Innovating for the Future
A Focus on the Dutch Life Sciences and Health Sector

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Though small in surface area, the Netherlands is definitely not a minor player in the field of life sciences and health. The sector owes its position to active collaboration, cooperation and coalition-building between businesses, knowledge institutions and governments – a golden triangle aimed at removing barriers and encouraging innovation.

The focus on life sciences and health are due largely to the societal challenges that lie ahead. Our ageing population and changing lifestyles are contributing to the rising prevalence of chronic diseases and the demand for care, while rising costs and a shrinking workforce limit the ability to deliver.

“As part of its new economic policy, the Dutch government has identified nine top sectors that they plan to strengthen with the help of Dutch businesses,” shares Ms Karin Rancuret, Area Director of the Netherlands Foreign Investment Agency, based in Singapore. Approximately 1.5 billion euros have been made available to support this endeavour. The key aspect of the policy is the result of the Netherlands’ ambition to be the top five knowledge-based economy by 2020 through private investment in research and innovation. The government has earmarked the life sciences sector as one of the top sectors in view of its current strong position and scope for growth. It is investing about 500 million euros in public-private life sciences partnerships in just the health domain. The industry, universities and medical centers have doubled the public investment to a total of 1 billion euros.

The 21st century, Ms Rancuret says, belongs very much to life sciences. This innovative and technological sector focusing on the health of people and animals is developing rapidly, and activity levels are growing substantially throughout Europe. The Dutch life sciences and health cluster has a strong, innovative SME core dedicated to developing new and improved (bio)pharmaceutical products, medical devices and technology.

With an annual growth of 8%, the Dutch SMEs are at Europe’s front line, and accounts for 2.5% of the GDP and 2.5% of the working population, making an important contribution to the Dutch economy.

Innovation Across National Borders
Dutch businesses in the life sciences and health sector have a good service record. The sector is internationally competitive, and is recognized as a pioneer in a number of focus areas and niches. Philips, for instance, is the world leader in medical imaging and patient monitoring, DSM in biomaterials, MSD Animal Health in veterinary life sciences, and Crucell in a number of vaccines. Dutch businesses invest heavily abroad. In 2008, for example, Philips took over American company Respironics for EUR 3.2 billion and, in 2010 DSM acquired another American company, Martek Biosciences for EUR 828 million. Conversely, there is also foreign investment in the Dutch market, with Dutch companies involved in the biggest biotech deals in the world. GSK, for instance, has almost EUR 3 billion in outstanding milestone payments in the Netherlands. Galapagos, Prosensa, Merus and Pangenetics are top-class Dutch SMEs who all recently closed high-end strategic alliances with pharmaceutical giants.

“For life sciences and health businesses, innovation is absolutely vital, and the Netherlands is a hub of innovative activity,” says Ms Irene Lievaart, International Business Advisor, WestHolland Foreign Investment Agency. An example she cites is Crucell’s Quinvaxem® that offers a combined vaccine against five deadly childhood infections including diphtheria and tetanus. The vaccine is sold to developing countries, among others, in collaboration with Unicef.

The government and industry recently created the Life Sciences & Gezondheid (LSG or Health) programme to help small and medium-sized companies that account for most of the 935 companies in the Dutch life sciences sector, to find funding and opportunities to take their products to the next stage within the next five years.

The Dutch development portfolio currently comprises almost 60 (bio)pharmaceutical products in the clinical trial phase and 45 concepts for medical
devices. Working along large enterprises, SMEs also play an increasingly important role in the innovation sphere. Large pharma companies are now moving away from research and development towards search and development, outsourcing high-risk, early stage research through strategic alliances with SMEs and participation in public-private partnerships. Dutch SMEs actively participate in and profit from these new open innovation models, Ms Lievaart highlights.

While the level of interest in a relatively small market is not surprising, the sector boasts an outstanding knowledge infrastructure, resulting from above-average levels of investment each year in health-related research and development. Ranked 4th worldwide in terms of scientific output, the Netherlands has a strong academic system, with a number of eminent scientists in the life sciences sector. The innovations that have stemmed forward have their roots in fundamental research at knowledge institutions, which is one of the key indicators for success.

