

Towards resilience

Answers to the paradoxes
of innovation in 2022



ANNUAL
REPORT
2022

sirris innovation
forward

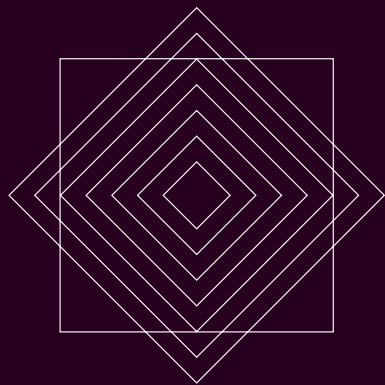


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Foreword

Foreword

PARADOX

2022 was a year of paradoxes.

If growth in patent applications is a harbinger of growth in innovation, 2022 was a remarkable year. In 2022, the European Patent Office (EPO) received the largest number of applications ever, and this despite global economic uncertainty. Five of the ten largest Belgian applicants are universities and research institutes.

At the same time, this trend does not seem to result in more innovation projects being launched at companies. On the contrary, we saw a sharp decline in larger and riskier innovation projects. Geopolitical tension, the energy crisis and the accompanying stock market situation, are making companies cautious. There is more reluctance to take risks and innovate. The same phenomenon can be observed at Sirris: in 2022, we saw the number of industrial innovation projects fall by 10% to the level of 2020.

CORE TASK

However, these are the times that we must play our role as a collective innovation centre: helping companies practically to introduce and adopt technological innovations to reduce innovation risks. Direct feedback from our companies shows that our practical and objective support and sounding board function are necessary and - highly desirable - in these turbulent times. They also indicate that maybe we should take a more forceful stand in the fragmented research and innovation landscape, making sure our companies find and recognise their 'trusted companion'.

This led to a more prominent branding and positioning of Sirris as an organisation in 2022. This annual report, in a new look, as well as the revamped [online content platform](#) - a source of technological ideas and inspiration - are some concrete results of this.

FOREWORD

FOCUS ON CONTENT

Digital and green transformations continue unabated. This will have profound implications, both for companies, their value chain and their associated ecosystems. With the Green Deal plan for industry, governments have also officially embarked on this path.

Given the scope of the impact, Sirris needs to give companies the necessary relevant industrial and thematic context so that they can make the right choices. This was thoroughly tackled in 2022. A sense of reality in an industrial context is the basic principle in this respect. Industry 4.0 remains a key theme to address the need for productivity growth, shorter lead times, better quality and lower cost in combination with footprint reduction.

On the other hand, the energy transition is moving at lightning speed, which essentially requires a pragmatic approach, while due attention should be paid to the right role for our companies in those new value chains.

Finally, artificial intelligence as a systems technology has settled into all layers of the market, society and business, bringing with it plenty of opportunities, while the volatility and vulnerability of some solutions simultaneously pose latent threats. Once again, we need to support our companies in reconciling dream and action to achieve practical and working solutions.

REVIVAL

2023 started full of positivity. The focus is further deepened and translated into a growing number of concrete industrial innovation projects, for, by and with our companies and partners. Clearly, our companies are ready for the next innovation step. As Sirris, we are here to help them do this, with hand-on support, keen expertise, state-of-the-art infrastructure and fresh innovative ideas!



