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Mercator NovioTech

Science Meets Business Nijmegen

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Triple Helix works

Dr. Eva van Rikxoort:

Thirona medical image analysis

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B-WARE biogeochemical environmental research

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Colophon

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More top-end office space

As the New Year approaches, some good news: the prestigious office complex 52Nijmegen has been acquired by Kadans Science Partner, fitting in seamlessly with the Novio Tech Campus. This will facilitate cooperation and encourage links between researchers and entrepreneurs on this campus as well as those on the Radboud campus, thus benefiting both strength of innovation and economic dynamics. The growth of new businesses at both Nijmegen campus locations in recent years has already demonstrated this, as does the relocation of Dutch and international businesses and the uptake of new business premises. NovioTech Campus now boasts high tech businesses such as Ampleon, EPR and Nexperia and welcomed Vaxxinova and MDxHealth in the field of life sciences. Mercator Science Park has recently begun to house start-ups such as Adformatic, Ox-Max, Thirona, BisQQ and Structure Systems while Radboudumc has equipped premises for Gight and Khondrion.
In October, the business programme Briskr was launched to aid the start-up and growth of new businesses. This issue of the magazine will focus on this and other examples of top research, technology & business. The launch of Briskr also shows how involved businesses can be with innovation initiatives in the biotechnology, health, semiconductor & high-tech sectors. This magazine extends the broad reach of this innovation with its interviews with representatives of the top sectors chemistry and energy, the Rabobank and other businesses. Nijmegen's numerous projects have been working towards its goal of being a sustainable city, as a prelude to 2018, when Nijmegen will be European Green Capital. The city therefore has a strong focus on sustainable construction and energy, in cooperation with businesses and knowledge institutes.
Many sustainable building projects are now underway on the green Radboud campus. Read more about some of them in this magazine: sustainable renovation of the Dentistry building and the university administration building in the traditional Berchmanianum, with a new build for the Faculty of Social Sciences. Student numbers keep rising, as does use of public transport by HAN and Radboud staff, hence Heyendaal train station is in need of extensive renovation. 2018 is a jubilee year for the Radboud as well as the Year of Mariken, kicked off by the Mariken Women's Run in the spring. Culture, sport and movement in a healthy living and working environment are just as important as innovation and sustainable mobility and future-oriented energy and construction projects.
We wish you a healthy and happy 2018 and a wonderful Radboud - Mariken - Green Capital year. We hope you enjoy reading this Mercator NovioTech Magazine. This is already our tenth issue, with plans for a new style magazine in 2018.

Drs. Michel ter Berg,
BV Campus Radboud Universiteit.

Drs. Hein van der Pasch,
Mercator Incubator Nijmegen.

Dr. John J. Schalken,
SMB-Life Sciences.

Ir. Rikus Wolbers,
Novio Tech Campus.

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Radboud University Campus: green and future-proof

Aerial photo of the Campus, July 2017

The new Faculty of Social Sciences building

Major building activities are underway at several locations on the Radboud University Campus, some reaching their conclusion stage and others just starting. Making the buildings more sustainable and creating a greener, park-like environment on campus are top priorities in the planning.

Interview

"Sustainability is high on the agenda. We are creating a better interior climate for existing buildings and working on energy efficiency," says Michel ter Berg, deputy director at the University Department of Property Management. "We are making major progress by linking various buildings to the Aquifer Thermal Energy Storage (ATES) system that heats buildings in the winter using stored surplus heat from the summer months. Conversely, winter cold is stored for cooling in the summer. Instead of only using the ATES system for handling peak demand, we now also use it to maintain average temperatures and to provide extra cooling or heating during extra cold or hot periods. This allows us to achieve a much higher efficiency relative to the capacity of our heat storage wells. Initially only the Huygens building and the Linnaeus building were heated and cooled this way, but now Magnetenlaan (HFML), the Grotius building and the Gymnasion have also been connected to the ATES system. We are paying particular attention to the smart underground exchange of heat and cold and efficient routing of surplus energy."

Demolition and construction

"A major project at the heart of the campus with the most people passing is the construction of the Faculty of Social Sciences building," continues Michel ter Berg. "To make way for this, the majority of the buildings in the Thomas van Aquinostraat have to be cleared and demolished. This is a complex logistical operation since we have to relocate the current users and aim to carry out the demolition and construction with as little inconvenience to neighbouring buildings as possible."

Construction on the new Social Sciences building will start in 2018 and should be completed by 2020. In mid-2017 the new accommodation in the Gymnasion was delivered for the HAN Institute of Sport and Exercise Studies (ISES), originally located in the north-wing of the Gymnasion. The Nijmegen School of Management will be located in the extended north side of the Gymnasion from the end of 2017.

The redevelopment of the Berchmanianum, the former Jesuit college, is well underway and will be completed by mid-2018. This historical building will serve as the Academy Building for academic ceremonies. The Executive Board and Radboud Services, with all supporting services, will also be located there. The current administrative building at the Comeniuslaan will function as temporary accommodation for parts of the Faculty of Social Sciences.

The prominent Erasmus building will gain a more active role as a hub connecting all the other buildings spread in all directions across the campus. On the 20th floor all partition walls have been removed and 60% of the newly-created open space is being used as a pilot for a new office concept with flexible work-

Michel ter Berg in front of the Dentistry Building

stations. The remaining space is now being used as a larger meeting room with magnificent views over the campus and the surroundings. This more transparent new office concept with more efficient use of space can easily be introduced on other floors of the Erasmus building, but is already in use in the Huygens and Grotius buildings and the Gymnasion.

"In the near future the plinth of the Erasmus building will be tackled," says Michel ter Berg. "The current restaurant, De Refter, will make way for a new restaurant concept with a wider range of products. There will also be other facilities related to shopping, culture, and recreation, intended to strengthen the central role of the Erasmus building by day as well as in the evening. The neighbouring Berchmanianum estate of about 7.5 hectares will become an integral part of the campus after restoration of the original 18th century elements. The combination of this beautiful landscaped park and the new buildings with their smaller footprints will result into a more unified and greener campus."

Room for development

Michel ter Berg is also the Managing Director of BV Campus, a wholly owned subsidiary of Radboud University Nijmegen. BV Campus develops and manages the commercial buildings at the Mercator Technology & Science Park: Mercator I, II and III and the University Business Centre (UBC). "Mercator III belonged to the former Faculty of Science complex and dates back to the time before the energy crisis. We have now connected this building to the ATES system and provided it with the best possible cooling, significantly increasing comfort in the summer months. We are also replacing the uninsulated single-glazed aluminium window frames with new window frames with insulating glass, making it comfortable in the winter months, too. This makes the building far more future-proof and energy efficient.

The occupancy rate for the four office buildings is 96%. There are plans to demolish the UBC building around 2020 and locate start-ups in the adjacent Transitorium; far more modern and twice the size. This building currently houses part of the Social Sciences Faculty, who will also move to their new building on completion. Demolishing the old UBC building will create room for future developments. After all, safeguarding expansion and contraction on our campus for the next 25 to 40 years is crucial. A campus needs plenty of extra room for development, allowing for new construction and changing functionality. We will therefore never capitalize on 100% of our development capacity, otherwise we would restrict ourselves in the long run. A campus is never finished and keeps on changing. Part of the appeal of a campus is determined by its speed and flexibility in reacting to changing needs!"

New entrance to the Berchmanianum

B-WARE: experts in biogeochemical research

B-WARE Research Centre was founded in 2002 as a spin-off of Radboud University's Department of Aquatic Ecology and Environmental Biology. B-WARE has 27 employees and specializes in research on biogeochemical and ecological processes affecting nature and water management. B-WARE is located in Mercator 3 on the Mercator Technology & Science Park and works in close cooperation with scientists from Radboud University, focusing on a fruitful exchange of knowledge on applied and fundamental research. Piet-Jan Westendorp, General Director at B-Ware, talks about their expertise, USPs and strategy for the coming years.

"We conduct research into the quality of the environment and water, concentrating primarily on the biogeochemical side of research, i.e. the chemistry of ecology. We are pretty unique with this specialization, particularly as we have our own lab facilities. Many organizations have divested themselves of their labs in the past few years to reduce costs. We conduct the entire research process from start to finish: collecting soil and water samples, the various stages in lab preparation, analysis and interpretation of the research data and the final report and practical recommendations. We are able to give clients advice they can really use, based on applied scientific research."

Nutrient problems

B-WARE focuses on both wet and dry ecosystems and supports projects creating natural areas such as those where former farmland has to be converted into 'new nature'. "Among the things we investigate are to what extent fertilizer use has interfered with the soil profile. What natural potential remains in the topsoil or possibly deeper? Possible recommendations could be to excavate the topsoil, or to use specific agricultural management to extract as many nutrients from the topsoil as possible. Another example is water system analysis, such as marsh restoration projects, research into moorland pools and claypits, ditches, large lakes, etc. We conduct targeted underwater sediment research in lakes and riverbeds and use specialist equipment to extract intact drilling cores. We can then measure how many nutrients are released from the underwater sediment and whether these interfere with water quality. If so, a possible solution could then be to remove the sediment by dredging."

B-WARE has a very diverse customer base: national, provincial and local government, regional and other conservation organizations, private land managers, waterboards and consultancy firms. B-WARE operates mainly in the Netherlands, but earns 20% of its revenue in Belgium. "We want to focus more on the foreign market and can see good opportunities there. We are called on directly as consultants, but larger clients also involve us in projects abroad, from Germany to Singapore. With our expertise, we can basically go anywhere in the world. The Netherlands is a knowledge exporter, but so far there has scarcely been any development in the foreign market in the field of ecology."

