ANNUAL REPORT 2023

The future is sustainable

We are plotting a course for a future where people, nature and economy are always in balance. We work together with all stakeholders to bring about a positive transition story. We draw on our knowledge, innovations and technology to achieve the maximum impact on raw materials, climate and the living environment.

vito

"We draw on our knowledge, innovations and technology to achieve maximum impact on raw materials, climate and the living environment."

Welcome to VITO's first fully digital annual report. In 2023, I joined VITO on a new adventure and was very enthusiastic. It is incredibly exciting, because we live in challenging times, as climate change kept reminding us. Achieving the sustainability goals for 2030 and 2050 requires economically,ecologically and socially balanced solutions.

With the new management team and updated strategy, we are plotting a course for a future where people, nature and economy are always in balance. We work together with all stakeholders to bring about a positive transition story.

In this annual report, we look back at VITO's main achievements in 2023 within each domain and in terms of our organisation and results.

Inge Neven
CEO VITO

PREFACE

Dear Reader,

2023 was a year that left an impression. We are living in challenging times and that was all the more apparent as a result of climate change. 2023 was the second warmest year in Belgium since measurements began back in 1833 and the months of June and September were the warmest months since then. At the same time, there was much precipitation, which reached peak levels in the autumn, resulting in floods in the Westhoek. In other parts of the world too, 2023 was also a challenging year as far as the climate situation was concerned. Extreme weather, floods, heatwaves and drought resulted in significant consequences for humans and for our natural environment. Not only is our climate continuing to warm up, but it is becoming more erratic and unpredictable.

We can no longer lurch from crisis to crisis, but must keep the end goal in mind – to limit the rise in temperatures and achieve carbon neutrality. We must seek to establish a new state of equilibrium with our planet. As a society, we have reached a tipping point and if we are to achieve the sustainability goals for 2030 and 2050, economically, ecologically and socially balanced solutions will be required. The scientifically based insights and solutions we are working on every day at VITO can help us work out where to focus our efforts.

VITO too is at a tipping point. In 2023, after 22 years as Managing Director, Dirk Fransaer passed on the baton to the new CEO of VITO: Inge Neven. Together with the organisation's new leadership team and with the firm foundations put in place in the preceding years, she will maintain VITO's focus on growth and impact.

To maximise our impact, VITO's work is now rooted in three impact areas: a sustainable resources economy, climate adaptation and mitigation and creating a sustainable living environment. In this Annual Report, we will provide you with a more detailed insight into VITO's most important achievements in 2023 in each of these fields. We will also show you what changes we are making to our organisation and what outcomes our VITO team has achieved. By way of an example and in close collaboration with ResourceFull, we investigated options for the upcycling of mineral mine waste into raw materials for construction and developed three circular concrete mixes. The realisation, as part of the European INNOMEM project, of optimised membranes for wastewater purification is another great example of circular economy. In 2023, VITO also achieved some very positive results in the area of climate adaptation and mitigation. The Waste Watchers project in Antwerp realised some very positive outcomes and justifiably won two sought-after prizes. On an international level, one of the most striking examples was the mapping out and reduction of heat stress in countries such as South Africa and Niger. In those countries and with the assistance of local volunteers to carry out the measurements, the VITO team successfully charted heat stress in much greater detail than ever before, as a means of scientifically demonstrating the mitigating effect of urban green spaces as a climate adaptation measure.
The Digital Twin district renovation tool for collective renovation processes in entire districts and the Open Thor Living Lab of VITO/EnergyVille, in which innovative energy transition solutions are tested in a genuine setting, are two positive outcomes achieved in 2023, that will enable us to increase our impact in the quest to ensure a sustainable living environment, which represents VITO's third impact area.

In December 2023, we signed the new management agreement with the Flemish Government, which sets the direction that VITO will follow during the coming years. We drew up plans in such a way as to bring our different internal research expertise together more effectively, in order to achieve innovations that are even more effective and integrated than before. As an organisation, VITO expanded from 1050 to 1300 employees in 2023, amongst whom no fewer than 61 nationalities are represented. During the year, VITO's total turnover came to a healthy €268 million and the organisation produced 277 SCI papers and 25 patent applications. During 2023, we set up two spin-offs: Immunespec and Eco Repair Score®.

In that same year, VITO also commenced construction of the Earth building. This state-of-the-art laboratory infrastructure forms part of the more wide-ranging master plan for the VITO Sustainability Park in Mol. The new building will be home to a large number of flexible laboratories and pilot installations, which will be responsible for the development of the next generation of sustainable technologies for industrial applications in Belgium and in other countries. This is set to become the new flagship within Flanders' innovation landscape.

By utilising the unique expertise we bring together within VITO, we want to continue working with businesses, governments and citizens as a preferred innovation partner to create an optimistic and sustainable vision for the future and to develop specific applications. Positive, transition-oriented thinking, system innovation and collaboration form key aspects of our approach. In this way, VITO is playing its part in strengthening Flanders' competitive position within Europe and Europe's position within the world and is contributing to the transition towards sustainability on a global scale. We hope you enjoy reading this digital report.

I. Vanden Berghe
Chair of the Board of Directors

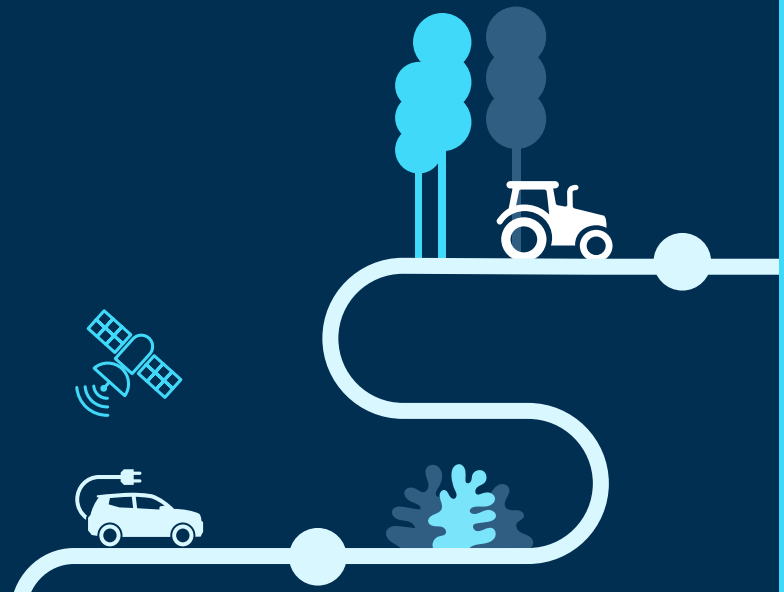
Inge Neven
CEO VITO

OUR IMPACT IN 2023

RAW MATERIALS

CLIMATE

LIVING ENVIRONMENT



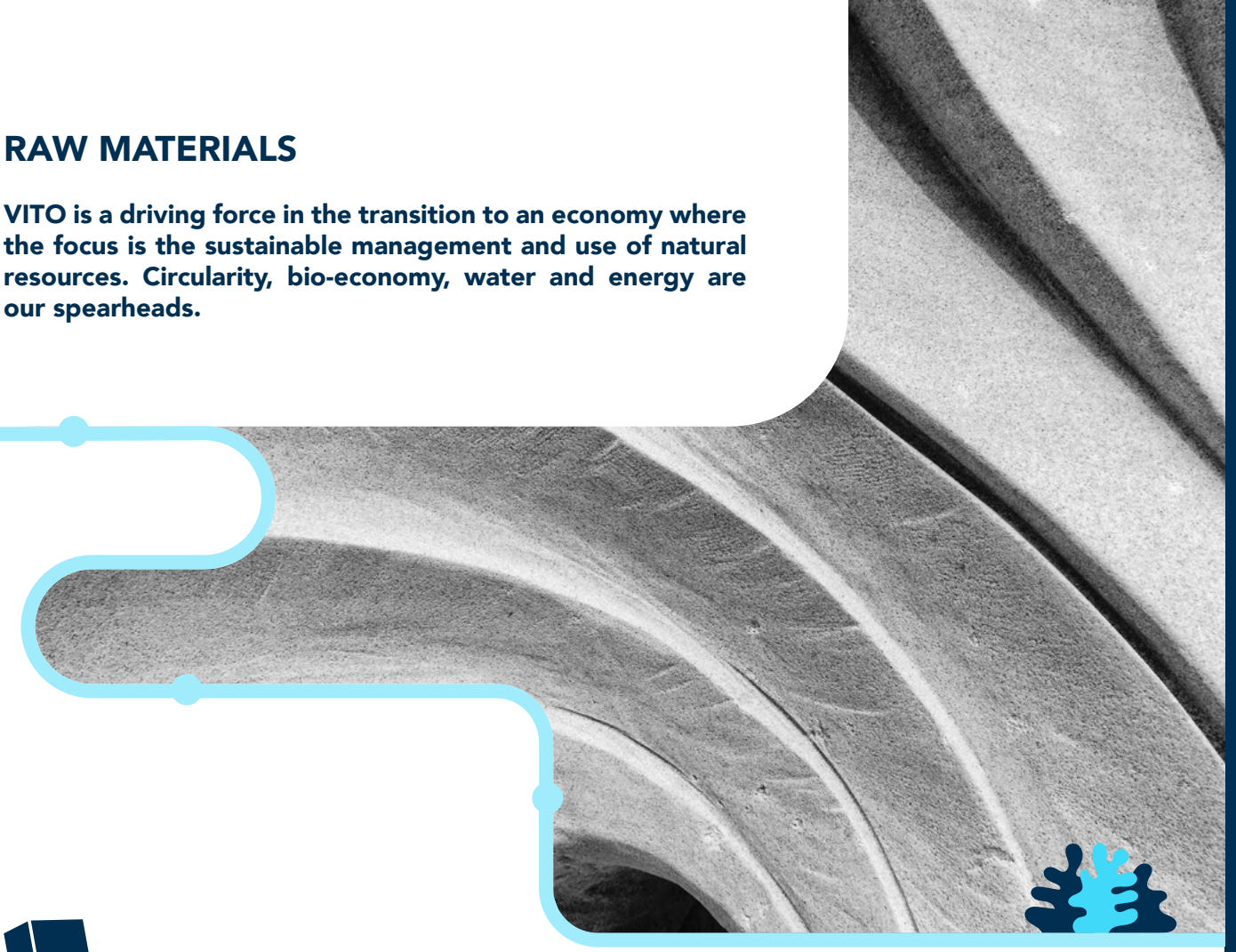
Maximising our impact: a clear positioning in three impact domains

