Life Sciences & Health in Brabant







This is why Brabant excels



Strong industrial
heritage (100+ years)
of companies like
Philips and MSD



Perfect geographical location between the biggest (air)ports of Europe

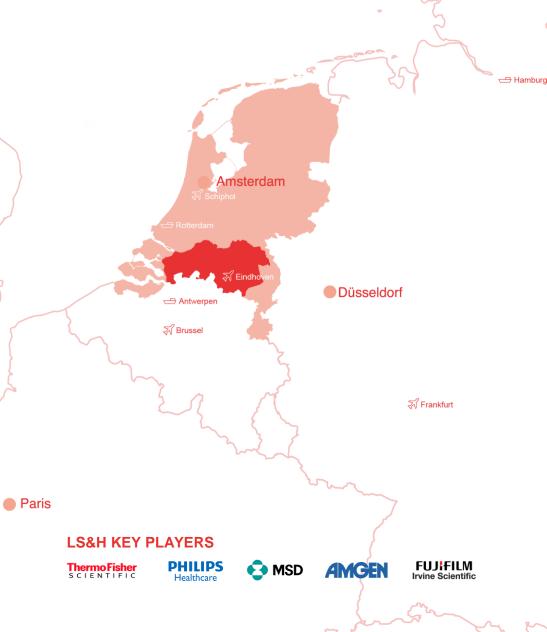


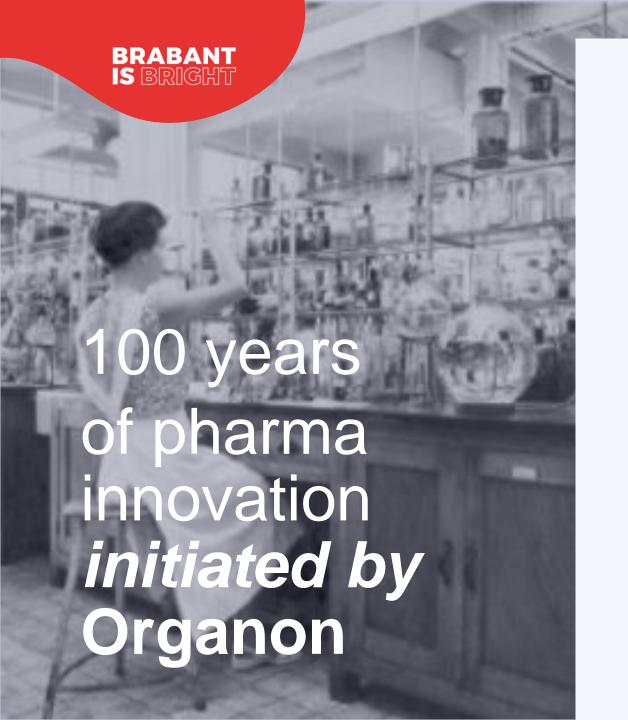
Excellent education
at 15 top universities
within a 1.5 hour's drive



A distinct strong culture, history and tradition in informal and constructive partnerships based on trust and open innovation

London





HISTORY

100 years in the making. Brabant's development into a pharmaceutical hotspot grew out of its industrialisation in the 19th century when Dr. Saal van Zwanenberg founded Organon. The company grew into the largest pharmaceutical company in the Netherlands. In 2009 Organon was acquired by Schering Plough, which was in turn bought by MSD in 2009.

TODAY

MSD is growing fast in Brabant with more than 4,000 people working at three locations. In 2012, the R&D-site of MSD/ Organon has been transformed into an open innovation campus called Pivot Park, at present with over 600 people and 60 companies working closely together on drug discovery and development, with a special focus on Immunology. And all this with drug success stories such as Pembrolizumab (Keytruda) and Calquence (Acerta Pharma/ AstraZeneca).

1923









ARDENA





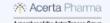
















HISTORY

100 years in the making. Brabant's development into a hightech hotspot grew out of its industrialisation in the 19th century when Frederik Philips and his son, Gerard, founded Philips. Philips grew into one of the largest hightech companies in the world and famous for for its lightbulbs, DVD players and TV-sets. After the year 2000, Philips saw a bright future in healthcare. So, company management decided to wind down and sell the components and lightning divisions.