Blue-green algae and drug residues

Apart from widening their client base, Piet-Jan Westendorp has also spotted opportunities for developing new research and consultancy services. "Local councils have to shoulder a growing number of tasks and responsibilities and hence consult us more frequently. For instance, they seek advice about blue-green algae in recreational waters. We are also approached more often by drinking water companies. In recent years, the focus for water management was mainly on nutrient issues, for which a lot of measures have already been taken. A growing problem that water management will have to face in the years to come is surface water pollution by hormone-like substances and a cocktail of chemical substances and drug residues. Every year new substances are added and the need for research will rise accordingly. We are already preparing ourselves with our own research projects and new concepts for water treatment. All in all, the foreign market, new clients, expanding our services and the proactive development of new ecological concepts are our key issues for the next few years."

www.B-WARE.eu

Piet-Jan Westendorp

InnovatieLink matches innovation supply and demand

The InnovatieLink foundation supports the technologies involved in the Top Sector Policy of the Dutch Ministry of Economic Affairs and Climate. It was founded by the Top Sectors Energy and Chemistry, with the aim of supporting SMEs in their innovation processes. The main focus is on finding solutions to issues faced by SMEs nationwide, chiefly by finding out how to link up the right partners. By doing this, InnovatieLink helps businesses find funding solutions, knowledge, start-up locations, and collaboration partners. InnovatieLink's main objectives are publishing, organizing themed events, talking through ideas with businesses in the field and of course, making connections. An interview with Chris Bruijnes, Manager and General Director at InnovatieLink/ChemieLink, about their mission and vision.

Chris Bruijnes

During StartupFest Europe

"The Top Sector Chemistry uses **ChemieLink** as the brand name covering the current **InnovatieLabs (iLABs)** and **Centres of Open Chemical Innovation (COCIs)**," begins Chris Bruijnes. "When we started ChemieLink, the iLABs and COCIs already existed. We believe, however, that there ought to be far more interaction between the knowledge institutes than is now the case. Universities, campuses and 'valley' regions tend to organize things close to home and group their activities internally. We also see opportunities for far more cooperation across regional borders. After all, taking the next step in innovation is not location-specific. The supply of research facilities and available infrastructure are especially crucial. We want to unlock this supply so that more businesses will be able to find and use these facilities. On the one hand we want to bring SMEs closer to the iLabs and COCIs, yet on the other we want to learn more about SME's needs for looking further afield."

InnovatieLink model

Chris Bruijnes believes that the Top Sector approach is an important cornerstone for innovation. Commissioned by the former minister of Economic Affairs Henk Kamp, an extensive evaluation report by research company Dialogic was published, 'Evaluation of the Top Sector Approach'. In a letter to the Dutch parliament, Minister Kamp wrote, "The results of the evaluation are positive about the

effectiveness and efficiency of the Top Sector approach. A policy transition such as that started in 2011, with the Top Sector approach as a specific track of business policy, cannot be realized overnight, passing through several stages of development. During the term of the previous government, collaboration between businesses and knowledge institutes in the relevant networks was stimulated and strengthened. The evaluation shows that the stronger innovation system created then can continue to be used during the term of the next government, with a shift in emphasis towards the new government's ambitions and goals for societal challenges and key technologies."

However, there is also room for critical comment. "I personally think that the Top Sector approach is too compartmentalized," says Chris Bruijnes, "even though that is an inevitable result of the conscious choice of nine Top Sectors. The same organizations, people and businesses are often involved. I have said before that we miss out on 80% of the innovation power of SMEs simply because those businesses don't associate with the Top Sector approach and we lack an overview of them. They feel no connection to this approach and mainly concentrate on their own work and development. About 300 SMEs within ChemieLink have found their way to us, but many businesses barely make use of the tools available to them under the Top Sector policy."

"InnovatieLink is a model that can function for various Top Sectors such as Energy, High Tech Systems & Materials or Life Sciences & Health. We do use the technology groups from the Top Sector policy as a guideline for InnovatieLink, but we have deliberately chosen to give InnovatieLink a more generalized focus. For chemistry it was useful to set up a separate ChemieLink, because the field was already highly organized with a good infrastructure. In contrast, the subsector Biobased Economy is much newer, has a wide diversity of innovative businesses and locations and as yet is less structured. Historically, the chemistry sector is much better organized."

> "InnovatieLink can act as a model for other Top Sectors"

The crucial role of the client

"A crucial question to ask, is what is your ultimate aim for society with your innovations. By using terms such as 'sustainable' and 'circular' we indicate that things need improving. Yet you often see that initiatives such as the Top Sector approach are technology-driven; technology determines the agenda whereas we ought to be using societal issues to set our course. We talk about the triple helix, the golden triangle between government, research and business. In fact, the triangle is really only silver, not gold, because it leaves out a fourth element, possibly the most important of all: the client and end-user. This is exactly what makes it so complex, because clients are often further down the supply chain and require several technologies and suppliers for success. A business that wants to become circular, for instance, needs suitable raw materials, manufacturing methods, transportation, packaging and the like, hence being dependent on suppliers from several sectors. However, the Top Sectors are really on the level above this. Top Sector policy is therefore too focused on developing new technology, but once that technology exists, it is by no means guaranteed that the level of implementation is sufficient. The government needs to change tracks. Leave the depth in Top Sectors and continue unlocking technology for the market, but the issue should be approached from a societal viewpoint. The big change will only come when the end-user is able to evaluate innovation in terms of time savings, cost reduction and the payback period. Get that wrong and entrepreneurs simply won't take it up."

Schemes are too bureaucratic

What is your role when it comes to start-ups? Can they make a difference with their innovative technologies in a market primarily dominated by larger parties? "At the moment you see that large businesses are becoming more interested in start-ups and their ideas, but it is always with an attitude of 'we know what needs to be done'. The larger businesses are still too dominant in the innovation process. ChemieLink wants to join forces so that start-ups receive more attention and support. Start-ups do play an important role in innovation, but are often do not qualify for the available incentives. There is also too much bureaucracy, forcing start-ups to delve into all kinds of complicated schemes, when it is not even clear if they are eligible. It is possible to get an innovation voucher every now and then as a small business, do a viability study, or get a small so-called MIT grant (from the Dutch Regional and Top Sector innovation fund for SMEs). Currently the larger sums mostly go to 'the establishment', more often than not, with applications

prepared in advance by consultants. We have done some research with a number of businesses to see how much use they made of various regulations. Many entrepreneurs know of the options, but think it is far too laborious, uncertain or time-consuming."

More up-front support

He continues, "Large players such as AkzoNobel with their 'Imagine Chemistry' challenge programme are committed to more start-up involvement in innovative developments that they themselves view as challenges in their own business. During the StartupFest Europe 2017, Startup Delta's event, the agenda was mainly set by corporations, while start-ups could apply for an exploratory conversation. Even though this could be useful, many start-ups view their innovation as disruptive and feel no connection with the establishment. The incoming government should investigate how they can give more up-front support to start-ups and SMEs with faster and less time-consuming schemes, enabling them to follow their own innovation route. A good example is BioBooster, a support programme provided by the Province of North-Brabant in collaboration with partners REWIN, BOM and InnovatieLink. This small-scale scheme lets us help small businesses to take the next innovation step. A little financial assistance allowed them to move forward rapidly with their innovation plans. Small businesses have entirely different dynamics so that time-consuming bureaucratic funding projects don't suit them."

"However, we should not just focus on start-ups; there are plenty of SMEs that are doing very innovative work, though start-ups do have the greatest difficulty finding funding for new developments. Classic bank financing doesn't apply to them, because they have no track record with the bank and the risks are too high due to lack of security. Even larger venture capitalists will only move when an innovation has been demonstrated to give a return on investment. Funding start-ups demands investors with expert knowledge, experience in a specific sector and a feeling for the business development process. This is why we are setting up a funding network called Business Angels Network ChemieLink with the aim of investing in the right innovation and in businesses that would otherwise struggle to find funding. The network involves entrepreneurs who want to provide funding before the 'Valley of Death', whose technological knowledge and entrepreneurial experience enables them to make a fair assessment of the soundness of an investment. ChemieLink merely has a facilitating role. There is a great deal of subject-related knowledge within the network that can be used to justify financial proposals."

> "We simply miss out on 80% of the innovation power of SMEs"

Thematic meetings, tools and communities

InnovatieTour and StartupFest Europe (ChemieLink) are some of the thematic meetings and events InnovatieLink is involved in organizing. The InnovatieTour takes entrepreneurs on an inspiring trip to get to know the Netherlands' innovation hotspots in chemistry, energy and the biobased economy. As well as visiting the facilities at interesting locations, it gives participants the opportunity to share their knowledge and inspiration with other starting and growing businesses. So far, four InnovatieTours have taken place: first to Eindhoven Technical University, then to Biotech Campus Delft, (Chemistry) Tour Amsterdam and iLAB Nijmegen. In April 2018 there will be another InnovatieTour in Nijmegen, a collaboration between the two Nijmegen iLABs on the Radboud University Campus/Mercator Technology & Science Park and on Novio Tech Campus. InnovatieLink has also been involved with the organization of StartupFest Europe, a global festival aimed at bringing together and stimulating the growth of starting businesses. Set up together with ISPT, another of our thematic meetings is TechMatch, focusing on collaboration between new technologies

InnovatieLink has also been involved at the start of communities such as Offshore Wind Innovators, developing wind energy at sea. Work is currently being done to set up GoChem, a multi-year programme for SME and Universities of Applied Sciences, where 5 million euro per year is spent on collaborative projects in chemistry and the biobased economy. Other projects are the InnovatieAtlas and FinancieringsAtlas, providing a national overview of innovative entrepreneurs and of financial and government organizations in the chemistry and energy sectors and the biobased economy.