VITO links its domain knowledge of people and the environment to technological innovations, (pilot) infrastructure and digital applications. VITO shares its unique expertise with companies, governments and citizens, to make a positive and measurable impact together for a society in transition in Flanders, Europe and the world. We do this for three impact domains: raw materials, climate and living environment.

Read the full article here

RAW MATERIALS

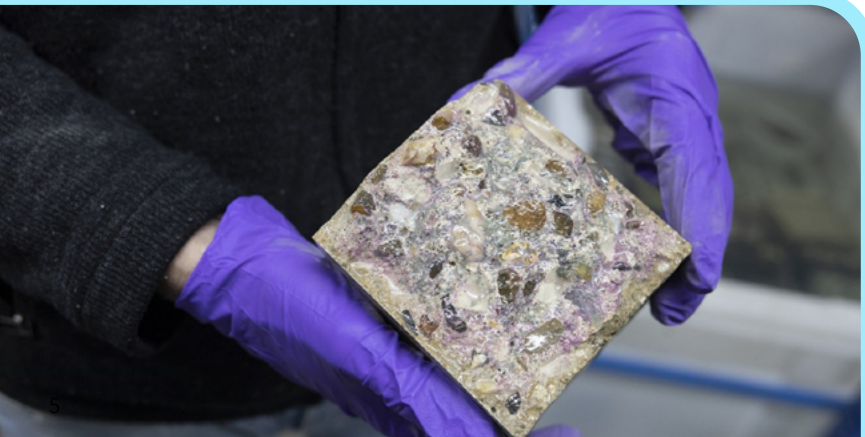
VITO is a driving force in the transition to an economy where the focus is the sustainable management and use of natural resources. Circularity, bio-economy, water and energy are our spearheads.



From mining waste to raw materials for concrete

Every year, mining activities in Europe generate 700 million tons of mineral waste ('tailings') with enormous environmental impact. In the Horizon 2020 project NEMO, VITO worked closely with ResourceFull to investigate options for upcycling the mineral fraction into raw materials for building materials. Together, they developed three different, 'circular' concrete mixes. .

Read the full article here



VITO's research and expertise are key in EU's 'critical raw materials act' and 'right-to-repair'

With the Critical Raw Materials Act, Europe aims to become more self-sufficient in key raw materials for its economy and industry. This can be achieved by taking a much more circular approach to raw materials, but also by reusing and recycling products a lot more. VITO has had a strong focus on both strategies for years.

Read the full article here

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From a disposable to a repair economy

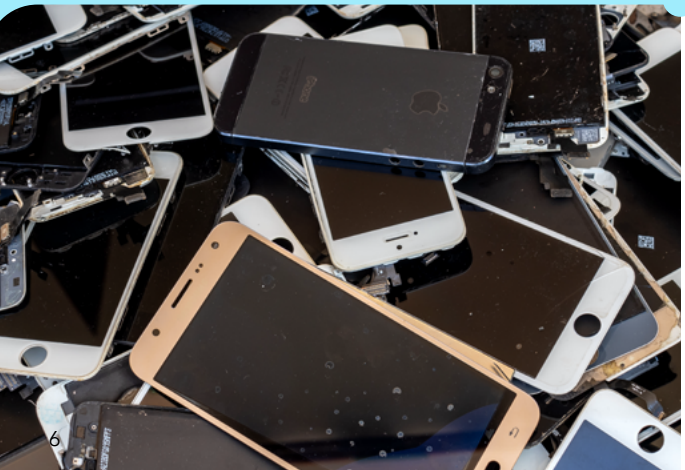
When domestic appliances break down, we still (too) often replace them with a new one. Yet, this 'throw-away economy' is tough on the environment. Increasing numbers of people are keen to mend or get their appliances repaired, yet they still face all kinds of obstacles. In the Sharepair project, VITO teamed up with partners, to develop online tools which encourage and facilitate repairs.

Read the full article here

Circular business models for PV installations

Solar energy plays an important role in making our energy mix fossil-free. Although the installation of PV systems has grown strongly in the last decade, many households face significant barriers before investing in solar energy. In the CIRCUSOL project, VITO investigated whether circular business models could reduce those hurdles.

Read the full article here



Testing the circular potential of reversible gluing

With reversible gluing techniques, glued components and products can be repaired or recycled more easily. VITO investigated what the circular potential would be of reversible gluing, when used on the battery of a smartphone.

Read the full article here

Guideline clothing design for sustainable fashion

In a joint effort to boost sustainability in the fashion sector, Xandres, VITO and Flanders DC launched a new tool, called the 'Guideline for Clothing Design for Longevity.' This tool will help designers and clothing brands to create high-quality, sustainable clothing that will significantly reduce the sector's environmental impact.

Read the full article here

Sustainable packaging for e-commerce traders

The proposal for a new European regulation about packaging and packaging waste obliges traders to make their range of packaging more sustainable. But what exactly are these sustainable packs and which one is best for the trader? VITO offers help with a coherent, comprehensible and scientifically based advisory document.

Read the full article here

Sensor network in Albert Canal optimises water management

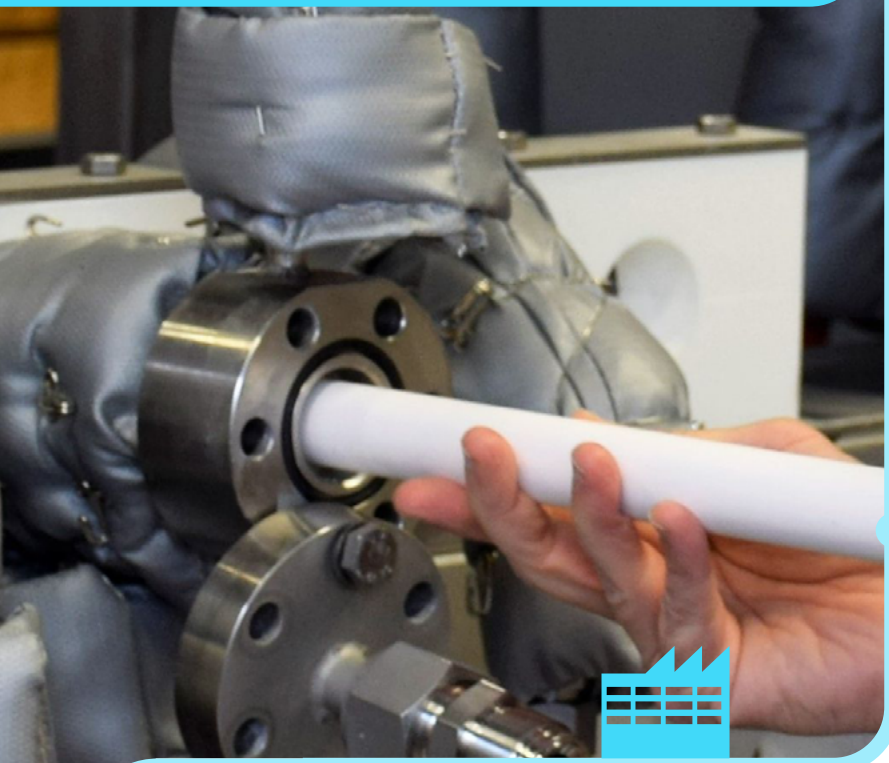
Climate change and the Flemish Blue Deal led to a new collaboration between VITO and water-link. There was a need for continuous monitoring and systematic insight into the quality and quantity of the water in the Albert Canal and Antwerp's canal docks. So, we rolled out a sensor network to accurately align the monitoring of our waterways.

Read the full article here

Flanders Waterproof

Thanks to WaterAtlas, an interactive map tool developed by VITO, neighbouring companies can help each other with their water supply. This is part of the project 'Vlaanderen Waterproof' (Flanders Waterproof) in the Blue Deal. Within this project, VITO is also examining options to protect groundwater supplies with smart water management and additional water buffering.