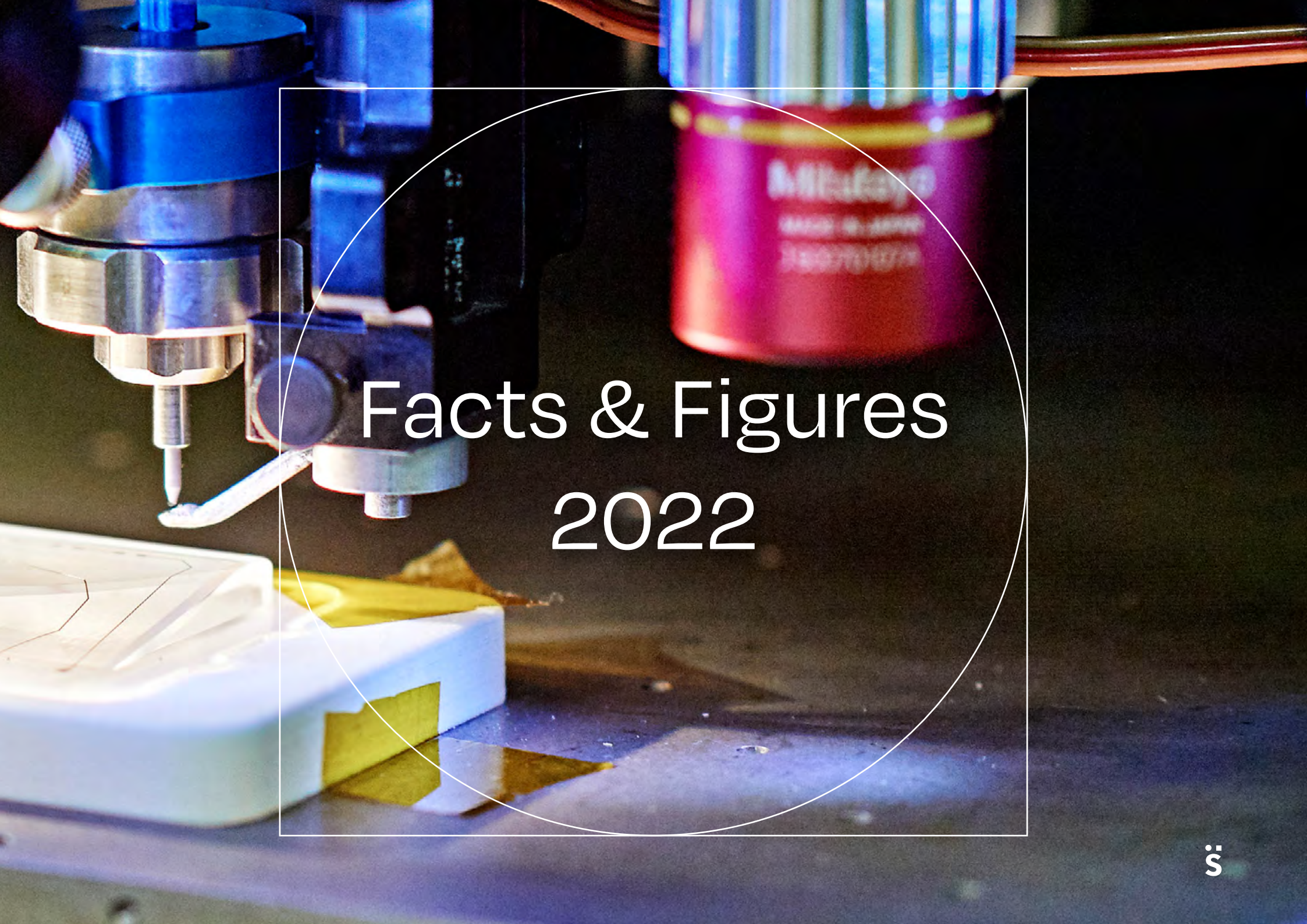
*Herman
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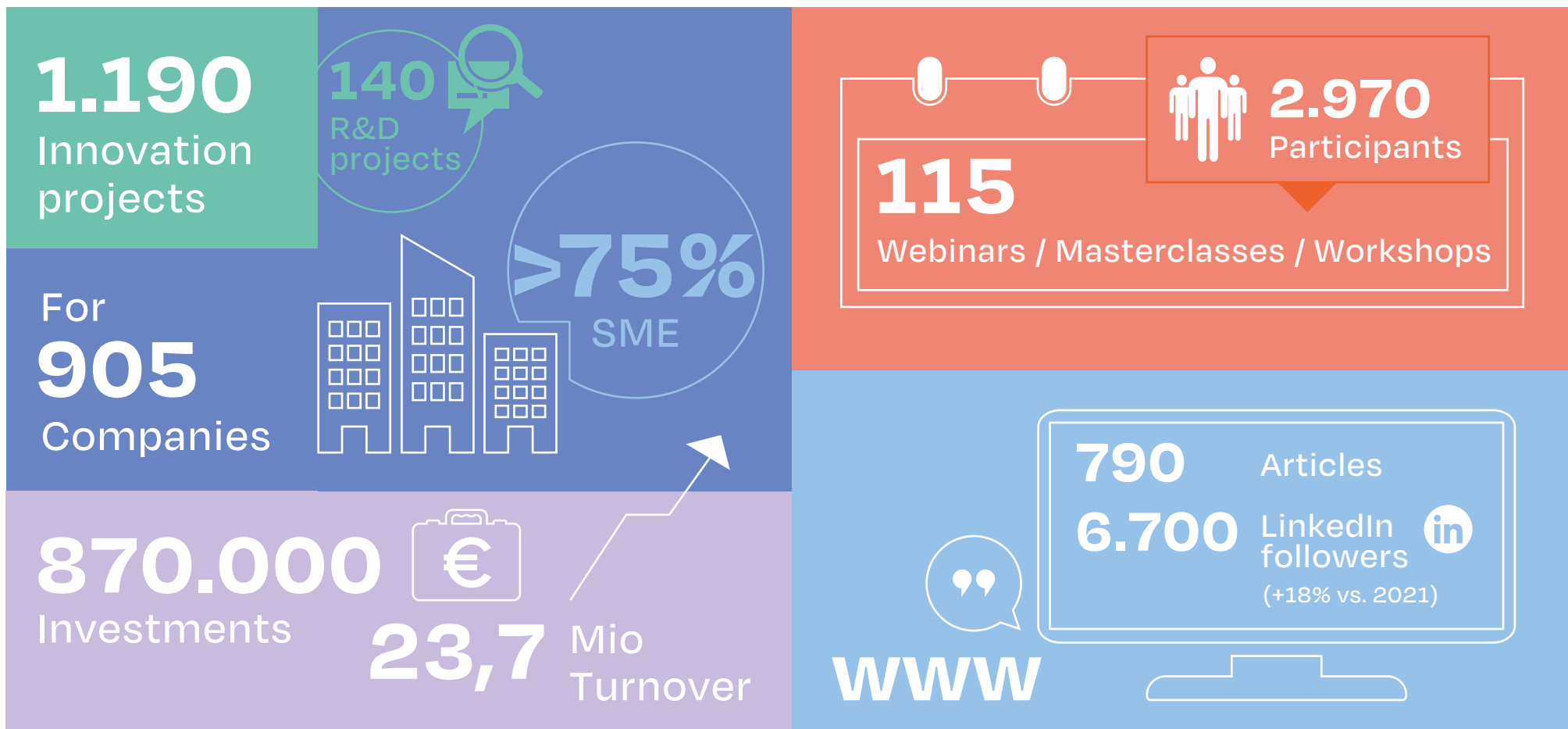