Crossing borders

InnovatieLink aims to cross regional borders to promote pooling of resources in the Top Sectors. "As soon as regions, knowledge institutes, campuses and regional 'valleys' in the Netherlands join forces, we will also be placing the Netherlands even more firmly on the map. We already have a good relationship with the neighbouring European countries and beyond. We recently welcomed visiting Chinese scientists and entrepreneurs who were very interested in the setup and organization of the iLABs and COCIs, for instance. This kind of organizational model is definitely something that could be exported to other countries and the InnovatieLink model itself could also easily be marketed internationally. In the area of financing innovative start-ups, we already have valuable contacts abroad such as the Deutsch-Niederländische Handelskammer (German-Dutch Chamber of Commerce); our neighbour North Rhine-Westphalia is an extremely innovative region with opportunities for cross-border cooperation and financing. InnovatieLink's main aim is to make connections and we don't want to be limited by borders. Innovation crosses borders," says Chris Bruijnes in conclusion.

www.innovatielink.nl
www.chemielink.nl

Ox-Max scores with RFID

Ox-Max founder Tim van Os

The University Business Centre (UBC) at the Mercator Technology & Science Park in Nijmegen is the location of the company Ox-Max. Ox-Max provides products and services for large running and cycling events. Their assortment ranges from materials such as starting numbers and safety vests to the leasing of time clocks, podiums and LED screens. One of their most important services is a software and timing system based on Radio Frequency IDentification (RFID), developed in-house.

"Per year, Ox-Max is involved in the organization of about 500 outdoor sporting events in the Netherlands and Belgium," says founder Tim van Os. "We have a great deal of expertise in registering participants and processing personal sporting achievements. For this we use RFID chips that are attached to a sports shoe, the starting number or on a handlebar number plate.
The RFID chip is linked to the participant and records time and rank. The registered data are further processed by our software and the participants can look up their results online. They can also consult statistics with personal results: where they ranked in their age category, ranking in their home town or region and so on. Moreover, we can link photos and videos to this, so that participants are later able to see images of themselves crossing the finishing line. We also ran a project in which the RFID technology allowed runners to get an encouraging message from their friends or family on a screen on the home stretch. We find that that these personalized results and statistics are viewed avidly and are very much appreciated as an encouragement."

Data security

Tim van Os sees even more possibilities for the RFID software and the infrastructure that has already been developed for sporting events. "We already provide a lot of data, but it is crucial that the security of data is guaranteed. The security level of our data is what determines our trustworthiness as an organizing partner. So far, we only use the data for the participants themselves, but you could also use it as input for scientific research. However, for biomedical research, a different type of sensor technology would be needed to measure certain functions. We ourselves see more value in researching participants' motivation for exercising, then using this information to draw conclusions and to get more people to move. In other words, focused more on the social value of sport and exercise from the perspective of health and social connections."

Tim van Os continues, "The location here at the campus makes direct contact with Radboud University much easier. We have now built up a good network of computer and data scientists who are involved in the development of our software. For the successful application of software and apps in practice you need three parties: the technical person, the project manager but most importantly a pilot project where you can test your items in real time. This interactive environment is where we further develop and fine-tune our software. In our branch of sport, we see many opportunities for scanner apps and the smart phone and that is why we are going to start focusing more on these aspects."

Focusing is a strategic choice for Ox-Max in any case. "We could find even broader applications for our registration software, of course, for instance at trade fairs, musical events or other large-scale events. However, we deliberately chose the niche market of running and cycling events. We are seeing a clear trend and an increase in the sort of sporting events where you can take part flexibly and individually and yet social networks can grow up around them. We are not opting to diversify, but would prefer to roll out our niche expertise to other European countries such as Germany and France," is Tim van Os' ambitious conclusion.

www.ox-max.com

Briskr supports businesses with impact on Health & High Tech

On 12 October 2017, during the Impact on Health and High Tech meeting at Novio Tech Campus, the launch took place of Briskr, a joint programme involving several parties active in the Dutch Top Sectors Life Sciences, Health & High Tech. Briskr is an economic incentive programme for the region, aiming to streamline and strengthen efforts to support and raise the profile of innovative start-ups and SMEs. Briskr is the founding partners' response to the strong growth of innovative knowledge-intensive businesses in the region.

Left to right: Briskr programme manager Rikus Wolbers, Nijmegen councillor Jan Zoetelief, Provincial Representative Michel Scheffer and John Schalken, Business Support manager at Briskr.

"The reason for this collaboration is the fact that, until now, many innovation initiatives were rather scattered across the region," says programme manager Rikus Wolbers. "By clustering these initiatives, we can provide a much better range of support activities as well as strengthening the Health & High-Tech ecosystem." In addition to streamlining support, Briskr also contributes to raising the joint profile of the region and its innovative businesses, knowledge institutions and research facilities.

Briskr Academy and facilities

John Schalken is manager of Business Support at Briskr and as such is responsible for the Academy. "At Briskr Academy we are planning to offer a coherent range of workshops, consultation sessions, and other activities. Entrepreneurs can sign up and learn more about subjects such as funding, intellectual property or product creation. Entrepreneurs can take part in one session or follow a complete cycle of activities."

Providing facilities is another advantage Briskr has to offer. "Businesses are often not aware of the availability of research facilities in the region," Rikus Wolbers continues. "Bridging the gap between business and science is one of the things we are stimulating. There are wonderful opportunities for businesses to do project-based research at Radboud University, Radboudumc and HAN University of Applied Sciences. We will be pointing out these options and proactively putting them in contact with each other."

John Schalken emphasizes Briskr's goal. "We want to increase the impact on Health & High Tech. Nijmegen and its surrounding area have a strong basis in semiconductors with multinationals such as Ampleon, NXP and Nexperia, but we also have a strong Healthcare climate, thanks to the presence of Radboudumc and various start-ups with their origins in this knowledge-rich environment. That impact will only increase as the Health & High-Tech sectors continue to grow. That means we want to attract new businesses, but we also want existing businesses to expand. Retaining people with knowledge-intensive expertise is essential to achieving this goal."

Briskr consortium

The Briskr consortium consists of parties participating in the Triple Helix: the Municipality of Nijmegen, Health Valley Netherlands, Kadans Science Partner, Novio Tech Campus, Oost NL, the Province of Gelderland, Radboud University, Radboudumc and SMB Life Sciences. These parties are joined by associate partners such as Business Cluster Semiconductors, Rabobank Rijk van Nijmegen and The Economic Board.

Rikus Wolbers

Rob van Gijzel, former mayor of Eindhoven

Impact on Health & High Tech

During the 'Impact on Health & High Tech' meeting, several speakers gave presentations on innovative products and services and the cooperation between businesses, knowledge institutions, government and other network partners. The Chairperson for the day was Marjolijn van de Zandschulp, director of the Municipality of Nijmegen and COB of the Briskr programme.

It is evident that Triple Helix works

The first speaker was Rob van Gijzel, former mayor of the city of Eindhoven. He shared his experiences with setting up Brainport and looked back on four crises that needed to be solved. At the heart of his discourse was the transition from traditional manufacturing industry to creative knowledge industry in the Brainport region. In that context Van Gijzel contradicted one of Confucius' sayings, 'the student may not rise above the master', by saying, "Innovation intrinsically means that the student does rise above the master. Imagination is more important than knowledge; knowledge sees what is already there, while imagination sees what could be. What you imagine does have to be put into practice. Remember that development never goes in a straight line, it comes with ups and downs. All success is built on the shoulders of failure. This is why we have to give up the dogma of success above everything. Things should be allowed to go wrong."

Marjolijn van de Zandschulp interviews Provincial representative Michel Scheffer. Nijmegen councillor Jan Zoetelief (L.) and Rob van Gijzel (R.)

"The Triple Helix works, that much is evident," continued Van Gijzel. "You do have to give others enough space and properly allocate tasks and responsibilities in a governance structure. Although in many cases public resources are involved, government should not have the final say: not about the programme, not about the projects, nor about the processes. But, if possible, do appoint a mayor as the chair of the Triple Helix, as they can play an important part in national and international political relations. Make sure the scale is manageable which has the advantages of short lines of communication and fast cross-overs, but do involve as many parties as possible, both nationally and internationally. Choose your themes from the 'Grand challenges for Engineering' and build a platform with many partners. The right choices and focus are essential for success. The scale determines the focus; a larger scale simply means less focus. Build on existing strengths. A culture of sharing is essential. It is not just about knowledge, but also about trust and social interaction, mutual respect and allowing others to succeed. Define common interests and take those as a starting point. Visit universities and institutions for Higher Professional Education, but do not forget the vocational schools and secondary schools to make young people enthusiastic about technical studies."

Van Gijzel advocates supporting the plans of both start-ups and scale-ups with advice as well as funding. "These entrepreneurs lack the resources to grow. Often money seems to be the stumbling block, but there is plenty of it around. What we call 'The Valley of Death', is called 'the Bridge to Innovation' in China. That says it all!"

Nijmegen's ecosystem is its greatest asset

Michel Scheffer, Provincial Representative of Gelderland and Nijmegen councillor Jan Zoetelief were asked for their opinion on the Triple Helix. According to the province's Mr Scheffer, "Copying Brainport is pointless. Our situation is different, we have a different starting position and there are no crises here. The ecosystem in Nijmegen is our main asset. Scale and scope are crucial; you have to choose wisely depending on your own scale." Councillor Zoetelief replied, "Just like Brainport, the Nijmegen region has enormous energy and potential. Cooperation is important, but we also need to be brave enough to look over the fence. We don't just have to create physical links between our knowledge institutions; the entire city has to

become the campus. We have to think in wider terms, beyond our own regions. The Netherlands viewed from space is one large metropolis."

More attention for semiconductors

Edwin de Rooij, deputy CEO at Synthon and board member of The Economic Board then explained how Synthon grew from start-up to grown-up. "The ecosystem in this region is very important to Synthon. We need other large players around us to exchange knowledge and people, but small businesses that are just starting are also important."

Charles Smit, Sr. Vice President & General Counsel of Nexperia commented, "With the presence of leading semiconductor businesses, Nijmegen has a good chance of marketing itself even more strongly as a centre for High Tech. Companies like NXP work as a magnet for investments, high-tech businesses and talent, as do Nexperia and Ampleon." There are already over 2,200 highly qualified people employed in the semiconductor industry in Nijmegen. Over ten thousand corporate guests visiting semiconductor businesses like Nexperia from abroad are also good for the local economy, using local hotels, conference facilities and taxis.

