



American Chamber of Commerce in
The Netherlands

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Let's Connect

Time to make the Netherlands a health solution hub - with all the benefits for the economy, innovation, regional economies and sustainability.

Let's connect – and let's do it now.



Let's
Connect



American Chamber of Commerce in
The Netherlands

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FOREWORD

In 2020, I was appointed as ambassador for the Dutch Life Science & Health (LSH) sector. My mission was clear: utilize the societal, economic, and scientific opportunities that this sector has to offer. Build a strong profile for the Dutch LSH-sector, and ensure that it becomes more visible abroad.

Much work has been done since then. We created an ambitious Action Plan to strengthen the LSH sector and to strengthen its international profile. I'm delighted to see that this report by the American Chamber of Commerce in the Netherlands (AmCham) seamlessly connects to these plans.

I appreciate the ambitious tone of the report. For two years, I immersed myself in the LSH sector – and I came away deeply impressed. We are such a small country, and yet there is so much to be proud of. But we remain too humble – we seem to insufficiently see the potential of our country. It's therefore refreshing to see a report that encourages us to think big.

I'm also pleased to see that this report gives

health solution companies their moment in the sun. Whenever we discuss the LSH-sector in the Netherlands, we seem to reserve our sympathies for public institutions. And if there are any warm feelings for the private sector, those are usually directed at start-up companies – small companies struggling against all odds to become major players.

And that approach simply doesn't do justice to the larger companies in this sector. I visited many of them, and was impressed by the skilled and driven people I met. People who go to work everyday to make the Netherlands a bit healthier and a bit more prosperous. The examples of their contributions are innumerable. A strong LSH sector cannot do without these companies: let's cherish them.

AmCham rightfully describes health solution companies as 'sleeping giants': they already contribute significantly to the Netherlands, but their impact could be much bigger. This report presents several recommendations to unleash this potential, which I wholeheartedly support.

I would like to highlight three parts of this report. First of all, the theme of 'let's connect'. I couldn't agree more – connection is crucial. To reach its full potential, the LSH sector needs to be greater than the sum of its parts. By connecting all different stakeholders, they are elevated to a higher level. That's the reason that 'act to connect, connect to act' was selected as the theme of the LSH Manifestation of April 12.

The report also asks for an ambitious long-term plan, led and directed by the government. Such plans are emerging in many surrounding countries, and I fully concur with AmCham: to remain competitive on an international level, the Netherlands needs to follow suit.

And last but not least: AmCham believes that large companies should have a seat at the table in the policy process, especially during the early parts. I endorse this call: these companies have unique expertise and a valuable international perspective. Including them in plans for a stronger LSH sector will improve these plans.

The report concludes by calling for a roundtable meeting to discuss next steps. I look forward to participating: let's awaken this sleeping giant!

Clémence Ross - van Dorp

Ambassador Action Program 'New Chances
Topsector Life Sciences & Health



FOREWORD

The last few years mark one of the most challenging periods in modern history. We have faced the global COVID-19 pandemic, economic inequality, security challenges presented by state and non-state actors, supply chain shortages, and the increasingly visible effects of climate change.

These global challenges are so vast that addressing them must be integrated into everything we do, and we must approach them in a holistic, coordinated manner alongside our transatlantic partners. History has proven that we are able to find innovative ways to solve challenges when we work together.

With this in mind, I commend the AmCham Healthcare Committee for the close collaboration between their Dutch and U.S. members to develop this report detailing the value of healthcare companies in the Netherlands. It is a strong call for a national plan to make the Netherlands a hub for innovative health solutions that will benefit the Dutch investment climate, have an even larger impact on the Dutch economy, and of course, improve the health outcomes of people.

The Netherlands and the United States both recognize that health solutions are born out of substantial public funding and investments made by the private sector. The Dutch government stimulates innovation by investing approximately two billion euros annually in research and development in the field of life sciences. This is part of the reason healthcare companies are attracted to the Netherlands.

The Netherlands has the necessary conditions for dynamic innovation, which include robust public-private partnerships, informed government policy to foster research and development, and a supportive infrastructure. This environment makes the Netherlands one of the leading ecospheres for innovation and nurtures the advanced technologies that will drive future economic growth and job creation. It will also shape businesses of the future in areas such as game-changing artificial intelligence technologies, supply chain solutions, or innovative medicines and medical treatments.

This report suggests that additional investments would make the Netherlands more competitively attractive, as it is lagging

behind the appeal of other countries with higher investments in health innovation. With many of the pre-conditions for innovation already in place in the country, these investments would act as a multiplier and reinforce the Netherlands' status as an innovation hub.

Businesses continue to push the boundaries with their innovations but would flourish even further with a number of regulatory reforms. Reform is not only essential to maximize the potential of an already thriving industry in the Netherlands; it is equally important in the United States.

The coming years will be a time of change that will present new opportunities for businesses on both sides of the Atlantic. I am proud that the Netherlands and the United States remain steadfast and strong partners despite these challenging times. We will continue to nurture our strong relationship, including our natural partnership in life sciences.

As we look to expand our cooperation with the Dutch, we would be honored to host a roundtable in 2022 to initiate a preliminary

exchange of thoughts and viewpoints. Such an exchange of perspectives will help us better position ourselves to develop common goals and align our policies in the years ahead.

Marja Verloop



Chargé d'Affaires, a.i. | Embassy of the United States of America in the Netherlands
Jan 21, 2021 - July 4, 2022



SUMMARY

The health solution sector consists of (bio) pharmaceutical and medical technology (medtech) companies. This report demonstrates that these companies contribute significantly to the Netherlands – but this impact could be much larger. Our sector is a sleeping giant.

A new government was installed in January 2022 – with ambitious plans to make the Netherlands ready for the future. It wants to build a strong economy that creates the earning capacity needed for investments in our society. Ideally, economic activities should be spread throughout the country, focus strongly on innovation, and become increasingly 'green'.

Economic growth and innovation generated by green companies throughout all parts of the Netherlands: it reads as an apt description of our sector. Indeed, we believe that few

sectors are so well-positioned to contribute to the plans of the government.

