fwo

A YEAR
IN STORIES
2025

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Find out in our Knowledge Makers magazine www.kennismakers.be.

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FLANDERS is forging a future based on KNOWLEDGE

We may not be the biggest or the strongest. But we explicitly choose to be the best.

That is the core of our ambition: Flanders aims to be among the very best in the world as an innovative knowledge region. We pursue policies that sustainably strengthen the productivity and competitiveness of our research institutions and companies. We build public support and backing by bringing research breakthroughs to society faster.

We systematically increase public investment in innovation and focus on robust research and development intensity. To this end, we work closely with companies, knowledge and educational institutions. Fundamental and strategic research continue to serve as the breeding ground; valorisation and entrepreneurship are the necessary accelerators in this process.

The strength of the Flemish innovation model lies in the collaboration between researchers, entrepreneurs and government. Day after day, our priority clusters demonstrate how knowledge is turned into opportunities faster. This is precisely what makes our companies and knowledge institutions stronger and more competitive.

These challenging times mean we need to adapt. But we continue our targeted investments in projects that will ensure prosperity for future generations.

FWO is indispensable in this endeavour. Curiosity-driven research broadens our knowledge base and creates a springboard for impact. This yearbook captures that perfectly. Read how Sam Possemiers, who has been an FWO researcher for ten years, steered his company MRM Health through the scientific roller coaster to become an international reference in microbiome therapies. Discover how Xavier Verhelst (Ghent University Hospital) is paving the way to personalised care with a new biomarker. And how Serge Demeyere enables AI-driven, cloud-native software testing with BaseCamp Zero.

These experiences demonstrate why Flanders is committed to the entire chain. Our objective remains clear: we support excellence, strengthen ecosystems and accelerate the path from discovery to application. Focusing on knowledge security, international cooperation and entrepreneurship, we ensure Flanders continues to be one of Europe's innovation pioneers and that the impact of research is tangible for every citizen of Flanders.

With thanks to all the researchers, scientists and entrepreneurs who push boundaries every day. Their work is the best guarantee of a warm and prosperous Flanders.

Minister-President of Flanders
Matthias Diependaele

FROM CURIOSITY TO IMPACT

Every BREAKTHROUGH needs a FOUNDATION

In an age that demands new answers at an ever-faster pace, fundamental research remains a crucial lever. In this yearbook, we highlight how independent, bottom-up science continues to drive knowledge building and applications that sooner or later change the world.

FWO looks back on a year of curiosity-driven research, multilateral collaboration and societal valorisation. Secretary-General Hans Willems and Chairman Bruno Blondé explain how strategic basic research not only serves as the driver for innovation, but also as a breeding ground for talent and a network for exchanges.

The theme of this yearbook, 'From pioneering research to innovation', is at the heart of Research Foundation Flanders' mission.

Bruno: "FWO supports excellence in research from a clearly defined position in the research landscape: it guarantees space for fundamental and strategic basic research – bottom-up, unscripted and driven by the curiosity of the researchers themselves. This freedom is unique."

"FWO's role remains crucial, especially considering that fundamental research has been under pressure in recent years. Breakthroughs often occur when we take a step back. When we not only look at what works, but also examine why it works. Those who want to have an earth-shattering impact need to properly understand the fundamentals."

Hans: "FWO's focus is on blue sky research: research based on first principles, with room for doubt, exploration and unexpected twists. This kind of research is the humus layer from which new insights and applications can grow."

"In some cases, it's a lengthy process, when we have to be bold enough to think like cathedral builders and start something we might not see completed in our lifetime. On the other hand, the route to concrete applications can sometimes be surprisingly short."

Bruno: "The work of Liselore Loverix is a prime example. With support from FWO, she developed a genetic test that allows you to find out in advance whether a treatment for ovarian cancer will be successful for a patient. An extremely valuable tool that can save a lot of wasted time."

"It won Liselore the PhD Cup in 2024, and it is already an approved protocol at the NIHDI level. This is lightning-fast valorisation by someone at the beginning of a promising career. Many other PhD Cup candidates have already delivered concrete answers to societal challenges. We are proud to support these extremely talented individuals."

The step from pioneering research to actual application happens when research and innovation come together in a shared ecosystem. FWO acts as a bridge builder in that ecosystem.

Bruno: "Every year, FWO appoints hundreds of PhD fellowships and postdoctoral researchers. That is a major investment, not just in research but also in the pool of highly skilled talent needed to achieve the Flemish productivity agenda."

One of our strengths is that we adopt a bottom-up approach. We do not dictate what you have to research or which institute you need a degree from

Hans Willems
Secretary-General FWO

"As such, we look beyond the traditional parameters of scientific work when evaluating applications. In each file, we focus on anything that could have a wider impact. This includes the potential for patents, but certainly also the commitment of researchers. Are they eager to be involved in citizen science? Are they adept at scientific communication?"

We are calling for an FWO standard, where a fixed percentage of public investment is reserved for fundamental research

Bruno Blondé
Chair FWO

"Those who want to conduct strategic basic research must include a user committee in their plan. This is an advisory body consisting of civil society actors and industry representatives who can challenge and encourage researchers. At the same, researchers build their network from the outset. When those worlds merge, new ideas are quickly picked up for valorisation."

"That's why we work closely with other players in the field, such as the Flanders Innovation and Entrepreneurship (VLAIO) and the Flemish Advisory Council for Innovation and Entrepreneurship (VARIO). Universities and their Technology Transfer Offices (TTO) play a valuable role, as do organisations like Voka and UNIZO."

Hans: "Multilateral cooperation is a key element of our mission. Flanders has major assets in that regard. It is a small region, so partners are physically close by. Together, we form a tight-knit ecosystem in which everyone knows, senses and refers to the others. FWO helps researchers actively join that network."

"At the same time, the international context is essential. In many disciplines, Flanders is too small to achieve sufficient critical mass. For example, you won't find enough patients here to conduct research into rare diseases. That's why we encourage researchers to be internationally mobile and participate in European Union framework programmes. It helps them build networks with foreign colleagues studying the same topic."

"Together with VLAIO, we form the National Contact Point (NCP) for Flanders. A team is on hand to guide researchers and entrepreneurs through European programmes and funding channels and help them seize opportunities."

In the yearbook, we also look to the future. The ambition is clear: Flanders must remain a leading region where scientists have the scope to research original ideas.

Bruno: "Today, Flanders is a frontrunner when it comes to research and one of the innovation leaders in Europe. But competition is fierce: just look at how many publications came from China in the past decade, or how many PhD students the Scandinavian countries produce."

"If we want to maintain our position, we must continue to invest in our research infrastructure and in our people. That's why FWO is calling for a type of FWO standard, where a fixed percentage of public investment in research and development is reserved for fundamental research."

Hans: "Budgets are tight right now, but we also see that you get the best returns when you invest in the entire chain - both in applied and fundamental research. That's where FWO has an important role to play."

"One of our strengths is that we adopt a bottom-up approach. We do not dictate what you have to research or which institute you need a degree from. We are an open house for any researcher with talent and good ideas."

"The testimonials in this yearbook reveal how quickly fundamental research can lead to concrete applications. By continuing to fully invest in our ecosystem, FWO aims to help lay the foundations for a Flanders that not only remains prosperous in the coming years, but also copes effectively with new challenges, such as a pandemic or the rise of artificial intelligence. Resilient, creative and visionary."

What is FWO

FWO: a unique place

New ideas, revolutionary insights, solutions to societal issues, etc. Scientific research makes a decisive contribution to our society. FWO offers researchers in Flanders the opportunity to acquire knowledge. With our financial resources, we support:

- **Individual researchers** (professors, PhD fellowships, postdocs and their team). It's how we facilitate both fundamental and strategic basic research in Flanders. Prospective researchers themselves propose relevant themes.
- **Customised programmes and projects.** Research programmes driven by researchers and specially designed programmes, such as applied biomedical research (ABR), aspire to meet specific needs.
- **Research infrastructure**, both national and international, to provide our researchers with the tool to carry out their research at the highest level.

Our approach

FWO uses leading **international methods** to evaluate applications and allocate available funds. We set the tone in terms of peer review and let expert panels select the best research proposals. At the same time, we encourage **international cooperation**, both through projects and the exchange of researchers. Together with VLAIO, FWO is also responsible for the NCP operations in Flanders. We want to **take the lead** in every field and strive for an innovative research policy, focusing on topical issues such as gender, diversity, open science, intersectoral mobility, knowledge security and the mental health of young researchers, etc.

Our mission

FWO aims to be the principal and largest funding partner for researchers in Flanders. By providing financial support and promoting international cooperation, we create an environment that is conducive to excellent scientific research. We are responsible for selecting the best research proposals based on international peer review. This ensures optimal use of the resources FWO receives from, first and foremost, the Flemish government, as well as the federal government.

Our approach

With our funding, we subsidise fellowships and research projects, infrastructure, travel grants and international scientific cooperation. We work closely with other funding agencies. In the future, we want to focus even more on:

- **European and global cooperation**: we co-finance international research consortia, we participate in bilateral and multilateral cooperation, and we support promising researchers who just missed out on a hugely competitive European grant.
- **Diversity and inclusion**: we create more space for diverse research profiles and have an eye for target groups that are not yet sufficiently reached, such as promising young people with a migration background or a disadvantaged social background.
- **Innovative research**: we allow researchers to colour outside the lines and propose bold scientific ideas. We encourage mission-driven research involving crucial themes such as climate change, water quality or the fight against cancer.
- **Strong research infrastructure**: we make every effort to provide today's and tomorrow's researchers with sufficiently strong research infrastructure, both at home and abroad.
- **Open science**: we encourage researchers to permanently preserve their data and findings and share them responsibly with others. We encourage the use of Open Access, the FRIS research portal and other open science channels.
- **Objective evaluation**: we apply the best international standards to evaluate applications and allocate our resources.

Our vision

We facilitate change through research with impact and knowledge-expanding breakthroughs are made possible. Excellent research allows the knowledge base on humans and their environment to be enhanced and promising avenues related to socio-economic value creation are explored. To achieve this, we fund fellowships and research projects, infrastructure, travel grants and international scientific cooperation.

Our values

We subscribe to the values formulated by the Science Europe umbrella organisation for funders of scientific research. As a funding partner, we strive for:

- **Autonomy and freedom** for researchers and their organisations;
- **Consideration and collegiality** between researchers;
- **Collaboration** between researchers, both national, international and cross-sectoral and inter-domain;
- **Equality, diversity and inclusion** for all researchers;
- **Integrity and ethics** when conducting and communicating any research;
- **Transparency and openness** at every level.

In our day-to-day operations, we not only offer researchers our own resources, but also help them advance to the European and international levels. We maintain close links with various Flemish and European networks, associations, research institutes and funding agencies. We serve as a **platform for the Flemish knowledge economy** and strengthen its impact for the world, by deploying qualitative peer review within the various funding channels.

Evaluation process

Core selection principles for FWO support

The main criterion on which all applications submitted to FWO are assessed is excellence.

Furthermore, the principle governing FWO research funding is that the applicant determines the subject of that research (**bottom-up principle**). Only calls under European Partnerships and other thematic calls are tied to a particular theme.

The third key principle is that applications are assessed in relation to other applications from the same universities and research institutions. FWO always bears in mind **inter-institutional competition**.

Last but not least, there is the guarantee of **transparency**, which we also expect from researchers and partners, and **equal opportunities**.

Assessment of applications

Applications are always assessed by scientific experts who conduct excellent research themselves in your field or discipline (peer review). FWO brings those researchers together in its panels and juries.

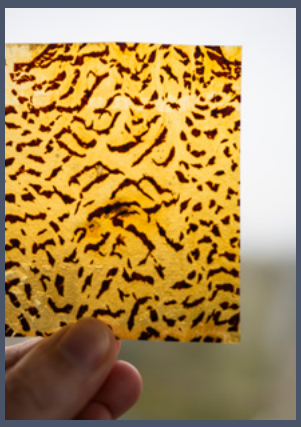
In addition to these **internal** evaluators, we usually (but not for smaller-scale fellowships and applications) rely on **external** evaluators who are specifically sought on a case-by-case basis per application, based on their expertise in the topic.

The panels and other evaluation bodies work under the guidance of the FWO administration and under the supervision of the Board of Trustees, which establishes the rules and procedures and makes the formal decision to award applications.