Han van 't Klooster introduced his company PharmaCytics, located since 2015 on Novio Tech Campus and specializing in chemical synthesis. PharmaCytics is working on a method to improve the absorption of drugs by linking medication to food groups and introducing them into the bloodstream via receptors in the small intestine.

Bram Bregman, Director of Radboud Innovation: "Briskr is a running mate for entrepreneurship and impact." On the right, Dirkjan Masman, Director of Valorization at Radboudumc

Silver de Bruijn, account manager at Rabobank Rijk van Nijmegen also described how the innovation service Teckle works, also located on Novio Tech Campus. In doing so, he also introduced Michiel Allessie and his business Sleep.ai, who developed an app for diagnosing snoring and teeth grinding when sleeping.

Official launch of Briskr

To conclude the event, the official launch of Briskr took place with the symbolic presentation of the three focal areas 'Support, Innovation & Collaboration'. Among those present was Theo Föllings, Vice President of Business Development Oost NL who commented on Briskr, "Anyone who wants to do business in this region should be able to step out on the red carpet without noticing who is helping him on. It should be fast and easy, without tripping up." Bram Bregman, Director of Radboud Innovation said, "Briskr is a running mate for entrepreneurship and impact. This needs us to open up the campus and make the collaboration visible. Briskr allows us to take those steps."

Toasting the launch of Briskr

The official launch of Briskr on October12 2017. From left to right: Marjolijn van de Zandschulp, Director of the Municipality of Nijmegen and CEO of the Briskr programme - Theo Föllings, VP Business Development Oost NL - Boudewijn Smits, Manager Bedrijven Grootzakelijk Rabobank Rijk van Nijmegen - Jeff Gielen, Director Kadans - John van Sambeek, Director Science Meets Business - Jan Zoetelief, Nijmegen councillor - Sigrid Helbig, Director The Economic Board - Barry Peet, Director Business Cluster Semiconductors - Bram Bregman, Director Radboud Innovation - Chris Doomernik, Managing Director HealthValley - John Schalken, Manager Business Support Briskr - Dirkjan Masman, Director of Valorization, Radboudumc - Roland Nordbeck, Province of Gelderland - Rikus Wolbers, Director Novio Tech Campus.

Deep learning algorithms for medical image analysis

Thirona, a Radboudumc high-tech spin-off, develops computer algorithms for automatic analysis of medical images. The company was founded in 2014 by Dr. Eva van Rikxoort and Dr Bram van Ginneken, Professor of Functional Image Analysis. Currently Thirona employs 20 people, predominantly data scientists, in the Mercator 2 building at the Mercator Technology & Science Park.

"At Radboudumc, working together with several colleagues in a research group, we developed computer-aided diagnostic applications for radiology," recalls Eva van Rikxoort, Managing Director at Thirona. "There was a growing demand from the market for the software we had developed for analysis of CT images for COPD screening. Receiving a large assignment from the COPDGene Study, a major research project hoping to identify why some smokers develop COPD and others do not, was essentially our incentive to start up Thirona and commercialize the software. A second large analysis assignment came from Pulmonx, a leading biochemical company developing cures for pulmonary disease. After several research studies, an increasing number of pharmaceutical and biotechnical companies approached us, leading to the decision to further enlarge Thirona's service package. Our first and most important product is **LungQ**, a quantitative image analysis system for lung CTs, used for research trials and in clinical settings. It is used in around 110 hospitals worldwide. They upload the scans, we run the software and carry out the entire certified analysis to see if a patient is suited for a COPD treatment. In addition, we have developed computer-aided detection software, **CAD4TB**, for detecting tuberculosis by means of x-ray images. For TB screening, Thirona is only responsible for providing the software for Delft Imaging Systems diagnostic imaging equipment, which the company mainly markets in Africa where many doctors do not have the equipment to examine x-rays. We use another of our products, **RetCAD**, to analyze retinal scans, images of the eye, for diabetes screening. The software for analysis of retinal images has recently been put on the market through a distributor."

Global potential

Thirona's service is almost completely automated and based on 'deep learning', a type of artificial intelligence that means software can learn all on its own by working out the meaning of images. "Last year we started replacing all our algorithms with deep learning algorithms," explains Eva van Rikxoort. "We have not quite reached that point with the CT test because that is the most extensive software package. Step by step we are replacing the most important components. The other products are now almost completely based on deep learning."

Thirona is growing rapidly and has global potential. "We are investigating how we can market our CT test suite more widely. Since our service package is modular, it can be quickly adapted for the analysis of other diseases such as lung cancer. Our USP is our great expertise in digital image analysis and deep learning. Moreover, our researchers have a good knowledge of the specific medical field, making them familiar with the language of our clients. Our comprehensive service package makes us unique too. Software packages offered by competitors often force the user to perform certain actions themselves, whereas we take all the work out of the client's hands. Due to our growth plans we are constantly on the look-out for good data scientists and research assistants to further develop our software and keep the infrastructure operational. Security issues in particular take up a lot of time and attention. Globally there is still an enormous untapped market for our analytical software and services. Up until now, our clients have mainly been the ones to approach us, with us serving the market through our distributors. However, for the past year, our CEO Guido Geerts has been actively working to open up new markets."

www.thirona.eu

The Opening of InScience 2017 with festival manager Johan van de Woestijne (photo: Henk Beenen)

A review of InScience:

Dutch International Science Film Festival

From 8 till 12 November, the third edition of InScience, the Dutch International Science Film Festival, took place in and around LUX Nijmegen. InScience confirms its reputation as the top festival for showing the best science films of the previous year from around the world. Top scientists from home and abroad share their insights, with an extensive educational programme stimulating pupils of primary and secondary schools to tell the difference between fact and fiction. With partners including Novio Tech campus, the InScience festival brings together the region's knowledge and offers a stage for the results of scientific research. InScience looks back on its third edition in November.

The slogan of the third edition of InScience was 'No Facts, No Future'. In these days of fake news, alternative facts and internet trolls, truth no longer seems to be *the* truth. We are fed the news we want to read and hence what we already believe is confirmed as true. With this slogan, InScience took a firm stand in the age of alternative facts, post-truth and the idea that science is only an opinion. 54 films were selected for the programme out of a total of more than 300 science films. No fewer than 25 films were shown in the Netherlands for the very first time. The Arnhem/Nijmegen region's focal themes were reflected in the programme: Food, Health and Energy. By showing the latest films, InScience makes new insights available to everyone through a diverse, creative and innovative programme.

Filmmaker Marleine van der Werf and researcher Floris de Lange of the Donders Institute during the showing of The Prediction Machine (photo: Almicheal Fraay)

Food, Health, Energy & Technology

InScience responds to topical scientific issues. With its up-to-date science films, lectures and debates, InScience is all about the societal impact of science and innovation. The films that contribute to the programme range from feature films and shorts to scientific documentaries. Hence the documentaries *Food Evolution (2016)* and *Well Fed (2017)* highlighted the discussion about genetically modified (GM) food versus organic food. In the programme *People in Healthcare*, the audience was given a look behind the scenes of healthcare, followed by a discussion led by neurologist Bart Post of Radboudumc, discussing the impact, treatment and consequences of Parkinson's disease. *The Farthest*

Do-It-Yourself Labs in the Mariënburgkapel (photo: Kristina Kovalenko)

The Mariënburgplein during InScience (photo: Henk Beenen)

(2017) by Emer Reynolds took the viewers on a forty-year trip through space with NASA's Voyagers. Once again, this year another hot topic in the programme was humankind and pioneering technology. The documentary *Cyborgs Among Us (2017)* showed that there are people who crossing the barriers of their human limits. Afterwards Professor Wouter Serdijn of Delft University of Technology took part in the debate and, based on his expertise in the field of bioelectronics, talked about how technology can become part of the human body.

Talks & DIY Labs

The central festival lecture was held on Thursday, 9 November by Philosopher Laureate René ten Bos on the theme of 'No Facts, No Future'. How do scientists deal with an audience that is suspicious about facts? "In these complex times, the nature of facts has changed," according to Ten Bos. As Professor in the Philosophy of Management Sciences, he expressed his critical reservations about the age of alternative facts. In addition to the films and lectures, the audience could also take part in hands-on science in one of the Do-It-Yourself Labs. Research institutions such as the Max Planck Institute, HAN University of Applied Sciences and the Donders Institute provided demonstrations of test apparatus in the Mariënburgkapel.

InVision

Besides a public festival, InScience is also a meeting place for film professionals and scientists. With the title of InVision, an expert meeting was again organised this year. By bringing scientists and filmmakers together, InScience stimulates the making of new scientific films, sharing research with a wider audience. Perception researcher Floris de Lange of the Donders Institute presented his idea during InVision at InScience in 2016. This soon led to a collaboration with filmmaker Marleine van der Werf. One year later, their film *The Prediction Machine* was finished and premiered during InScience.

Award show

On the Sunday the festival concluded with the presentation of the awards. A selection of the films was nominated for the following awards: the NTR Audience Award and the Student Jury Award. Media partner NTR and InScience together selected the twenty best documentary films from the programme and the audience could vote for their favourite. The documentary *Chasing Coral* by director Jeff Orlowski received the most audience votes and won the NTR Audience Award. The documentary shows the alarming rate at which coral reefs are dying, zooming in on the consequences of climate change. In a video message, the makers of the film responded, "We are humbled beyond belief". The makers were awarded a prize of € 2,500. You can watch the film on Netflix.

The student jury announced *Dusk Chorus – Based on Fragments of Extinction* as the best scientific film: "This film makes the symphony of the most diverse ecosystem of our planet audible in an innovative and artistic way". Filmmaker Alessandro d'Emilia received the award and the prize of € 500. "The importance of the film for me is to keep going and finding new topics and new input. It is not a new topic, but the way in which it is made shows a whole other way to tell the story of extinction".