Read the full article here



INNOMEM - Innovation and test environment for membrane technology

In the European INNOMEM project, thirty businesses, universities and research institutions are working together to improve and scale up concrete membrane technologies, targeting specific industry needs. VITO is responsible for one of these showcases, namely optimised membranes for waste water treatment, together with the Danish company LiqTech.

Read the full article here

To a demonstrator for integrated CCU technology

CCU(S), short for 'carbon capture and utilisation (and storage)', can help industries in becoming carbon neutral. While carbon reuse, capture and purification are mostly viewed individually, VITO developed two concepts to combine these applications into one integrated solution. The ambition is now to scale up to demonstration level.

Read the full article here

Oleon VITO collaboration in practice on most innovative oleochemical production site in Europe

Europe's most innovative plant for the production of sustainable oleochemicals has been opened in Oelegem, near Antwerp. This facilitates a large reduction in CO2 emissions when manufacturing enzymatic esters, used in, for example, the food and cosmetics industry, while also producing significantly less waste.

Read the full article here

MooV guides Umicore towards optimum on-site logistics

At the Umicore site in Hoboken, which covers an area of 110 hectares, precious metals are recovered from devices and waste substances that have been disposed of. This means that many transport journeys are necessary. In order to organise this better, the company called upon VITO's help, which offers a service for analysing and optimising supply chains and logistical flows called MooV.

Read the full article here

Watch the video about Umicore and MooV here

Scenarios to realise transition

In the context of the projects EPOC 2030-2050 and PATHS 2050, experts from VITO/EnergyVille worked (and are still working) together with colleagues from other Belgian institutes to look into a transition to a safe, affordable and carbon-neutral energy supply for our country, and to outline possible pathways in this regard. How do we achieve a climate-neutral Belgium in 2050, at the lowest social cost?

Read the full article here

Ditur: digital twin renovation tool

With climate warming and the energy crisis we must speed up the renovation of our outdated housing stock. In order to achieve this acceleration, VITO/EnergyVille is providing local authorities and their partners with the Digital Twin Estate renovation tool. The tool will determine the most suitable renovation and decarbonisation strategy for the entire neighborhood.

Read the full article here

Study requested by Synergrid: the impact of electric driving on the Belgian power grid

By 2030 there could well be one and a half million electric cars driving around in Belgium. They will all need to charge, but will our power grid be able to cope? In an intensive study, VITO/EnergyVille investigated the possible challenges, but also the opportunities of the fast-growing electric fleet.

Read the full article here

VREG study on value energy communities

In a recent development, in addition to purchasing and generating electricity, electricity consumers are now also permitted to share their self-generated energy with other consumers, for example, in the form of an energy community. This has many ecological and social benefits. In order to be able to stimulate such activities, VITO/EnergyVille were asked by the Flemish energy regulator VREG to investigate whether these activities qualified for lower net tariffs.

Read the full article here

EPIC Africa: systemic transition in Sub-Saharan Africa

What does a sustainable future look like? Which roads take you there and are they socially desirable? These were the questions investigated in the EPIC Africa project. The VITO Nexus team, which specialises in systemic transitions, is involved, together with the SESAM team at VITO/EnergyVille , which is tasked with modelling.

Read the full article here

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CLIMATE

VITO actively contributes to limiting global warming and adapting our society to the consequences of climate change. We map the climate risks, supply technological solutions and develop scenarios for a resilient future.

AI GENERATED

VITO supports EU biodiversity goals 2023

The mapping of habitats is an important instrument in assessing the progress towards the European biodiversity goals for 2030. Thanks to AI, we can improve our knowledge about where habitats can be found across Europe, an essential element in preserving the biodiversity and taking specific measures to do so.

Read the full article here

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Monitoring grain crops from space

On behalf of the ESA, VITO Remote Sensing mapped all agricultural plots on Earth. WorldCereal offers the first-ever cereal and maize maps based on satellite imagery, on a global scale and in unprecedented detail. As such, the tool is a gamechanger in monitoring food security.

Read the full article here

Automatic fruit counting for smart crop management

In order to improve the crop management and production of fruit farmers, we must have detailed information about an orchard, such as how much fruit each tree produces. However, it is not feasible to do this with human effort alone. That is why VITO developed a way to estimate this automatically, using an algorithm based on deep learning.

Read the full article here

Agriculture more resilient against extreme weather conditions

Provincial research centre Hooibeekhoeve and VITO are working together on climate-robust cultivation systems in the Campine region. Using remote sensing technology among other things, they are investigating how they can grow feed crops for dairy cattle more ecologically, profitably and in a more climate robust manner. The aim? A sustainable and economically profitable dairy farm which can respond to extremely dry and wet periods.

Read the full article here

KLIMREK: climate scan for farmers

Growing crops in a more climate-friendly and robust manner: farmers are facing a mountain of measures, and are often unsure which are most lucrative for their business. That is why the KLIMREK project now offers climate support tailored to individual Flemish farms. Through the Remote Sensing department, VITO provided the 'geo component', (spatial information).

Read the full article here

Destination Earth: urban heat maps for European adaptation policy

With its flagship project Destination Earth, the European Commission is aiming to create an extremely accurate digital model of the Earth on a worldwide scale. To do so, VITO is developing an innovative interactive tool to map urban heat. Policymakers can use these maps to assess the impact of climate change on urban heat islands, and evaluate possible adaptations to them.

Read the full article here

LIVING ENVIRONMENT

VITO provides the tools for creating an environment where human activities are in balance with natural systems. This is to strengthen a society where health, social justice and economic prosperity are crucial. We focus on models and technologies to minimise the harmful impact on people and the environment (water, soil, air) and create a viable urban infrastructure.

SMART CITIES

Digital twin for the city of Bruges

Over the past two years, imec, VITO, Cegeka and the city of Bruges have been building a so-called 'digital twin' of the city of Bruges: a digital representation of the physical living environment. Using this tool, policymakers are able to monitor the state and evolution of their city, and also use calculation models to predict the impact of their decisions, before implementing them.

Read the full article here

European match-making platform for smart cities

The Smart Cities Marketplace is where ideas, solutions and best practice is shared and disseminated across the broad European smart city community. Then, they can be matched with a suitable investor at the end of the journey. The European initiative, coordinated by VITO, seeks to bring as many cities and municipalities as possible on board, including smaller ones.

Read the full article here

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Smarter, greener and cheaper electrical charging in the car fleet

Car fleets are currently in the process of being electrified, and so more charging infrastructure is urgently needed to power all these electric cars. At the Thor Park in Genk, innovations around smart charging are tested out. The innovations are developed by VITO/EnergyVille but also by external companies - including international ones - which use the existing living lab as a testing ground.

Read the full article here

Living Lab for sustainable bike industry

Until now, the bike industry tended to focus on selling as many new bikes as possible. With this living lab we aim to make the bike industry more sustainable, and in particular the sector of fast electric bikes or speed pedelecs. We built an ecosystem of companies that supports the entire life cycle of sustainable e-bikes and their components.

Read the full article here

VITO and HOGENT investigate land use in Flanders

Flanders needs to use its open space very sparingly. That's why the Flemish Government has proposed the Construction Shift. Its aim by 2040 is for the daily absorption of open space to be reduced to zero hectares. HOGENT and VITO investigated how open space has been used up over the past 50 years, the role of regional planning in this process and how this can evolve further in the future.

Read the full article here

Leen Bastiaens (VITO) was chosen as the first KIS manager

PFAS, not only forever chemicals, but also a forever concern

KIS Kenniscentrum Innovatieve Saneringstechnieken

Since the spring of 2021, when PFAS suddenly emerged high on the agenda for policymakers, citizens, companies and VITO, attention has not strayed from these forever chemicals for a moment. Again in 2023, researchers from VITO focused without interruption on investigating the presence of PFAS in soil, air, water, rest fractions and the human body. Not only the government, but also companies and private individuals have turned to VITO with requests for more research. On top of that there were intense discussions with, among others, the Netherlands and investigations into how PFAS crosses borders.

Read the full article here

PARC: Making risk assessment of 10000s of chemical substances more efficient and proactive

VITO is closely involved in PARC, the European Union's ambitious partnership that is tasked with improving and harmonising chemical risk assessment, and the relevant methods and tools. VITO is involved in the daily management and is collaborating on three themes: human biomonitoring, exposure and health risk assessments from an integrated perspective, and data management.

Read the full article here

VITO part of EIRENE

Together, VITO, the University of Antwerp, KU Leuven and the Flemish department for the environment form the Flemish hub of EIRENE, the new bio-analytical infrastructure which is being developed in Europe. EIRENE is tasked with investigating how environmental factors contribute to the growing number of chronic illnesses in Europe.

Read the full article here

We Are and Athumi are working together on one safe place to gather all your health data

Our personal data are everywhere in daily life and society. For example, preferences in apps, step counters, travel movements and search behaviour on the internet.
On the other hand, we value our privacy and there is currently a lot of suspicion that data will be used improperly, certainly when it comes to sensitive health data. These health data are, however, of great importance for knowledge institutions, universities, governments and businesses in facilitating the development of new technologies or researching trends, diseases and prevention.

The We Are platform, coordinated by VITO, had already been launched to allow citizens to manage their own health data through a digital 'data safe'. The technology in We Are gives citizens transparent control over their personal data and actively involves them in decisions about the platform that manages the data. As such, citizens are guaranteed that they can share and manage their data safely.