FROM LAB TO MARKET

PROF DR EVELINE PEETERS
VUB

TOMTLAN

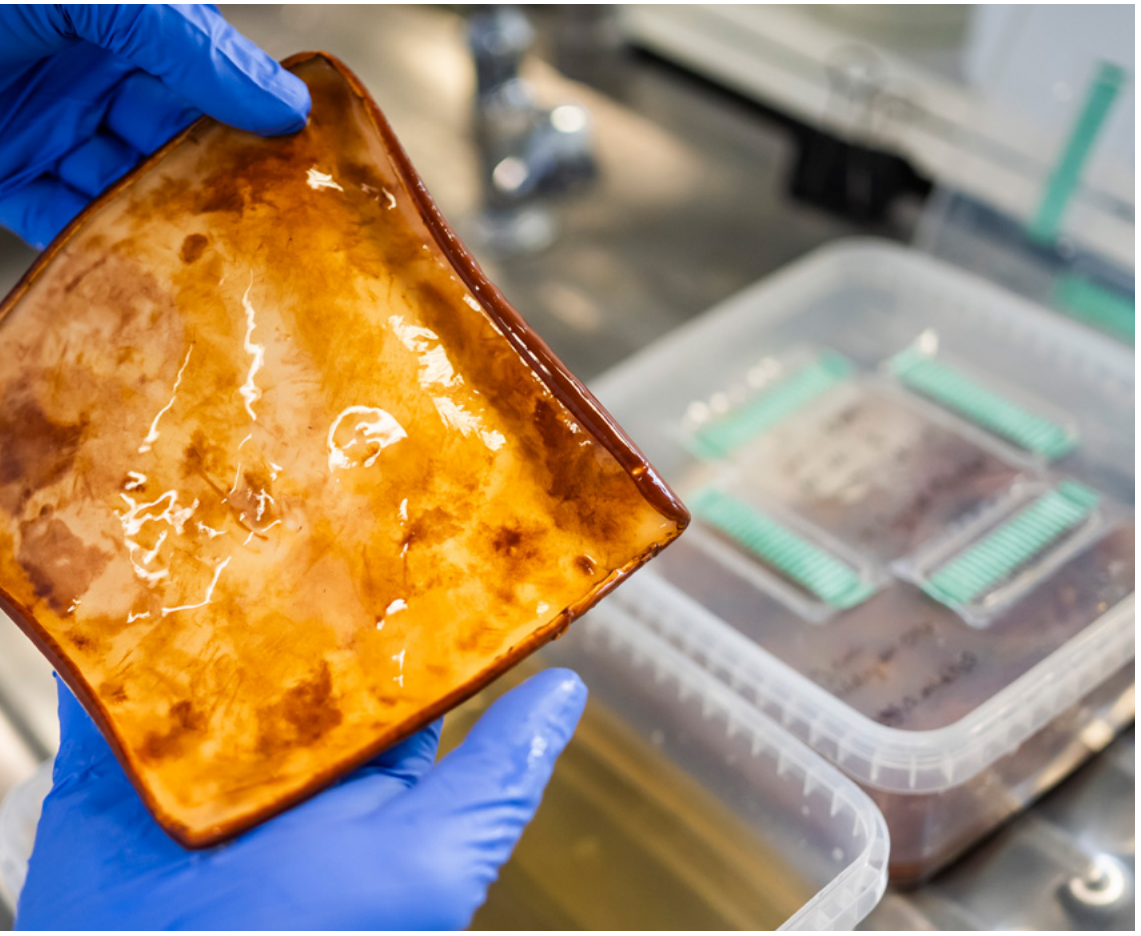


Can the root structure of fungi provide a base for bio-based and biodegradable materials? The Microbiology Research Group at the VUB (Free University of Brussels) is seeking the answer to that question. Adopting an interdisciplinary and distinctly bottom-up approach, Eveline Peeters and her colleagues bridge the gap between fundamental research and concrete applications.

Bottom-up research brings MYCELIUM closer to market

Mycelium is the network of branching filaments of fungi, or hyphae, found in healthy soil or rotting wood, among other things. It plays an important role in breaking down organic matter and provides nutrients for plants. But mycelium also offers considerable potential as a raw material for sustainable materials and applications, such as breaking down hazardous substances. Together with her team, **Eveline Peeters**, head of the Microbiology Research Group at the VUB, is exploring the options from different angles.

“We have only scratched the surface of the possibilities offered by fungi and the methods needed,” she says. “So a lot of fundamental research



is still required. That's exactly the objective of MycoMatters, our Strategic Basic Research (SBR) project at FWO: to understand the structure of mycelium, the properties of the different species and the role played by growth conditions."

Studied: dead or alive

"Mycelium materials are not yet ready for large-scale applications, but their potential is obvious, especially when it comes to sustainable solutions. Examples include using waste streams, such as textile scraps, as a substrate for growing mycelium. Textile waste is currently a big problem: it is often incinerated or landfilled because the combination of plastics and synthetic pigments make it hard to recycle. Fungi can help break down those substances, some of which are toxic. There is already a start-up in Wallonia, Novobiom, which uses fungi to remediate contaminated soil."

"Our research group also works on Engineered Living Materials (ELM). It does not involve killing off the mycelium, it is used as living material. As a result, it retains certain biological functions and can repair itself or adapt to temperature and humidity."

"Moreover, mycelium is a disruptive material. You cannot compare it with existing ones; the production process is also very different from what the industry is used to. For example, we work with surface fermentation:

Traditional biological research starts with a hypothesis that is tested under strictly controlled conditions. Our approach is slightly less conventional

large containers of liquid where the mycelium grows as a layer on the surface. That's why we are already focusing on the scalability of our processes and the general public's perception. Traditional biological research starts with a hypothesis that is tested under strictly controlled conditions. Our approach is a little less conventional."

Artists in residence

"Translating fundamental research into concrete applications requires an interdisciplinary view. For example, we work simultaneously on research questions related to biology and material science. Usually, different specialists then try and work together based on their own discipline. But a researcher who feels at home in several fields finds it even easier to make connections. Having such people

in our research group is a great asset. Some even have a transdisciplinary profile: they are not only scientists, but have a background in product design and development. We even have a few artists in residence."

"Our interdisciplinary approach is reflected in the infrastructure. We have expanded our traditional microbiology laboratory to include a space where different disciplines come together. In addition to bioreactors and cultivation chambers, you will also find devices such as 3D printers and, soon, tensile testing meters and material scanners. This allows us to perform both biological and material technical analysis in one place. It's not an unnecessary luxury when you are working with living materials that cannot simply be moved to another location."

"Our adapted infrastructure allows us to consider, even during the fundamental research phase, how our processes can later be scaled up later to an industrial context,. And all thanks to FWO and European support via IBISBA and the European Innovation Council."

Fungi at night

"FWO gives us the freedom to be led by our curiosity. Much of our research develops via a bottom-up approach:

students and researchers who are inspired by unexpected observations. This is how it started, for example, for my colleague Elise Vanden Elsacker, the pioneer of mycelium research in our group. During a forest walk, she became fascinated by the structures of fungi in dead wood. As an architect, she immediately recognised in it the form of possible building materials."

"Our researchers combine an open mind with an entrepreneurial mentality. In 2025, two of them, Annah-Ololade Sangosanya and Anouk Verstuyft, ended up at Milan Design Week. Annah-Ololade had designed a coat made of mycelium as part of her PhD research with an FWO grant; Anouk, with her background in product development, is familiar with the world of design festivals and was already in touch with them. When Annah-Ololade's design was selected, they had to grow mycelium in a short period of time and on a much larger scale to make the coat. They put hundreds of hours of work into it, which often extended late into the night. In the end, they drove a van from the VUB to Milan to present the result."

"It was only in Milan that they realised their 'little passion project' was actually an integral part of their research. They received a lot of interesting feedback from people in the industry as well as media coverage. This all led to new opportunities. Another colleague, Lars Dittrich, participated at Design Week 2026 with his DIY bio lab for designers. Incidentally, we were already present at the 2023 Venice Architecture Biennale, with an exhibition of self-healing mycelium material with leather-like properties."

Getting used to the idea

"The fact that we are stepping out of the laboratory and participating in public events is important for a new material like mycelium. It can offer solutions to societal challenges, but we also need to get consumers used to the idea. Fungi still has a negative connotation. In our SBR project, we collaborate with Els Du Bois from the University of Antwerp. She looks at mycelium from a user's perspective, revealing possible consumer resistance at an early stage of the research."

"Our researchers with artistic backgrounds play an important role in this. The objects they create open

up a dialogue with the public. That interaction, in turn, guides the research. This is, for example, how we discover that the smell still needs some work, or that people actually like the hues created by 'unwanted' contamination."

"On that front, we have come a long way. When we launched our working group in 2017, people often reacted with surprise. Not many had heard of mycelium. Today, we see a much more positive attitude, especially among younger generations. People are increasingly making the link between biotechnology and natural solutions to serious challenges."

"There is still so much to research and develop that I would happily dedicate the rest of my career to fungal filaments, especially with such a fantastic group of researchers."

The objects created by our researchers with artistic backgrounds open up a dialogue with the public. That interaction, in turn, guides the research

FROM GUT BACTERIA

SAM POSSEMIERS
CEO

MRM HEALTH

TO THERAPY

From a PhD via a spin-off to an international company and back to a start-up: Sam Possemiers, CEO of MRM Health, has certainly not been idle over the past two decades. It began, all those years ago, with a role as an FWO PhD fellowship at Ghent University. Today, Sam continues to search for the next step in unravelling our microbiome.

It's all in your GUT

About 70 per cent of all immune cells in our body are located in and around the intestinal wall. In other words, around 70 per cent of our immune system interacts with the bacteria living in our gut. They not only help with digestion, but also have a significant impact on our general health. The latter has not always been clear, explains **Sam Possemiers**.

"Nowadays, just about everyone is familiar with the term 'microbiome': the vast collection of all the bacteria in our gut - more bacteria than we have cells in our entire body. When I started my PhD in 2003, the term did not exist. But it was the topic of my research: the link between gut bacteria and health."

"How our gut really works, especially the importance of the gut microbiome for disease and health, was still something of a mystery at the time. We knew - literally - what went in and what came out, but the central role of bacteria in the gut itself was not at all clear back then."

Jars and vessels

"During my PhD, we created the Simulator of the Human Intestinal Microbial Ecosystem (SHIME), a complex name for a series of jars and vessels that mimic the entire digestive system, from stomach to colon. We were also able to use that model to maintain the microbiome."

"For example, we used the SHIME to research obesity and immunity: what is the link between bacteria and energy metabolism, or the preservation of our immune system? We also researched the conversion of polyphenols from plants in the gut. More specifically, we examined how active substances from hops, an ingredient we know from beer but also present in specific medication, are converted by gut bacteria and thus have an effect on, for example, menopausal symptoms. This provided new insights on which we could further tailor our research. And so it continued."

"That freedom to explore is typical of FWO grants. As a result, my PhD became a period of in-depth analysis and self-development: research without any commercial pressure, but with the ambition to one day make an impact. A solid foundation for the rest of my career."

Technology gap

"After my PhD, I was not ready to abandon my research. I continued to build on my first project with a postdoctoral fellowship until 2013. At the same time, more as a 'hobby', I joined BioActor, a company that develops and sells biologically active ingredients to help prevent chronic diseases, as Research Director. In the meantime, the idea for a spin-off also took shape."

"Until the early 2000s, the pharmaceutical industry mainly considered the microbiome as something that interfered with medication efficacy. The focus was on antibiotics: you could almost say that the only good bacteria was dead bacteria in those days. Only later did the understanding grow that bacteria can not only cause disease, but can also help recovery from disease through the microbiome."

"Exactly this idea forms the basis of live biotherapeutics: therapies based on living bacteria. A well-known first application was stool transplantation, which involves transferring bacteria from a healthy donor to a patient. This was applied to intestinal infections, but in an academic context it was also tested for intestinal inflammation, obesity or diabetes and even autism or multiple sclerosis."

"At the same time, we were confronted with a technological gap. We do not know a great deal about the microbiome. Is it at the origin of disease or is it a consequence of it?

How dependent is its function on the environment in which bacteria grow? The microbiome is a living, complex system that needs specific conditions - how do you mimic them?"

"With the support of my supervisor, Professor Willy Verstraete, we came up with ProDigest: a spin-off we set up around the SHIME digestive model to carry out gastrointestinal research for the food and pharma industries, for example. ProDigest's digestive models provided greater insight into what happens to their products in the digestive system, which is difficult to access. We could take further steps to answer more fundamental questions about the role of the microbiome because these models allowed us to investigate how the gut microbiome affects our health, using the simulated gut."