InScience connects the region

InScience offers a glimpse into a new world. At the point where science, technological development and application meet, InScience wants to act as a platform for connection. The festival contributes to raising the profile of Nijmegen as a city of knowledge and encourages innovation, education and entrepreneurship. InScience brings together all the institutions of higher education in the region: Radboud University, Radboudumc, HAN University of Applied Sciences, ArtEZ Institute of the Arts, Rhein-Waal University of Applied Sciences and the Max Planck Institute, but businesses like Novio Tech Campus, Biolegio, Nexperia and Synthon are also festival partners. InScience looks back on a successful edition, thanking all the partners who have made the festival possible. Now we look forward to InScience 2018.

Winner of the Student Jury Award, Alessandro d'Emilia (photo: Almicheal Fraay)

Legal structure for start-ups

For a start-up, the right choice of legal structure is essential for successful entrepreneurship. The legal structure chosen has consequences for things such as liability and various tax schemes.

Legal

Servé Sondeijker is associate civil-law notary at Hoge van Gerven, a full-service notary's office for all jurisdictions: property law, company law, family law, inheritance law and estate planning. Sondeijker specializes in corporate law and advises businesses in that field. "This could be for companies with share capital, but also for partnerships, joint ventures, or drawing up a shareholder agreement. The focus in all these cases is on legal structure, often in consultation with a tax adviser. To do this we use the tools that legislation offers: legal mergers, legal splits or acquiring companies. There are various options for structuring the company more efficiently that also offer tax advantages. It is important to research in advance realistic business risks for now and the future and to assess how these can be minimized."

"For start-ups there are several options with respect to legal structure: sole trader status, general partnership (VOF), or limited company (BV). For knowledge-intensive businesses it is almost inevitable that they start as a private limited company since they usually start off as a joint effort, either with more than one initiator, collaborations with external advisers or involvement of investors. Intellectual Property (IP) can also be included in the general partnership, allowing the creation of a group structure when business has expanded enough to make this necessary. A general partnership possesses its own legal personality and it may be desirable not to place IP in the risk-bearing activities, but in a separate holding. External investors have their own investing principles and this may mean that they require certain securities to be recorded in legal statutes or agreements. Even if everything is very clear and there are only 2 or 3 initiators, it would still be advisable to add a shareholder agreement to the private company contract. This records all agreements about what is expected of each partner, or what happens in the eventuality of the illness or death of one of the partners, for example. In the past, a private company tended to be very rigid, but nowadays the so-called Flex-BV Act allows more freedom for including agreements between shareholders in the statutes. It is important to review these agreements on a regular basis, to check that they are still appropriate for the next stage of the business."

Innovation has matured

Servé Sondeijker advises many starting businesses. "One interesting business is Mercurna, a start-up and spin-off of Radboudumc, involved with the development of a precision drug for chronic kidney disease. We are assisting in the transition from spin-off to start-up. We have also worked with the business Khondrion, another Radboudumc spin-off that develops drugs for mitochondrial disorders, setting up their legal structure and giving advice on how to proceed. Today's start-ups are fully aware that matters of company law need to be well addressed, probably because entrepreneurship is receiving more attention in the curriculum, but also because universities and colleges themselves are paying more attention to commercialization. I applaud this; it shows that innovation has grown far more mature. I have a particular personal interested in knowledge-intensive businesses because they have so much growth potential here and in the rest of the world. Crossing different sectors, a knowledge-intensive business can be a catalyst for new start-ups. My international experience with knowledge-intensive businesses in Asia, Australia and the US is very useful in my consultancy work. What is more, Hoge van Gerven has a good network, allowing us to introduce interesting contacts to each other – without breaching confidentiality, of course – in the interests of possible fruitful collaboration," concludes Servé Sondeijker.

For questions about notarial issues, Hoge van Gerven has a weekly free consultation hour on Tuesdays between 11 and 12 o'clock.

www.inloopspreekuurnijmegen.nl / www.hogevangerven.nl

Servé Sondeijker MBA, associate civil-law notary for corporate law at Hoge van Gerven Notaries

MDxHealth opens a service and research lab in Nijmegen

CEO Dr. Jan Groen

MDxHealth SA is a Belgian publicly-listed company, specializing in developing cancer diagnostics. At the beginning of October 2017 MDxHealth opened the doors of its 700 m² service and research lab at the Novio Tech Campus in Nijmegen, using it as their base for serving the European market.

"MDxHealth has its roots in the Belgian company OncoMethylome Sciences which was founded in 2003," begins CEO Dr. Jan Groen. "The company licensed the methylation technology for detecting cancer cells from John Hopkins University in Baltimore and went public in 2006. In 2010 I got on board and we changed the company name from OncoMethylome Sciences to MDxHealth. We investigated how we could use this technology to develop products within one segment of oncology and chose urology: prostate, bladder and kidney cancers. In Europe our activities are mainly aimed at providing diagnostic kits to hospitals, who then perform the tests in their own laboratories. In the US it is done differently: 70 % of patient sample testing is outsourced to commercial laboratories. The number of urological conditions in proportion to the number of inhabitants in the US does not differ much from Europe, but the US business model using a service lab is the fastest route to the market. At the time, we scaled down our activities in Belgium and established a new company in Irvine, California. 175 people work there now, 50 of them in sales. We carry out the tests in our own lab in Irvine, sending the results to the doctor and the invoice to the insurance company."

> "Service lab business model is fastest route to market"

ConfirmMDx and SelectMDx

In urological oncology, the greatest need was for prostate cancer tests. Initially MDxHealth developed a tissue test for prostate cancer and marketed this in the US under the name ConfirmMDx in 2012. "In the US it is standard practice to screen men over the age of 50 and a blood sample is taken and tested with a prostate-specific antigen (PSA) test. Patients with an elevated PSA level are referred to a urologist. A biopsy is then the standard procedure for detecting prostate cancer. On an annual basis, 1.3 million prostate biopsies are taken, with 200,000 men being diagnosed after microscopic examination of these samples. Many results are negative in spite of an elevated PSA level. The ConfirmMDx test proves whether the tissue taken is indeed negative and hence, for inconclusive results, it removes the necessity of a repeat biopsy."

"In 2015 we took over the company NovioGendix that had developed a non-invasive urine test called 'Quattro'. We then put it on the market under the name SelectMDx," Jan Groen continues. "This unique test can be used for cases with an increased PSA level to determine whether a prostate biopsy is necessary at all. If the SelectMDx test is negative, no biopsy is required because there is a 98 % certainty that no malignant cancer is present. This prevents unnecessary and unpleasant biopsies, thus minimizing the group requiring biopsy or MRI."

Hybrid business model

From Nijmegen, MDxHealth's 25 employees serve the European market, using a hybrid business model providing both diagnostic kits and service tests to laboratories. "We already serve a large number of hospitals and laboratories in the Netherlands and Belgium and have recently signed contracts with hospitals and laboratories in the majority of European countries and in the Middle East. Due to our acquisition of NovioGendix, Nijmegen was the logical choice for our business location. Another major consideration is the relationship with Radboudumc as a reference centre for prostate cancer research, where there is a great deal of expertise with renowned researchers such as Prof. Jelle Barentsz, Prof. Jack Schalken and Prof. Peter Mulders.

A new element is our bladder cancer test providing an alternative for the normal method of cystoscopy that uses a camera for internal examination of the urethra. This test has been marketed in the US under the name AssureMDx. Together with Ismar Healthcare, MDxHealth has also developed an online platform (*www.prostatemdx.org*) where doctors can ask questions about the test methods. A similar platform exists (*www.prostatebiomarker.org*) for patients who are worried about an increased PSA level."

www.mdxhealth.com

Investing in the development of innovative products in Healthcare and the Life Sciences is hot. For starting businesses without any significant revenue, however, it can be very difficult to get funding. We spoke to Jos Willemsen, Corporate Banking account manager at Rabobank Rijk van Nijmegen and Florian Ludwig, Investment Director at Thuja Capital about their funds for early-stage financing.

Investing in Health care with High Touch

Jos Willemsen, Corporate Banking account manager at Rabobank Rijk van Nijmegen (left) and Florian Ludwig, Investment Director at Thuja Capital

Financing

Florian Ludwig has worked with medical device companies for several years, including in Silicon Valley, an international medtech hotspot. In 2016 he moved over to the world of venture capital and started working at investment firm Thuja Capital Management in Utrecht. Venture capitalist Thuja specializes in early-stage investments in the field of 'classical' and pharmaceutical biotechnology, medical devices and diagnostics, and it is exploring digital health. Florian Ludwig says, "It is our mission to bring innovation to the patient and that is why, as an investor, we assist businesses in the healthcare sector to implement their promising ideas. We are often the founding investor."

Thuja Capital Healthcare Fund II: € 34 million

"Currently we are managing two funds: Thuja Capital Healthcare Fund I and Thuja Capital Healthcare Fund II. The first fund was used to invest in 11 businesses, including Nijmegen-based Mellon Medical that developed an innovative one-handed suture. For the second fund, Thuja is managing € 34 million. We are investing between 200,000 and 2 million euros in the first round and a total of € 2-5 million per company," says Florian Ludwig. "The criteria we use for our assessment is simply that we spot a product concept that we think offers a solution to an important medical problem. We examine if there is a clearly outlined development route and whether there is any clinical or preclinical evidence to make the concept convincing to begin with."
Investors in the Thuja Capital Healthcare Fund II include Rabobank, Radboudumc, UMC Utrecht and the European Investment Fund (EIF). "We now have 5 businesses in our portfolio, including ATRO Medical, a Radboudumc and DSM spin-off which is developing a meniscus implant and EnCare Biotech, a UMC Utrecht spin-off that is developing an antibody for prevention of heart failure. Due to our close cooperation with Radboudumc and UMC Utrecht, we become aware of similar promising businesses at an early stage."