*Jeroen
Deleu*

*Director Strategy
& Corporate
Development*



Facts & Figures 2022





Industrial cases

Industrial cases

This annual report contains a small selection of inspiring examples of technological innovation in the industry.

As an innovation centre, we want to embody the adage “the proof of the pudding is in the eating”. It is not enough to talk about innovation. It is also necessary to show how technological innovation is put into practice.

We help companies introduce and apply new technologies and manage the associated risks.

Be inspired and discover what technological innovation can mean for you!

Paumelles Liégeoises optimises and visualises workflow with QRM

For more than 60 years, Paumelles Liégeoises has been producing a wide range of metal weld-on hinges, often in limited series, for a variety of applications and sectors ranging from wind turbines and reinforced doors to letterboxes, cars and wagons. Eighty per cent of its production is exported. This SME specialises in standard and custom-made products, produced in small quantities. A small amount of standard components are kept in stock to deliver at very short notice during assemblies.

The company's strength lies in the quality of its products and meeting promised delivery times (93 per cent delivered on time). Due to lack of capacity, the company always refuses large one-off orders.

In 2021, Paumelles Liégeoises saw the production volume grow, which required a lot of (re)planning of work and change in priorities to maintain high service levels. This caused a lot of stress, especially in the preparatory steps at the office, leaving no time to think about long-term actions. So, while free capacity was needed in the office, increased efficiency became a strategic priority aimed at maintaining short lead times of 1 day to 1 week and keeping customers satisfied in the long term.

Thanks to previous interventions, the company had achieved what it wanted, although there were still too many movements on the shop floor, where the company was still struggling with excessive administration.