> My PhD became a period of in-depth analysis and self-development: research without any commercial pressure, but with the ambition to one day make an impact

Microbial HR management

"ProDigest was an exceptional success, achieving very strong growth, also internationally. But my natural inclination to discover, develop and apply new things was even stronger. From 2010, it became increasingly clear that we could also deploy bacteria

to treat diseases, and ProDigest's extensive R&D infrastructure allowed us to study that in detail. This allowed us to use ProDigest as an incubator to develop technologies to design, test and produce medicines based on gut bacteria. In 2020, we took the next step by setting up MRM Health, a biotech company specialising in the treatment of inflammatory diseases using medicines based on the microbiome."

"MRM stands for Microbial Resource Management. Think of it as the microbial equivalent of HR management. Just as organisations become stronger by opting for diverse teams, we see that the optimal functioning of our microbiome also depends on the strength of the 'microbial team' in our gut. Through our strategy, we aim to combine the complementary talents of a diverse team of specific bacteria into therapies. Initially, we focused on gastrointestinal diseases and immunological disorders, but also within oncology there are ongoing pathways in which the microbiome helps determine how a body responds to immunotherapy."

Return on investment

"For many companies, the hype around the microbiome between 2012 and 2018 was followed by a confrontation with reality - in new research fields, it is difficult to predict which options and technologies will lead to usable results. Fortunately, our clinical trials yielded positive results: in 2021, the first pathways for our therapy against inflammatory bowel disease started, and we are now approaching the final testing phase. As a result, we have become one of the leading innovators in the field."

"That is both a blessing and a curse. The market is open, but we have no clear reference points, few peers, no one to offer guidance. Access to much-needed capital to get our medicines to patients is also limited, due to the novel nature of our type of medicine. We have to chart our path all on our own. In that

sense, it is lonely at the top *(laughs).* We get a lot of attention, but now we have to live up to it with regard to our stakeholders and other companies."

"Fortunately, we are not alone in this respect. MRM Health was set up as a joint venture in a strategic partnership with the Flemish Institute for Biotechnology (VIB) and the universities of Ghent and Leuven. We also regularly collaborate with doctoral researchers, mainly through VLAIO grants. They help us build a strong foundation. Lastly, the key question remains: which bacteria do you include in your product to influence a specific disease mechanism? Fundamental research points the way."

"For me, that is also the essence of fundamental research: you should not be forced into a straitjacket whereby you have to take shortcuts towards applications early on. Those are important, of course, but the biggest breakthroughs often come about by chance – or serendipity."

When the research comes to an end, all too often, the results are consigned to the bottom of a drawer. We need to harness this wealth of knowledge more effectively and make it accessible

"Yet the transition to concrete applications sometimes takes too long. When the research comes to an end, all too often, the results are consigned to the bottom of a drawer. We need to harness this wealth of knowledge more effectively and make it accessible. Conversely, a researcher should be given both the freedom to conduct fundamental research and the opportunity to make an impact - a return on investment for society. FWO can be the pivotal figure in facilitating this."

PILOT

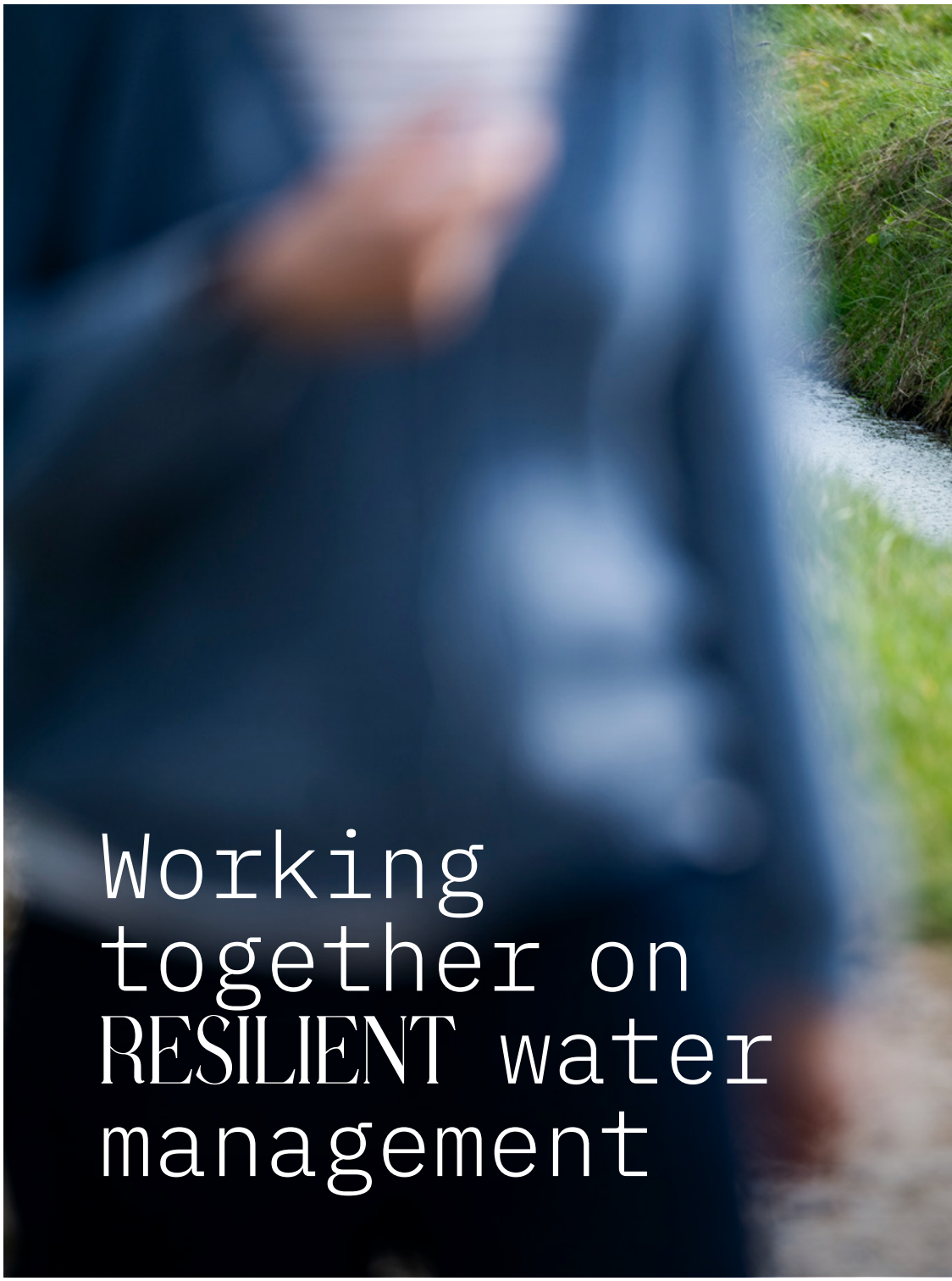
JEROEN DE WAEGEMAEKER
DR
ILVO

SYLVIE FOSSELLE
ONDERZOEKER
ILVO

TO RIVER BASIN

Climate change is putting pressure on our water system. In FWO's Turquoise project, Sylvie Fosselle and Jeroen De Waegemaeker investigated how area workers, scientists, farmers and policymakers can come up with resilient solutions together.

FARMCAFE



Working together on RESILIENT water management

Extreme weather events are becoming increasingly common. Farmers have to cope with periods of severe drought interspersed with intense rainfall. While we used to drain water as quickly as possible, there is growing awareness that we need to retain it and allow it to gradually seep into the soil. Blue-green measures - such as constructing an infiltration pool or a weir in a canal - play a key role.

By putting yourself in the shoes of farmers, policymakers, area workers and other scientists, as we did in our play, you learn to understand rather than judge them

In the Turquoise project, the University of Antwerp, KU Leuven and ILVO (Flanders Research Institute for Agriculture, Fisheries and Food) investigated the potential of blue-green measures at the landscape level. **Sylvie Fosselle** and **Jeroen De Waegemaeker** from the ILVO explored how such interventions take shape in practice and, above all, how different actors work together to implement them.

Sylvie: "Water does not stop at the boundaries of a farmer's land. You often have to intervene upstream to have an effect downstream. That's why you are more likely to work at the level of a tributary or even an entire catchment area. In Flanders, the Water-Land-Schap (Water-Land-Scape) programme supports area-specific

coalitions tackling local water challenges. These projects were ideal experiments for us, as they focused on a new, area-based approach. We saw that each project evolved differently, depending on the specific challenge and the partners involved."

Jeroen: "Our research focused on two areas. On the one hand, we looked at the tools: policies, procedures and concrete measures. The University of Antwerp and KU Leuven investigated the hydrological impact of those measures. On the other hand, we analysed how actors interact with each other. That social dimension should not be underestimated. The context is changing rapidly and technical innovations continue to follow at a fast pace. This calls for broader and more flexible collaboration. In the literature, we refer to this as 'adaptive governance'. This type of project is not a ready-made investment, but a learning process. That's why we paid a great deal of attention to how to create a good learning environment and share the resulting knowledge."

Indispensable area workers

Sylvie: "'Area workers' play a crucial role in water management projects. Think of local staff from provincial water and agriculture departments, regional landscapes and pilot centres. They act as the bridge between policy and science to the field. Their task is highly multifaceted: they need to be familiar with Flemish and European policy, understand the scientific basis and combine that with local knowledge about the landscape and the people who work there."

"However, there is currently no specific training to become an area worker. Most learn the trade on the job. In our project, we interviewed them and organised workshops where they could exchange experience and knowledge, a prospect that motivated them to take part. At the same time, this created a safe environment to discuss difficulties, and that is exactly what increases trust."

Jeroen: "We bundled the insights from the interviews and workshops into an inspiration guide for area workers, including a tool matrix. We also developed the Water Board Game: a serious game that invites participants to share their experience and test ideas. Water management projects often only run for about three years: when area workers take up other tasks, the expertise that has been built up risks being lost. The board game is a way to spread and embed their knowledge."

Working with farmers

Sylvie: "The limited duration of projects also makes it harder to build trust among farmers. That aspect is sometimes underestimated: you cannot expect people to automatically go along with recommendations just because a study demonstrates their usefulness. This was evident during the pandemic and applies equally to climate adaptation."

"Water management also requires a structural approach. Farmers do not want separate, temporary initiatives. Those working at the landscape scale need appropriate tools. Through the Flemish Agricultural Investment Fund, for example, you can now receive European support to construct a weir in a stream - but only on an individual basis. And yet, water management should be a collective issue. That remains a focal point for policymakers."

> You can't expect people to automatically go along with recommendations because a study demonstrates their usefulness

Scientific theatre

Jeroen: "Thanks to FWO funding, we were able to focus on the research, without being overloaded by interim deliverables. We also had the scope to use innovative methods, such as our serious game board game."

"We chose a special approach to present our results at the 'Water management in agricultural areas' study day: a short play. This proved an appropriate way to present our valuable data and the different actors. Why does a policymaker adopt one view and a farmer another? Of course, we also wrote a report, but some insights are harder to capture in text alone."

Sylvie: "Theatre not only proved to be a powerful form of presentation, but also an analysis method. When you develop characters, you think about their motivations and perspectives. Think of it as a kind of ethnotheatre: a method that helps you afford meaning to data."

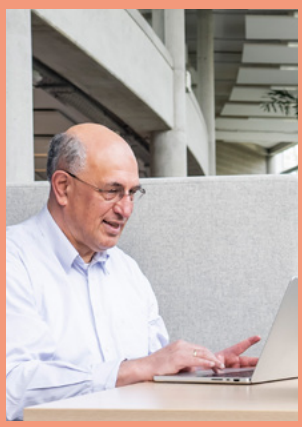
"We returned to our interviews and workshops, discussing again what people said and how they said it. That process also made us more aware of our own role as researchers - for example, because you interpret data in a certain way. In a research report, you often give little away about your own position. In the play, we made ourselves an explicit part of the story, alongside farmers, policymakers, area workers and other scientists. By putting yourself in their shoes, you learn to understand rather than judge them."

"Your message also resonates so much more powerfully with your audience through a play like this than through yet another PowerPoint presentation. Knowledge is important, but if we really want to bring about change, we also need to move people."