But this will not happen automatically. It requires a well-orchestrated approach. With the right decisions, we can help the health solution sector grow – with all the benefits for the Dutch economy, innovation, regional policies, and climate goals.

Economy

The new government wants to build a strong economy with an increased earning capacity. It aims to build internationally leading manufacturing industries – to stimulate economic growth and to decrease dependence on other countries in the production of crucial (semi-finished) products. As we will show in this report, the health

“Health solution companies contribute significantly to the Netherlands – but this impact could be much larger. Our sector is a sleeping giant.”



Summary

solution sector already contributes significantly to the Dutch economy. It creates 1% of the GDP, and 1,6% of Dutch jobs. Our country is also an important manufacturing location for health solution products, which generate 10% of Dutch exports.

Nonetheless, there is room for growth. Within Europe, we want to become the top exporter of medical devices and a top-5 exporter of medicines. That would create an internationally leading manufacturing industry, provide strategic autonomy in the production of medicines and medical devices, and increase our contribution to the Dutch GDP and employment.

Climate

It's important to emphasize that the health solution sector is a 'green' industry. The government wants the Netherlands to become climate neutral by 2050, and expects companies to take their responsibility in this transition. Our sector can help realize this ambition, as many companies have plans in place to become climate neutral far earlier than 2050.

Innovation

To help spur further economic growth, the government wants to accelerate the transition to a 'knowledge society' by investing in research and development, stimulating innovation through a National Growth Fund, and fostering public-private partnerships.

Health solution companies are ideally positioned to help realize these ambitions: we are a highly innovative sector, responsible for 25% of all patent applications in the Netherlands. Worldwide, only a handful of countries produce a similar amount of healthcare patent applications.

Our sector is also a major private investor in R&D, and these investments benefit other stakeholders in the healthcare ecosystem – for instance through public-private partnerships, which often take place in the vibrant Dutch bioscience parks.

When the government, the public sector and private companies join forces, we can make the Netherlands a leading healthcare innovator – with the bioscience parks as epicenters of innovation. This would provide a significant boost to the knowledge society.

“Within Europe, we want to become the top exporter of medical devices and a top-5 exporter of medicines.”

Regional Economies

The coalition agreement explicitly states that regional economies should be further stimulated. The health solution sector is perfectly suited to support these ambitions: our activities are spread throughout the country, and more than 80% of our production value is created outside the Randstad.

Ambition

A strong health solution sector thus provides many benefits. It's time to awaken this sleeping giant. We therefore believe that the Netherlands should aim to become, even more prominently, a hub for health solution companies – from start-ups to multinationals.



Summary

The Netherlands has an ideal starting position: a lively biotech sector, world-class knowledge institutions, an internationally renowned healthcare system, a central location within Europe, a well-educated population, good infrastructure and logistics, and prominent European institutions such as the European Medicines Agency (EMA) and the European Patent Office (EPO).

At the same time, persistent bottlenecks remain, while other countries have also intensified their efforts to attract health solution companies. As the recent departures of Shell and Unilever have shown, such international competition should not be underestimated. To make the Netherlands a prominent healthcare hub, it is vital to respond to these challenges.

Let's Connect

We see a strong basis in the Netherlands to become an international hub for health solution companies. The previous government has built a strong fundament through several initiatives, and the plans of the new government can build on this.

The plethora of initiatives and ambitious

stakeholders is a sign of ambition, but it also comes with a risk of fragmentation. To become more efficient in stimulating health solution companies, we therefore believe it's vital that we connect all the moving parts:

- Connect the policy agendas of the Ministries of Economic Affairs and Climate Policy (EZK), Health, Welfare and Sport (VWS), and Education, Culture and Science (OCW).
- Connect the achievements of the previous government with the ambitions of the new government.
- Connect the initiatives and plans that are already in place into an overriding long-term government strategy.
- Connect the new government with all relevant stakeholders – including our sector – to determine the best way forward.
- Connect the wide variety of companies in this sector – from start-ups to SMEs and multinationals.
- Connect the existing bottlenecks to concrete policy initiatives.

“We believe that few sectors are so well-positioned to contribute to the plans of the government.”

Our Ask to the New Government

Connecting all these parts would lead to an overall holistic plan to stimulate the health solution sector in the Netherlands. To make this plan truly effective, we propose the following characteristics:

1. Define a clear and singular goal: to stimulate economic activity and innovation.
2. Put final authority with the Minister of Economic Affairs.
3. Use a ten-year timeframe to create predictability and stability.



Summary

4. Actively involve health solution companies in the formulation of this plan.

5. Make it a key priority to attract more multinational companies to the Netherlands.

6. Design a future-proof reimbursement system for medicines, devices and digital care as part of this plan.

7. Put special emphasis on accelerating and improving valorization.

8. Define laws that could be simplified to support key activities of healthcare companies.

9. Ensure differentiation and complementation for regional healthcare clusters.

10. Study foreign plans to ensure competitiveness versus other European countries.

If we want to secure the benefits of the health solution sector for the Netherlands, it's time to act. Our ask to the new government is simple: let's connect – and let's do it now.

Did You Know?

- The health solution sector generates 1% of Dutch GDP and 1,6% of jobs in the Netherlands.
- The Netherlands is the #2 exporter of medical devices in Europe – just behind Germany and far outpacing other countries on the list.
- Combined exports of medicines and medical devices are €50 billion a year – almost 10% of all Dutch exports.
- The Dutch health solution sector is an engine of innovation:
 - 25% of all patent applications in the Netherlands originate in our sector.
 - The Netherlands ranks 6th worldwide when it comes to healthcare patent applications – ahead of major players like the UK, China and South Korea.
 - Corrected for GDP, the Netherlands is the third most active applicant for healthcare patents worldwide – behind only Switzerland and Denmark.

“If we want to secure the benefits of the health solution sector for the Netherlands, it's time to act.”

- Two of the five biggest private investors in Dutch R&D are health solution companies (Philips and Janssen), while a third one (DSM) is an important supplier for the sector.
- 80% of the value of health solution companies is created outside the Randstad.
- Nearly all health solution companies have plans in place to reach carbon neutrality in the near future – with timelines varying between 2025 and 2050.