The project is being financed by the Flemish Departments of Welfare and Public Health, Digital Flanders and Economy, Science and Innovation and will be firmed up in the course of 2024.

In 2023, during this project, a strategic collaboration memo was signed between VITO, We Are and Athumi, the new Flemish Data utility organisation contracted with processing personal data and sensitive business data smartly and safely.

The collaboration will mainly target the expansion and gathering of personal health data from individual citizens, such as sports behaviour, nutrition and allergies. After all, besides the standard medical data, these details can be very meaningful in research into disease treatment and prevention. In the other direction too, it can support carers in viewing more data about a person and providing personalised healthcare, for example, by discovering a pattern in food or physical exercise that may be linked to an ailment.

Of course, individual citizens will retain all decision rights regarding their own data and what may be shared (anonymously or otherwise) with whom.
Athumi and We Are aim to build citizens' trust in how their data is used and its importance in research and development, but also in personal life and quality of life for everyone.

Find out more about We Are

Find out more about Athumi

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OUR ORGANISATION

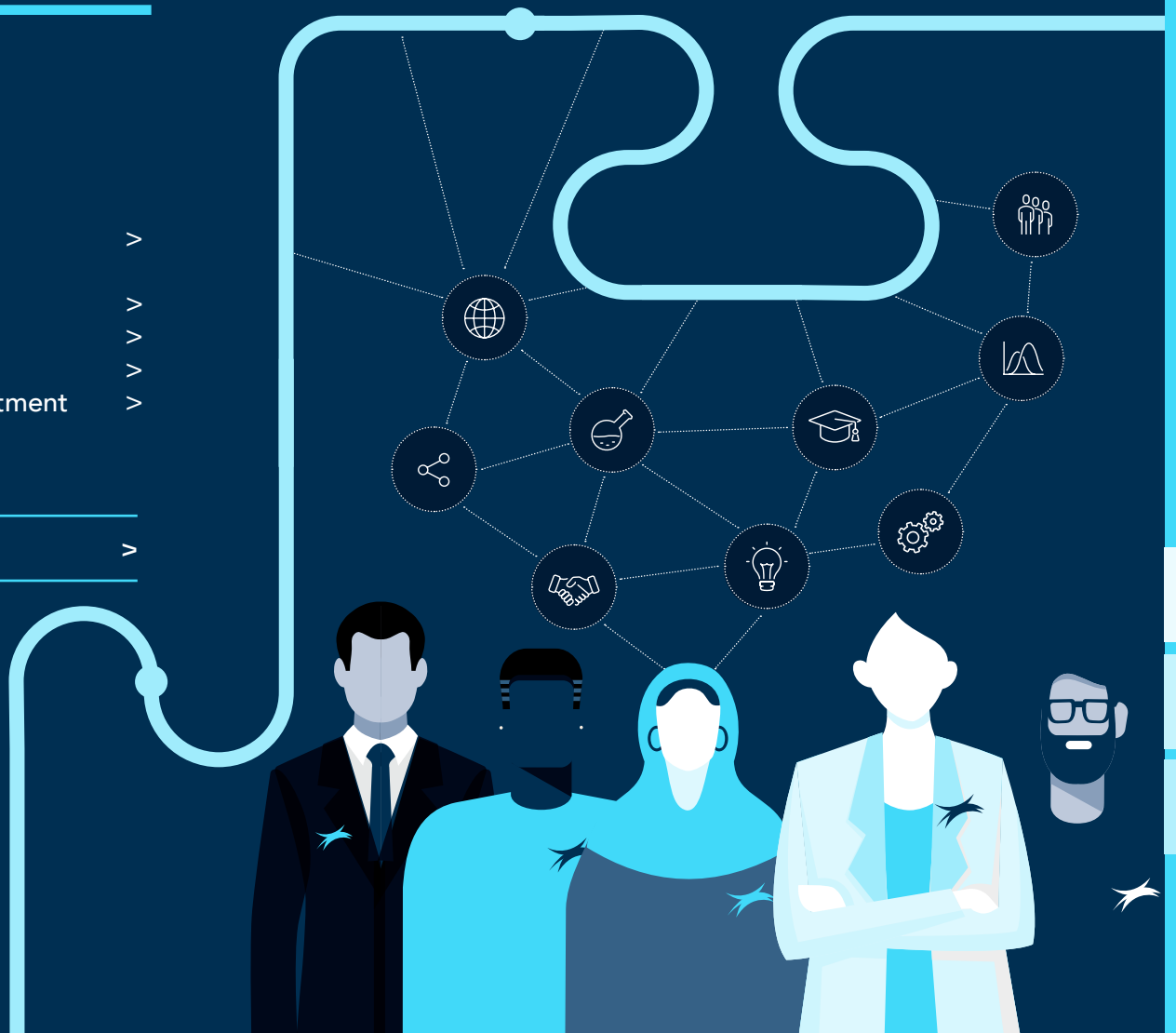
PEOPLE

INFRASTRUCTURE

Open Thor Living Lab Genk >
Construction started on state-of-the-art
VITO EARTH building >
Platform for inhalation testing >
Reference lab indoor air quality >
State-of-the art pilot installations for water treatment >

NEW MANAGEMENT AGREEMENT

OUR RESULTS >



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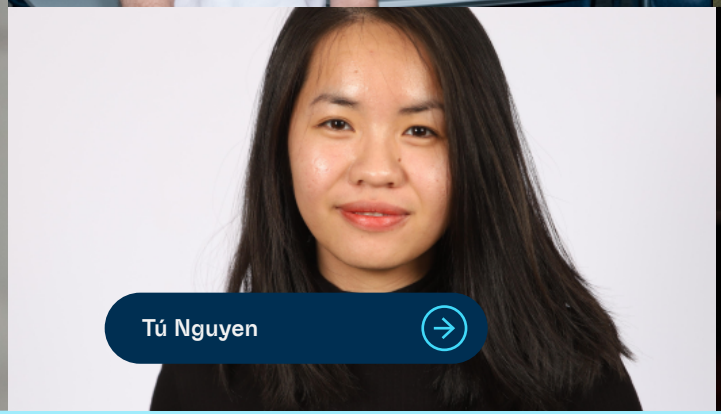
Cathérina Elsemans

Daniele Zanaga

Hilde Vandecruys



Tú Nguyen

Erik Bollen

Board of Directors and management committee

New CEO Inge Neven

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Thor oPEN Lab

In the context of the European oPEN Lab project, two neighbourhoods in Genk are being collectively renovated using the very latest energy technologies. VITO/EnergyVille and Wonen in Limburg are looking into how 'positive energy neighbourhoods' can take shape in practice. This makes oPEN Lab a structural part of the Open Thor Living Lab, the innovation hotspot encompassing Thor Park, Nieuw Texas, the Waterschei garden suburb and KRC Genk.

Read the full article here

Earth building

On 23 October 2023, VITO laid the first brick in a new laboratory building: Earth. The state-of-the-art laboratory infrastructure is part of the larger master plan for the VITO Sustainability Park in Mol, accommodating numerous flexible laboratories and pilot installations, responsible for developing the next generation of sustainable technologies for domestic and foreign 'factories of tomorrow'.

Read the full article here

Platform for inhalation testing

Animal testing is still frequently used to test medicines and other chemical substances. Alternative methods can reduce the need for such testing, for instance, because they are based on cultured human cells (in vitro). VITO designed a test platform of this kind specifically for inhaled substances.

Read the full article here

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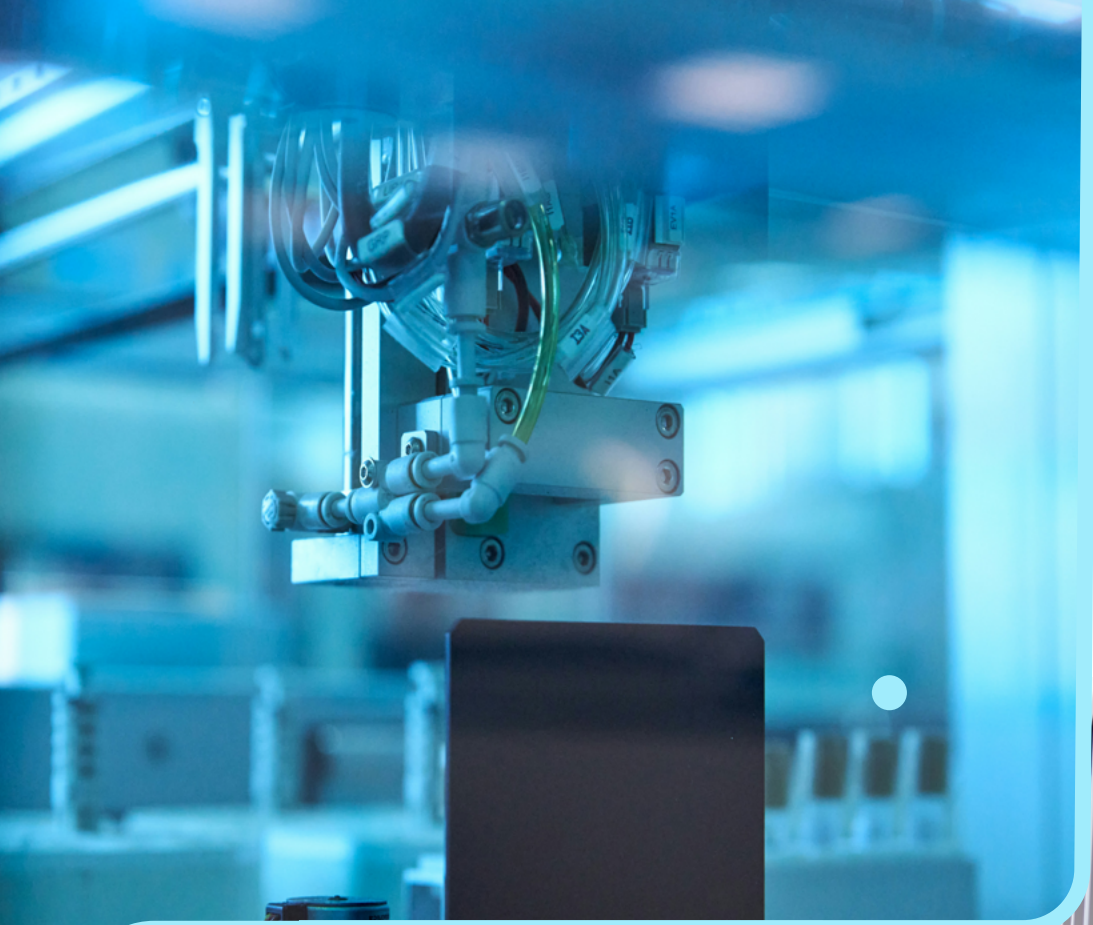