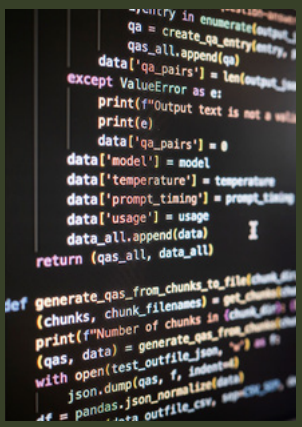
We developed a serious game: the Water Board Game, to spread and embed the knowledge of area workers

FROM CLOUD

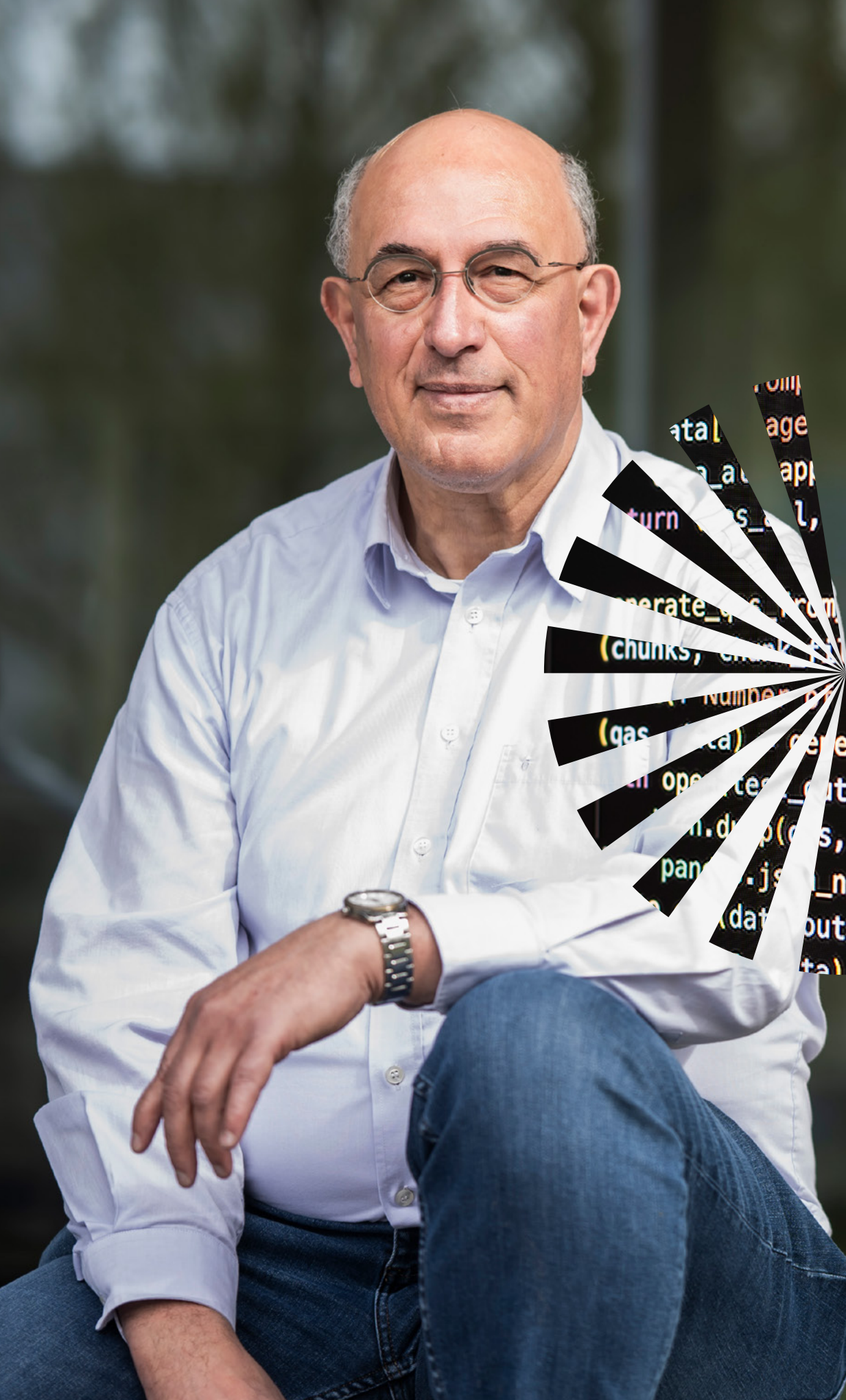
PROF DR SERGE DEMEYER UANTWERPEN



TO INDUSTRY



After completing his PhD at the VUB, he moved to the University of Bern. He has now been active as a researcher and professor at Antwerp University for over a quarter of a century. Whether he is working with Flanders Make or the industry, Serge Demeyer is always on the lookout for the perfect software. Even though he knows this is a pipe dream.



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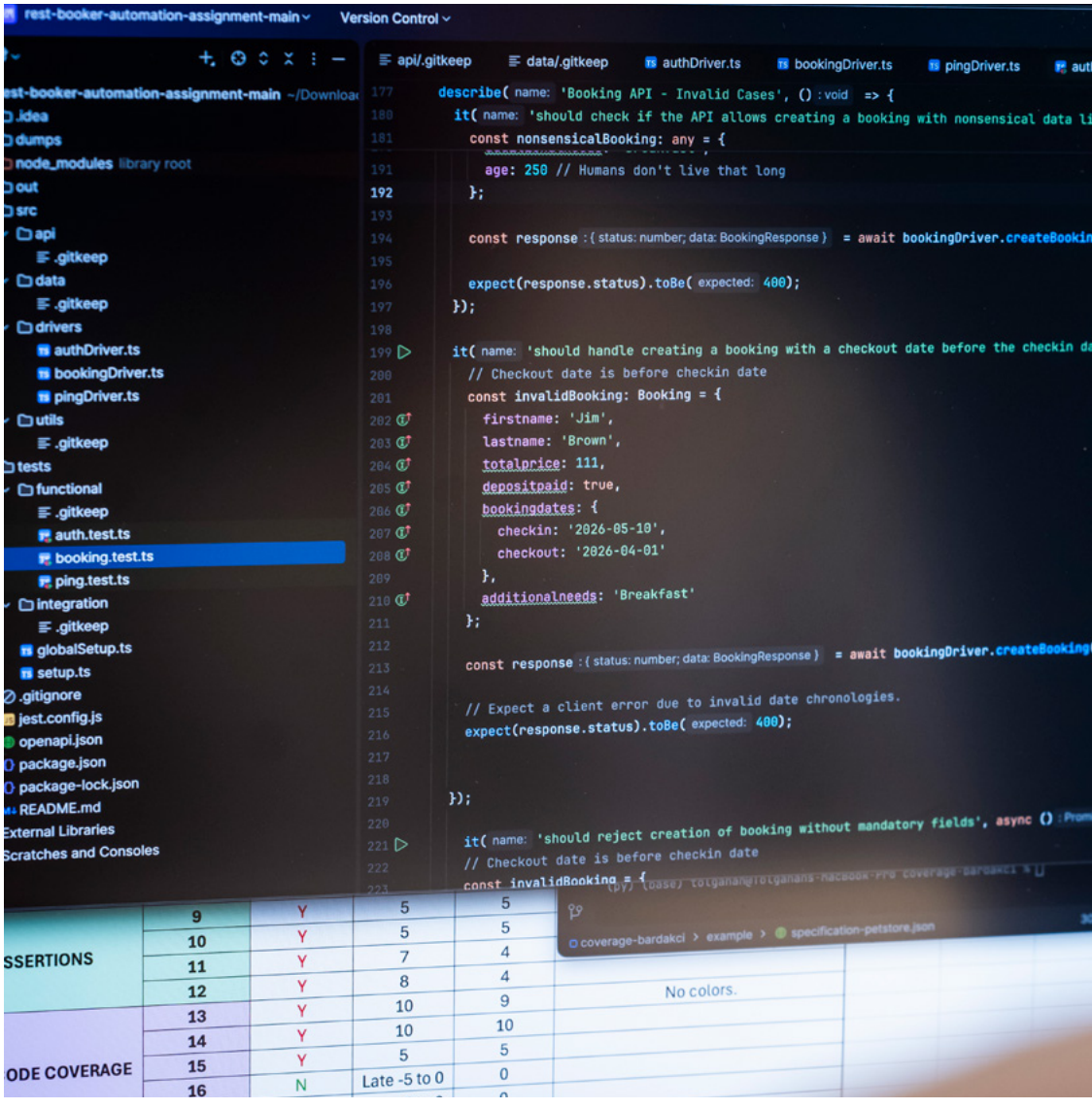
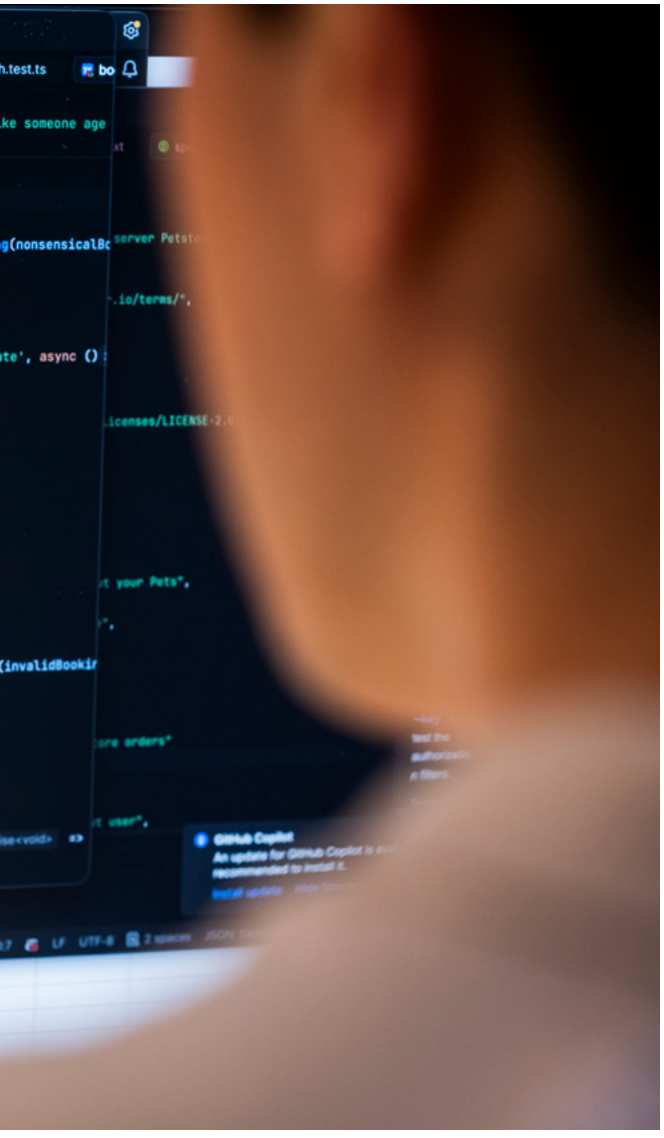
SOFTWARE does not fail, testing strategies DO





From healthcare to mobility, nowadays, software drives just about every sector. At the same time, software systems are becoming increasingly complex. They must be scalable, continuously available and rapidly adaptable. How do you monitor quality in that context? With BaseCamp Zero, a partnership between the University of Antwerp and the VUB, **Serge Demeyer** and his colleagues show how fundamental research can result in concrete tools and methods that have an industrial impact.

10 seconds for Zalando

A structural engineer designs safe bridges that do not collapse. Similarly, a software engineer develops software that must remain reliable, Serge Demeyer explains. “That’s why research should not be viewed separately from in practice. In my case, that is the software industry, but the Software Languages Lab at the VUB has also developed tools for the Tax-on-Web application of the FPS Finance, for example.”

"Bear in mind: the fact that we work closely with the industry, does not make our research any less fundamental. But just as a biologist has to go into the field to study birds, we have to go out into the industrial world to investigate software problems in their 'habitat'. This conviction is the common theme that runs through my career. It is also evident from my twisting trail of projects and collaborations, and in particular my work at the Antwerp Systems and Software Modelling Research Group, or AnSyMo for short."

"AnSyMo explores how to design, analyse and maintain software-intensive systems. The group brings together four research labs; I myself lead the Lab on REengineering, or LORE. I am involved in almost everything we do, from software testing to the architecture. Because I maintain an overview, we avoid thinking in rigid categories. Those who see the whole picture can shift gears faster, recognise opportunities and build bridges."

"AnSyMo also has a direct link to practice: we are a key partner of Flanders Make, the strategic research centre for the manufacturing industry. Software plays an increasingly important role in that world, and above all: updates follow each other at an ever-increasing pace. You see this at Tesla, which releases a new version of its operating system every six weeks. You also see it with e-commerce players like Bol and Zalando, which perform an update just about every ten seconds. But all those updates need to be tested, and no human tester can keep up with that pace. That's where BaseCamp Zero comes in."