Paumelles Liégeoises managed to improve its flexibility at all levels, allowing every employee to have immediate access to all the necessary info, therefore allowing them to obtain a good overview of the whole picture.



Thanks to QRM 4.0, the company received the support it needed to achieve a better overview: employees now get the right information, in the right place and at the right time.

MISSING LINK: APPROPRIATE IT

The company was already using the QRM methodology in production, but now wanted to go a step further and start using digital technologies to support its QRM journey and logistics. To do so, it enlisted the help of Sirris as part of the QRM 4.0 project to review its administrative processes.

To get a picture of how things were going, every part of order processing was looked at: the lead time of a customer order in the office, the workflow in the office, the production lead time of components and the lead time in assembly.

The analysis showed that a lot of capacity was lost in the office due to the use of an inappropriate ERP system that did not provide real-time insight into what was going on in production. On the production floor, a lack of structure in the assembly area was revealed which prevented operators to immediately see which jobs had the highest priority.

From there, the company made some changes on the shop floor with an emphasis on visual communication and invested in a new ERP system.

EACH LINK OF THE CHAIN CONNECTED

QRM 4.0 gave the company the support it needed to achieve a better overview: employees now get the right information in the right place at the right time.

Today, as soon as a request for a quotation arrives, we can anticipate not only whether the request is valid, but also what the customer's needs are, so that we can start the machines as soon as the order arrives. In this way, we are ahead of the game, in the process and on customer demand.

Paumelles Liégeoises managed to improve its flexibility at all levels by giving employees immediate access to all the necessary info and providing a good picture of the whole process. This allows everyone, including in the office, to be aware of what is happening on the production floor in real time.



Our expert for this innovation project
VÉRONIQUE DOSSOGNE

Bekaert takes further steps towards circular economy

As a world leader in steel wire transformation and coating technologies, Bekaert is convinced of the strategic importance of the circular economy across the entire life cycle of its products and value chain. As a result, Bekaert's Sustainability & Innovation Team launched an initiative to take circularity to an even higher level based on a systematic approach and using a common language. Sirris is supporting Bekaert in this initiative.

The initiative has joined formal and informal circular leaders from different activities and business units. The group included different maturity levels, a variety of hierarchical positions and varied knowledge and expertise. Diversity enhances interaction and is bound to accelerate various aspects of learning, e.g. product and revenue model, value chain, supporting technologies...

OPEN INTERACTION

Interactive sessions brought inspiration from outside, which was added to their collective knowledge, experience and insights. Open interaction provides for an adequate space to discuss each person's risks, concerns and uncertainties. In reality, everyone can take meaningful, achievable steps in the circular direction they want to take. With small steps, successes are achieved together, boosting their belief in their own competences which are required for the next steps.

And the story doesn't stop here. Additional interactions within the core team and business units reinforce the 'we' feeling based on the trust gained. This provides a basis to further crystallise the circular ambitions and translate them into concrete projects in the various business units.



Bekaert's Sustainability & Innovation Team launched an initiative to take circularity to an even higher level - based on a systematic approach and using a common language. Sirris is supporting Bekaert in this initiative.



Our expert for this innovation project
THOMAS VANDENHAUTE

Hygi Panel goes for rapid growth and sustainable innovation

Hygi Panel accepted the challenge to quadruple its production volume in five years' time. The Made Different diagnostic has put a spotlight on the major challenges faced by this SME and the actions to be taken to improve the manufacturing process, while still offering flawless quality. By cooperating with Sirris the company was able to design an automated line fully integrated in the existing hall.

For over 30 years, Hygi Panel has specialised in the development, manufacturing and installation of complete and simple wall and ceiling cladding, that meets the most stringent hygiene and maintenance standards. Taken over in 2019, the manufacturing company producing composite plates covered in gelcoat, sought to bank on sustainable development to ensure its long term continuity and offer a return on investment for the buyer.

* Thanks to the Made Different action plan Sirris and Agoria are transforming the challenges Belgium's production industry is facing today into opportunities. This by means of seven key transformations that help companies grow into "Factories of the Future".

BRAINSTORMING OVER SUITABLE SOLUTIONS

Production has been reorganised and industrialised from the purchase of raw materials through to the customisation of products, along with the creation of industrial processes. To implement a change such as this and integrate new technologies, there is a focus on the well-being of employees and the involvement of the entire team, through communications, training or active participation.

