film factory, first opened in 1988 and closed in 2006, has been completely converted and Fujifilm will produce cell culture media for the biopharmaceutical industry in this building, it's first such facility in Europe. The combination of a good infrastructure and expertise in high-quality technological processes made the site in Tilburg, Brabant, a good location for this new factory, which is 100% CO₂ neutral. Fujifilm was established in Tilburg in 1982. This offered and continues to offer ample employment opportunities in the region, and we therefore have very strong local roots. At the same time, Fujifilm Tilburg has the clout of an international organisation.

“We combine expertise in supply chain management, R&D and production to make a real impact. At Fujifilm we are actively looking for innovative, sustainable solutions to the challenges facing society. We do this with our manufacturing and R&D expertise, Fujifilm technology and the skills of our people. We thereby take advantage of the opportunities that our location offers. In addition to photo paper and offset plates for the (photo) graphic industry, we also produce membranes for gas and water purification and make cell culture media for the biopharmaceutical industry. And we are going further, because we can see even more opportunities in the future to move our society forward on issues around energy, environment and healthcare.”



Albert van Maren | President FUJIFILM Manufacturing Europe B.V.





2. An enabling environment for business & innovation

The Netherlands fosters an unrivaled entrepreneurial spirit. By embracing innovation, sustainability and digitalization, the Dutch economy attracts the world's leading businesses. The Netherlands is the most competitive economy in Europe according to the WEF Competitiveness Index. Our nation has a lot going for it. A great location, well-connected, and a highly educated and skilled workforce, all making the Netherlands an attractive place for innovative business.

A connected metropole

Connectivity in the Netherlands goes beyond collaborative partnerships and networked ecosystems; the country's physical and digital infrastructures make it a crucial hub in European and global trade. Located at the heart of Europe, bordered by Germany, Belgium, and the North Sea, the physical infrastructure of road, rail, air, maritime, and inland waterways provides an intricately connected smart matrix ideal for logistics, travel, and direct access to the European

hinterland. Approximately 95% of Europe's most lucrative consumer markets in Life Sciences can be reached within a 24-hour drive. We are not only well connected within Europe but also with the rest of the world. As a global trading nation, our imports, exports, and transshipments move seamlessly through some of the world's smartest and most modern transportation hubs, including the Port of Rotterdam (Europe's largest port) and Schiphol Airport (the 3rd-largest European airport).



Solving global challenges together

As a small country, internationalization has always been vital for our growth. As a direct result, the Netherlands consistently ranks as the most connected country in the world according to the DHL Global Connectedness Index - a title that we have proudly held since 2005. The index measures globalization based on international trade flows, capital, information, and people.

DHL Global Connectedness Index, 2021



Airports

Amsterdam's Schiphol airport is a short distance from most major Dutch cities and is Europe's top airport for cargo and passenger transport. The Netherlands also has four regional airports in every corner of the country offering international flights. The Maastricht-Aachen regional airport in the tri-border region with Germany and Belgium is widely considered to be the fastest air cargo handler in Europe.



Waterways

Around 54% of all trade shipping in Western Europe is handled by Dutch ports. Home to three deep-water ports, thousands of kilometers of rivers and inland waterways, and a sophisticated network of canals, cargo from the Port of Rotterdam – Europe's largest port – can reach Western Europe's major industrial and economic centers in under a day.



Road & Rail

The Netherlands handles 14% of Europe's international road transport and forms a crucial hub for Europe's international road-freight transportation. The country's rail system boasts 3,055 km (1,900 miles) of network rail, directly linked to inland container terminals and destinations throughout the EU, Scandinavia, and the Middle East.



Digital Connections

The digital infrastructure in the Netherlands ranks as one of the best in Europe. At 98%, we have one of the highest levels of household broadband connections and some of the highest broadband speeds in the world. On a European level, the Dutch LTE mobile internet broadband scores highest regarding coverage and 4th in terms of speed. In addition, Amsterdam hosts one of the largest internet exchanges in the world: AMS-IX.

Talent and education

The Netherlands is a highly appealing country for multinationals thanks, amongst others, to its highly qualified workforce and its multilingual talent pool, being number one in English as a second language.