INTRO

Health solution companies develop innovative solutions for the healthcare sector to improve the quality, effectiveness and efficiency of the healthcare system – and thereby the lives of patients.

These companies come in all shapes and forms. They operate within all parts of the healthcare chain – from prevention to diagnostics, treatment and aftercare. And their products can differ from medical technologies to medicines, digital solutions, and services.

While health solution companies are a broad category, this report focuses mainly on medical technology (medtech) companies and (bio)pharmaceutical companies.

Some of these companies are Dutch, but most have headquarters outside the

Netherlands. Despite being some of the largest companies in the world, they often remain relatively unknown in our country. This report seeks to end that unfamiliarity – and bring their impact and promise to life.

“The presence of many multinationals is one of the key success factors behind the thriving health solution ecosystem in Boston.”

Multinationals

This report will focus primarily on multinationals. It is our belief that such companies are crucial for a thriving health solution ecosystem. Indeed, the presence of many multinationals is one of the key success factors behind the thriving life science ecosystem in Boston.¹

In the Netherlands, however, the presence of large (bio)pharmaceutical and medtech companies remains limited.² This is disadvantageous, as the presence of multinationals comes with more jobs and R&D budgets. Smaller companies in the ecosystem also benefit from this, for instance through partnerships or through the ability to recruit highly experienced personnel. Indeed, it's not uncommon in Boston to see a seasoned executive transition to a small start-up.

This Report

The first three chapters of this report outline the benefits of health solution companies – with a focus on key priorities of the new government: economic growth, innovation, and strong regional economies. The fourth chapter maps initiatives that other countries have taken to stimulate the health solution sector. The final chapter contains recommendations to make the Netherlands an internationally leading health solution hub.

I. ECONOMIC IMPACT

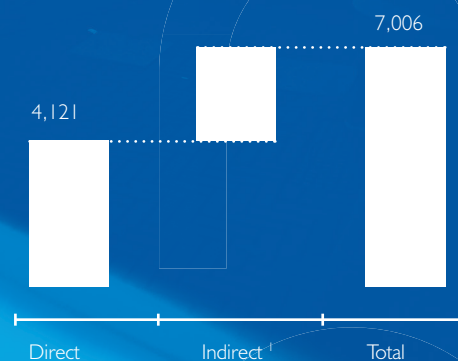
The new government wants to build a strong economy with an increased earning capacity. It aims to build internationally leading manufacturing industries to stimulate economic growth, and to decrease dependence on other countries in the production of crucial (semi-finished) products. Health solution companies can help realize these ambitions: they already contribute significantly to the Dutch economy, but there is considerable room for growth.

GDP

Health solution companies add €7 billion to the Dutch Gross Domestic Product (GDP) – which represents 1% of total GDP. This figure contains both direct and indirect economic impact.

The direct economic impact is €4,1 billion. It results from expenditures by health solution

companies, for instance on supplies, materials, and salaries. The indirect economic impact is €2,9 billion, and contains economic activity from other companies that result from business interactions with health solution companies.³



Contribution of health solution companies to Dutch GDP (€million), 2018

“Medicines and medical devices together generate almost 10% of Dutch exports.”

Employment

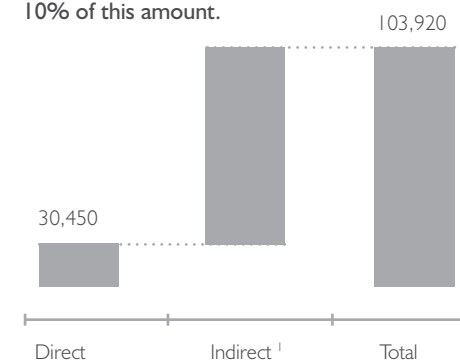
Health solution companies create 104 thousand jobs in the Netherlands – 1,6% of all Dutch jobs. Again, this can be measured in direct and indirect employment.

Direct employment is created by jobs at health solution companies. These are generally high-quality jobs. Health solution companies feature prominently in the lists of best workplaces.⁴ The labor productivity in the sector also stands out. Between 2012 and 2019, for instance, the pharmaceutical industry was the subsector with the highest labor productivity in the Netherlands.⁵

Indirect employment means that jobs are created at other companies due to business transactions with health solution companies. This indirect contribution is significant: 74 thousand jobs.⁶

Export

The Netherlands exports approximately €50 billion of medicines and medical devices each year – more than the export of meat, dairy, and vegetables combined. Total Dutch exports in 2019 numbered €516 billion, and health solution products thus generate almost 10% of this amount.



Employment contribution of health solution companies in NL (full-time equivalents), 2018

1. Economic Impact

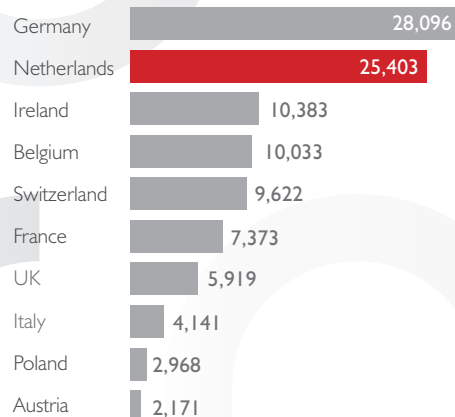
The Netherlands exports €25,4 billion in medical devices. Within Europe, only Germany reports a higher number: €28,1 billion. The Netherlands far outpaces any other competitors: the nearest rivals are Ireland, Belgium and Switzerland with exports of approximately €10 billion.