It was necessary to phase the digital transformation, by starting with support services and then industrialisation. Digitalisation of work stations will take place only once the automation is installed, validated, optimised and tested.



Hygi Panel, thanks to a collaboration with Sirris, was able to design an automated line that fits perfectly into the existing hall.



By doing so, the organisation aims to quadruple its production capacity in five years.

FEASIBILITY STUDY AND ACTION PLAN

The Made Different action plan was used as the basis for the company development strategy. Sirris then proposed a collaboration with SPW EER (the Walloon Public Service for Economy, Employment, Research) within the context of a feasibility study.

The analysis of the production cycle brought to the fore that too long polymerisation time caused bottlenecks. Thanks to a survey of the market and collaboration with certain wholesalers, different processes were developed to fix this issue.

The innovative approach to streamline flows and automate the movement of products will require less effort on the part of operators. It was necessary to undertake various 'proof of concept' validations with certain equipment suppliers to confirm the transposition and feasibility in Hygi Panel 's specific sector. All this with guaranteed quality and improved quantity control of products consumed.

All stakeholders involved in the composite sector have considered alternatives to polyester or the optimisation of its reuse, to evolve towards a circular economy. Several environmental solutions were identified, by examining the extent to which it could affect the production tool in question, or even make it obsolete too quickly.

The feasibility study made it possible to determine the possible risks. Seeking local industrial partners wanting to be involved in this project has begun with a realisation of these investments expected at the end of 2023.

The development of specific equipment to meet the end clients' ever more specific requirements is also in progress.



Our expert for this innovation project
ALAIN JACQUES

Kulapro puts AR-based indoor navigation on construction sites

Fitting custom interior doors on large construction sites is far from easy. To get the job done as correctly and efficiently as possible, Kulapro examined the options for an augmented reality-based indoor navigation system for its installers.

Kulapro makes a range of products, including interior doors and custom furniture. The company manufactures and delivers, among other things, doors for larger projects, such as hospitals or schools. Each door is unique and can only be installed in one place, which means there is no room for mistakes. When the Kulapro installers arrive at a construction site, it's not immediately clear where to place each door and how to get them there: lifts are not in place yet, stairwells are still under construction and passages and obstacles still change from day to day. That's why it was useful to look into the possibility of providing installers with an indoor navigation app on their smartphone or tablet to show them how to get to the place where the door should be installed. Naturally, the technology must be robust, user-friendly and quick and easy to learn.

THREEFOLD PROBLEM

Tools that make it easy to find the right place with certainty and precision were therefore certainly welcome. For this Kulapro approached Sirris.

Navigation requires three technologies that must be tightly integrated: an up-to-date map, a system that can find where you are so it can locate this on a map of the building, and an algorithm that can calculate the shortest route and display it clearly to a user.

This can be done with a mobile device that uses both LiDAR (Light Detection And Ranging) and photos to create a detailed point cloud of the entire building. This can be used to make a 2D or 3D representation of the building. This requires an app that the installer takes with them and which can focus on the surrounding walls to work out where it is. After that, the destination is selected and the app will show the optimum route.



Thanks to smart AR solutions, in the near future installers will quickly find the right location to install Kulapro's custom-made doors.

In collaboration with several partners, the proof-of-concept was validated and Kulapro is able to further refine the AR-based navigation concept.

This will require a back-end application in which the various door positions (POIs) must be entered in advance and possible obstacles must also be updated in the system every day so it can calculate and propose a currently usable route.

After identifying the problem and the technologies needed for this project, the search for a partner that could help started: surveying company MEET HET turned out to have all the necessary technology.

PROOF OF CONCEPT

To test the concept, a suitable building site was needed: a new daycare centre was chosen for this. The client, VUB, found the case study and the proof of concept interesting enough to grant us access and the necessary cooperation. The first step was to scan the entire building with a mobile scanner.

About a week after the scanning, the digital version was hosted online on a platform. This made it possible, for example, to take a virtual walk through the building.

The next step was to give all the doors a unique code, according to a digital map showing all the unique door codes and the coordinates of where the doors had to go. The codes and coordinates were processed with a script and read into the software.