Chasing a bug

"Given how rapidly the AI landscape is evolving, you could actually call BaseCamp Zero an experienced player. We started in 2019 - tools like ChatGPT and Copilot didn't exist yet. But even then, we saw that the need for efficient testing methods was rapidly increasing, and that artificial intelligence could play a key role in this need. We collaborated with researchers from the VUB led by my counterpart Coen De Roover."

"Our project rests on four pillars. The first is the so-called flaky test. New software is often tested using scripts that automatically run through all the functions. But what if such a test reports an error one time and not the text? Does the problem reside in the code or in the test itself? We have developed a visualisation tool that maps error messages and analyses whether they follow a predictable pattern. If they do, we may have to rework the script."

"Failure reproduction is the second challenge. When a user reports a bug, it often proves difficult to reproduce that error precisely. Without reproduction, diagnosis is not possible, and without a diagnosis, there is no solution.

The bug can be anywhere, especially with cloud applications. Therefore, the VUB created a tool that automatically generates targeted input for the system, allowing us to mimic errors more quickly and consistently."

"The third pillar is resilience testing. Cloud systems run on networks of collaborating servers. Anything can go wrong there: a server fails, a connection slows down, or you suddenly face overloads. We inject bugs into systems to see how robustly they respond. This allows us to address weaknesses before users are inconvenienced."

"Finally, on a larger scale, we work with test amplification: using AI to generate new tests or expand existing ones. We are exploring how to refine such prompts as well as where human expertise remains indispensable. AI can produce relatively simple tests, but in complex scenarios, our role remains crucial."

Just as a biologist has to go into the field to study birds, we have to go out into the industrial world to investigate software problems in their habitat

Beware of perfection

"That brings me to an important side note. Developers often strive for error-free software. Everything has to work perfectly. Our pilot projects show that such absolute perfection is rarely realistic. For many engineers, it is sufficient when a test automatically detects 97 per cent of bugs. They take care of the remaining 3 per cent – often the most complex cases – themselves. In fact, the total absence of any errors arouses suspicion: if everything always runs smoothly, something is usually wrong."

"Such insights can only arise through close interaction with the industry. This is also where the added value of FWO research can be found: it is basic research that can be capitalised at the same time. Whether this takes the form of spin-offs, follow-up projects or something completely different. In this respect, FWO forms a continuum with other research institutions, such as Flanders Make. On the scale of so-called technology readiness levels, or TLRs, fundamental FWO research is generally situated between levels 1 and 4: concept development and early prototypes. Flanders Make operates between levels 4 and 6, where applications are made ready for market. Without in-depth basic research, that progression is impossible."

More AI = more people

"With BaseCamp Zero, we also want to take that next step ourselves. In time, we will translate our results into concrete, marketable tools. We also develop protocols: guidelines that organisations can use to apply our results independently."

"Moreover, our approach opens up new perspectives, for example for scientific software. Researchers developing this

FWO research is basic research offering value that can be capitalised at the same time. That's also its added value, whether through spin-offs, follow-up projects or something completely different

type of software are often domain experts but not specialised computer scientists. How can we support them, for example, through automation and intelligent testing strategies?"

"You often hear claims that automation and AI will reduce the number of software engineers - an argument that you see reflected in the declining enrolment figures for computer science courses. I expect just the opposite. As AI plays a bigger role, so does the impact of errors. And when AI generates parts of the code, those errors become more complex and subtle. Conclusion: the more we automate, the greater the need for human quality control."

"Therefore, software development is a social activity par excellence. The cliché of the developer sitting alone behind a screen wearing headphones is outdated. Quality is only achieved when you work together. FWO also plays a role in this: by investing in our knowledge economy, by encouraging collaboration and - very specifically - by financially supporting two of our PhD students."

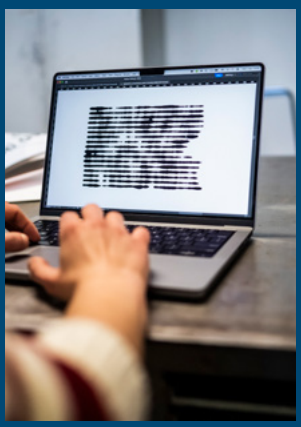
FROM TYPOGRAPHY

PXL UHASSELT

MARTA GUIDOTTI

DOCTORAL RESEARCHER

TO READABILITY



With a master’s in fine arts and graphic design, Marta Guidotti made the transition to the READSEARCH laboratory at PXL University of Applied Sciences. There, she brings together design, typography and science to make reading more accessible. How can we improve the readability of texts and specific languages? That is the key question of her research.

Why not every LANGUAGE reads the SAME

Multilingual communication is becoming increasingly commonplace, but one element stands out: digital typography doesn't change much across different languages. Word processors and design programmes use virtually the same default settings for spacing between letters, words and lines worldwide. But it is precisely these elements that determine how readable a text is, explains **Marta Guidotti**.

Sø to speåk

"In Dutch you ask: '*Goedemorgen, hoe gaat het?*' In Awajún, an indigenous language from northern Peru, it would be: '*Yamai junjái, ¿itiur akúme?*' And in Icelandic: '*Góðan daginn, hvernig hefurðu það?*' Or compare the translation of 'indigenous languages'

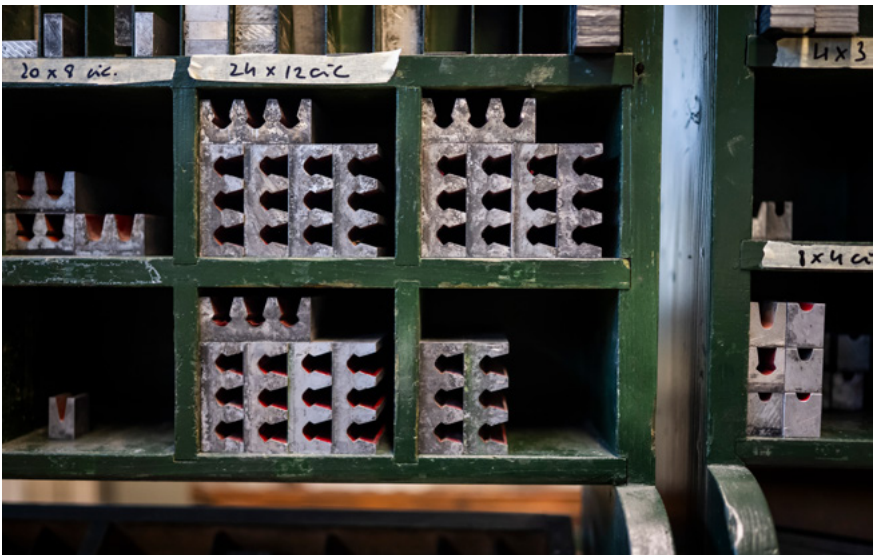
in Shuar, spoken in the Ecuadorian Amazon basin, with the same term in Wolof, a language from Niger and Congo, and Norwegian: *'Chíkich Tarimiat'* becomes *'làkki réew mi'* and *'forfedrespråkene'* respectively. Even without speaking those languages, you can immediately tell them apart."

"After all, languages are not only constructed differently but also have different visual rhythms. Some languages have long compound words or more compact forms of letters. Others use many diacritics: small additions above, below, before, behind or through a letter that clarify the pronunciation. In loanwords from French, for example, we use different accents on the e - giving you é, è and ê - and the ç. Norwegian has the ø and the å."

"Those variations create patterns of black and white, of form and spacing, and we suspect they have a direct impact on reading comfort and readability. Not enough space can cause visual tension, while too much space can break the rhythm and tire readers. As a designer, you intuitively feel that different languages require different typography. But the software we use every day barely takes that into account."

A Book from the Sky

"Typography is never completely neutral. In the early days of printing, there were national printers and the typeface was cast based on statistical data on letter frequency in each language. In addition, the basic concepts of typesetting and the standardisation of the relationship between text and letter, word and line spacing gradually took shape. This standardisation persisted for centuries in languages using the Latin alphabet. Even when digital tools made adjustments much easier - from word processors like Word to design software like Adobe - the same basic settings were retained for all languages without questioning language diversity."



Each answer creates new paths. If you are given the freedom to follow them, you can really make a difference

"Designers did start experimenting more and more with typography. For example, they designed fonts for specific cities or contexts. This goes far beyond the capital A that looks like the Eiffel Tower in French texts, or the V that becomes a bag for serving fries in Belgium. Some languages are inherently linked to a specific font: French is associated with Garamond, British English with Caslon and Italian with Bodoni. The 'Plovdiv' font was even created based on the handwriting of the inhabitants of the city of Plovdiv. And Argentina's Carolina Giovagnoli designed the Andada font to meet the specific requirements of Guarani, a language spoken in several South American regions before Spanish gained a foothold there."

"Between 1987 and 1991, Chinese artist Xu Bing took this even further: his four-volume 'A Book from the Sky' was composed of thousands of new characters that look like traditional Chinese characters but mean absolutely nothing. Such projects show how strongly form and meaning are linked, while readability itself is often neglected."

"Another thing that is neglected is the link between typography and readability in scientific research, especially with that explicit link to design. If there was any research, it historically focused on English; multilingual typography is still largely unexplored to this day. What impact does typography have on readability? We assume that certain default settings fatigue readers faster or make it more difficult to learn a new language, but hard data is scarce."

"And of course, there are a lot of other questions. Does a person's mother tongue influence what they consider a comfortable reading experience? Will someone who is used to lots of accents prefer different spacing or line spacing than someone who is not? Or do experienced readers handle typographical variations differently compared with occasional readers?"

7,000 languages represented

"I want to formulate an objective answer to such questions. As this concerns fundamental research, we are still in the exploratory phase.

We opted for a large-scale experimental approach. In an online questionnaire, participants are shown different fragments of text, in which they can adjust the spacing between letters, words and lines themselves and explain why they do so. We combine that data with information on topics such as reading habits, design experience and language skills, so we can better understand how people visually process text."

"There are currently around 7,000 languages in use worldwide. We had to make a selection so that survey participants answered questions for no more than ten minutes. Fortunately, I got help from researchers at Hasselt University's Data Science Institute (DSI). Together, we analysed some fifty languages for visual characteristics - such as the use of accents and average word length - and divided them into clusters of groups that are visually similar. For the reading experiments, we selected two representative languages for each group."

"That collaboration was really crucial, although I didn't anticipate needing it to that extent. This is something you often see in a PhD: you start with a comprehensive question, but end up working on only one small part of it. At the same time, each answer creates new paths. If you are given the freedom to follow them, you can really make a difference - not only for your own project, but also for your partners."

Bringing the written word to life

"Even more important was the collaboration within READSEARCH, the typographic research group founded by Professor Ann Bessemans

Our emphasis on data-driven research is innovative, perhaps even unique in the design world

in 2015 at Hasselt University and PXL University of Applied Sciences. For her PhD, she developed a font to help visually impaired children to read."

"Today, READSEARCH works on five lines of research, collaborating with the people in the field whenever possible. In the Visual Prosody project, for example, we explore the difference between speaking and reading. In spoken language, intonation and emphasis carry meaning, while written text often comes across as 'flat'. We explore how typography can add that extra layer of meaning. To do so, we are working with Microsoft Advanced Reading Technologies USA."

"The emphasis on data-driven research is innovative, perhaps even unique in the design world. This is precisely why READSEARCH also offers international potential. In time, I hope to develop concrete applications. For instance: design recommendations for publishers and designers, algorithms that automatically adapt typography to the language of a text, plug-ins for layout software, or accessibility guidelines for readers sensitive to visual distortions or rhythmic patterns."