Reference lab indoor air quality

Last summer, VITO began using its brand-new testing room for indoor air quality. We are starting with some industrial customers who are to test their air purifiers. Now we are coming to appreciate healthy and pleasant indoor air more and more, and there is new federal legislation too, these devices are rapidly becoming popular. But in VITO's unique testing room, plenty more tests can be carried out.

Read the full article here

State-of-the art pilot installations for water treatment

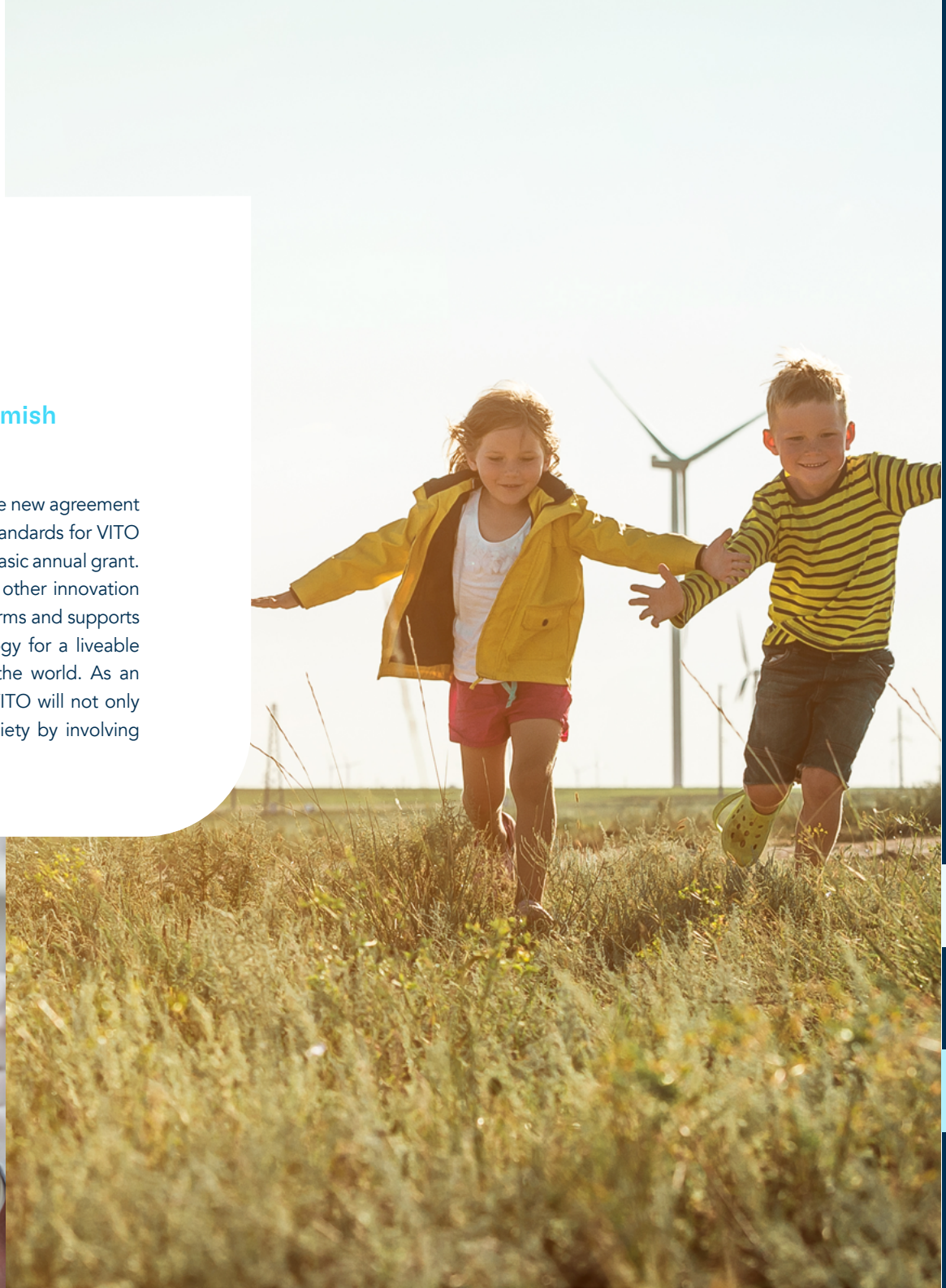
Water is not free, that is becoming increasingly clear to companies. During a production process, water is often only used once. In many cases, it can actually be retreated and reused. VITO designed five pilot water-treatment installations in containers, that can be tested on business sites.

Read the full article here

“VITO is recognised as a top research organisation in the EU in the field of sustainability.”

Management Agreement 2024-2028: Flemish Government reinvests in VITO in order to maximise impact on European and Flemish sustainability goals

Following an extensive evaluation, the Flemish Government approved the new agreement 2024-2028 with VITO on 23 December 2023. The agreement sets the standards for VITO in the coming years. Once again, the Flemish Government anticipates a basic annual grant. In addition, one-off investment resources will be allocated to pilot and other innovation infrastructures as well as to Earth, the new laboratory building. This confirms and supports VITO’s role as acclaimed research organisation in the field of technology for a liveable environment and sustainable development for Flanders, Europe and the world. As an independent centre of expertise where sustainability comes naturally, VITO will not only strengthen the competitiveness of Flanders, but also add value in society by involving citizens in the research and the transition to a more sustainable future.



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OUR RESULTS

ECONOMY

Patents >
VITO4Starters >
AYOUBI VITO's internal innovation bootcamp >
Spin-offs >
From technology to industry >

SCIENCE

Ongoing EU contribution per employee for the Strategic Research centres >

SOCIETY

Events >
STEM >
Waste watchers: citizens look for litter >

INTERNATIONAL

VITO at COP28 >
South Africa - partnership CSIR >
South Africa - mapping heat stress in Johannesburg >
Niger - Reducing heat stress in Niamey >
Circular construction in Rwanda >

VITO IN NUMBERS

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VITO4STARTERS

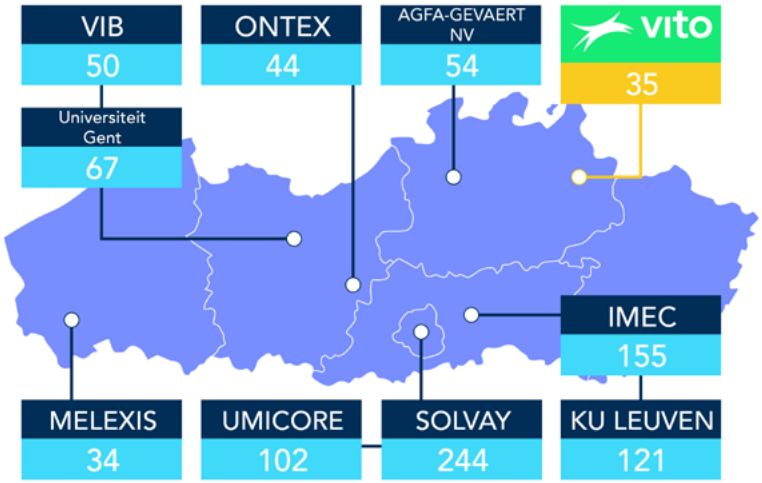
Flexible and fast charging of your electric vehicle, wherever it is parked in the city. That is the promise made by Uze, the Antwerp start-up. The company won the second edition of the VITO4STARTERS competition on 27 July 2023, with which VITO aims to encourage start-ups working on sustainability.

Read the full article here

Patents

Never were so many patent requests submitted in Europe as in 2022. From the publication by the FPS Economy at the end of March 2023, it appears that VITO, with 35 patent requests in 2022, once again ranked in the top 10 of Belgian companies and inventors which had submitted a patent request. In 2023, with VITO, we submitted 25 patent requests; whether that gets us into the top 10 again will be announced by the FPS Economy later this year.