Currently Thuja Capital and Radboudumc are jointly involved with an early product concept that is designed to increase the chances of survival for people who have a heart attack. Radboudumc's Valorization department encourages this kind of innovation by assisting them to raise research subsidies and funding, patent applications and commercialization. Valorization also supports the founding of spin-off businesses. "It is our goal to set up the business and to market a product. It is important to minimize the investment risks with this sort of early-stage project. That is why the Radboudumc and Rabobank's innovation funds are crucially important in allowing them to take the next step so that venture capitalists can get on board. As well as funding, Thuja Capital also offers support and access to good medical and industry networks. We organize workshops to bring businesses into contact with each other, are present at important Health events and also serve as jury members in venture contests together with the UMCs."

Rabobank's contribution: € 5 million

Rabobank's share in the Thuja Capital Healthcare Fund II is € 5 million and by participating, it is contributing towards a sustainable healthcare system. "The world is changing at a rapid pace and consequently, the importance of young innovative businesses is becoming even greater," says Jos Willemsen. "The Netherlands is a knowledge-based economy and hence Rabobank has to be there as early as possible, just when these businesses are starting to sprout. Traditionally this is a difficult stage for banks, because a bank can usually only service a business when there is a cash flow. I may have stated it in rather black and white terms, but that is pretty much the standard. In the pre-seed, seed and early stages, the investment risks are at their highest. When income exceeds costs, it's time for banks to start financing because it means there is a cash flow. As a product nears the marketing stage, the risks go down. For Digital Health products this is reasonably clear, but in the case of pharmaceuticals, it is often necessary to think 10 to 15 years in the future. The problem is, it is precisely those very first stages that require capital to even get to the stage of market introduction, otherwise innovative concepts will never see the light of day. Rabobank wants to support these early-stage start-ups.

Financing is only part of our service because supporting entrepreneurs with our expertise and networks is equally important. They also need everyday banking products such as a payment account and credit card. Of course, Rabobank is very easy to contact online, but we believe personal contact is indispensable. That is why we have opened the Teckle Innovation Desk on Novio Tech Campus, where the innovative knowledge-intensive companies are to be found. We can also quickly connect entrepreneurs with the right partners from our large knowledge network, hence making us an important sparring partner. We look out for means of financing prospects in the early stage, for example indirectly through Thuja Capital. When it comes to the subject matter and assessing the potential of an innovative product, Thuja Capital has the expertise required. The risk of failure at this stage is very high and so we prefer to involve a party that has the right skills to assess and support the process better."

> "Potential market demand is one of our requirements for funding."

Innovation Fund Rabobank (IFR)

In the Netherlands, Rabobank has developed several initiatives with loans for innovation and is participating in dozens of projects. "To prevent fragmentation, we have now created one large innovation fund for businesses in the seed or start-up stage, the Innovation Fund Rabobank (IFR). This is being implemented nationally and focuses on Health, Food & Agriculture, High Tech and Sustainability. Starting businesses with a good idea can submit their plan as well as present a pitch. There is a local investment commission that assesses the idea and the plan, but they are mainly interested in the people behind the idea. They will decide if a loan on very favourable terms should be granted. Each assessment is tailor-made, but one thing stays the same: the question of which urgent unmet medical need the product meets and if there is a demand for it on the healthcare market. Sometimes you see wonderful ideas, but potential market demand is one of our requirements for funding. For evaluation of the subject matter we sometimes consult specialists or discuss with Thuja. In addition to Thuja Capital, this is another way for us to be directly involved with projects at Radboudumc or Novio Tech Campus. The IFR mainly grants smaller loans, especially intended to make further research possible. In a subsequent stage those businesses may look to Thuja for major investments. Rabobank is also an associate partner of Briskr and this programme allows us to come into contact and support innovative start-ups at an extremely early stage. We also organize the Rabo Entrepreneur Academy MiniMasters and MasterClasses, short and practical courses for entrepreneurs. We focus on High Tech with High Touch, Rabobank's philosophy of that local feeling. Entrepreneurs with good ideas can always contact us at our Teckle Innovation Desk," Jos Willemsen invites in conclusion.

www.rabobank.nl
www.thujacapital.com

High-tech industry helps make Nijmegen European Green Capital

Sustainability

Nijmegen is European Green Capital in 2018, making it a role model for other European cities in the field of sustainability. Nijmegen won the title because of its many sustainable projects and the enthusiastic involvement of citizens. The high-tech industry is also contributing to that green image.

One of the themes in the Green Capital year is smart mobility and smart technology can contribute to that. One way it can do this is by monitoring traffic using smartphones and using the data to improve the traffic flow in the city. Companies can organize their transport management more efficiently with the latest IT applications. Both examples improve air quality. Businesses in Nijmegen are working towards realizing the technology needed for this.

Air quality

The people of Nijmegen are committed to initiatives for improving the city's environment. They are prepared to do their bit and they can. For example, by participating in the *citizen science project* Smart Emission. This is a pilot study in which Nijmegen citizens have relatively simple measuring equipment (air quality and noise sensors, etc.) attached to their homes and can view the data themselves on a website. The sensor data should provide a better understanding of air quality and noise at local and city level, supplementing the data from the National Air Quality Network (LML), collected by the Dutch National Institute for Public Health and the Environment (RIVM). The project also investigates the best way to process the data from the citizen sensor network and how the data can be used in the dialogue between researchers, government and residents. Radboud University's planning specialists are curious to know how citizens and local authorities will adapt to these new types of open data, for example. There is national and international interest in this project. Hence it was awarded 'Smartest project of 2016' and an American GIS software supplier expressed their appreciation with a prize of $50,000.

Health

Another of the Green Capital themes is the 'vital green city', focusing on health. Providing meals for patients at Nijmegen's hospitals is made more efficient by using apps which offer personalized portions. Big eaters get a bit more, small eaters a bit less, thus reducing the amount of waste. Incidentally, rubbish collection can also become more efficient by using information indicating when bins need

emptying. That makes a difference to the number of rubbish collection trips.

Prestigious title

The European Commission has been awarding the European Green Capital Award since 2008. Stockholm, Hamburg, Vitoria-Gasteiz, Nantes, Copenhagen, Bristol, Ljubljana and Essen are previous winners of the prestigious award. The goal is to recognize local efforts for the environment, the sustainable economy and the living environment at European level.

Businesses, housing corporations, educational institutions and Nijmegen citizens have covered a great deal of sustainable ground in the past few years:

- Thousands of homes have been insulated
- Over 15,000 solar panels installed on roofs
- 15 % less gas and electricity in comparison to 2008
- The new heating network heats thousands of homes with the residual heat from the ARN waste-to-energy power station
- Many kilometres of cycling highways and policies simulating cycling
- Shore power for cruise ships and other initiatives to encourage clean shipping
- Buses running on green gas
- 'Neighbourhood heroes' who clean up litter locally

Green Capital Award

- Projects attracting international interest: the relocation of the dike creating new city island Veur-Lent and 'Nijmegen embraces the Waal'

Programme

As European Green Capital, in 2018 Nijmegen will offer a programme full of sustainable activities, initiatives and events about the themes Smart Mobility, Circular Economy, A Healthy and Liveable City, Energy Transition and Climate Change Adaptation. Within each theme the city will create a platform for the exchange of knowledge at local, regional, national and international levels.

The eyes of the world will be focused on Nijmegen. Throughout the year, many international congresses will take place around the issue of sustainability. In the city itself, knowledge institutions, enterprises and citizens will collaborate to give a lasting sustainable tinge to existing projects, events and activities.

Kadans acquires 52Nijmegen

Recently Kadans Science Partner acquired the 52Nijmegen office building, Novio Tech Campus' immediate neighbour. This 18-storey building with its exceptional architecture is a real eye catcher in Nijmegen. 52Nijmegen comprises 25,000 m² of space for offices, laboratories, a restaurant, bar and meeting facilities and has 587 parking spaces for tenants and visitors. Currently it houses several businesses in semiconductors, high tech and consultancy. Nexperia with 200 employees is spread over three storeys and Royal HaskoningDHV with 600 employees takes up 5 storeys. Kadans Service Partner operates in housing for the knowledge-intensive sector in the broadest sense, providing all the necessary service & support, a wide network and financing if required. Kadans has been focusing on knowledge- intensive businesses since 2010 as they have an increasing need of suitable office space with research facilities.

At Novio Tech Campus, Kadans has already bought and opened two facility-sharing commercial buildings, Building M and Building A, housing more than 55 knowledge-intensive companies and about 1,000 employees. These buildings provide space for offices, laboratories, cleanrooms and conference facilities. In addition to important organizations such as HealthValley, Business Cluster Semiconductors (BCS) Nederland and Briskr, leading businesses such as Ampleon, NXP, EPR, LeadPharma, PinkRF, Vaxxinova, Sencio and Rockstart can be found here. With the acquisition of 52Nijmegen, Kadans has even more to offer businesses wanting to establish themselves at Novio Tech Campus. Kadans bought the office building 52Nijmegen from the Cromwell Property Group, part of the Hummingbird portfolio. According to Kadans, the acquisition price was more than € 34 million. "The acquisition of 52Nijmegen underlines the growth and success of Novio Tech Campus and the trust that Kadans has in it as a campus partner," says Chiel van Dijen, Deputy Director of Kadans Science Partner.

The office building is situated directly next door to Novio Tech Campus and Nijmegen Goffert railway station, is easily accessible by car and has ample parking facilities.

Geert-Jan Sweers, HAN CvVO (Centre for Valorization & Entrepreneurship) and Michiel Scheffer (r.), Provincial Government Representative in Gelderland

Gelderland gained 160 innovative start-ups!