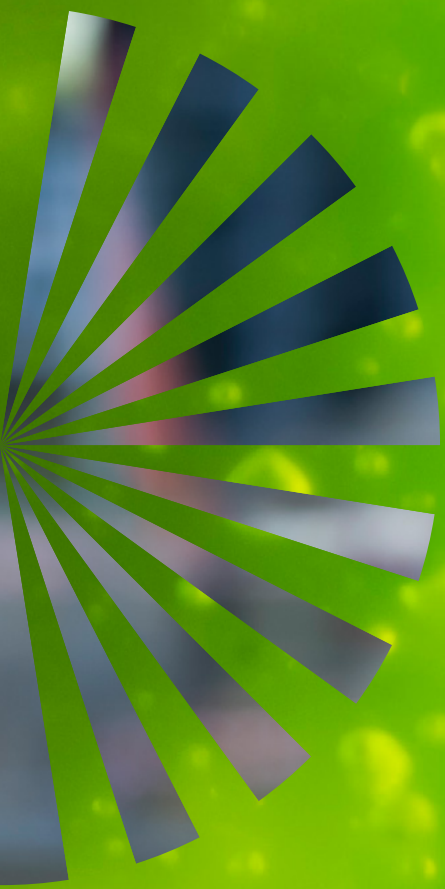
"By sharing my research, I increasingly come into contact with other disciplines. The link with language acquisition, learning environments and cognitive load is becoming clearer. Linguists, psycholinguists, educational researchers and subtitlers have already expressed their interest. The possibilities have not been exhausted by any means."

FROM RESEARCH

PROF DR IVO VANKELECOM
KU LEUVEN

TO SCALING-UP

Water treatment, desalination, recycling, energy storage, CO2 capture, hydrogen production: membranes play an often invisible but essential role in modern society. With KU Leuven’s Membrane Technology Group, Ivo Vankelecom is developing advanced membranes with a clear ambition: to minimise the gap to concrete applications as much as possible.



MEMBRANES accelerate the transition to SUSTAINABLE technology

As part of SmartDetox, a Strategic Fundamental Research Project (SBR) at FWO, researchers from KU Leuven tested membranes for their ability to remove organic micropollutants - such as medicine residues, PFAS and pesticides, which are not readily biodegradable - from drinking water. But the applications for membranes are much more extensive. As head of the Leuven Membrane Technology Group (MTG), Ivo Vankelecom is committed to personal development, knowledge exchange and close contact with the industry to bring new technologies to market faster.

"Membranes are an efficient and effective way to purify water," says Professor Vankelecom. "This can be

done by forcing the water through a membrane that holds back the contamination. With reverse osmosis, only water molecules can pass through. The result is extremely pure water - so pure it would make you sick. To turn it into drinking water, we have to add salts."

"With nanofiltration, small molecules such as sodium chloride or table salt can pass through the membrane. By also playing with the electrostatic charge of the membrane, we can selectively repel molecules and remove them from the water."

Multi-purpose

"And membranes are even more widely applicable. This is already happening in desalination plants, the main source of drinking water in much of the Middle East, for example. And the fine chemicals and pharmaceutical industries use them to recycle solvents and separate molecules efficiently."

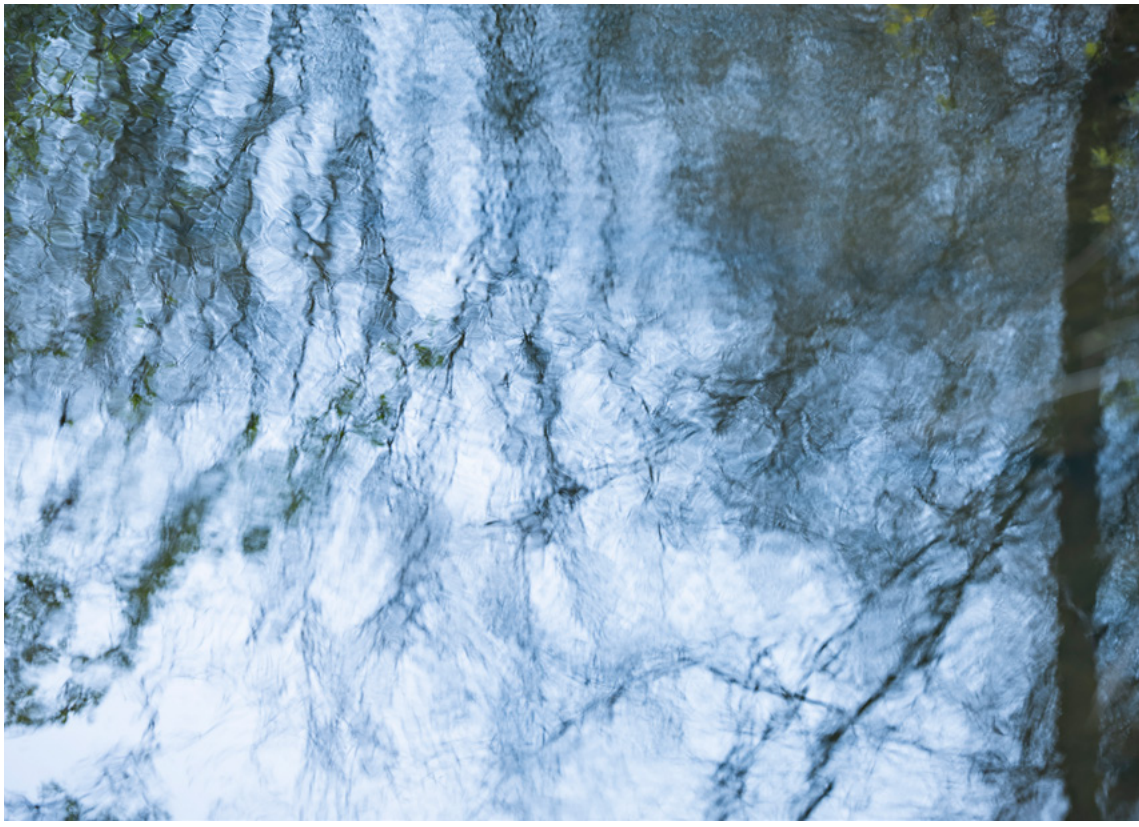
"Wherever sustainable technology is needed, membranes are inevitably involved. In plastics recycling, for example, they offer an alternative to mechanical processes where dyes and harmful additives can remain in the cycle - MTG is working with companies on a solution based on ultrafiltration and nanofiltration. Membranes can also help combat global warming. In the cement industry, you could use membranes to capture CO2 during lime production. This is also possible

From carbon capture to plastic recycling: wherever sustainable technology is needed, membranes are inevitably involved

in combustion processes, for example in gas-fired power plants. And redox flow batteries, which can play a role in large-scale energy storage, essentially consist of two liquids you pump along a membrane. Membranes are essential in hydrogen production too."

Unique scale-up model

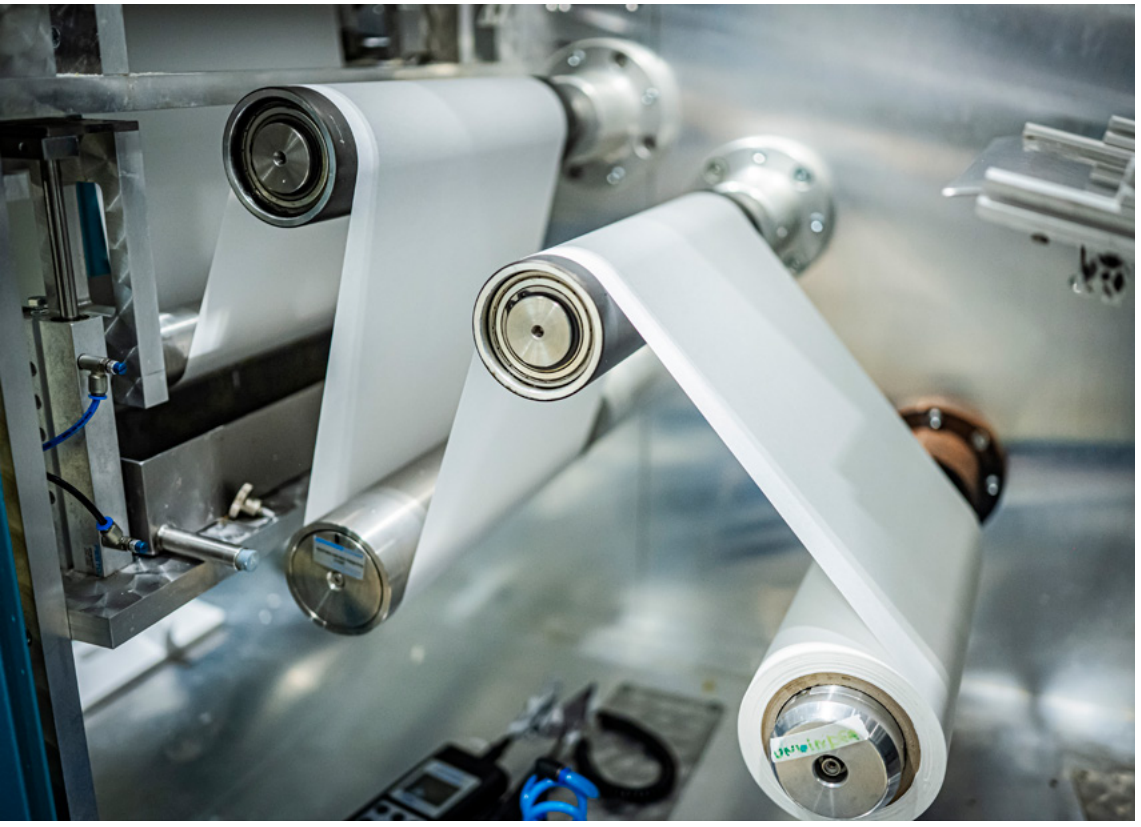
"Speed is crucial, because membranes play such an important role in sustainable applications. Our testing infrastructure is designed accordingly: we can evaluate up to sixteen membranes simultaneously per device, testing up to two hundred membrane samples on a good day. This allows us to iterate efficiently and better understand why certain materials work. But these tests are performed



on a small scale: they typically involve membrane samples smaller than A4 size. To test the material in industrial applications, you need membranes the size of a roll of wallpaper. That scale-up and testing on real flows is expensive and very time-consuming; it can easily take ten years. This often poses a bottleneck. Companies only want to jump on board after a thorough validation, especially when it comes to applications in the chemical or food sector. That's where a lot of innovations get bogged down."

"We are investing in our own scaling-up capacity to reduce the step from fundamental research to application. With our rolltoroll production equipment, we can handle initial pre-industrial production ourselves. This year, we started renting a hall to accommodate large devices at TRANSfarm, KU Leuven's incubator for spin-offs. Companies can have us test new membrane compositions and, if the result is positive, immediately produce them on a larger scale. This is a unique model worldwide, and it is catching on: more and more companies are knocking on our door."

"And that is necessary, because there are major risks involved. Some of those machines cost millions of euros, and you don't rent a production hall for nothing. A professor doesn't have the resources for that - you have to find them. Sometimes I wonder why I do it to myself (he laughs). I could also



just write yet another paper. But I am now at a point in my career where this is possible: I have the experience, a large network, the right support, and the resources can be found. It is now or never, especially since I have a great team of driven and talented researchers at my disposal."

Industrious collaboration with companies

"Over the past ten years, we have worked with about forty companies. And it really is a collaboration - not that the companies only participate in steering committees, there's a lot more involved. It ranges from short projects lasting just a week, in which we test membranes together, to four-year doctoral projects, designed entirely around a company's specific request."

Technology is only as strong as the people who use it. That's why I think it is important that our research group is also a close-knit team

"When we develop technology ourselves, the aim is also to try and take it to market ourselves. We do this with KU Leuven Research & Development; they provide us with fantastic support in all aspects of patents, contracts and licences. And if companies don't bite or we prefer to retain control of the marketing, we can scale up ourselves through a spin-off. This already happened once early this year and there are now a few more in the pipeline."

"This close collaboration with the business community also influences the research itself. Specific questions from the industry prompt us to select the right fundamental research questions and thus look for the correct scientific answers. On the other hand, at MTG we never embark on developing a membrane, which we know in advance will not have any real impact in practice. Scientists often think only in terms of membrane performance, such as a higher flow or selectivity. To create real applications, the industry places different emphases that we take into account in our research: above all, the world needs robust membranes that are long-lasting and easy to clean, and, of course, easy to scale up. Such input helps us formulate relevant research questions."

A whole world of perspectives

"Technology is only as strong as the people who use it. That's why I think it is important that our research group is also a close-knit team. I want to create an environment where the whole is greater than the sum of its parts. Within MTG, we work with subgroups that meet regularly to share insights and help each other move forward."

"For example, we recently introduced epoxides as a new material for membranes. That research started with desalination, but it soon became clear that the material has much wider uses. Our researchers passed the samples on to one another and tested them in different applications, from water purification to gas separation. If it worked, the material was fine-tuned per application."

"Sharing knowledge is crucial. Every fortnight, we organise group seminars where we discuss results, share interesting papers or explain lab techniques. We work with complex equipment that not everyone uses every day: colleagues who are familiar with a device systematically share their expertise with occasional users."