Read the full article here



Number of patents for universities, research organisations and industries in Belgium in 2022

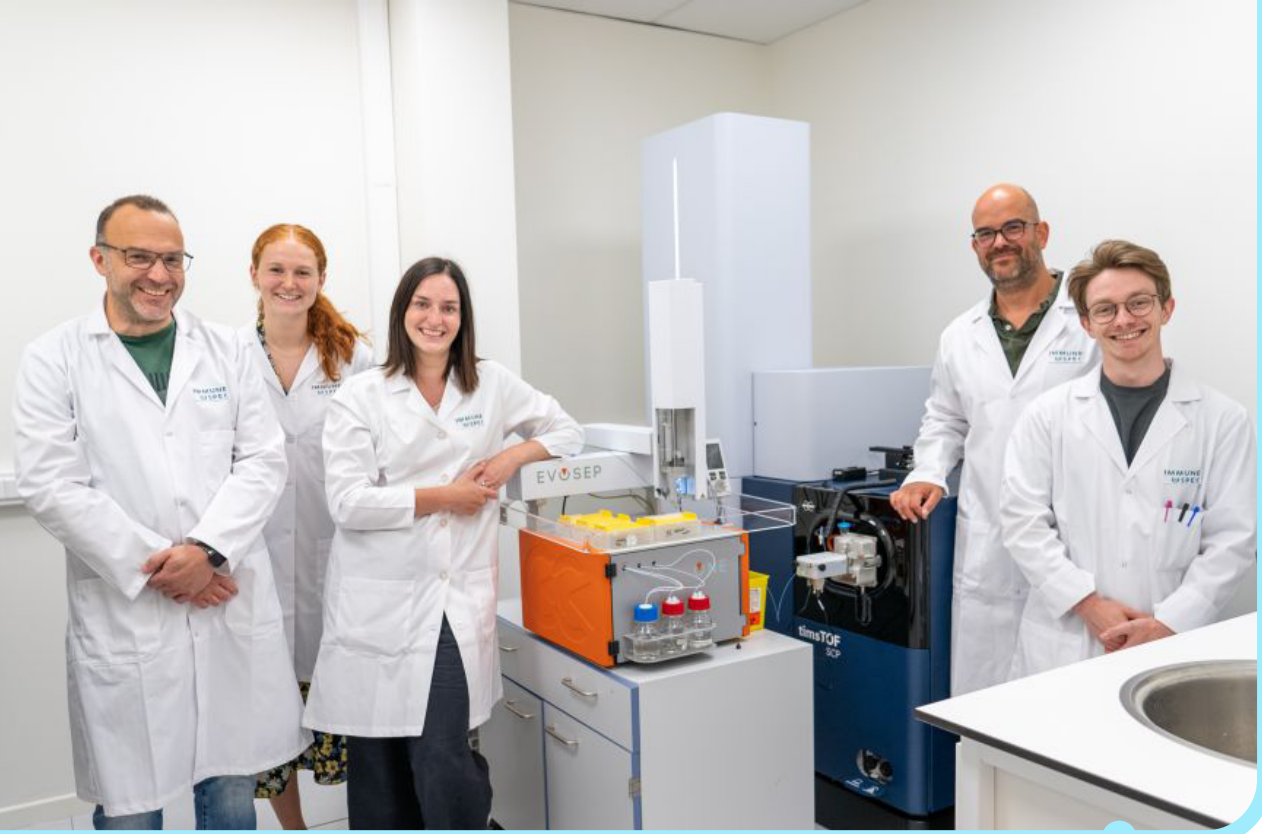
AYOUBI 2023: 'Accelerate YOUr Business Idea'
Inspiring Internal innovation trajectory with bootcamp and pitch

During what was already the fifth edition of the Internal innovation trajectory 'Accelerate YOUr Business Idea' (AYOUBI), VITO once again guided and supported four internal teams in the development of their business case. During the bootcamp in early October, the participants learned, among other things, how to complete a Business Model Canvas and how to chart the ecosystem of partners and competitors.
Some weeks after the bootcamp, the Pitch Celebration took place in the Foyer in Mol, during which attendees were able to vote for the business case that they believed deserved VITO's greatest attention in the near future. Mimir was the evening's winner, but above all the focus lay on the knowledge and skills that all participants learned during the bootcamp and pitch preparation.

FOUR TEAMS, FOUR INNOVATIVE CASES

Here are the four participating teams from 2023 and their innovations, in alphabetical order:

- A/Z Geothermal: This team aims to adopt an overarching advisory role in order to accelerate the transition to deep geothermal energy.
- Circufix: A smartphone app which, using AI, maximises the number of electronic devices that are repaired.
- Mimir is the ultimate software solution which researchers have long dreamed of. The tool integrates different existing applications from the scientific research world all into one operational whole.
- ProspecTool aims to make the academic application of the prospective Life Cycle Assessment convenient and more accessible, so that this application is used more often and earlier in product development in order to assess the environmental performance of future technologies at an early stage.



Spin-off Immunespec

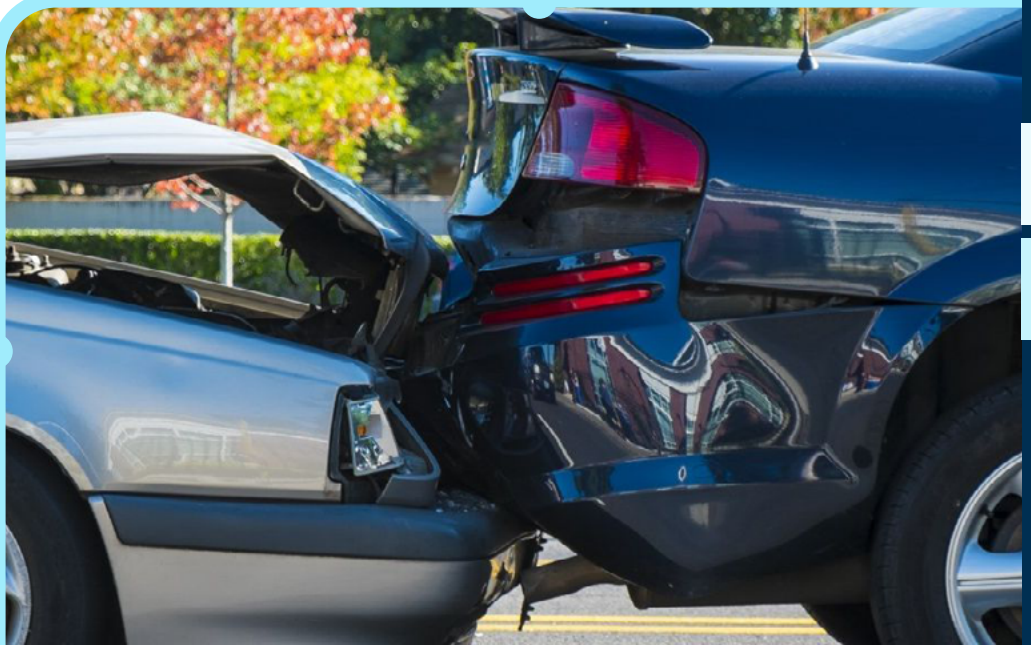
The VITO Venture Studio has a single mission: to create spin-offs based on VITO's innovations. ImmuneSpec is one such spin-off, which took the jump from the lab to a commercial scale in 2023. ImmuneSpec distinguishes itself with rapid and reliable identification of immunogenic peptides for the development of the next generation of vaccines, cancer therapy and protein medicines.

Read the full article here

Spin-off Eco Repair Score

A car accident is never welcome. In addition to all the (administrative) hassle, there's the question of whether the car can still be repaired and what that will cost. However, some repair techniques are more eco-friendly than others. This is why Expert Organisation Vonck and VITO have developed the Eco Repair Score®: a tool to calculate a sustainability score ranging from A to E for vehicle repairs.

Read the full article here



VITO is working hard on the commercialisation and valorisation of our innovations. We market technologies in order to arm governments, businesses and even citizens with tools and systems. As such, we can remain focused at VITO on our core business: research into new sustainable innovations. With our renewed strategy, we aim to reinforce this in the coming years, e.g. by further developing our unique technology platforms and launching more trials and living labs, in order to bring more and faster solutions to businesses, governments and citizens.

CARBSTONE: FROM CO2 AND STEEL WASTE TO SUSTAINABLE BUILDING MATERIALS

In 2023 the Carbstone was a wonderful example of technological development by VITO which was embraced by the industry and is meanwhile actually in production on the market.

The Flemish steel industry produces around 700,000 tonnes of steel slag annually as a by-product. This amounts to 200 million tonnes worldwide. In the past, this steel slag was dumped as waste. By adding CO2, it is now transformed into a raw material for sustainable building materials. Indeed, at VITO, we developed a technology to make tiles, roof tiles, paving stones, kerb stones and building blocks from the calcium-rich steel slag powder. To do so, we use CO2 as a binding material. The process is called carbonation. Cement is no longer required, thus reducing the cost price and increasing the sustainability of the material.