The Netherlands has an outstanding higher education system aimed at producing a sustainable pool of highly competent graduates, an impeller ranging from Vocational to BSc and MSc and PhD. It scores high in rankings as a country; in 2022, Dutch universities ranked among the world's top 2% (QS World University Rankings, 2022). Additionally, it is in the top 10 of the ARWU and the THE World Ranking. Dutch universities

offer the largest number of English-taught programs in continental Europe; approximately 2,000 programs are taught entirely in English. Some 40% of first-year students at Dutch universities are international students stemming from all over the world.

There are 14 universities in the Netherlands, 13 of which are globally ranked, along with 36 universities of applied sciences, and 58 secondary vocational educational institutes besides numerous other educational facilities. Dutch universities also receive high citation impact scores, with the Netherlands ranking among the top three worldwide. The same is true for international co-publications. The Dutch Universities of



Beyond MedTech: a talent pool for life sciences

At Beyond MedTech, government and education work closely together with companies such as Medtronic and Abbott to attract, retain and train logistics talent for the medical device industry. The collaborative initiative develops processes to strengthen logistical competencies of employees and stimulates knowledge sharing, innovation and further professionalization of the field. With this initiative, Beyond MedTech have direct access to an active and unique platform to get the best workforce for their medical supply chain.

Applied Sciences are known for their modern approach to education: focusing on academic competencies and their application in diverse contexts and real-world-simulation by collaborating with reputable companies and NGO's.

The Dutch educational system generates an impressive pool of human capital, and the number of students enrolled at (scientific) universities vocational institutes has grown rapidly in recent years. For instance, in 2022, there were 276,713 students enrolled in Bachelor or Master programs, with over 52,000 in health programs and over 81,000 in technology studies.

An additional 495,000 were attending vocational education courses in 2022-2023. The country's academic excellence is borne out by the number of Ph.D. graduates, which has more than doubled over the past 25 years to 5,219 in 2021.

There are 11 educational institutions offering degrees and courses in Life Sciences & Health in the Netherlands. Some of these studies are offered entirely in English for the duration of the study, all others provide means to accommodate foreign students by all sorts of innovative solutions, another proof of our open society and collaborative and hospitable mindedness and culture.



Utrecht Science park. Photo by Reginar Photography.

Incentives for innovation and sustainability

Dutch fiscal policies are essential factors to consider when bringing a company to the Netherlands to start a new endeavor. A considered combination of corporation tax rates and financial incentives makes the country a reliable and robust base for international operations. Moreover, the Dutch Tax Authorities have a flexible and pragmatic approach with a proactive attitude. Tax policy in the Netherlands encapsulates, among others, the following benefits:

- A wide network of nearly 100 bilateral tax treaties to avoid double taxation and to provide, in many cases, reduced or no withholding tax on dividends, interest, and royalties.

- Clarity and certainty in advance on the tax consequences of proposed significant investments in the Netherlands.
- A broad participation exemption (100% exemption for qualifying dividends and capital gains) which is vital for European headquarters.
- An efficient fiscal unity regime, providing tax consolidation for Dutch activities within a corporate group.
- No withholding tax on outgoing interest and royalty payments in most cases.
- A relatively low statutory corporate income tax rate of 25%.
- For companies looking to bring employees from abroad, the 30% ruling allows employers to offer 30% of employee salaries tax-free for three years.



Right place to innovate

As home to the European Patent Office with a staff of 3,000, it should be no surprise that the Netherlands is a land of innovation. The number of Life Sciences & Health patents in the Netherlands is remarkably high. The Dutch currently rank fourth worldwide in patent applications for medical technology (MedTech), sixth for biotechnology patents, and eighth for pharmaceutical patents. The Netherlands is also the world market leader in medical isotopes, while companies and hospitals embrace future-oriented solutions such as eHealth and personalized medicine.

The Netherlands' unique DNA and collaborative mindset actively stimulate novel ideas and smart innovations. By maintaining a nurturing environment for forward-thinking companies, the Netherlands stays competitive on the world stage and supports innovation and sustainable investments. Part of this nurturing environment includes the following incentives:

- The R&D tax credit, or WBSO: offers startups and innovative companies compensation for part of the research and development (R&D) wage costs, other costs, and expenditures.
- The 'Innovation Box' reduces the effective corporate tax rate to 9% for the share of profit from (patented) intangible assets.
- The National Growth Fund has a budget of 20 billion euros to invest in projects that stimulate economic growth in the long term.