The Dutch public-private partnership model which includes the Netherlands Genomics Initiative (NGI) and the three Top Institutes (TI Pharma, Center for Translational Molecular Medicine (CTMM) and the Bio Medical Materials program (BMM) have set an international standard. The knowledge infrastructure aims to form direct bridges between fundamental and applied science, the life sciences entrepreneurs and the healthcare sector.

Challenges and Opportunities

Despite having a strong foundation, the Life Sciences and Health sector face both promising opportunities and challenges in equal measure. Times are changing. The health of an increasingly long-lived and ageing population places mounting pressure on society and the economy, not only in the Netherlands but also worldwide. The older generation is at greater risk of chronic illnesses that affects their quality of life and can cause health care costs to spiral out of control.

As Ms Lievaart explains, “The affordability and “staffability” of health care are under threat as a result of government cuts resulting in declining investments necessary to maintain the current position. The sector will be forced to focus on innovations that save both time and money. In a world where innovations involve a lot of time and even greater investments, this may require a completely new approach.”

On the other hand, if successful, the social task will be met with big economic potential, both for life sciences businesses, and for the country as a whole.

As well as being challenging, the current developments in the Netherlands also offer economic opportunities. Innovations that save time and money help preserve a sustainable health care system. Solutions that improve the quality of life and keep people healthy much longer generate new economic activity and higher productivity. In the long term, this means a higher gross domestic product (GDP). And if that GDP grows faster than the costs of health care, the Dutch system will remain affordable and both higher quality and accessibility will be guaranteed. At the same time, the reverse is also true. If the Dutch do not capitalize on the achievements this sector has made in recent years, opportunities will be lost and an insurmountable deficit will emerge.

To prevent this, the life sciences and health sector has joined forces to come up with a plan for the future. The point of departure is the foundation of the sector’s success: innovative products and solutions that can be swiftly and effectively applied in both the Dutch and international healthcare markets.

Seven Conditions for Success

The road from idea to innovation is a long and expensive one, fraught with risks. Only a small percentage of ideas make it. This means that the input must be high in volume and quality, the throughput swift and seamlessness, and the system must be guided by market demand.

A team of experts representing the golden triangle of academia, industry and government were tasked to evaluate current challenges hampering the growth and recommend strategies to take the industry forward. The group identified seven critical prerequisites that will enable the sector to seize opportunities and eliminate obstacles in order to pave the way for a successful future and a healthy society, at the national and international levels.
1. Portal to the world
The first prerequisite is a thriving market that serves as a portal to Europe and the rest of the world. Knowledge and skills are translated into cost-efficient health care solutions that fulfill a need and can therefore be converted into hard cash. Since, by and large, the Dutch market is not big enough to recoup the costs of developing medical applications, the Netherlands must form a portal to the much larger European and global markets.

2. Laws and regulations
In the life sciences and health sector, innovation and the marketing of innovation are subject to a plethora of national and international laws and regulations. Therefore, the second prerequisite deemed essential is to optimize those laws and regulations. It is important to allow the greatest possible scope for innovation, while maintaining rigorous safety testing and cost efficiency.

3. Workforce
The third prerequisite is to attract and train young and entrepreneurial talent. The knowledge-intensive, highly collaborative nature of the sector makes highly qualified entrepreneurs, scientists, regulators and investors indispensable.

4. Financial resources
The road from idea to innovation is long, investments large and the risks high. Access to the right capital, therefore, is another prerequisite for success. Not only must the amount of financial resources available be sufficient, the distribution and financial instruments to allocate the funds have to be tuned to the sector’s unique business model.