The export of medicines is equally considerable: €25,2 billion – but the gap to other countries is more significant. Indeed, the top exporter within Europe (Germany) exports €75,9 billion, while countries like Ireland, Belgium and Switzerland also significantly outperform the Netherlands.⁷

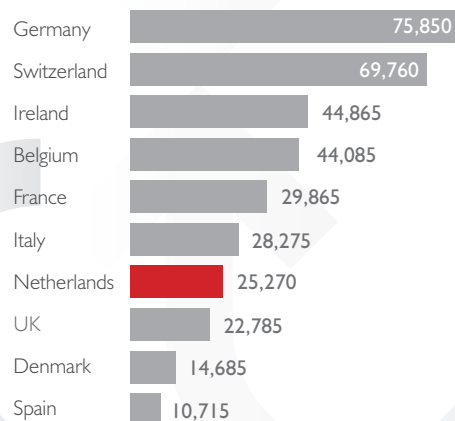
Production

This significant export would not be possible without considerable manufacturing capabilities in the Netherlands. A strong 'manufacturing industry' thus already exists. Further expansion has many benefits, however: it would create more economic activity, and would lessen dependence on other countries for crucial products like medicines and medical devices.

The latter argument is relevant. In 2020 alone, for instance, there were over 1,400



Exports of medical devices by country (€ million), 2019



Exports of pharmaceuticals by country (€ million), 2019

"The government has set ambitious goals to reduce climate change. This is an additional incentive for a strong health solution sector, as sustainability plays a key role in these companies."

shortages of medicines.⁸ While shortages have several causes, the complex global supply chain is a major factor. Shifting the production to European countries is therefore a major policy aim of the European Commission to achieve 'strategic autonomy'.⁹

Sustainability

The new government has set ambitious goals to reduce climate change, and it expects



I. Economic Impact

companies to take their responsibility in the transition. This is an additional reason to attract health solution companies to the Netherlands, as sustainability plays a key role in these companies.

Philips, for instance, achieved carbon neutrality in 2020.¹⁰ Biogen reached this milestone in 2014, and has since become the first Fortune 500-company to commit to eliminating the use of all fossil fuels across its operations by 2040.¹¹

Nearly all major pharmaceutical companies have plans in place to achieve carbon neutrality – with timelines varying between 2025 and 2050. The same applies to MedTech companies, with major companies like MedTronic, GE Healthcare, Siemens and Stryker all aiming to realize this milestone by 2030.



“The Netherlands has become a frontrunner in the production of a new and innovative way to treat cancer.”

Case Study I: BMS, Kite and CAR-T Production

CAR T-cell therapy is a relatively new and highly individualized way to treat patients with specific types of blood cancer, for whom other treatments have failed.

With CAR T-cell therapy, a type of white blood cell (T-cell) is taken from a patient, and transported to a manufacturing facility. Here, the cells are engineered to recognize and attack cancer cells. These ‘reprogrammed’ T-cells are then multiplied, and sent back to be administered to the same patient.

Several leading companies in this space only had production facilities in the United States. Given the logistic challenges involved in the supply of CAR T-cell therapies, they sought to expand their manufacturing activities to the European continent.

Two of these companies located their first European production facility in the

Netherlands, turning our country into an international frontrunner in the production of this new and innovative way of treating cancer.

In 2021, BMS started the construction of a facility in Leiden, which is expected to open in 2024, and will provide 500 new jobs.¹² Kite opened a production facility in Hoofddorp in 2020, which came with an initial investment of €130 million. The site currently employs over 800 people. It can produce up to 4,000 cell therapy treatments a year for patients across Europe, and has the capacity to double this amount in the future.

Case Study 2: Janssen in Leiden

Janssen has a prominent presence at the Leiden Bio Science Park. This dates back to 1999, when Janssen acquired Centocor, which already had a manufacturing plant for biological medicines in Leiden.

Janssen has a prominent global R&D-organization: in 2021, Janssen filed for close to 400 patent applications. Part of these R&D efforts are taking place in Leiden and include

I. Economic Impact

pre-clinical and clinical R&D in a diverse set of therapeutic and technical areas.

In 2018, Janssen opened the Vaccines Launch Facility, a production site for vaccines against some of the world's deadliest infectious diseases. Leiden was also the birthplace of the Janssen vaccine against COVID-19. In 2021, Janssen expanded its capabilities with a second vaccine plant in Leiden.¹³

Case Study 3: MSD

The pharmaceutical company Merck Sharp & Dome (MSD) has a significant production, packaging, and distribution footprint in the Netherlands, which has created more than 5,000 jobs.

Since 1956, MSD has produced and distributed medicines in Haarlem. This location currently serves as a production facility for a medicine against river blindness, as well as a major packaging and distribution site – especially for vaccines. As the demand for vaccines continues to grow, MSD has expanded its Haarlem operations significantly over the past years. Several

activities were also relocated from the UK to Haarlem after Brexit.

Another production facility is located in Oss, which plays a key role in the production of one of the best-selling cancer medicines in the world: pembrolizumab. For this site, MSD has expanded its operations several times over the past years.¹⁴

Case Study 4: Amgen

Amgen is one of the leading biotechnology companies in the world. It operates two manufacturing sites in Europe, one of which is located in Breda. This site is responsible for assembling, labeling, and packaging of Amgen products, as well as their global distribution. With almost 700 employees and 250 contract workers, Amgen is one of the biggest employers of Breda.

Amgen also develops talent in the region. The company started an internship program in 2016, which allowed 120 trainees to gain experience in the pharmaceutical sector – 30 of which stayed with Amgen after their internship. Amgen also supports the 'Reizende DNA-labs', which offers labs and teaching

"In recent years, MSD has expanded its operations in both Haarlem and Oss."



1. Economic Impact

modules about biotechnology to high schools. The program reaches about 10,000 high school students per year.¹⁵

Bottlenecks

We want to further increase our contribution to economic growth in the Netherlands. At the same time, several bottlenecks remain in place – and keep the health solution sector from realizing its full economic potential.

1. A good business climate offers stability and predictability, but this is undermined when Ministries pursue different policy goals. In the healthcare sector, the Ministry of Economic Affairs seeks to stimulate innovation, while the Ministry of Health prioritizes affordability. This has led to conflicting policy aims on important topics such as IP.

2. The previous government installed several initiatives to improve the business climate for health solution companies. Such a plethora of initiatives shows ambition, but also carries a risk of fragmentation.