Innovation projects from the LSH sector have already secured over 500 million euros in funding.

- A special Innovation Credit for starting companies with innovative ideas.
- The Dutch government co-sponsors innovative research projects by Public-Private Partnerships in the Dutch Life Sciences & Health sector through a special PPP Allowance.
- SMEs can apply for funding for, e.g., feasibility- and proof-of-concept projects through the MIT scheme.
- Regional administrations offer a variety of incentives to attract and stimulate business and innovation in specific areas.

ZonMw, NWO, and RVO offer funding for projects that contribute to solving societal challenges described in the mission-driven innovation policies.

- Access to European funding and investment schemes such as Eurostars and Horizon.
- A network of support organizations helps entrepreneurs to access the resources they need.
- The Dutch government offers several incentives to help companies acquire capital, such as the Seed Capital Scheme, Corporate Finance Guarantee Scheme (GO), and Growth Facility Scheme. During COVID-19, the government was quick to set up bridge funding for entrepreneurs and startups.

“We’ve had a lot of help from the Dutch government and the Life Sciences & Health sector and have been supported by research grants designed to stimulate collaboration between companies and universities, and that helped us a great deal.”



Martijn Cox
Chief Technology Officer, Xeltis

Driving sustainability

As a signatory to the 2015 Paris Climate Agreement, the Netherlands is committed to bold steps to achieve a circular economy and reduce greenhouse gas emissions to zero by 2050.

Ranked first worldwide for material reuse rate, first for waste management, and second for food system sustainability, the Netherlands is fully committed to developing strategies that serve as a model for the rest of the world. The Netherlands currently has the highest density of charging stations for electric vehicles worldwide.

The Dutch cycling culture is not to be overlooked either. The Netherlands has long been known as a bike-friendly nation and a leader in sustainable transportation, with more bicycles per capita than any other country in the world.

Some examples of sustainability incentives include:

- Energy Investment Allowance (EIA): allows companies to deduct 45% of the investments in energy-efficient technologies and sustainable energy from the taxable profit, on top of the customary depreciation.

- Environmental Investment Deduction (MIA): allows companies to deduct up to 45% of the investment costs for an environmentally friendly investment on top of the regular investment tax deductions.
- Arbitrary Depreciation of Environmental Investments (VAMIL): allows companies to amortize 75% of the investment costs of a qualifying environmentally friendly investment at once.
- Incentives for design and use of sustainable packaging.

Landing spot for venture capital

Dutch healthcare and biotech companies have been particularly successful in attracting venture capital in recent years. The dynamic ecosystem of startups, combined with the entrepreneurial spirit of the Dutch, makes the Netherlands a pioneering environment for innovative technologies. This is why some of the largest venture capital firms, such as Forbion, EQT, Gilde Healthcare and INKEF are located here. All complemented by a robust regulatory system, high legal standards, and a legal framework that helps businesses interface with regulators. In addition, well-established channels and processes ensure that innovations get to the market promptly.



Connection to innovation: co-creating solutions to global challenges

Mission-driven top sector and innovation policy

The Netherlands seeks to effectively tackle major societal challenges that play a role globally. Health & Care therefore is one of the major societal themes within the government's Mission-driven Top Sectors and Innovation Policy that is coordinated by the Ministry of Economic Affairs and Climate Policy (EZK). This ambitious and novel approach to business policy is inspired by the insights of Professor Mariana Mazzucato, Professor in Economics of Innovation and Public Value at University College London, and founder/director of its Institute for Innovation and Public Purpose. Mazzucato's research focuses on the relationship between financial markets, innovation, and economic growth – at the company, industry, from the national up to the global level.

The idea is that the formulation of a mission provides focus and direction for social, scientific, and business innovation processes. The common focus of the partners is formed by five Health & Care missions as formulated by the Ministry of Health, Welfare and Sport (VWS). The central mission of our Societal Theme Health & Care is as follows: By 2040, all Dutch citizens will live at least five years longer in good health, while the health inequalities between the lowest and highest socioeconomic groups will have decreased by 30%.