"The composition of our team plays a major role and we also attach great importance to the personal development of our employees, many of whom are very young. Our researchers come from all over the world and bring diverse perspectives, (work) cultures and ideas. This diversity stimulates creativity, creates connections and is a great added bonus: we celebrate New Year several times - from the Chinese to Iranian New Year. It's a wonderful opportunity to sample each other's national cuisine!"

FROM BIOMARKER

PROF DR XAVIER VERHELST
UGENT UZ GENT

TO PERSONALISED HEALTHCARE

Xavier Verhelst from UZ Gent (Ghent University Hospital) is researching non-invasive biomarkers for patients with liver disease. Such biological signals enable doctors to better assess a patient's risk and identify the treatment most likely to be successful. In turn, this leads to more targeted care, with better outcomes and lower costs.

UZ
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Xavier VERHELST, Arts
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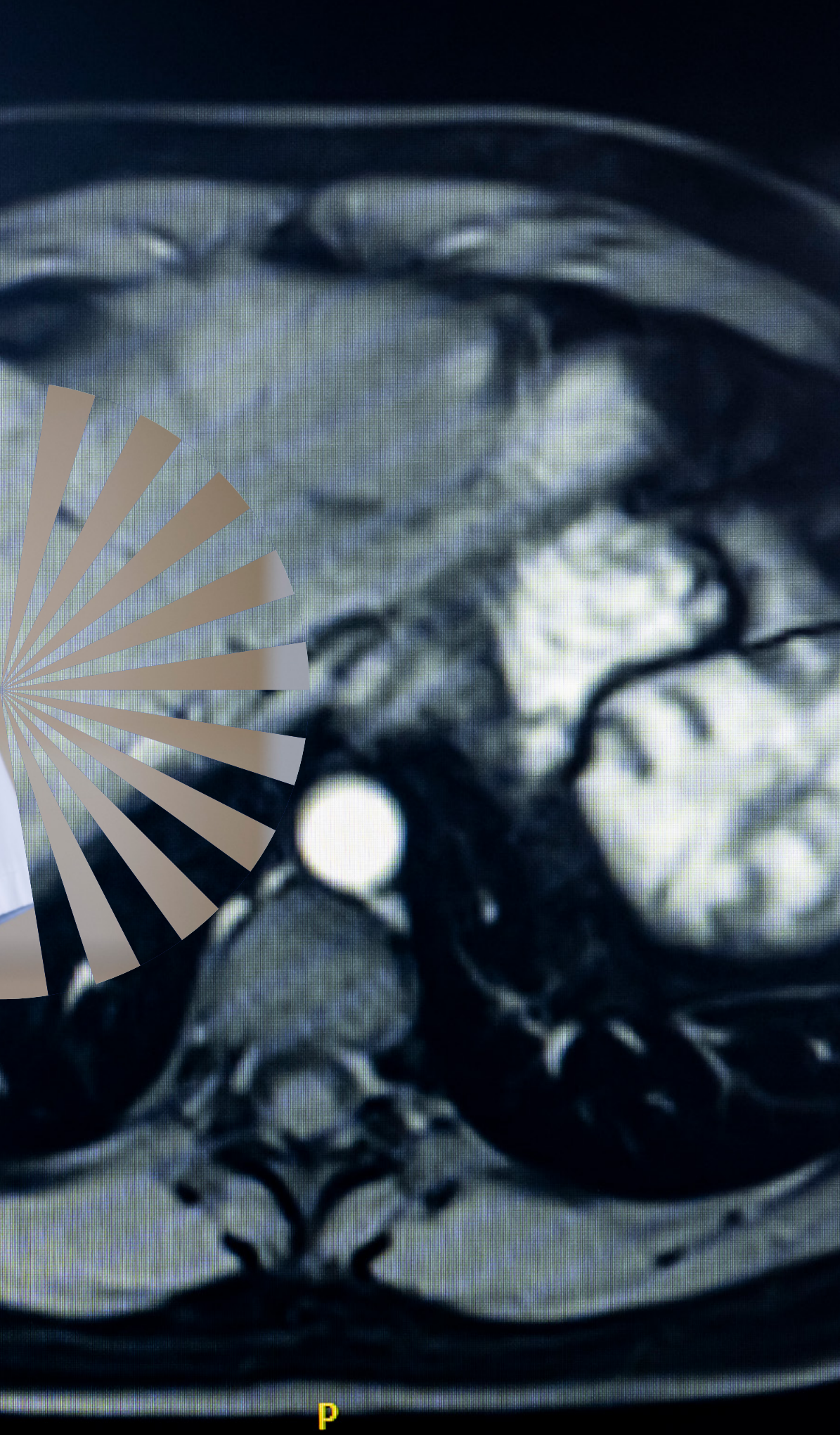
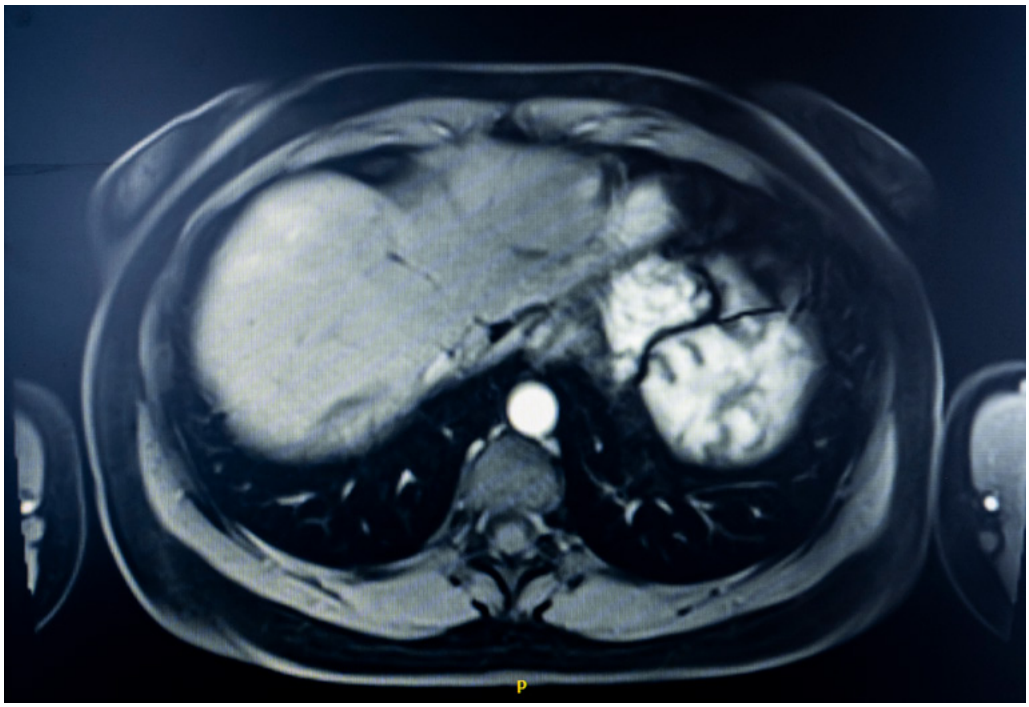

P

The right TREATMENT for the right PATIENT

Even as a child, he was fascinated by medicine. He wanted to help people in a very practical way. During his training, **Xavier Verhelst** discovered which role suited him: caring for patients with liver disease - especially those with autoimmune liver disease and those who have undergone liver transplants. Today, he is a member of the hepatology team at the Department of Gastroenterology and Hepatology at Ghent University Hospital and Professor of Hepatology at Ghent University.

He says that his research into new ways to perform accurate diagnoses also grew from clinical practice. “When I started studying medicine, I didn’t know where I would end up. During your training, you come into contact with different disciplines and gradually get a feeling for where you belong.



With personalised medicine, you tailor the treatment and dose to the individual patient and can better monitor the effect

Fundamental research with laboratory animals and models, for example, is not my thing. I like to be close to patients. That is why I focus on clinical and translational research: research that leads directly to new tests and treatments, such as my work on non-invasive biomarkers."

No more carpet bombing

"Biomarkers are substances found in body fluids, such as blood, that provide information about biological processes in the body. A well-known example is cholesterol, which tells us something about the risk of cardiovascular disease. A person's cholesterol can be measured with a blood test, i.e. in a non-invasive way. A liver diagnosis like cirrhosis used to require a biopsy: removing a piece of tissue from the liver with a needle. Today, we prefer to avoid such invasive procedures.

I like to be close to patients. That is why I focus on clinical and translational research: research that leads directly to new tests and treatments

In my research, I work with glycomics, which analyse changes of glycans - or sugar groups - bound to proteins in the blood. Changes in those sugar structures often arise in the liver and may therefore be valuable biomarkers for liver disease."

"What makes biomarkers so valuable? In traditional medicine, we start with a clinical picture. This is actually a collective name for several conditions that are very similar. Combine that with the unique characteristics of each patient, and you understand that the course of the disease can vary greatly from one person to another. Therefore, treatments are often broad in scope. Compare it to carpet bombing: you deploy lots of resources at once to be sure of hitting your target, but that also causes collateral damage. That's why people get so sick from traditional chemotherapy: the medicines target cancer cells as well as healthy cells. With such a broad approach, that unintended damage is almost inevitable."

"These days, with liver cancer we often have to try several treatments before we find an option that works. For the patient, this means needless suffering while the tumour continues to grow. You lose precious time and treatments are expensive. With good biomarkers, your approach can be much more targeted. In personalised medicine, you tailor the treatment and dose to the individual patient. Moreover, you can monitor the outcome much more effectively. Sometimes you can even predict that a treatment has little chance of success."

"You can use biomarkers preventively too. For example, we know that people with liver cirrhosis have an increased risk of tumours. They automatically have a check-up examination every six months, which is quite costly. But the risk varies greatly from one patient to another. Therefore, in association with the Flemish Institute for Biotechnology (VIB) in Ghent, we developed a biomarker that allows us to assess that risk more accurately. It means we can fine-tune the follow-up: high-risk patients are monitored closely, while those with a low risk need to visit the hospital less often."

"With FWO's support, we now want to conduct a comparative study of the traditional approach and our new strategy. Our goal is to achieve results that are at least as good, at a lower cost and with a higher quality of life for patients."

Partnership for the benefit of all

"I am currently working on an FWO project in which we are using biomarkers to predict whether the organ will function properly after a liver transplant. The six Belgian liver transplant centres and two Dutch ones are participating in the study. International collaboration is crucial, otherwise we would never be able to recruit enough patients for the study. At the same time, such a collaboration brings together additional expertise and technology."

"The Dutch centres are mainly clinical partners. They view the project based on their daily practice and help focus our research questions. Conversely, we work closely with VIB Ghent, where they develop new technology that we can apply in the clinic. That's how you build a network of partners who know and trust each other. If our transplant research yields a useful biomarker – and for now, everything is pointing in that direction - then our partners will also be more likely to use it in their practice. This means our work will benefit patients faster."

A dedicated funding channel where funds flow back to FWO if research proves commercially successful: perhaps that's an idea for the future

Funds and dreams

"FWO supports my research financially, and I am extremely grateful for that. Biomarker research sometimes falls between two stools: on the one hand, it does not always qualify for public support because of its commercial potential; on the other,

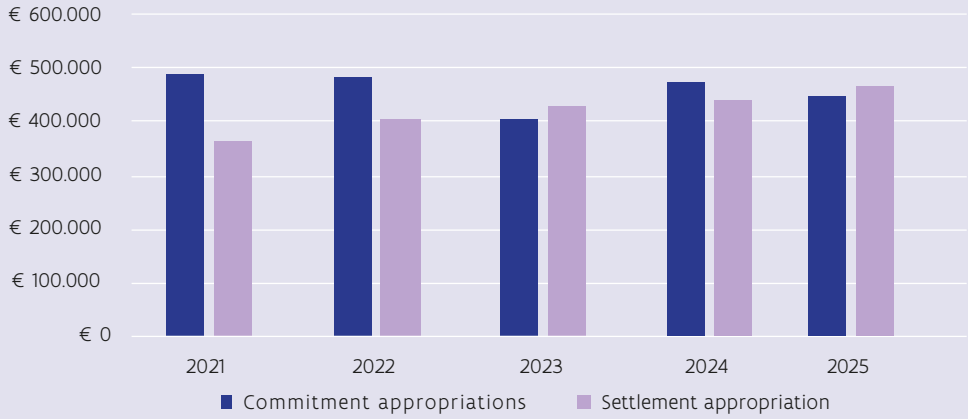
private investors often consider the risk too great. Perhaps that's an idea for the future: a dedicated funding channel for this type of project, with funds flowing back to FWO if research proves commercially successful. In any case, there are always more research questions than available funding."