"Entrepreneurship is firmly embedded in Gelderland. We are proud of the 160 innovative start-ups who have set up here in the last few years," declares Provincial Government Representative Michiel Scheffer at the celebratory conclusion of the project 'Gelderland Valorizes'.
Six years ago, 25 partners from industry, government and knowledge institutions joined forces to support innovative new entrepreneurs in Gelderland with coaching and financing. On 10 November the end of 'Gelderland Valorizes' was jointly celebrated by all partners and entrepreneurs. Many interesting businesses started up and are now experiencing real growth, creating new employment opportunities for Gelderland: Alkonost Development, Pure Movement, Absolute Cycling, Slim Opgewekt, GATT Technologies and Novo Learning. Something that all these businesses share is that they are innovative, collaborate with either ArtEZ Institute of the Arts, HAN University of Applied Sciences or Radboud University and all received their initial funding from this project. In total 'Gelderland Valorizes' helped 160 companies with a loan, innovation voucher, coaching or the training course Startup Accelerator Gelderland. Of these 160 companies, 34 have received a total of 3 million in loans. This was at a time when other investors thought the risk was still too high. Now these companies have obtained almost € 9 million in new investments to finance their growth. For the employment situation in Gelderland, it is important to keep providing support of this kind for innovative start-ups. Hence the partners, including the knowledge institutions, Kiemt, Rabobank, Oost NL and the Province of Gelderland, will continue with a new programme under the name of ORION (OndernemersRoute naar Innovatie, Ondernemerschap en Netwerken; Eng: Entrepreneurs' Route to Innovation, Entrepreneurship and Networks).

Mercachem and Syncom synergy

Mercachem and Syncom, two leading European Drug Discovery Contract Research Organizations (CRO) have joined forces. The new Mercachem-Syncom Group has over 300 employees in all, operating in Nijmegen and Groningen in the Netherlands and Prague in the Czech Republic, thus becoming the leading CRO supplier of innovative, best-in-class chemical solutions. Both companies specialize in small-scale synthesis of 'tiny' organic molecules commissioned by the pharmaceutical industry during development of medicines. Both Mercachem and Syncom are university spin-offs; Mercachem was founded in 1997 by Eelco Ebbers and Frank Leemhuis and Syncom in 1988 by Hans Wijnberg. The merger of Mercachem and Syncom and their further expansion is supported by Gilde Healthcare, a leading investor in the health sector, together with the Dutch pension fund manager PGGM as co-investor. According to Eelco Ebbers, Managing Director of Mercachem, "The merger will take us to the next level in our ability to support our clients and projects with fully integrated drug services. In Syncom we have found the right partner to create a leading medium-sized CRO. Together we are fully equipped to evolve as a group to provide a wider range of services."

Ton Vries, CEO of Syncom commented, "We are very proud to join forces with Mercachem. The pharmaceutical industry demands a wider spectrum in complex chemical solutions. Mercachem and Syncom share the same cultural and scientific background and both organizations have an outstanding track record allowing them to satisfy growing industry demands. Joining forces will further improve our ability to satisfy our clients' demands by providing more capacity and collective chemical know-how."

New Build

Meanwhile, Mercachem Nijmegen is expanding substantially and work has begun on a second building next to the existing premises at the Kerkenbos business park in Nijmegen. The building is scheduled for completion in mid- 2018, divided into two parts with laboratories and related facilities. The laboratory consists of around 7 organic chemical laboratories, a testing laboratory, a laboratory for special processes, stockrooms, storage for chemicals and gas cylinders, various offices and other supporting areas. Mercachem also has another site in Nijmegen at the Mercator Technology & Science Park in the Mercator 3 building.

Biotech Company Vaxxinova at Novio Tech Campus

Mayor of Nijmegen Hubert Bruls, Director of Novio Tech Campus Rikus Wolbers and CEO of Vaxxinova International Victor van Solinge conduct the opening ceremony.

Biotech company Vaxxinova has opened its new international headquarters and research laboratory at Novio Tech Campus.

Vaxxinova operates in the veterinary pharmaceutical market worldwide, specializing in the development, production and sale of vaccines and diagnostic services for livestock. "We are hugely proud of our new activities in Nijmegen including this research laboratory," says Victor van Solinge, Vaxxinova's CEO. "The lab consists of 8 different research areas, all built to the latest technological standards and provided with state-of-the-art equipment. The research activities we are going to conduct there will focus on developing new products and technologies to improve the health of poultry."

"We made a deliberate choice for Nijmegen and Novio Tech Campus for both our new headquarters and the research laboratory," says Victor van Solinge. "The Province and the municipality are continuing to invest in the knowledge economy, hence the region offers long-term high quality employment. Important knowledge institutions such as the universities of Nijmegen, Utrecht and Wageningen and GD Animal Health in Deventer are also conveniently located. Its international character and easy accessibility make Nijmegen is an attractive location, also for employees with a German background or for those who live there."

www.vaxxinova.com

Large Power Transformers from Nijmegen

Royal SMIT Transformers (SMIT) has been located in Nijmegen for more than 100 years. The company supplies sophisticated power transformers to power plants and electricity distributors worldwide, resulting in an annual turnover of approx. €300 million. The transformer manufacturer engaged Arnold + Siedsma for a number of patent applications.

Patent law

Luc Dorpmanns is team leader of R&D at SMIT and coordinates R&D projects at the Nijmegen location. He also makes sure these are coordinated with R&D projects at the German sister companies Starkstrom-Gerätebau GmbH (SGB) in Regensburg and Sächsisch-Bayerische Starkstrom-Gerätebau GmbH (SBG) in Neumark. "Each business unit has its own R&D team. Some projects we carry out independently, others are a joint effort. The sister companies in Germany manufacture the smaller transformers. In Nijmegen we develop the larger transformers with a capacity of up to 1500 mega volt-ampere (MVA) and voltages of up to 800 kilovolt (kV). These are the transformers that you will mainly see at large power plants, as large as a house and as heavy as a Boeing 747, around 400 to 450 tons."

SMIT's products are aimed at power plants, but also at electricity distributors who need to set up power connections within and between countries, connecting and managing those networks. SMIT operates internationally, with a focus on Europe and the US. "In our product range we only have 15 to 20 competitors at most worldwide, while that number is even smaller in certain niches," explains Luc Dorpmanns. "Our most important distinguishing feature is our ability to tailor our design and manufacture to our clients' wishes. Our main competitors tend to stick to strict standards and a specific design philosophy, whereas we try to be flexible and deliver client-specific products."

Replacement market

The energy market has been reasonably stable in recent years, but will pick up in the years to come. "Power companies invested a great deal in their power plants and electricity grids in the 1960s and '70s, but many components are now in need of replacement. With the improving market and an increasing demand for power, capacity will also have to be increased. Another market factor is sustainable energy production. The method used to generate the power that needs to be transformed really makes no difference to the design of our transformers. However, we see that, due to developments in sustainable energy such as solar and wind power, power companies want to present themselves as environmentally friendly. With this in mind, they are mainly interested in transformers that have lower environmental impact, for instance in terms of noise reduction, biodegradable insulation fluids, recyclability, etc. Naturally these aspects influence our R&D. Noise reduction is an important issue in the design of our new models. We investigate to try to predict if a transformer will produce noise when placed in a specific location and if so, how much. Our aim is to incorporate noise reduction into the design itself. In the past we mostly worked with insulation fluids based on petroleum products. Now we are researching the use of alternative biodegradable fluids based on esters, chemical compounds derived from alcohol, but also fluids made from soya oil or silicones. These fluids behave differently and we are researching how we can best use them and how they influence design. A third R&D focus is to find the optimum balance between volume and efficiency. In practice this means either manufacturing more compactly, or the ability to transform more power within the same dimensions. All in all, we have three R&D focus areas: noise reduction, biodegradable insulation fluids and compact manufacturing."

Patent admits us to Innovation Box

In the 1970s and '80s, when SMIT also manufactured other product groups such as wire, welding electrodes and ovens as well as transformers, patents were more important. "In the transformer sector, patent applications have not been very relevant in recent years," says Dorpmanns. "Our innovation is hidden inside the transformer where it cannot be seen, making it hard to copy. Hence we did not really have any reason to protect our intellectual property, though we do now have several patent applications pending. We were already taking advantage of wage subsidies for those involved in R&D, the so-called WBSO act (Wet Bevordering Speur- en Ontwikkelingswerk), but to access the 'Innovation Box' tax break, another admission ticket is required. There are several options, one of which is a patent. Currently we have filed a number of applications through Arnold + Siedsma concerning noise reduction and compact manufacturing." The fiscal Innovation Box makes it possible for businesses to pay a reduced tax rate on profits resulting from innovations developed in-house. According to Bart Jacobs, patent attorney at Arnold + Siedsma, "The R&D certificate remains a condition for access to the Innovation Box for all taxpayers. An important change, however, is the distinction that is now made between small and large businesses. For smaller businesses an R&D certificate will suffice, while larger businesses with a turnover of more than € 50 million need an extra admission ticket such as a patent. As a result, many large businesses are now actively working on their patent strategy. Apart from the tax benefits, building a patent portfolio of course also provides competitive advantages. It is essential, however, to cover as wide a range of products as possible with your patent portfolio, allowing you to make maximum use of the Innovation Box. We investigate in advance whether an invention is new or if something similar already exists. If you subsequently file a patent application, the authorities you have filed it with will carry out a novelty search. Eighteen months after filing the patent application, a Dutch patent is granted. Within a year after filing, you can decide if you also want to extend the patent application to other countries using the same filing date as the first application."

Luc Dorpmanns (left), team leader of R&D at SMIT Transformers and Bart Jacobs, patent attorney at Arnold + Siedsma, in front of large transformers.

Roots in Nijmegen

"Sometimes it seems the R&D department has discovered something new, but talking it through with the patent attorney, the story can take an unexpected turn," says Luc Dorpmanns. "It may be new but not innovative and therefore not worthy of a patent. Eventually the discussion may lead you to entirely different key points of your discovery that do probably qualify for a patent."
Bart adds, "Within one business you often have several R&D projects on the go. You can hardly file a patent application for every single idea. As a patent attorney, the challenge is to manage the expectations of what does and does not stand a chance. You follow the reasoning the European Patent Office uses to determine whether something is innovative. A proper assessment at the start prevents unnecessary costs later on."