Under the guidance of Top Sector Life Sciences & Health (Health~Holland) public

and private quadruple helix-partners combine nationally their investments and activities to gain economic and societal impact for the nowadays and future Health & Care challenges. The Dutch approach is valued by the OECD as “among the most ambitious mission-oriented strategic frameworks”, especially because it brings together economic sectors and social missions in joint programming and implementation of research and innovation. By doing so industry can optimally profit from the economic opportunities that the innovative and validated concepts, products and services bring to our society that assist to tackle these challenges. This requires a coordinated approach that transcends the boundaries of our ten Top Sectors like ICT, Chemistry, Agri-Culture up to Creative Industry. As these Top Sectors have organised themselves strongly in recent years, the Health & Care related partners in the *quadruple helix* are able to find these colleague Top Sector quickly for cross boundary innovation programs. This strategy has further increased the innovative power of the Netherlands. There are currently about 40 strategic, thematic, long-term collaborations within large, national consortia (e.g. OncoCode Institute, RegMed XB, etc.). These have given rise to a future-savvy and vibrant knowledge and innovation infrastructure. Thanks to the coordination between social needs, knowledge and economic activities, concepts, products and services are created that are also internationally competitive and of essential worth to the many.

The intra- and intersectoral collaboration will be expanded further so that by 2040 we indeed will enjoy the aforementioned five more years of healthy life of our central mission.

“Working together is part of the Dutch DNA.
By collaborating with the best, we can identify
innovative solutions that matter. Join us in
innovating the future of health, for the benefit
of patients and society at large.”



Hans Schikan

Top Team member, Top Sector Life Sciences & Health (Health~Holland)

Public-Private Partnerships

Oncode Institute

Oncode Institute is a fundamental cancer research institute aiming to accelerate breakthrough discoveries and speed up their translation into new diagnostics and treatments for cancer patients. Oncode unites more than 900 researchers in a multi-disciplinary, collaborative community of world-class oncology researchers across the Netherlands. Oncode invests in high-risk, high-impact, basic research and state-of-the-art technologies, paving new roads toward developing transformative therapeutic strategies. With a team of expert professionals and dedicated funding, Oncode proactively identifies and protects new inventions, establishes public-private partnerships for further development and creates new ventures. Oncode's ultimate goal is to accelerate the translation of breakthrough discoveries into tangible benefits which are accessible and affordable for patients and society at large.



Dutch CardioVascular Alliance (DCVA)

Cardiovascular disease is still one of the biggest health challenges of our time. Thanks to excellent science, innovation and effective organization of care, we have been able to successfully combat acute cardiovascular events. We have saved many lives. This, combined with aging, changing lifestyles and diabetes, leads to an increase in the number of chronic heart patients: almost 2 million people in 2030 in the Netherlands, which is 33% more than today.



Dutch
CardioVascular
Alliance

Together with the best Dutch scientists, twenty-two leading organizations representing patients, academia, healthcare professionals, industry and government, have joined forces to establish the Dutch CardioVascular Alliance (DCVA). The ambition of the DCVA is to lower the cardiovascular disease burden by 25% in 2030 by earlier recognition of disease and rapid translation of excellent science into health improvement.

Precision Medicine for More Oxygen (P4O2)



P4O2 is a multidisciplinary collaborative program to innovate, reinforce and display the current know-how and physical infrastructure for research in and development of preventative products for pulmonary diseases. The program will develop and combine cutting edge imaging with exposome information, analysis of different human materials (blood, urine, feces, exhaled air) and participant reported outcomes, to develop tailored

strategies for prevention and treatment of individual subjects. With our combined effort, we aim to integrate traditional phenotypic data (e.g. demographics and lung physiology) with analysis of innovative biomarkers (e.g. imaging, [epi]genomics, proteomics, metabolomics, exposome).

A personalised Medicine Approach for Alzheimer's Disease (ABOARD)



ABOARD is a large-scale research project carried out by a national, multidisciplinary consortium. ABOARD envisions a future with individualized prevention encompassing tailored combinations of lifestyle and disease modifying interventions.