3. Health solutions companies are rarely involved in policy discussions – or only at the final stages of the process. Their perspectives are thus not optimally incorporated into policy decisions, which can lead to a disconnect between the policies and the needs of companies to effectively contribute to health ecosystems.

“With almost 700 employees and 250 contract workers, Amgen is one of the biggest employers of Breda.”



2. INNOVATION

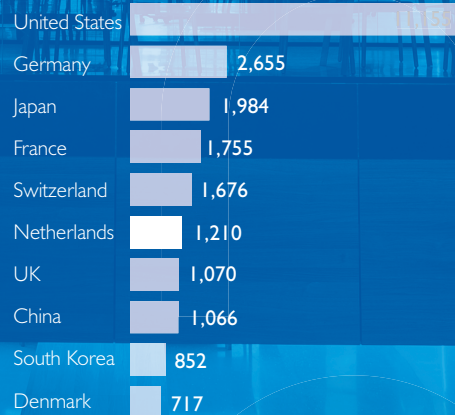
The new government wants to make a transition to a 'knowledge society' by investing in research and development, stimulating innovation through a National Growth Fund, and fostering public-private partnerships. The health solution sector can help realize this ambition, as our sector is an engine of innovation.

Patent Applications

One effective way to measure the level of innovation in a sector is the number of patent applications. On this metric, the health solution sector outpaces any other sector: medtech and (bio)pharmaceutical companies together submit 25% of all patent applications in the Netherlands.

This achievement is even more impressive in comparison to other countries. Worldwide,

only five countries request more healthcare patent applications. The Netherlands thereby leaves behind large economies like China, the UK and South Korea. When the number of applications is correlated to a country's GDP, only Switzerland and Denmark have a more innovative healthcare sector.¹⁶



Total patent applications in the healthcare industry by country, 2020

"The health solution sector is responsible for 25% of all patent applications in the Netherlands."

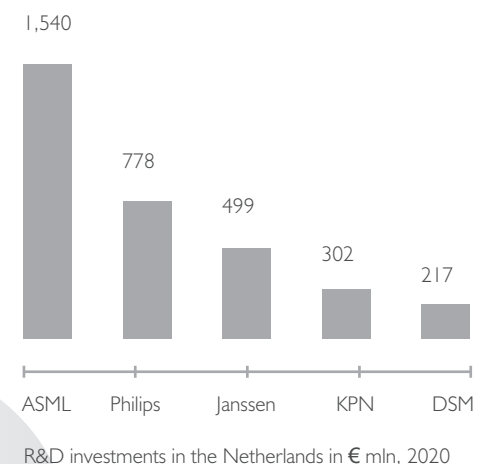
Investments in R&D

Private investments in R&D form a major source of innovation. Of the five companies with the highest R&D expenditures in the Netherlands, two are health solution companies – while the third is an important supplier for pharmaceutical companies.

- Philips is the second-largest private investor in R&D in the Netherlands, with total R&D expenditures of €778 million per year.
- Janssen spends €499 million on R&D in the Netherlands. Around 1,100 of the 2,700 Dutch employees focus on R&D representing about 9% of all R&D employees worldwide.
- The fifth company on the list is DSM, which invests €217 million in R&D. DSM is an important supplier for health solution companies.¹⁷

Collaborations

These private investments in R&D can benefit other players in the healthcare ecosystem when companies join forces with other



2. Innovation

stakeholders. In the Netherlands, such collaborations often take place on science parks, further contributing to these lively healthcare ecosystems.

Some of these collaborations take place between companies, for instance between multinationals and start-ups. Collaborations can also take the shape of public-private partnerships when companies collaborate with public institutions such as (academic) hospitals or universities.

Digital Care

The coalition agreement specifically mentions digital care as an important instrument to increase quality of care. Many companies in our sector have expertise in this area, and could help the government realize their ambitions. Digital care is a crucial source of innovation. It can ease capacity constraints within the healthcare system, ensure that care is offered in the right location ("de juiste zorg op de juiste plek") and increase efficiency – all without compromising the quality of care.

Case Study 1: Philips

Philips is an internationally famous example of Dutch innovation. The company has four Innovation Hubs worldwide: Cambridge, Bangalore, Shanghai and Eindhoven. The Philips Innovation Center Eindhoven serves as the headquarters for most innovation organizations within Philips. It receives 40% of the annual Philips R&D budget.

In Eindhoven and Best, 8,500 researchers work on healthcare innovations. This attracts researchers from all over the world: Philips employs around 80 different nationalities in these locations.

In 2020 alone, Philips applied for 1,419 new patents, most of which focused on medical technology. Philips thereby ranks ninth in the annual list of companies with the most patent applications in Europe, as published by the European Patent Office (EPO).¹⁸

Philips also played a key role in the development of Brainport Eindhoven and Eindhoven Medtech Innovation Center (e/MTIC). Eindhoven has become a strong medtech ecosystem, which includes

"In 2020 alone, Philips applied for 1,419 new patents, most of which focused on medical technology."

start-ups, SMEs, knowledge institutes, medtech suppliers and contract manufacturers – many of which work together with Philips.¹⁹

Case Study 2: Health Solution Companies and Academic Hospitals

Janssen has partnerships with two prominent Dutch universities and academic hospitals: Radboud University / Radboudumc, and Leiden University / LUMC. A key goal of these collaborations is to stimulate valorization: 'translating' the knowledge from these institutions into potential products.²⁰

Another example: the Novo Nordisk Foundation recently invested €300 million in stem-cell research in three hospitals. The LUMC was one of these three hospitals. It received approximately €100 million to



2. Innovation

replicate heart tissue and blood vessels to study diseases and test new drugs.²¹

Case Study 3: Amsterdam Skills Center

The Amsterdam Skills Center is a training facility for aspiring surgeons. They currently

need 30,000 hours of training before being allowed to operate independently. The ASC aims to reduce this time by a third by leveraging the newest technologies, insights and techniques.