The Royal SMIT Transformers site is located right in the middle of a residential area and has reached the limits of its expansion capabilities. Yet SMIT remains loyal to Nijmegen as a business location. As Luc Dorpmanns concludes, "We have our roots in Nijmegen. Many of our 700 employees live close by and have been with us for years. We maintain close contacts with the regional vocational colleges as a supply of new employees. If possible, we involve local businesses in our projects, such as the respected installation companies Modderkolk, Alewijnse and Kropman. Royal SMIT Transformers may be a player in the global market, but we remain a Nijmegen business at heart."

www.arnold-siedsma.nl
www.sgb-smit.com

"R&D focus on noise reduction, biodegradable insulation fluids and compact manufacturing."

Recently the 5th Molecule to Business symposium took place in the SMB Meet & Greet area at Novio Tech Campus. The organization was in the hands of SMB Life Sciences and Health Valley. The theme was 'Care for Value'.

Molecule to Business event about 'Care for Value'

Event Report

Myrthe van den Heuvel, Value Based Health Care (VBHC) Product Manager at Amgen, was the first speaker. Amgen is an international biotechnology company which develops medicines in the field of oncology/haematology, cardiovascular disease, inflammation, bone health, nephrology and neuroscience. In her presentation she explained the process of the transition to a Value Based Health Care strategy within Amgen, following the VBHC theory of Harvard Professor Michael Porter and his team. Value Based Health Care is based on improving patient value by providing meaningful care. Due to the ageing population, rising life expectancy and ever-improving therapies, an increase in the costs of healthcare is inevitable. Amgen is therefore convinced of the necessity, as a pharmaceutical company, to focus entirely on measuring, improving and providing value for the patient and at the same time reducing the costs of care; in other words, Value Added Health Care. The main concept in VBHC is 'patient value', defined as the results relevant to the patient divided by the cost per patient for the entire care cycle. The final price of a drug is determined by the economic value it

Myrthe van den Heuvel MSc, Value Based Health Care (VBHC) Product Manager at Amgen

delivers to patients, care providers and insurers, the medical necessity and the size of the patient population. And also, of course, by the investment and risks taken by Amgen to develop the medicine. In order to create a sustainable care system, all stakeholders must realize that an innovative medicine is not the cause of increasing medical expenses, but may be largely capable of providing the solution to this dilemma. In the context of Value Based Health Care strategy, Amgen as an organization focuses on cost- effective solutions, the development of more cost-competitive production processes, new technologies for the involvement of patients and care providers, close collaboration with insurers, strategic partnerships with other drug companies and the acceleration of research and product development and efficiency in clinical trials.

Alexander Willemse, CEO of BioConnection, a rapidly-growing company located at Pivot Park in Oss, was the second speaker. BioConnection supports biotech businesses in their development and production of biopharmaceutical drugs. They have in-house production facilities for processing active ingredients into sterile drug delivery devices such as vials, syringes, blow-fill-seal containers, inhalers, etc. BioConnection gives these new businesses access to tailor-made production of small-scale clinical batches but also commercial material complying with the strict demands of the US-FDA. The opportunities for small-scale production is of the greatest interest for clinical research or for rare diseases that do not require mass production.

Alexander Willemse explained BioConnection's business model with a main USP distinguished by the ability to provide customization. To achieve this there is a close collaboration with several – mostly Dutch – partners to come to an optimal solution. In fact, Willemse views complicated assignments as a challenge. He gave the example of the MRI technology developed by Professor Jelle Barentsz, Professor of Radiology at Radboudumc, for the detection of small prostate and lymph

Dr. Alexander Willemse, CEO at BioConnection

node metastases using nanoparticles. In this case the contrast agent Combidex, containing tiny ferrous nanoparticles, is injected intravenously, allowing MRI detection of small metastases. Ordinarily, metastases can only be discovered once they are four times the size. BioConnection was one of the pharmaceutical companies involved in the preparation of Combidex in close collaboration with the company ChemConnection which specializes in the raw materials for nanomedicines. The contrast agent is an example of Value Based Health Care in every respect, because it provides patient value and is cost-effective since fewer operations are necessary afterwards. Recently BioConnection acquired the production facilities in building RY in Oss, formerly belonging to MSD. It now also provides facilities for cell-based therapies and nanomedicines and is available for other complex products. The production criteria and demands of the customers will largely determine the direction of BioConnection's further expansion and specializations. In this context, the company particularly recognizes the added value and importance of strategic partnerships and good connections with knowledge institutions and businesses.

Bernd van Buuren, CEO, and **Daniel Gironés**, CSO at Protinhi Therapeutics presented the third contribution together. Biotech start-up Protinhi Therapeutics develops new medicines for tropical infectious diseases transmitted by mosquitoes such as dengue, zika, malaria and yellow fever. The company is located at Novio Tech Campus in Nijmegen. Every year about 400 million people are infected by the dengue virus alone. Currently no really well-functioning vaccine exists to counter these diseases and there is no drug for people who have already been infected. Protinhi Therapeutics is therefore concentrating on serious diseases with a high unmet medical need which claim many victims, offering 'value for care' with the drugs they develop. Protinhi Therapeutics is working on innovative medicines that work by inhibiting proteases, enzymes that break down proteins and other chains of amino acids. This is where the name Protinhi comes from: an abbreviation of 'treating disease through PROTease INHIbition'. Protease inhibitors are used in the treatment of HIV and hepatitis C, amongst other uses. The inhibitors prevent further development of the proteins and enzymes formed when amino acid chains from viruses are cut up into smaller pieces. Protinhi is working on a cure which specifically inhibits the dengue protease, so that the effect of the virus is blocked with few or minimal side effects for humans. Protinhi Therapeutics is collaborating with Nijmegen company TropIQ Health Sciences, Radboudumc and Radboud University in the Tropinhi consortium to further develop the substances into medicines. The name Tropinhi is a fusion of **Trop**IQ, which conducts research into drugs for malaria in a special 'mosquito factory', and Prot**inhi**. The Tropinhi consortium received ERDF funding of 1.5 million euros for the further development of new medicines. By using accelerated clinical trials in dengue endemic countries, Protinhi aims at bringing the drug to the market as quickly as possible.

Dr. Bernd van Buuren, CEO and Dr. Daniel Gironés, CSO of Protinhi Therapeutics

Start-ups can learn from experienced entrepreneurs

Network organization StartUp Nijmegen manages the Entrepreneur's Calendar for the Rijk van Nijmegen area (www.startupnijmegen.nl/agenda). This is where you can find an overview of all business activities in the region. The calendar also shows networking opportunities and an overview of the consultation hours of experienced entrepreneurs.

These partner consultations, about 70 in total, are useful for starting entrepreneurs. Professionals who have already made it in the world of business talk about the 'how' and 'why' of their business. It is exactly these experiences that can be instructive and inspirational for young entrepreneurs in all sectors, including high tech. The professionals can also be consulted one-on-one. And perhaps the most important fact of all: they open up their networks to the starters.

The Entrepreneur's Calendar includes weekly *Lightning Talks*, when three starters are given five minutes to make their pitch, followed by five minutes' feedback. Every week a workshop is presented on storytelling, preparing quotations, sales, use of social media, intellectual property, film production using a smartphone, terms & conditions and the like.
Every month a *lead generation* session is planned. This is a meeting where, after their pitch and reactions from the audience, the starters are put into contact with potential clients. *A brainstorm event*, in collaboration with Radboud student-run business consultancy De Bedrijfskundewinkel (The Business Skills Shop), is also on the agenda.

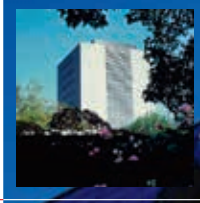
StartUp Nijmegen focuses on starting entrepreneurs. It is located in an office building on the Stationsplein, diagonally opposite the railway station. StartUp Nijmegen makes use of two floors providing various business facilities, including working spaces and coaching by professionals. StartUp Nijmegen already houses nearly 65 entrepreneurs, most of whom are in business services. The municipality of Nijmegen is an active partner and until 2019 is investing € 220,000 to help start-ups and starters flourish and succeed.

Radical renovation for Heyendaal station

The business climate in Nijmegen has plenty of advantages for entrepreneurs, one of which is accessibility. Hence the high-tech Novio Tech Campus was connected to public transport by the nearby railway station, Nijmegen Goffert. Now there also are advanced plans for the improvement of Heyendaal station, close to Radboud University, HAN University of Applied Sciences and Radboudumc. The current station no longer fits in with the modern and busy Heyendaal campus. The station will gain a new bridge across the railway, a better and more visible entrance on the Heyendaalseweg and widened platforms to increase capacity. This approach is needed because the number of travellers passing through Heyendaal station has increased considerably over recent years. In particular, students and staff of the knowledge institutions named above make regular use of the station. This facelift should ensure that crowded platforms and queues at the chip card readers are things of the past. In the new design, the station is easier to find and gets an image to match that of the contemporary campus.
For the renovation of Heyendaal station, the Municipality of Nijmegen and the Province of Gelderland are joining forces, each paying a substantial contribution. The total costs are estimated at € 8 million. This year the design sketch and project plans will be drawn up and the work is expected to commence in 2020/2021.

Top-level Office Space

mercator
technology & science park nijmegen

The Mercator Technology & Science Park offers interesting accommodation options. Based on the wide range of requirements for knowledge-based companies, there is room for start-ups, growing companies and larger businesses.

This means that office space can be rented in units ranging from 25 m2 to several floors at a time. The principle of 'easy-in, easy-out' is reflected in the shorter leases specifically for starters in a full-service office environment. Mercator offers more than simple office space in its concept. The facilities for young companies, their mutual collaboration and the links to the university make Mercator so much more than just a park with the traditional multi-tenant office blocks.

The Mercator Technology & Science Park has a unique location at the edge of the university campus, in an area shared with large R&D oriented companies. Moreover, the presence of prominent knowledge-based institutions makes it a handy meeting point for young talent. Research and enterprise go hand in hand, resulting in many economic innovations and external contacts.

BV Campus matches your accommodation needs with the possibilities at the Mercator Technology & Science Park, or elsewhere on the grounds of Radboud University. Would you like to receive more information? Please contact us on +31 (0) 24 361 16 53.

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