The mission is realized by a strong multi-sectoral and multidisciplinary consortium, with 32 partners spanning the entire translational value chain. At the close of the project, ABOARD has paved the way for a personalized medicine approach for Alzheimer's Disease (AD). Patients and care partners are empowered and more actively engaged in the management of their health and disease, and strategies for diagnosis, prediction and prevention of AD have improved.

Regenerative Medicine Crossing Borders (RegMed XB)



RegMed XB is a virtual institute that currently comprises Dutch and Flemish public (universities and governments) and private (health foundations and companies) partners that aims to develop regenerative medicine (RM) solutions for patients in order to cure chronic diseases and reduce healthcare expenses. RegMed XB builds a strong RM ecosystem in which science leads to innovative products and new economic activity. The closely knitted RM ecosystem facilitates easy interactions between scientists, universities and companies, and with the new 56 million investment in the National Pilot Factory for Regenerative Medicine, RegMed XB partners and the Dutch National Growthfund underscore the importance of solidifying the RM ecosystem further by creating an attractive environment to start new RM initiatives, collaborations and businesses.





Appealing place to live

The Netherlands ranks highly as a great place to live. Enjoying rich cultural offerings and an outstanding healthcare system, the Dutch are among the happiest people in the world. The Netherlands ranks 1st worldwide on Numbeo's Quality of Life Index (2022). The Netherlands is committed to promoting quality of life, healthy development, and healthy behaviors across all life stages worldwide. Structural reforms in areas such as the labor market and social security system have created conditions that nurture healthy economic growth. This stimulates investment in knowledge and innovation, which enables the Netherlands to remain prosperous, enterprising, and sustainable. Furthermore, the Netherlands is known for

its outstanding work-life balance, which leads to a contented workforce and improved productivity.

The Netherlands is also the world's fifth-happiest country, moving up one place in the 2022 World Happiness Report. The report indicates that happiness is increasingly seen as a measure of social progress and a fundamental public policy goal. In determining each country's score, the researchers considered factors such as GDP per capita, healthy years of life expectancy, social support, trust in government and businesses, perceived freedom to make life decisions, and generosity (measured by the value of donations).



Where children are happy

A 2020 UNICEF report found that children in the Netherlands are the most satisfied with their lives, with the country scoring the highest worldwide for child welfare. The UNICEF study looked at the well-being of children and young people up to the age of 18 in the 41 most prosperous countries in the world. The study revealed that the Netherlands was the best country to raise a family, as children here are satisfied, have a good quality of life, and have good social and academic skills. In most countries, just under 80 percent of children are satisfied with their lives, but in the Netherlands, this figure is 90 percent.

Making life easy: international centers

The Netherlands has a linked network of 11 international centers that all help ensure internationals are welcomed in the Netherlands. The centers are essentially 'one-stop shops' where internationals can arrange many of the administrative aspects of life in the Netherlands with the help of in-house experts. For example, at an international center, you can get a residence endorsement sticker, have your biometric data taken, and collect your residence document. They also provide the opportunity to hook up with a broad international community from many nationalities and to share knowledge, tips, and experiences.



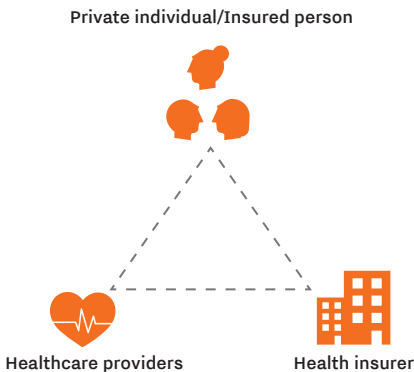
Outstanding healthcare

One of the most attractive aspects of living in the Netherlands is its first-rate healthcare. The Netherlands ranks 2nd in the Health Care has ranked consistently among the top three published by the Health Consumer System Performance Rankings, based on 11 high-income countries (Common Wealth Fund). Furthermore, it is the only country that in the total rankings of any European Index Powerhouse since 2005.

Dutch healthcare system

The philosophy underpinning the Dutch healthcare system is based on several universal principles: access to care for all, solidarity through medical insurance (which is compulsory for all and available to all), and high-quality healthcare services.

The Dutch health insurance system combines public and private insurance elements. The Dutch government is involved in implementing the Health Insurance Act and sets public requirements to guarantee the social nature of the health insurance system.