The ASC opened its doors in 2019. It was developed by Amsterdam UMC and is fully owned by the hospital. However, the private sector also played an important role: the medtech company Stryker helped to realize ASC. Stryker has a prominent presence in the Netherlands: it moved



“The ASC leverages the newest technologies, insights, and techniques to train aspiring surgeons.”

its Head Office for European Sales to Amsterdam in 2015.²²

Case Study 4: Diabeter

Diabeter is a Dutch diabetes treatment center and research center. It was founded in 2006 by two pediatricians who wanted to improve diabetes care for children and young adults with type 1 diabetes. It pioneered integrative

diabetes care by combining high-quality clinical care with the newest devices and information technology.

Medtronic acquired Diabeter in 2015. This allowed Diabeter to further improve its concept and to expand its services to other countries – while retaining its independence. Diabeter started as a single treatment center that treated around 400 children and young adults. Since then, it opened four new centers. It currently treats more than 3,000 patients, expanding its services to patients of all ages.²³



2. Innovation

Case Study 5: Digital Care

A good example of the ability of digital care to ease capacity constraints is Healthdot, a wearable biosensor designed by Philips. It allows hospitals to remotely monitor a patient's heart rate, respiratory rate, posture and activity. This data is updated every five minutes.

The Healthdot was first used by hospitals to remotely monitor patients after a sleeve gastrectomy, which allowed patients to go home on the day of the operation. Healthdot also allowed hospitals to discharge COVID-patients at an earlier stage. This freed up capacity for new patients, while hospitals could monitor the discharged patients almost in real-time.²⁴

Bottlenecks

Health solution companies can make a greater contribution to innovation in the Netherlands, but several bottlenecks remain in place.

1. The Netherlands actively stimulates start-ups or mid-sized companies, but seems more reluctant to court large multinational companies – while other healthcare hubs in the world illustrate the importance of such companies for a healthy ecosystem.²⁵

2. R&D-investments in the Netherlands are relatively limited. The R&D intensity (R&D expenditures as part of the GDP) is 2,29% – just below the average of the European Union.²⁶

3. Valorization is the engine behind innovation, but the commercialization and implementation of innovation remains suboptimal in the Netherlands.²⁷

4. The current reimbursement system for medicines and medical technologies is outdated, which further hampers the (timely) availability of new innovation. For instance, the 'lock' for hospital medicines delays access by approximately 500 days.²⁸

5. The reimbursement options for digital care remain limited – while the application of this form of care is crucial for an innovative healthcare system.

6. Health solution companies are sometimes confronted with unnecessarily complex

“Digital care is a crucial source of innovation. It can ease capacity constraints, ensure that care is offered in the right location and increase efficiency.”

legislation that is slow to anticipate changes. This has improved in recent years (for instance on the environmental legislation that applies to clinical trials for cell and gene

therapy), but work remains to be done – especially in the field of clinical trials.



3. REGIONAL ECONOMIES

The coalition agreement wants to further stimulate regional economies. The health solution sector can support this ambition, as our activities are spread throughout the country. Indeed, 80% of the production value of health solution companies is generated outside the Randstad.

Case Study 1: Brabant

Brabant is home to several of the largest health solution companies in the Netherlands, such as Philips, MSD, and Amgen. Indeed, 23.5% of the Dutch health solution jobs are located in Brabant.

Partly as a result of the presence of these companies, Brabant produces impressive statistics. It is responsible for 30% of all R&D expenditures in the Netherlands and is the only Dutch representative in the top-50

of European regions with the highest R&D intensity. In 2021 alone, Brabant attracted 53 new foreign companies, which resulted in 1,841 new jobs and €369 million in investments.²⁹

Once a region has established itself as an important hub, it becomes even more attractive to companies. This 'snowball-effect' is also on display in Brabant, where the growth of healthcare jobs and companies outpaces the rest of the Netherlands.³⁰

Case Study 2: Healthy Ageing Campus Groningen

The Healthy Ageing Campus in Groningen brings together businesses, researchers and

“80% of the production value of the health solution sector is generated outside the Randstad.”

university faculties focused on Food & (e)Health, Medical Technology and Pharma. The area around the University Medical Center Groningen (UMCG) forms the beating heart of Healthy Aging activities.

The campus was founded in 2011 to attract and stimulate innovation and business activity on healthy ageing. All aspects are covered on the campus, from research to production. The Healthy Ageing Campus has since grown

to 14,253 jobs, 9,881 students and 103 companies.

One of the gems on the Healthy Aging Campus is the LIFE Cooperative, in which more than 40 SMEs and start-ups are united to increase the innovativeness of the Northern Netherlands and to make a real impact. The 40 companies and start-ups represent 4,000 jobs and €400 million in revenue.³¹



3. Regional Economies

Case Study 3: Health Campus Maastricht

The Brightlands Maastricht Health Campus focuses on cardiovascular research, biomedical imaging and regenerative medicine. It also acts as the knowledge transfer organization of Maastricht University and Maastricht University Medical Center (MUMC). As such it establishes new spin off companies, takes equity in them, and helps them grow.

The campus is home to scientific and clinical institutions like the MUMC, the Faculty of Health, Medicine and Life Sciences of Maastricht University, and the Maastricht Clinic for Radiation Therapy. This pooled technological, clinical and academic knowledge and expertise led to the creation of Scannexus, a European Centre of Excellence in Ultra-High-Field MRI.

The campus includes 120 start-ups and SMEs, as well as multinationals like Bayer Healthcare, Boston Scientific, Lonza and Medtronic. The latter opened a research Center with 45 employees in 1987. Since

then, this facility has grown to 500 employees from 35 different countries.³²

Case Study 4: Leiden Bio Science Park

The Leiden Bio Science Park has grown significantly in recent years, and is set to grow even further. It currently offers 21,000 jobs, with an additional 4,000 expected in the next three years.

An article in Leidsch Dagblad calculated the added value of the Leiden Bio Science Park to the economy of Leiden. For instance, the park is responsible for a third of the total employment in the city, with a direct and indirect employment of respectively 21,000 and 3,000 jobs.

The city of Leiden invests approximately €3.8 million per year in the park – expenditures on infrastructure, subsidies and personnel costs. The income is considerably higher: Leiden receives about €8.3 million in taxes, land sale and land lease.³³

“The Healthy Ageing Campus has since grown to 14,253 jobs, 9,881 students and 103 companies.”