2000











TODAY

Philips is a is a leading health technology solutions company with 73,000 employees worldwide, operating facilities in 100 countries. 11,000 people work in the Netherlands and the vast majority of those employees (8,500) is employed in the Eindhoven area. "In Brainport Eindhoven, Philips engages in research that focuses on innovations for clinics, software, high tech systems such as MRI & CT scanners and X-ray, and artificial intelligence. In the city of Best, Philips has the largest production site in the world. Philips is still driving innovation within the region and has created open innovation hubs like the High Tech Campus, where 12,000 researchers work in the smartest square kilometer of Europe.

2021

HIGH TECH CAMPUS













BRABANT IS BRIGHT

KEY FACTS



11.1%

growth of the sector from 2014-2018

8.4%

total LS&H sector in The Netherlands

5 billion euros

The Brabant Production Value in 2017 in the sector.

that's more than the production value of the all other eleven provinces together

JOBS

73.1%

of the Medtech Manufacturing Jobs and...

40.8%

of the Pharma Manufacturing Jobs are in Brabant 23,5%

18.160 jobs of the total LS&H sector in The Netherlands

10.000

people working for Tier 1 and Tier 2 high tech suppliers to the LS&H manufacturing chain

32.321

people who work in STZ-Hospitals or specialized clinics

BRABANT PATENT SHARE IN THE NETHERLANDS



Imaging, Diagnostics and Monitoring



Wearable Health Care



Immunology Diagnostics



Medical Technology



Biodegradable Valves



Robotics in Healthcare

Cluster size Life Sciences & Health

Source: In-depth Analysis Life Sciences & Health, 2020 (commissioned by BOM)



Because of this heritage Brabant particularly excels in:



Drug discovery and development with a special focus on Immunology



High Tech Manufacturing and Added Value Medical Technology Logistics



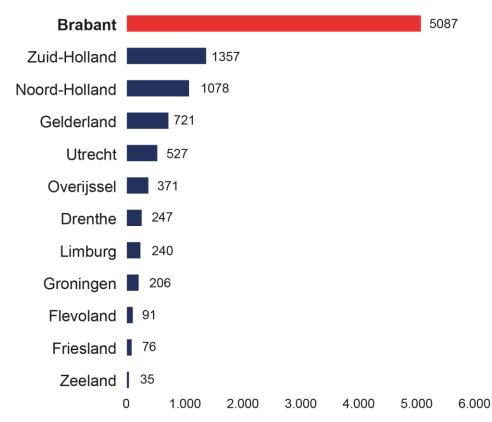
Biomaterials for Regenerative Medicine with orthopedic and cardiovascular applications



Building the most complex systems in the world for Imaging, Diagnostics, Monitoring and Medical Robotics



PRODUCTION VALUE TOP SECTOR LS&H (WHOLESALE NOT INCLUDED) BY PROVINCE



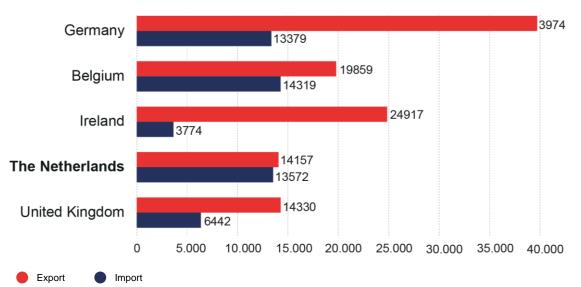
Source: Monitor Topsectoren, CBS (2017)