The next step was for the installers to enter the door code into the system once they were at the building site so they could be guided to where the door had to go. This was tested with both an Android tablet and a smartphone.

The proof of concept can be regarded as successful. It was possible to get to the right destination from a starting point. However, the procedure is open to further optimisation.



Our expert for this innovation project
CHRISTOPHE MICHIELS

Malmar creates human-centred working environment with cobots

As part of the Trinity RECOPRODAS project, Sirris and Malmar explored how cobots can be used more flexibly as production assistants for the automation of repetitive and manual tasks across multiple processes. In this way, operators will be able to concentrate on improving the quality and making their work environment more human-centred.

Malmar, with operations in Belgium, Lithuania and Latvia, manufactures a wide range of products for numerous customers. To this end, Malmar has diverse processes, such as laser cutting, bending, milling, welding, painting and assembly.

The metal processing company aims to manufacture customer-specific products with ultra-short lead times and, through automation, support technical operators in their jobs by reducing workload and repetitive tasks. This allows them to focus on the tasks that add real value, such as quality control and complex operations, while the engagement is increased and continuous

improvement encouraged. Dedicated automation or a fixed cobot at each machine is not feasible given the many different production processes and the shop floor environment with its typical high-mix-low-volume production orders. That is why Malmar wants to make reconfigurable movable cobotic production assistants (CPAs) available to its operators. When the range is expanded with new products and new production processes, it should be possible to efficiently reconfigure this assistant.



Together with Sirris, Malmar explored the possibilities of using a cobot more flexibly as a production assistant. The result? A mobile deployable cobot unit suitable for multiple applications.

Malmar creates 'human-centred' working environment by deploying cobots. Thanks to this technology, Malmar now automates repetitive and manual tasks and operators focus on improving quality.

AUTOMATION OF HIGH-MIX-LOW-VOLUME PRODUCTION

Supported by Sirris, Malmar is developing a prototype of a CPA for a specific product range and a series of manufacturing processes which belong to a single operator cell (bending, tapping and projection welding). Besides introducing the cobot other interventions were also required to ensure smooth operation within the production cell, including a new system for the separation and feeding of nuts to a nut projection welding machine. A new nut spring and feed system for projection welding was therefore developed at the same time.

HUMAN-CENTRED WORK ENVIRONMENT

Malmar concluded the RECOPRODAS demonstrator with an Open Day at its production site in Lithuania, where a proof-of-concept of a movable cobot unit was shown, capable of operating a manual thread tapping machine, a nut projection welding machine and a bending machine.

The Trinity project, which focuses on digital technologies and advanced robotics for agile manufacturing and supports demonstrators in this field, was the ideal catalyst for Malmar to realise its idea of a movable and reconfigurable cobot cell in an initial prototype. With the introduction of reconfigurable cobotic production assistants, Malmar can now automate repetitive and manual tasks, allowing operators to focus on improving quality. The work environment thus becomes more human-centred, with more attractive job content and where small series of products can be produced in a cost- and time-efficient manner.



Our expert for this innovation project
JAN KEMPENEERS

Shorter lead times and higher quality at PMT thanks to QRM

Plastics & Mechanical Technologies (PMT) is a Herstal-based machine workshop specialising in the manufacture and repair of screws and cylinders and other injection and extrusion parts for plastics processing companies worldwide. The company boasts more than 40 years of professional experience.

PMT wanted to strengthen its position by offering a better service than the competition while also reducing production costs. The company was struggling with delivery delays and a high rejection rate, and wanted to address both challenges. In its search for a suitable strategy, the company discovered Quick Response Manufacturing (QRM). They enlisted the help of Sirris, which directed the company to various QRM bootcamp & learning networks to participate in.

The company's ambition was to reduce order turnaround time, set up online sales, which goes hand in hand with great flexibility and speed in making products available and a reduction in stock. If they wanted to achieve this, the time between order and delivery had to be reduced.

REVOLUTION ON THE SHOP FLOOR

Initially, about 50 per cent of orders were delivered on time, with an average delay of 9 days. Half of those delays were due to an external heat treatment process. Lead times were 6-8 weeks for an injection moulded screw, PMT's flagship product. As much as 95 per cent of that time consisted of waiting time. Method analysis showed too many steps, too much complexity, a lot of time wasted searching for information and a lack of transparency on the shop floor ...