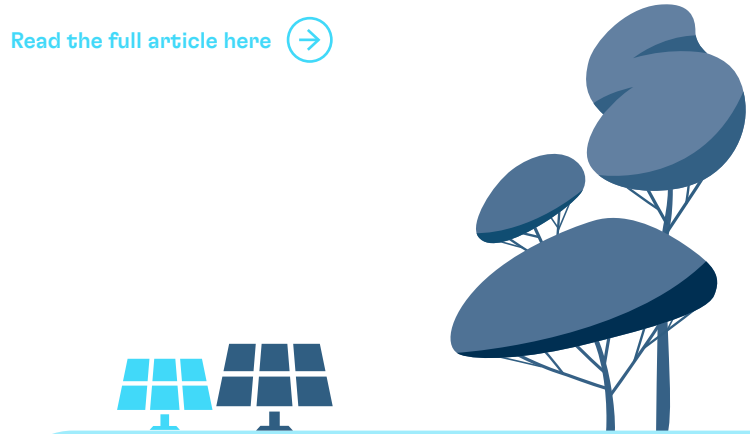
Meanwhile, the Limburg-based company Orbix and building materials manufacturer Masterbloc have industrialised this Carbstone® technology to produce the first circular sustainable interior wall bricks. Brick manufacturer Vandersanden even launched a facing brick in 2023 featuring the Carbstone technology: the Pirrouet® CO2-negative facing bricks.

Find out more about Carbstone

Ongoing EU contribution per employee for the Strategic Research centres

Flemish scientific institutions and organisations are managing to acquire a growing budget from the European Funding programmes, which means that Flanders is becoming involved in top European research. These funding programmes are the European Union's research and innovation programmes which target the stimulation of scientific and technological progress in Europe.

Read the full article here

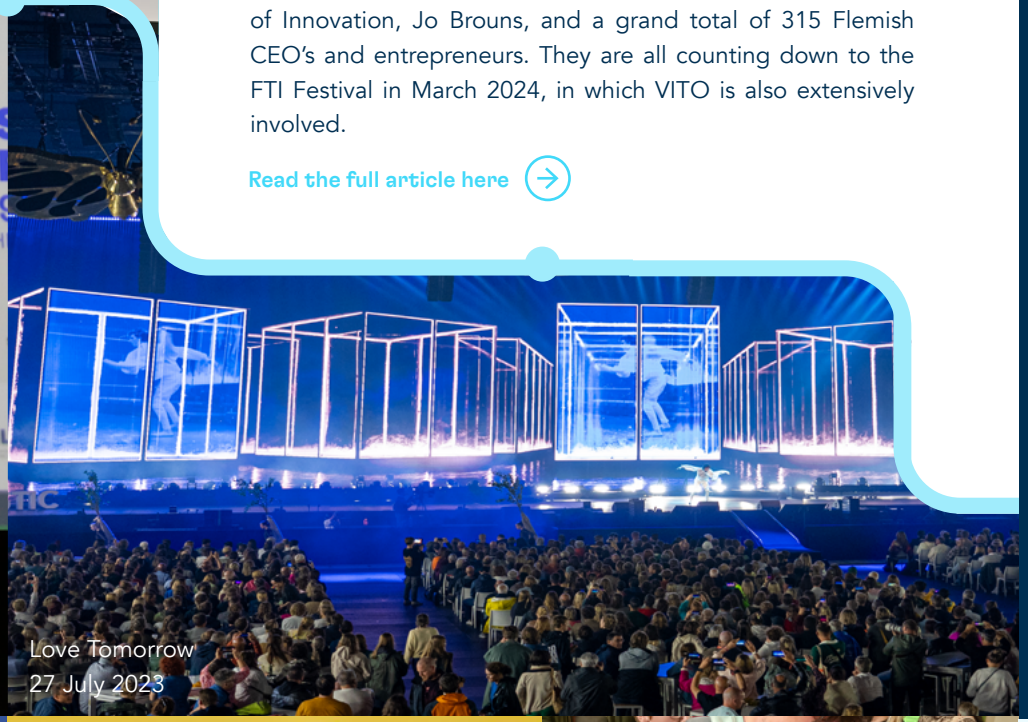


Clean Vision Summit
19 September 2023

FTI Hasselt

On 13 June, 'Flanders Technology and Innovation' kicked off officially with the 'FTI Express' travelling between Ghent and Antwerp. Aboard this innovation train: the Minister-President of the Flemish Government Jan Jambon, Flemish minister of Innovation, Jo Brouns, and a grand total of 315 Flemish CEO's and entrepreneurs. They are all counting down to the FTI Festival in March 2024, in which VITO is also extensively involved.

Read the full article here



Love Tomorrow
27 July 2023

G-STIC Rio
13-15 February 2023

Nerdland festival
26-28 May 2023

Dag van de Wetenschap
26 November 2023

OUR IMPACT →
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G-STIC RIO

G-STIC, the Global Sustainable Technology and Innovation Community with over 30,000 stakeholders, is accelerating the implementation of integrated technological solutions for the SDGs. Integrated technological solutions tackle multiple challenges in sustainable development, covering different areas such as health, food, water and energy.
G-STIC organises diverse international conferences in order to meet these objectives.

In 2023 the sixth G-STIC conference was held in Rio de Janeiro, Brazil, from 13 to 15 February. The conference was attended by 4,200 participants from 140 counties and was organised by the Oswaldo Cruz Foundation (Fiocruz). G-STIC Rio appealed for an urgent reconfirmation of the 2030 Agenda and presented solutions in the fields of science, technology and innovation for a post-pandemic recovery based on long-term sustainable development in order to guarantee an integrated, safe, healthy, resilient and fair world.

Find out more about G-STIC

STEM: young people learn about 3xG research

3xG (read: three times G) is a scientific study monitoring the effect of the environment and life style on the health of the residents of Dessel, Mol and Retie over time. With the launch of the educational programme, 'Health Guardians', especially designed for secondary schools in Mol, young people learn about the aim and process of the 3xG study, become familiar with the 3xG data and are able to understand the scientific basis of environmental and health research.

Read the full article here

STEM: EDUbox on energy

Despite the fact we come into contact with energy every day, it remains a complex subject. This is why VRT, Brightlab, VITO/EnergyVille, Flux50 and imec teamed up and launched an EDUbox about energy. This Energy EDUbox is interactive lesson material, packed with information and knowledge from experts and enriched with tailored video material.

Read the full article here

Waste watchers: citizens look for litter

In a unique research project, citizens were involved with drones to photograph the banks of the river Scheldt, after which AI examined the images for litter. The unique project, a partnership between VITO and River Cleanup, was a world first and also already won two Geospatial Awards in 2023.

Read the full article here

OUR IMPACT
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VITO at COP28

Together with the EU and its Member States – including Belgium – VITO was an active participant in COP28 in Dubai from 30 November to 12 December 2023. During the conference important topics were raised, such as the Global Stocktake, mitigation, adaptation and climate funding. In this global dialogue, VITO focused on entering partnerships with countries and international organisations.

Read the full article here

South Africa - partnership CSIR

South Africa has had serious issues with energy supply for years. Temporary shut-downs of the power grid in certain areas (load shedding) are an almost daily occurrence. This is why companies as well as private individuals are installing masses of solar panels, combined with batteries for energy storage. The Council for Scientific and Industrial Research (CSIR) in Pretoria is now the proud owner of a brand new battery testing laboratory, with help from VITO/EnergyVille.

Read the full article here

South Africa - mapping heat stress in Johannesburg

Heat monitoring for cities, allowing differentiation at district level, is still in its infancy in Africa. VITO changed that. In and around Johannesburg it mapped the heat stress with great precision in six different districts, in close collaboration with the local population. The results show huge differences between rich, residential areas and impoverished townships.

Read the full article here

OUR IMPACT
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Niger - Reducing heat stress in Niamey

Niamey, the capital of Niger, is one of the hottest cities on Earth. Urban greenery can help alleviate heat stress, which is being exacerbated by global warming. Together with local partners and volunteers, VITO is mapping out how many thousands of urban trees will mitigate the increasing heat in the city, whose population is expected to grow explosively in the coming decades.

Read the full article here

Circular construction in Rwanda

In a pilot project, financed by the Belgian federal government agency Enabel and managed by VITO/EnergyVille, the Rwandese building sector was introduced to circular building. In early December 2023, a delegation from VITO/EnergyVille travelled to Kigali, as Rwanda's capital, to organise the concluding event in the pilot project. The Rwandese building sector and government and also VITO/EnergyVille all hope to continue their collaboration.

Read the full article here

With the astounding drop in energy prices, the general inflation in Belgium slowed very significantly in 2023. With inflation totalling 2.3%, Belgium also ended up at a much lower level than its neighbours in 2023. On the other hand, the prices of food, services and non-energy industrial goods are increasing, which made it a challenging economic year, also for VITO. Even so, our results in 2023 were strong again and VITO continues to grow in terms of budget and staffing, also internationally. We launched the start of two new spin-offs and invested in new state-of-the-art (pilot) infrastructure, which as preferential innovation partner of governments, companies and citizens will help us to go further in maximising our impact in the field of sustainable raw materials, climate and living environment.