Like many countries, the Netherlands has an aging population. As a result, the Dutch healthcare system focuses on community care and 'aging in place' and has been able to facilitate quality care for everyone who needs it. Since the 1980s, the Netherlands has encouraged its citizens to live at home for as long as possible (self-reliance) rather than entering nursing homes, and participation in society is actively stimulated. The Dutch care and welfare system consists of four acts that are significant for the elderly: the Health Insurance Act, the Social Act, the Long-term Care Act, and the Youth Act. Currently, around 94% of the elderly live at home. In residential homes, 57% of the residents are over 80 years old. New Public-Private Partnerships actively develop smart services for older people, such as monitoring, alarm, and emergency systems, helping them live more active and independent lives. In addition, expert palliative care teams for patients with advanced diseases help to increase the quality of life further.

Everyone who lives or works in the Netherlands is legally obligated to take out standard health insurance and is free to choose their insurer.

- Health insurers are obligated to accept anyone for the standard insurance package and must charge the same premium.
- The government determines the level of coverage that the standard package must provide.
- The government is advised on these issues by the independent authority responsible for the basic health insurance package, the National Health Care Institute.

Healthcare infrastructure

Dutch expertise in healthcare infrastructure is in considerable demand due to the multidisciplinary approach of hospital design and engineering, financing, waste management, medical equipment, and energy efficiency in the Netherlands. There are numerous medical equipment manufacturers in the Netherlands, and there is a strong emphasis on robotics. The Dutch multinational Philips is a world leader in medical imaging and patient monitoring technology.

Facts and figures

Size:

41,543km²

Official name:

Kingdom of the Netherlands

Capital:

Amsterdam

Form of government:

Parliamentary democracy (cabinet of Prime Minister and Ministers) within a constitutional monarchy

Head of state:

King Willem-Alexander,
King of the Netherlands,
Prince of Orange-Nassau

Number of inhabitants

17,233,678

Number of inhabitants per km²

508

Languages:

Dutch, Frisian (English and Papiamentu on the overseas islands)



Special municipalities

The overseas islands of Bonaire, Saba and St. Eustatius, all three of which are situated in the Caribbean

Monetary unit:

euro

Number of provinces:

12

Location

Western Europe, Bordering Germany, Belgium and the North Sea

Science parks

Brightlands Maastricht Health Campus



Brightlands Maastricht Health Campus supervises the entire process involved in the development of innovations related to health and life sciences (valorisation) for scientists, researchers and students. Excellent facilities for imaging equipment contribute to the Campus' position as the ideal location for building ecosystems involving imaging, regenerative medicine and innovative diagnostics. The Brightlands Maastricht Health Campus sets itself apart by offering the complete innovation chain: fundamental and applied research, equipment, the clinic and the cross-over possibilities with the other Brightlands campuses.

Campus Groningen



At Campus Groningen, companies and institutions with a passion for research, education and entrepreneurship work closely together to create impact in the field of Healthy Ageing, a Sustainable Society and Energy. The campus consists of 250 companies, 3 knowledge institutes (University of Groningen, University Medical Center Groningen, Hanze University of Applied Sciences), more than 50.000 students on Campus and 23.500 jobs. Campus Groningen has two neighboring locations: the Healthy Ageing Campus and Zernike Campus. The ecosystem supports the Life Sciences, Pharma, Medical Technology and Health sector with a wide range of open innovation (starter and R&D) facilities to facilitate the network. Connections both within and outside the region allow new innovations to quickly find their way onto the market.

Energy & Health Campus



The Energy & Health Campus (EHC) in the dunes of North Holland is the inspiring home to 1600 professionals and industry leaders who work together on new technologies, innovations and products in the area of sustainable energy and nuclear medicine. What we strive for at the EHC is vital to many. Every day, 30,000 patients worldwide with cancer or cardiovascular diseases are helped with medical isotopes from Petten. This makes the Netherlands the world's top producer of nuclear medicines. Thanks to the arrival of the new reactor, we can continue to help millions of people for the next 50 years. Besides this the EHC has brought groundbreaking solutions in the field of wind, solar, hydrogen, CO₂-capture for industry and safe electric mobility systems. For a green, smart and safe energy mix of the future. We invite talent and key players from all over the world to collaborate and join our innovative community to contribute on our global challenges towards a more sustainable and healthier world. We do better together.