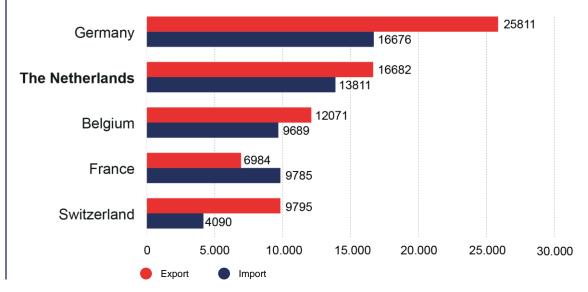
Impressive import & export







EXPORT AND IMPORT BY COUNTRY OF MEDICAL DEVICES BY COUNTRY (INCLUDING INTRA-COMMUNITY TRADE), MILLION EURO ²



- 1. Source: Eurostat COMEXT database, edited by Fanion onderzoek & advise 2018
- 2. Source: Medtech Europe, The European Medical Technology Industry in figures 2019, edited by Fanion onderzoek & advies 2017



Milestones foreign investment

AstraZeneca 2

AstraZeneca is to buy 55 percent of biotech firm Acerta Pharma in Oss to provide access to a new kind of blood cancer drug.

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Thermo Fisher (scientific instrumentation) and FEI Company (highperformance electron microscopy) announced Thermo Fisher's acquisition.





First time FDA approved a cancer drug called Keytruda, purely on the basis of tumor genetics. The drug was originally developed by Dutch scientists from the city of Oss.



Philips, the 126-year-old Dutch company, did a series of acquisitions with a strong focus on health technologies.



FUJIFILM started construction of a new cell culture media manufacturing site in the city of Tilburg.



MSD announces growth in Brabant, especially in the production of vaccines in the city of Boxmeer. The company is currently finalizing a new advanced factory at this location, employing 400.



LS&H footprint

Companies

All company establishments highlighted above are production or R&D operations

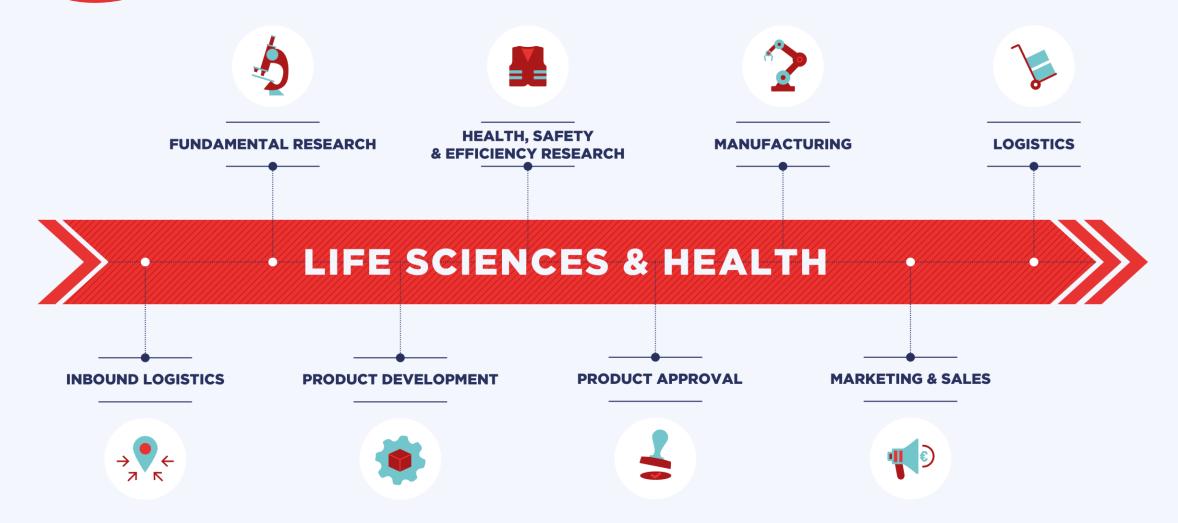
Education

- I. Eindhoven University of Technology (TU/e), Eindhoven
- 2. Avans University of Applied Sciences, Den Bosch/Breda/Tilburg
- Fontys University of Applied Sciences, Eindhoven/Bergen op Zoom/ Helmond/Den Bosch/Tilburg/Veghel
- 4. Pivot Park, Oss
- 5. High Tech Campus, Eindhoven
- 6. HAS University of Applied Sciences, Den Bosch