1296
EMPLOYEES

61
NATIONALITIES

26%
INTERNATIONAL EMPLOYEES

25
PATENT APPLICATIONS

277
SCIENTIFIC PUBLICATIONS

135
POSTDOCS & PHDS

314 581
WEBSITE VISITS

37%
FEMALE TALENT

2
SPIN-OFFS

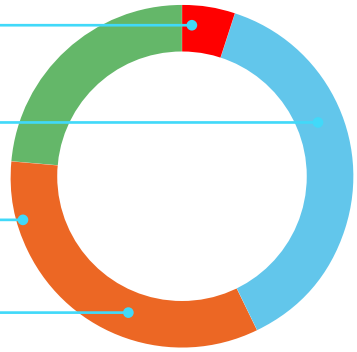
REVENUE 2023

Financing Reference Tasks
13 803 kEUR

Business Revenue
101 294 kEUR

Activation R&D
90 000 kEUR

Grants
62 705 kEUR



EXPENDITURES 2023

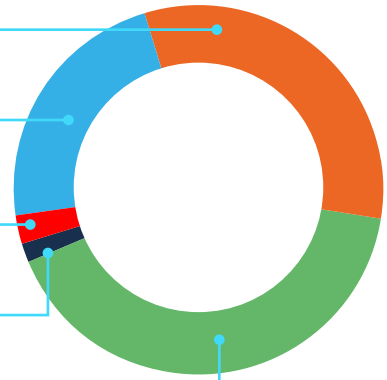
Depreciation R&D
90 000 kEUR

Operating Means
63 406 kEUR

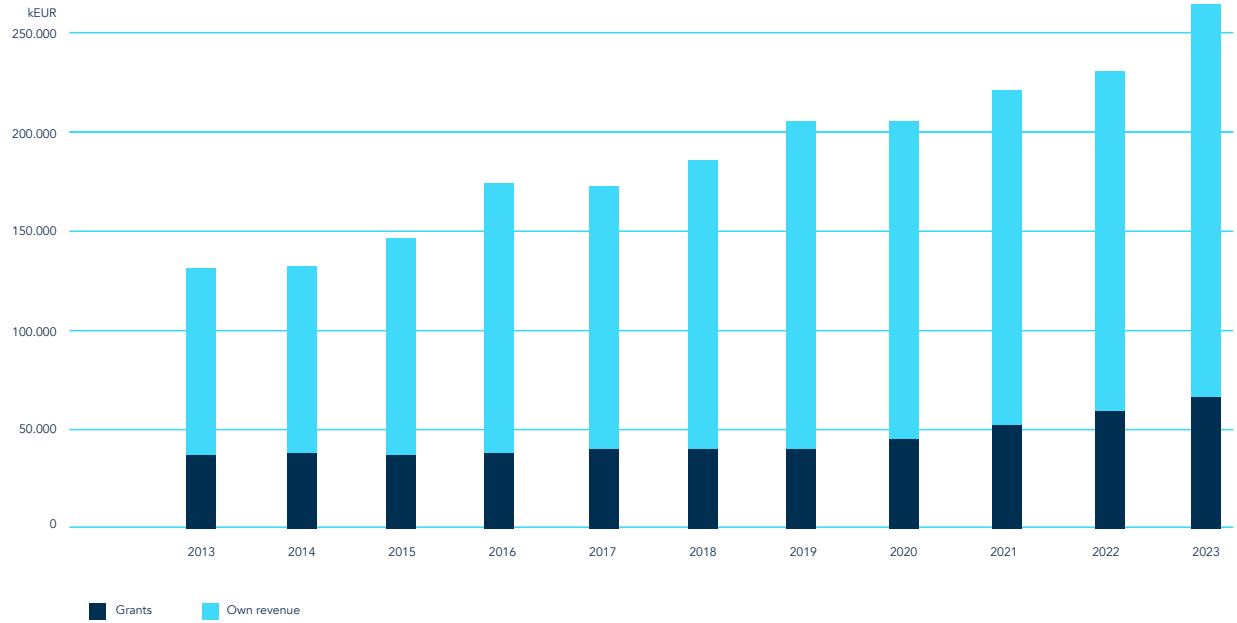
Depreciation
6 982 kEUR

Others
3 923 kEUR

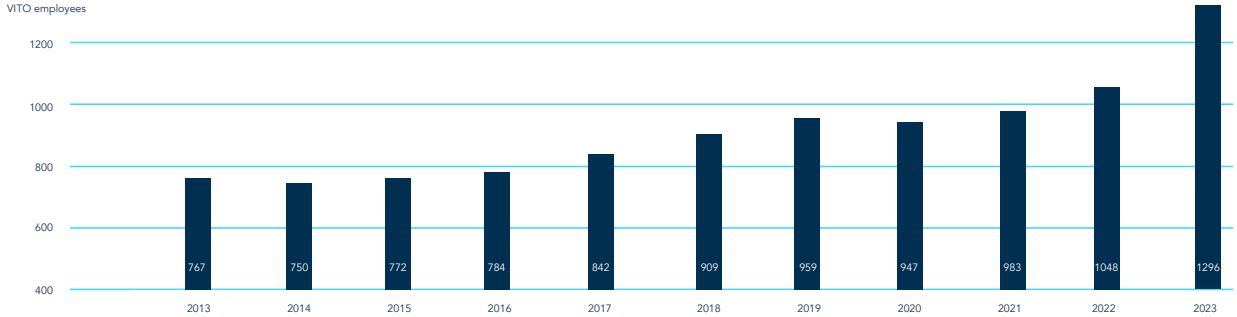
Salaries
114 837 kEUR



EVOLUTION OF REVENUE (KEUR)



NUMBER OF VITO EMPLOYEES



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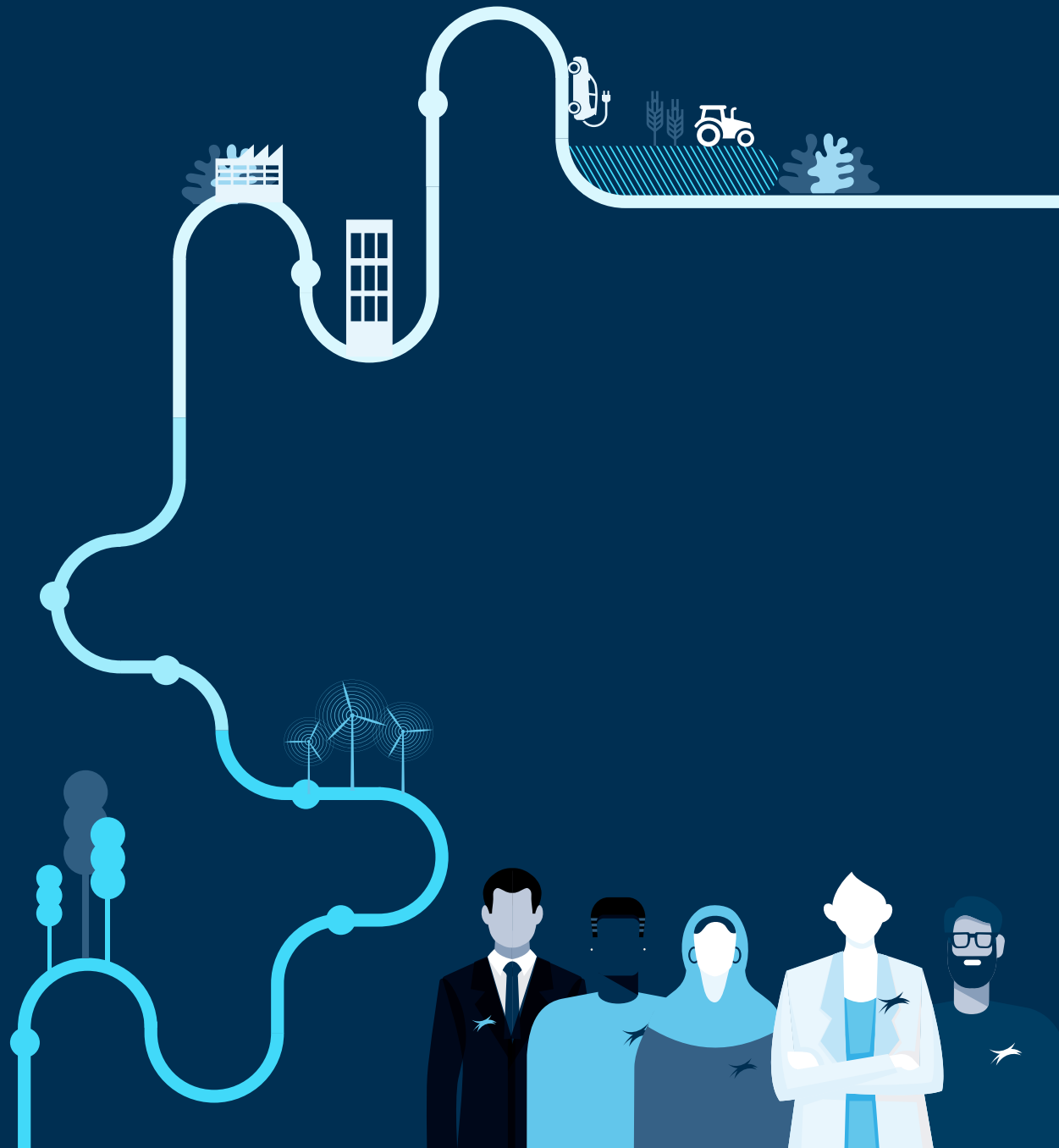
The future is sustainable



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