Erasmus MC Campus



Based in the heart of Rotterdam, the Erasmus MC Campus is the location where research, science and business work together on finding innovative solutions, creating a vibrant Life Sciences & Health ecosystem in Rotterdam. Innovators feel empowered to think big, take risks, and transform ideas into reality. This exciting new Campus is a central location for Erasmus Medical Center, Erasmus University and Delft University of Technology. The Campus supports the full innovation cycle: from research and business development to prototyping and implementation. With state-of-the-art facilities and optimal test sites, Campus residents can collaborate and bring their innovations into practice, connecting Health&Tech to create healthcare solutions for the future.

High Tech Campus Eindhoven



At High Tech Campus Eindhoven (HTCE), a unique mix of multinationals, knowledge institutes, SME's and startups, are developing the innovations of the future in an Open Innovation Environment. HTCE is where bright minds come together to develop ground-breaking technology in the field of Health, Energy and Smart Environments. A large number of companies and organizations in Eindhoven is working on medical technologies. The MedTech sector consists of a valuable mix of OEMS, suppliers, SMEs and scale- and startups with a focus on sensors for monitoring and diagnosis, medical imaging, robotics and regenerative medicine that are closely cooperating with each other and with knowledge and educational institutes, such as the Eindhoven University of Technology and TNO.

Kennispark Twente



Kennispark Twente is the ecosystem where University of Twente (UT Twente), with her world renowned Techmed Centre, and the vibrant Medtech cluster of startups, SMEs and international companies, collaborate towards implementation of technology for better healthcare. It is equipped with state-of-the-art infrastructure, from research labs and preclinical testbeds to simulated hospital environments. UT Twente is closely connected to industry partners, hospitals, government agencies, and insurance companies to develop innovative healthcare solutions. At Kennispark Twente, 1600 students are engaged in TechMed BSc & TechMed MSc programs, 500 healthcare professionals are trained by Life Long Learning each year, 40% of the funded scientific projects focus on healthcare and 50% of the recent spin-off companies are in the healthcare segment.

Leiden Bioscience Park



Leiden Bioscience Park (LSBP) is an appealing environment for a diverse range of experts. It is a top-level development community with researchers, entrepreneurs, scientists, and students working to create innovative solutions. With 20,000 people on site, co-creation and integrative research are at the heart of the LBSP. Primary focus areas include drug development, bio-pharmaceutical education, professional training, Artificial Intelligence (AI) & data science, (business) services, and more. In addition, LBSP hosts the Leiden University Medical Center (LUMC), five faculties of Leiden University, and two comprehensive Life Science museums. Housing over 215 organizations, including 150 Life Sciences & Health companies from start-ups to multinationals and several internationally acclaimed research institutes, the dynamic and rapidly-expanding LBSP is among the top five science parks in Europe.

Noviotech Campus



Noviotech Campus (NC) in Nijmegen offers tailor-made housing solutions for R&D. NC offers laboratory and cleanroom spaces for knowledge-intensive businesses and institutes. You will find a modern and vibrant environment that facilitates leading researchers and scientists of the seventeen research institutes of Radboud University, Radboud University Medical Center (Radboudumc) and The HAN University of Applied Sciences (Hogeschool van Arnhem and Nijmegen) to collaborate with companies to accelerate innovations towards the next generation of chip technology to the latest drug development. Companies with R&D operations join an active community of entrepreneurs at NC with a collaborative mind-set.

Pivot Park



Pivot Park's mission is to improve global health by investing in building a world-class biopharmaceutical R&D infrastructure to create the perfect conditions for new companies, young companies and established companies to grow. This has resulted in the development of a dynamic, pharma-based knowledge community. Pivot Park is located in entrepreneurial Oss, the spiritual home of the Dutch pharmaceutical industry. This is an ideal place to attract talent, spark new ideas and support growth; whilst simultaneously offering an unmatched work-life balance. Pivot Park helps each of them to take their next steps. Supporting 1,000 highly qualified people at over 60 companies, Pivot Park makes sure they have what they need to succeed.