Integrated value chain core





Integrated value chain functions

Selection of companies



RESEARCH & DEVELOPMENT













QUALITY CONTROL & PRODUCT APROVAL







MANUFACTURING









Thermo Fisher SCIENTIFIC



SALES & MARKETING



LOGISTICS











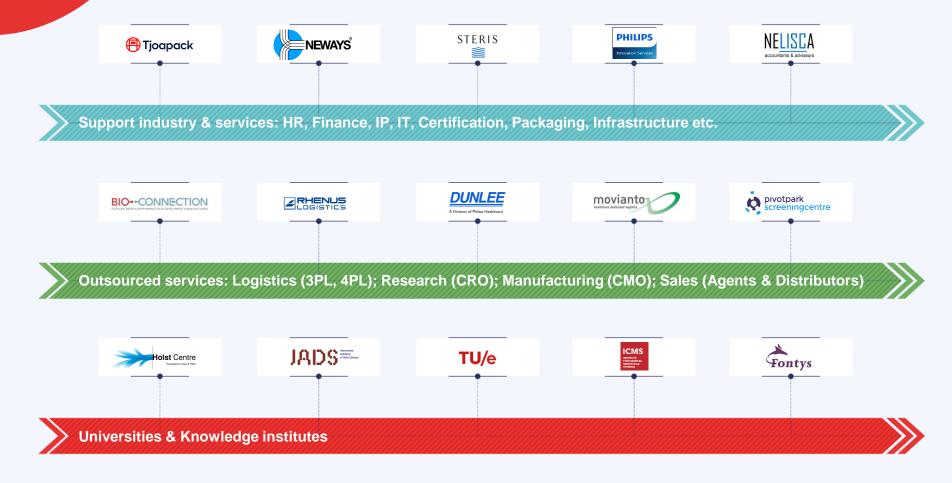












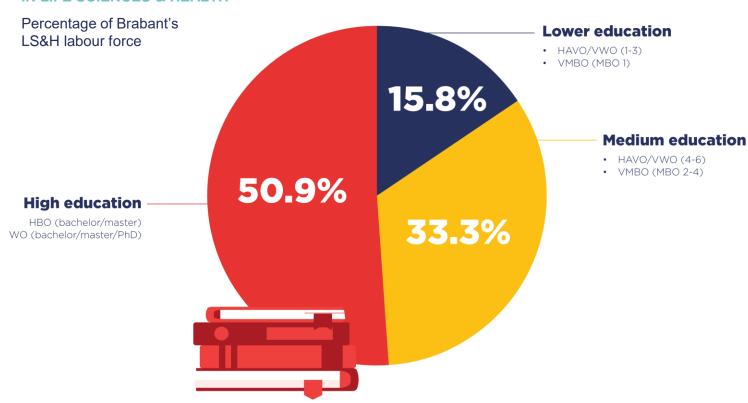
Integrated value chain support

Selection of companies

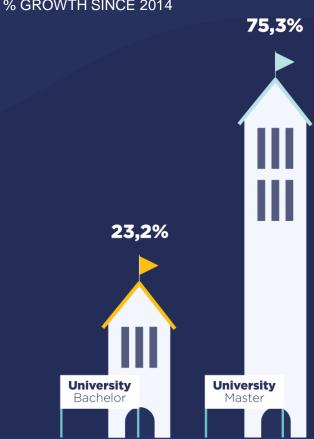


Highly educated workforce

NUMBER OF JOBS BY EDUCATION LEVEL IN LIFE SCIENCES & HEALTH



NUMBER OF GRADUATES IN LIFE SCIENCES & HEALTH % GROWTH SINCE 2014



BRABANT IS BRIGHT versity of Amsterdam VU Amsterdam Leiden University Utrecht 🛑 University **Delft University** of Technology 💆 Wageningen University & Research Erasmus University Rotterdam **Radboud University** Nijmegen JADS Den Bosch HAS Den Bosch **Tilburg University** Fontys Eindhoven **Eindhoven University** of Technology University of Antwerp Ghent University Hasselt KU Leuven Maastricht University **RTWH Aachen** University

Education – universities closeby

Within a radius of 150 km around Brabant, there are 22 universities in three countries: a total of 605,340 students, 255,680 of which in the field of nature, health or technology.