Bottlenecks

These regional developments are very valuable for the Netherlands, but an important bottleneck remains: cooperation between clusters is suboptimal, which could lead to fragmentation and thereby hamper further growth.³⁴



4. OTHER COUNTRIES

Several other countries recognize the benefits of a strong health solution sector, and are actively courting these companies.

UK

In July 2021, the British government announced a 10-year strategy to stimulate the British health solution sector – with the ultimate goal of addressing seven key healthcare challenges. The strategy wants to help the sector grow, attract more investments, and create more high-skilled jobs.

The plan promises £1 billion of funding for the UK's "most promising life science companies", and help in attracting further investments.³⁵ The government has also taken steps to accelerate access to innovative technologies by modernizing the reimbursement system.³⁶

Results were quick to materialize. In 2021, UK-based biotech companies raised \$4,5 billion in IPO, venture capital and public funding. This represented a 60% increase versus 2020.³⁷

France

In 2021, the French government announced a program to invest €30 billion in multiple French industries, including the health solution sector – which is set to receive €7 billion. This should stimulate production in France, and also help French companies to develop more medicines.

The plans focus on stimulating start-ups, accelerating clinical trials, and attracting foreign companies – with the government pledging to offer them a "predictable and consistent" economic environment.³⁸

Belgium

Belgium receives 12,5% of the European investments in pharma R&D, while it only represents 2,2% of the population.³⁹ This is partly the result of government commitment, as governments have held quarterly meetings with the sector since 2007 to discuss the business climate for drug innovation.

In 2015, the government and the sector agreed on a pact that included measures to stimulate R&D in Belgium. This had an immediate impact: the same year, pharmaceutical R&D investments in Belgium increased by 5,5%.⁴⁰

A noteworthy example of the economic impact of the health solution sector on the Belgian economy can be found in Puurs, where Pfizer has a COVID-19 vaccine production plant. In 2020, this plant alone added €1 billion

to the Belgian GDP – singlehandedly raising GDP by 0.25%.⁴¹

Germany

Germany is currently the top exporter of pharmaceutical products and medical devices in Europe. The new government, which was installed in 2021, seeks to further stimulate this position. It wants Germany to become "the leading international biotechnology location", and promises to pursue this ambition "more intensely than before".⁴²

The German company BioNTech is internationally known for partnering with Pfizer to develop a COVID-vaccine, a significant amount of which is produced in Germany. In 2020, the company paid €3 billion in taxes in Germany, and boosted the GDP by 0.5%.⁴³

4. Other Countries

BioNTech is located in Mainz, and this city will receive €1 billion in taxes. Mainz started 2020 with the highest per capita level of short-term debt in Germany, but the BioNTech taxes allowed Mainz to pay off its debts – and still retain sufficient capital to invest in the creation of a global science and biotech hub, which the mayor believes will create around 5,000 jobs.⁴⁴

Ireland

Over the years, the Irish government has successfully employed tax-based measures to attract health solution companies to Ireland. For instance, tax exemptions made Ireland an attractive location for holding and commercializing IP, while the government also introduced a 12.5% corporate tax rate to further stimulate companies to move to Ireland.

Ireland also stimulates foreign companies to perform R&D in Ireland and to collaborate with local universities and companies in these efforts.⁴⁵ The impact has been significant: more than 50% of medtech companies in Ireland have dedicated R&D-facilities.⁴⁶

Italy

Italy has one of the fastest-growing health solution sectors in Europe. Export of pharmaceutical products has grown by 117% over the past ten years, the highest growth rate within Europe.⁴⁷

This is no coincidence: the government actively seeks to stimulate healthcare companies. In 2021, for instance, it announced tax breaks for companies involved in drug research. The Parliament also recently approved tax credits for companies that finance or perform R&D in orphan diseases.⁴⁸

More investments are likely, as the government allocated €2.2 billion in early 2022 to support the competitiveness of Italy's strategic industrial sectors, which include the health solution sector.⁴⁹

Switzerland

Switzerland offers many qualities that attract companies: political, economic, and social stability, as well as a strong economy, a highly

“In 2021, UK-based biotech companies raised \$4,5 billion in IPO, venture capital and public funding. This represented a 60% increase versus 2020.”

educated workforce, favorable taxation, good access to foreign markets, a solid infrastructure and a high standard of living.⁵⁰

This brought many health solution companies to the country. Zurich alone, for instance, is home to more than 1,000 companies. No other sector in the city has grown so rapidly in the past 20 years.⁵¹

Switzerland also illustrates the key role of multinational companies in healthcare ecosystems. Indeed, one of the characteristics of the successful Swiss health solution sector is the cross-fertilization between multinationals, local companies, and universities.⁵²



4. Other Countries

Bottlenecks

These foreign plans can hamper the Dutch ambitions to become an international healthcare hub. Health solution companies tend to compare multiple countries when expanding their activities. With several ambitious programs in place throughout Europe, it's vital that the Netherlands offers a competitive package that meets or exceeds standards set in other countries. If not, companies are likely to select an alternative home.

"With several ambitious programs in place throughout Europe, it's vital that the Netherlands offers a competitive package that meets or exceeds standards set in other countries."



5. ASKS

Many initiatives and ambitious stakeholders seek to stimulate the health solution sector in the Netherlands, but these moving parts can work together more effectively. We believe it's time to formulate an overall holistic plan to stimulate the health solution sector in the Netherlands. Such a plan could bring together the many initiatives that are already in place.

To make this plan truly effective, we propose the following characteristics:

1. Define a clear and singular goal: to stimulate economic activity and innovation.
2. Put final authority with the Minister of Economic Affairs.
3. Use a ten-year timeframe to create predictability and stability.
4. Actively involve health solution companies in the formulation of this plan.

5. Make it a key priority to attract more multinational companies to the Netherlands.
6. Design a future-proof reimbursement system for medicines, medical devices and digital care as part of this plan.
7. Put special emphasis on accelerating and improving valorization.
8. Define laws that could be simplified to support key activities of healthcare companies.
9. Ensure differentiation and complementation for regional healthcare clusters.
10. Study foreign plans to ensure competitiveness versus other European countries.