TU Delft Campus

TU DELFT
CAMPUS

The MedTech ecosystem at TU Delft Campus is significant. It is characterized by its deep tech, science driven innovations based on the knowledge of the worldwide top university Delft University of Technology. Together with the two academic hospitals, other knowledge institutes in the region and international leading SME's that started in Delft, such as Applikon Gethinge and Oldelft Ultrasound, the university is merging disciplines. This translates in completely new fields of applied research and innovations resulting in a major growth in startup activity in this field. Startups such as Momo Medical, Bi/ond, STIL, SLAM Ortho, Praxa Sense and many more flourish in this ecosystem. Hubs such as YES!Delft and Planet.Bio foster growth.

Utrecht Science Park

UTRECHT
SCIENCE
PARK

Utrecht Science Park is an innovative science community that aims to accelerate the development of a healthy, sustainable society. Over 30,000 scientists and staff and 55,000 students from renowned medical centers, knowledge institutes and companies – all within walking distance of one another – are working closely together to develop and apply pioneering science and solutions in the fields of healthcare, life sciences and sustainability. Utrecht Science park is an inspiring hotspot, providing the ideal environment, conditions and support for meeting one another, exchanging knowledge and collaborating at regional, national and international levels.

Wageningen Campus

wage
ningen
campus

Wageningen Campus is designed to be a vibrant meeting place for scientists and researchers from 12 research institutes, Wageningen University, start-ups, SMEs, R&D centers of national and international companies, and more than 15,000 students. All working in the fields of nutrition, food production, life sciences and a healthy living environment. On Wageningen Campus, science, business and education collaborate to address today's major social issues: the world food need, the demand for sustainable production, the loss of biodiversity, the desperate need for alternatives to fossil fuels and the impact of climate change. In the Life Sciences & Health sector Wageningen's main focus is on nutrition, health promotion and disease prevention, planetary health, vaccine development and smart diagnostic tools.

3. We welcome you!

Connect-to-act & act-to-connect: it all comes together in 'Europe's Connected Life Sciences & Health Metropolis'

Here in the Netherlands, our connectedness is deeply-rooted in the open and welcoming attitude of the Dutch to collaboration and knowledge exchange. The strength and efficacy of Public-Private Partnerships are a testament to this. Furthermore, the open-

door policy of many research institutes means that it is very easy for companies to tap into academia and the associated talent pool. This, too, is unique and once again underpinned by authentic Dutch characteristics: "It's not what we do for you; it's what we do together with you that counts!"



"The Netherlands is committed to finding solutions that deliver better, affordable and sustainable healthcare and our country offers an excellent business climate for scaling up healthcare solutions with impact. That is why we are keen to welcome and assist foreign companies that contribute to this."

Sandra de Wild-Chardonens

Head of Life Sciences & Health | Invest in Holland

The Invest in Holland Network

Invest in Holland is the national network of the Netherlands Foreign Investment Agency (NFIA), an operational unit of the Dutch Ministry of Economic Affairs and Climate Policy, and our regional and local partners. Together, we advise foreign companies with ambitions to solve global challenges through expansion in Europe. We can guide you on your road to business expansion in the Netherlands, providing relevant information and connecting you to the right resources and partners. With our expert team of life sciences specialists and global network of foreign offices, we know how to connect the international industry with the Netherlands. Let's start the conversation about making Life Sciences & Health impact in the Netherlands.



Interested to learn more?
Get in touch with the Invest in Holland network.



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Colophon

This publication contains a comprehensive overview of the Netherlands' Life Sciences & Health sector with the goal of attracting foreign LSH companies to the Netherlands. The information contained in this publication has been compiled with great care by Health-Holland (the Top Sector Life Sciences & Health) and its partners and is accurate to the best of its knowledge at the time of publication. For more information about opportunities for life sciences companies in the Netherlands, please visit the websites of Health-Holland and Invest in Holland.



health-holland.com



investinholland.com

Dutch Association Innovative Medicines

vereniginginnovatievegeneesmiddelen.nl



Netherlands Enterprise Agency

rvo.nl



Interested to learn more about the international Life Sciences & Health network in the Netherlands? Scan the QR code.

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