Institutes & healthcare centres

Main healthcare centers in Brabant Brabant has a fine-meshed network of health care centers. The larger hospitals provide all types of treatment. These hospitals are mainly located in the largest cities: Breda, Den Bosch, Tilburg, Eindhoven and Helmond.







Independent and open innovation R&D centre in Eindhoven, with special focus on wireless autonomous sensor technologies and flexible electronics. Holst is jointly set-up and operated by IMEC and TNO.





OBJECTIVES

- Providing feedback that encourages healthy behavior and lifestyle choices
- Improving quality of life while controlling healthcare spending



CORE COMPETENCES

- At the forefront of developments in personal health and biomedical sensing technologies
- Multifunctional solutions for wearable and non-contact monitoring



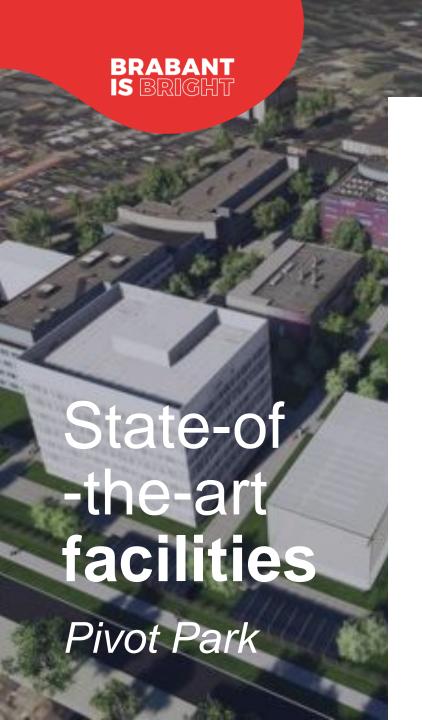
FACILITIES

- R&D prototyping in an open innovation setting, including initial clinical trials
- Circuit design to reduce power consumption
- Printed and flexible electronics lowers manufacturing costs and increases user comfort



APPLICATION AREAS

- · Chronic diseases (such as heart failure)
- Disease prevention through
- · behavioral change









OBJECTIVES

- Connecting knowledge and experience between established companies, startups and spin-outs
- Helping entrepreneurs to accelerate growth by providing facilities and infrastructure



COMMUNITY

 More than 60 life sciences companies, employing appr. 600 highly skilled people

Access to shared equipment for chemical, biological

· Ultra-high throughput screening centre and GMP-

certified pilot plants available on-site

Most firms perform product development, contract research, contract manufacturing and pharma support



CORE COMPETENCES

- Active and innovative pharma R&D and manufacturing community
- Providing start-ups with ingredients for kickstarting their company the best way possible



FACILITIES

 25.500 m2 of R&D facilities, labs, cleanrooms and office space. And 175 m2 open access lab.