"The tough competition for funds can be problematic. Valuable follow-up research grinds to a halt if there is temporarily no funding. When you have to let experienced staff go as a result, you lose important expertise. It would be great if successful lines of research could be supported, for example through a bridging loan, while you look for new funding."

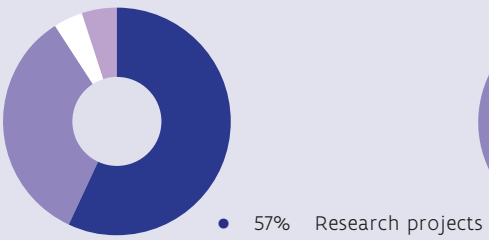
"Either way, I will be turning to the FWO quite often. There are still so many questions I want to answer. Our work on glycomics, for example, may also provide important insights into rare autoimmune liver disease. That's what I am working on now. We'll be able to make good use of our international networks in that field as well. Glycomics can really make a difference to the patient's treatment. If we succeed in that, we will have accomplished our mission."

FWO in figures

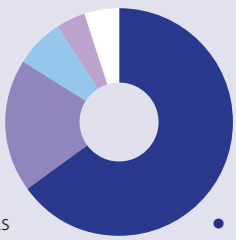
Evolution of revenue



Grant distribution

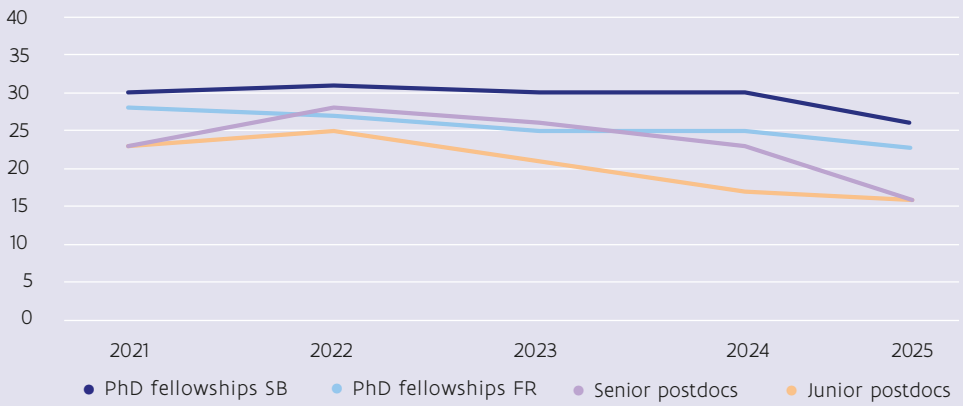


- 57% Research projects
- 34% Fellowships
- 4% Infrastructure
- 5% Management costs

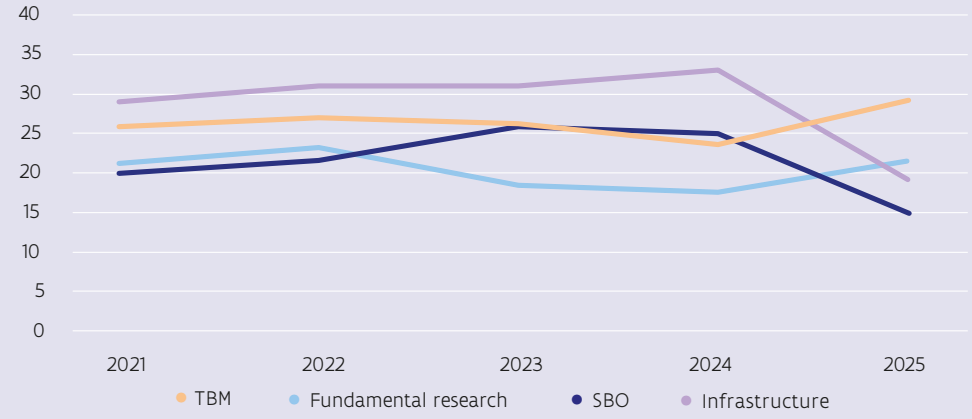


- 65% Fundamental research
- 19% Strategic basic research
- 7% Infrastructure
- 4% Clinical research
- 5% Management costs

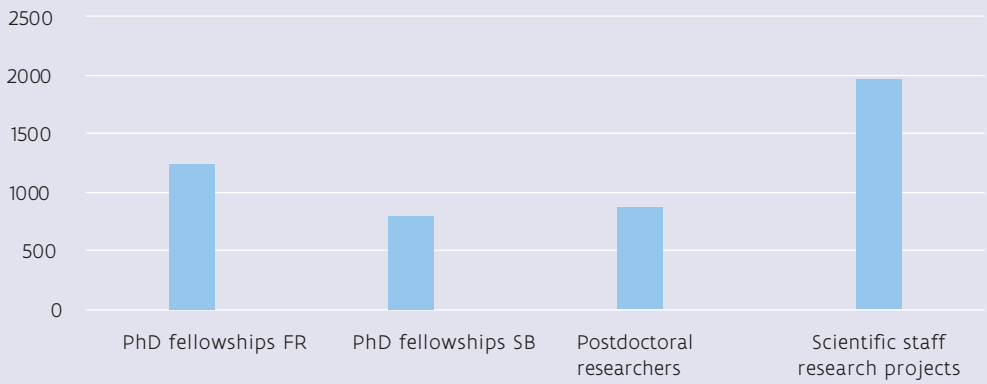
Evolution of fellowship success rates



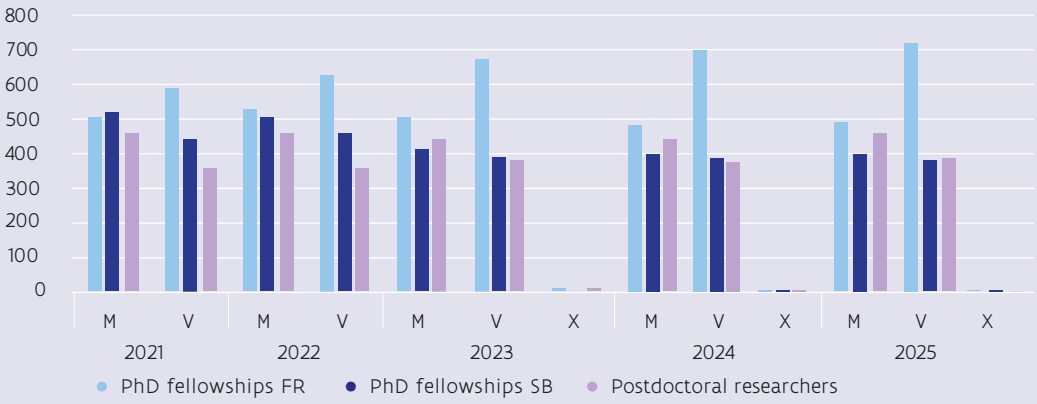
Evolution of research project success rates



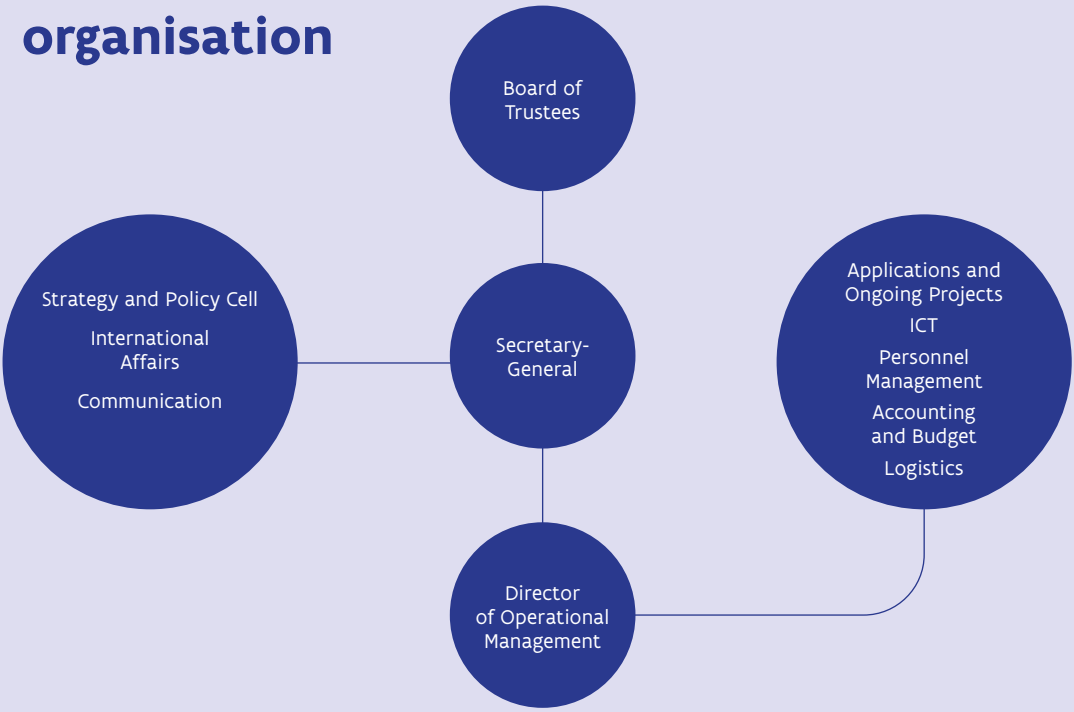
Researchers employed (on 1.11.2025)



Evolution of researchers employed (on 1.11.2025)



Our organisation



ESG reporting

ESG reporting ensures that an organisation can communicate efficiently and transparently about the social and environmental impact of its activities and its governance. The following three governance considerations and aspects are taken into account when reporting the ESG policy:

1. Environmental aspects (Environment)
2. Social/societal issues (Social)
3. Governance aspects (Governance)

The FWO annual report lists the various action points taken by FWO with regard to each of these three aspects. Examples include:

- Commitment to raising awareness of CO2 issues among FWO researchers through a sustainable travel policy;
- Offering panel members the option of online participation in panel meetings (hybrid meetings);
- For the FWO housing sustainability policy, the building falls under the Flemish Government's internal Climate Plan;
- comprehensive well-being policy with the introduction of the right to disconnect, a well-being survey and workshop, provision of a whistleblower scheme and preparation of a training plan;
- The Corporate Governance Charter demonstrates how FWO implements the principles of corporate governance in relation to external autonomous agencies.

Board of Trustees

The Board of Trustees takes decisions concerning the advice of the expert panels and other committees as well as FWO operations, budget and accounts.

Current composition

Chair

Blondé Bruno - Professor - University of Antwerp

Vice Chair

Pareyt Bram - R&D director GRS Lab - Puratos

Members

Delcour Jan - Professor - KU Leuven
Durinx Christine - Managing Director - VIB
Lagrou Katrien - Professor - KU Leuven
Luyckx Dorien - Business Director - Eos Science
Van Bael Marlies - Professor - Hasselt University
Vander Beken Tom - Professor - Ghent University
Vanderkerken Karin - Professor - VUB
van Sas Jos - Director External Affairs - Nokia Bell Labs
Van Speybroeck Veronique - Professor - Ghent University
Vasseur Karolien - Senior Project Leader - Umicore

Members with advisory capacity

Andries Mark - Leading official of the Flemish Agency for Innovation and Enterprise
Hanssens Johan - Leading official of the Department of Employment, Economy, Science, Innovation and Social Economy

Secretary-General

Willems Hans - Secretary-General - FWO

Government representatives

Gladinez Tom - Deputy head of cabinet/ counsellor EWI and Vlaamse Rand - Cabinet Deputy Minister-President of the Government of Flanders, Flemish Minister for Home Affairs, Urban and Rural Policy, Living Together, Integration and Civic Integration, Public Governance, Social Economy and Fisheries
Titeca Els - Science policy adviser - Cabinet Minister-President of the Government of Flanders, Flemish Minister for Economy, Innovation and Industry, Foreign Affairs, Digitisation and Facility Management

Rapporteur

Huysmans Danny - Director of Operational Management - FWO

Administration

The FWO team is always ready to assist researchers. It ensures the efficient organisation of the various evaluation processes within FWO to guarantee that the various projects and fellowships are awarded and followed up in a timely and qualitative manner. Our administration always aims for a researcher-friendly approach.

fwo

Vlaanderen
is wetenschap