Let's Connect – Now!

We believe the time to connect is now. A new government is in place, and the health solution sector is eager to help the government achieve its ambitions.

To make an effective start, the AmCham Healthcare Committee proposes to organize a roundtable in the second half of 2022 to exchange views and ambitions. The American Embassy has kindly offered to host this event. Such a roundtable should ideally include representatives from key Ministries (EZK, VWS and OCW), as well as representatives from the AmCham Healthcare Committee, relevant trade associations, bioscience parks, and VNO-NCW.

6. INSIDE PERSPECTIVE

"In Brabant, we work on innovative solutions for tomorrow's challenges. We have a strong Life Science and Health sector in our province, with, among others, Philips in Eindhoven and MSD and Pivot Park in Oss. Philips and Organon have a rich history from which we benefit to this day – both in Brabant and the Netherlands.

This strong Life Science and Health sector doesn't only provide jobs, it also contributes to better health outcomes. Not only here in the Netherlands, but worldwide. We therefore continue to invest in these clusters, and we are encouraged to see that the Brabant ecosystem continues to attract existing and new companies. And yet, if we want to retain and expand these jobs in the future, we need to continue to invest and to innovate."

Martijn van Gruijthuijsen
Provincial Executive Noord-Brabant for

Economy, Finance, Knowledge and Talent Development

"Leiden is an international city of knowledge. The presence of the Leiden University, the Leiden University Medical Center and the Leiden Bio Science Park make Leiden the biggest national cluster in the Life Science & Health sector. The presence of this knowledge cluster, which holds innovation in high esteem, creates jobs and economic benefits – not only for Leiden, but for the entire region.

When it comes to Life Sciences & Health, the Netherlands is in the European top-5. And we can also count ourselves among the top players on a global level. The Life Sciences & Health sector develops knowledge and capabilities to meet tomorrow's challenges,

such as the growing capacity constraints in the healthcare system. The sector also provides economic opportunities, that also have an impact on a regional level. The Netherlands has the position and the potential to take a leading and ambitious position. I therefore fully endorse the call for an active LSH policy!"

Henri Lenferink
Mayor of Leiden

"Having lived and worked in the Greater Boston area, Cambridge and San Diego, I have seen the impact of a vibrant, world-leading Life Sciences ecosystem – for patients and society. The Netherlands could also become a leading healthcare hub. Most of the building blocks are already present,

but more work needs to be done to bring it all together.

Why would this need to be prioritized at this time? First, there is an increasing unmet medical need in the western world with its ageing population. Second, we are currently facing an unprecedented scientific revolution in biomedical research. The primary goal of seizing this opportunity would be to maintain and improve the health status in different populations.

Being a leader in Life Sciences would not only result in timely access to innovative therapies for patients in the Netherlands, but it would also create significant economic value. Examples of regions that have been truly successful in this respect include Boston, San Francisco, Shanghai, the Golden Triangle (Cambridge, London, Oxford), and San Diego.

6. Inside Perspective

Which factors are already in place to create a successful Life Science hub in the Netherlands? First, the European Medicines Agency (EMA) is based in Amsterdam, which facilitates access to the European regulators. Furthermore, the Netherlands is characterized by strong academic research, very good medical care, and a good infrastructure. There is also critical mass in the form of academics, clinicians, and a growing presence of biotech and venture capital.

However, Research & Development by multinational pharmaceutical companies is underrepresented in the Netherlands – even though the presence of large pharmaceutical companies is a key component of other biomedical ecosystems. Consider, for instance, the role of GSK and AstraZeneca in the United Kingdom. Other factors that need attention include effective technology

transfer offices, increased availability of capital, and cultural factors.

Let's turn the Netherlands into a Life Sciences hub by creating the optimal circumstances to become a world leader in Life Sciences, invent new transformational therapies for patients, and extract the value to make sure we can continue to invest in innovation."

Paul P. Tak, MD PhD FMedSci

President & CEO, Candel Therapeutics and
Honorary Senior Visiting Fellow, University
of Cambridge, UK



This report has been published by the AmCham Healthcare Committee in September 2022.

This report is based on publicly available data about the health solution sector in the Netherlands, selected and analyzed by Strategy& (part of the PwC network). Added to these data are the insights from health solution companies operating in the Netherlands.

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This report aims to start a dialogue: comments, questions or suggestions are therefore appreciated, and can be directed at the following persons:

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About AmCham

The American Chamber of Commerce in the Netherlands (AmCham) has been the

representative of the American business community in the Netherlands and of Dutch / international companies with major interests in the United States since 1961. AmCham represents the interests of its 320+ members in the field of trade and investment, and aims to strengthen the investment climate in the Netherlands and the transatlantic economic relationship.

About AmCham Healthcare Committee

The AmCham Healthcare Committee consists of innovative companies in the healthcare space. They aim to contribute to the quality, efficacy, and efficiency of the Dutch healthcare system by creating an optimal environment for innovation, private initiative, and public-private collaboration.

The Committee goes beyond a silo approach by bringing together a diverse group of innovative healthcare companies:

(bio-) pharmaceutical companies, medtech companies, healthcare service companies, and digital companies with a focus on healthcare.

The Committee envisions a healthcare system in which constant innovation is the norm. We believe that such an innovation-centered approach can provide a stimulus to a healthcare system that is already recognized as one of the best in the world. It can also form a crucial boost to the Dutch economy by turning our country into an international hub for innovative healthcare companies.

Participating companies are: AbbVie, Alnylam, Amgen, AstraZeneca, Biogen, Boehringer Ingelheim, Bristol-Myers Squibb, Gilead, GSK, IBM, Janssen (Johnson and Johnson), J.P. Morgan, Lilly, Medtronic, MSD, Pfizer, Philips, Reckitt Benckiser, Salesforce, Sanofi Genzyme, Simmons & Simmons, Stryker.



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Let's Connect,
and let's do it now!