5. Knowledge base
A plentiful supply of high-quality, new insights and promising ideas stands by the continuity of a strong, fundamental body of knowledge. Scientific knowledge must be among the best in the world, while remaining accessible to (innovative) entrepreneurs. This combination of exceptional quality and accessibility is the fifth prerequisite. The clinical need forms the basis of both fundamental and applied research, and clinical practice plays a central role throughout the entire process of developing, testing and licensing.

6. Public–private Partnership
To achieve the best outcome, entrepreneurs, healthcare providers, healthcare users and clinical and non-clinical scientists must collaborate intensively from start to finish. A shared public-private innovation infrastructure is vital to bring these parties together, accelerating valorization from bench to bedside.

7. Self-Organizing Life Sciences and Health Region
To maintain its international competitiveness, the Netherlands must position itself globally as a single, self-organizing life sciences and health region. Parties involved will collaborate closely, plenty of networking opportunities are offered, and one joint message is spread.

Innovating for the Future
Changing lifestyles increase the prevalence of chronic diseases and the demand for care, while rising costs and a shrinking workforce limits a country’s ability to deliver. At the global level, countries have to cope with ageing populations that exhibit scores of chronic diseases. Patient care, diagnostics and medication need to be customized to cater to the various segments. Scientific knowledge is also expanding rapidly, as are the resulting opportunities. Genomics, systems biology, synthetic biology, ICT integration, biotech and advanced imaging are just a few of the exciting technological areas likely to spawn a whole new wave of medicine, diagnostics and medical devices.

Ms Rancuret reiterates, “The Dutch are already ahead of the game. The country has truly set the standard for open innovation. With its strong foundation and highly educated people, the Netherlands can play a key role in technology intensive areas of the value chain, such as technological development and technology-intensive production.”

Life Science in WestHolland
As one of the largest and most prominent Life Science clusters in Western Europe, WestHolland is home to some of the Netherlands’s top universities, research facilities and highly skilled labour. As a result, the region offers a remarkable pool of resources and expertise that has already attracted over 60 life sciences and medical technology companies that employ as many as 3,500 people.

The Leiden Bio Science Park is home to the largest concentration in life sciences activities in The Netherlands, and among the top bioscience parks in Europe. More than half of all biomedical life sciences companies in the Netherlands are located in Leiden, most of them being spin-offs from the university and the Leiden University Medical Centre (LUMC). This includes start-ups and multinationals like Crucell and Janssen Biologics, with activities ranging from R&D to manufacturing. Several centers of academic research in the areas of drug discovery, industrial biotechnology and medical technology are located here.

Leiden University, the LUMC and other research institutions at the science park are renowned for their world-class biomedical and genetic research. The park’s innovative atmosphere attracts new businesses whose R&D activities focus on platform technologies and services for the life sciences industry.

Due to the large number of companies and R&D institutes working in the biomedical and life science industry in WestHolland, there is always sufficient supply of skilled personnel. More than 33% of WestHolland’s total population has a bachelor’s or master’s degree and more than 18% of the working class is working in the health and wellbeing sector.
For foreign companies wishing to establish their business in the Netherlands and to take advantage of the Dutch business environment as a strategic base to cover Europe, the Netherlands Foreign Investment Agency (NFIA) is the first port of call. The NFIA was established for the specific purpose of helping and advising such companies by providing them with advice, information and practical assistance, quickly and on a confidential basis, as well as providing them access to a broad network of business partners and government institutions, all free of charge.

Founded 30 years ago, the NFIA is an operational unit of the Dutch Ministry of Economic Affairs, Agriculture & Innovation. Throughout the years it has supported thousands of companies from all over the world to successfully establish their business in the Netherlands.

Besides its headquarters in The Hague, the NFIA has local offices in the United Kingdom, Turkey, the United Arab Emirates, the United States, Japan, Korea, China, Taiwan, India, Singapore and Malaysia, as well as a representative office in Brazil, with extensive knowledge of country-specific issues.

In addition, the NFIA works together with Dutch embassies, consulates-general, and other organizations that represent the Dutch government abroad, such as Netherlands Business Support Offices (NBSOs) and Technical Scientific Attachés (TWAs in Dutch).