APPLICATION AREAS

and analytical applications

- Immunology
- Oncology
- Cell therapy



Prominent players in Brabant























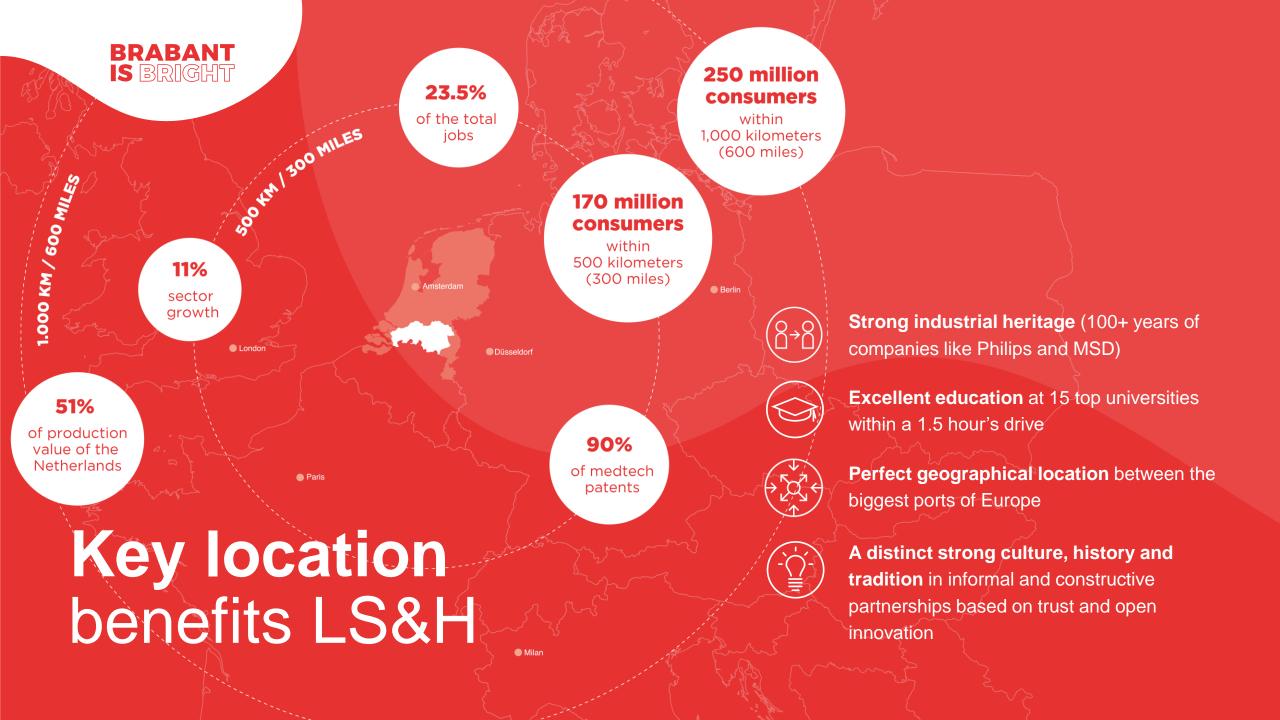


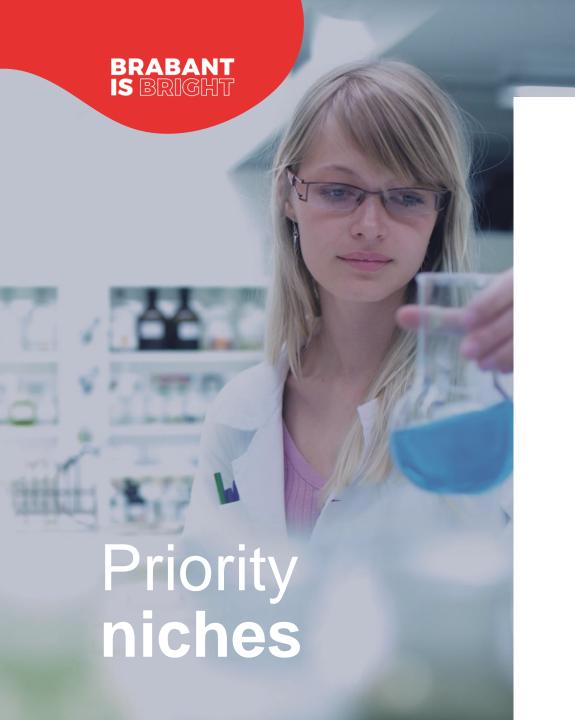














Data Science & Big Data in Healthcare



High Complexity Machines



Robotics in Healthcare



Drug Discovery & Development



Animal Health



Immunology (Oncology)



Imaging, Diagnostics & Monitoring



Regenerative Medicine / Regenerative & Engineering Biomaterials

BRABANT IS BRIGHT