PMT was struggling with delivery delays and a high rejection rate, and wanted to address both challenges. It chose to adopt the QRM strategy. Initially, only 50% of PMT's orders were delivered on time, with an average delay of 9 days.

PMT chose to apply the QRM strategy together with Sirris.

The results are impressive:

- 30% reduction in WIP*
- 20% shorter order-to-delivery times*
- 15% fewer quality issues*
- 25% productivity gains on the production floor*

PMT decided to work at different levels to reduce lead times. Entirely according to the QRM approach, small organisational problems were tackled to achieve big results. The shop floor was rearranged to create a more logical physical flow. Small but dynamic production cells consisting of about four machines, manned by polyvalent teams allowed a piece to be fully processed in a short time and leave the production cell quickly. They opted to edit a smaller number of pieces at the same time and hold smaller intermediate stocks, allowing the pieces to move more quickly through the flow. Only a limited number of trays is used: if no trays are present, no new production orders can be started. This is how WIP can be kept limited.

An ERP system with shop floor control module was procured and implemented. This system schedules work orders for each operator, so they clearly know what to do.

LOWER COST, FAST AND EFFICIENT

The results that PMT managed to achieve with its interventions are impressive: a 30 per cent reduction in WIP, 20 per cent shorter order-to-delivery times, 15 per cent fewer quality problems coming to light at the end of production and a 25 per cent productivity gain on the production floor. The confidence in their own skill was also boosted.



Our expert for this innovation project
VÉRONIQUE DOSSOGNE

PowidDian tests hydrogen-powered generator under extreme conditions

Water freezes below 0 °C and fuel cells can be impacted at such low temperatures. Lithium batteries performances are also affected. Nevertheless, the M110 Mobhyl Power from PowidDian has successfully performed cold start tests at temperatures as low as -20 °C. For Sirris it was the first time to successfully facilitate a climate chamber test in which hydrogen was used.

PowidDian develops, installs and maintains intelligent autonomous energy stations that provide electricity at all times. The M110 hydrogen-powered generator PowidDian, which was designed to sustain such harsh environment on the field to meet customers' expectations, successfully tested at Sirris's large climatic test chamber, consists of a 70 kW fuel cell and a lithium-ion battery pack to supply peak demands of 110 kVA.

TESTING UNDER SAFEST CIRCUMSTANCES

Next to several cold start tests at -20 °C, performance tests at +45 °C were executed, to assess the algorithm that optimises the energy taken from the batteries and fuel cell, to increase the efficiency of the fuel cell and thus minimise the hydrogen consumption.

During all these tests dozens of temperatures, pressures, flow rates and electrical parameters were closely monitored, to ensure that the unit did not exceeds its operating limits. Next to this, external hydrogen detectors were set up in the climate chamber to automatically shut down the hydrogen supply in case of a leakage. This as a matter of safety, as safety was indeed a top priority to the PowidDian-Sirris team during the entire project.



First successful climate chamber test with hydrogen for PowidDian and Sirris: successful cold start tests down to -20 °C.



Our expert for this innovation project
BRAM CLOET

Siemens Energy conducts cold-start tests on wind industry transformer

After a successful test series, Siemens Energy was able to demonstrate that a new step-up transformer for wind industry applications can also start in cold conditions, to improve the cold-start procedure and to reduce waiting times after a cold period.

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Austria-based Siemens Energy is inextricably linked to electric power generation and distribution products. The main products include power and distribution transformers, which have to meet the highest standards. The products should provide a basis for making energy available to people and the environment in a safe, efficient and eco-friendly way.

The company's offerings include two step-up transformers for wind industry applications, including FITformer REN transformers up to 66 kV, equipped with a flame-retardant, biodegradable, insulating fluid. Of these ester-immersed transformers, more than 2,500 units have been installed in offshore wind applications worldwide.

The latest development of this transformer model promises even greater efficiency and reliability, even in cold conditions. Siemens Energy called on the [Sirris OWI-Lab](#) experts to demonstrate that a 15 MVA transformer can also start in cold conditions, to improve the cold-start procedure and reduce waiting times after a cold period.



SIEMENS
ENERGY



Climate tests in Sirris climate chamber show possible use of step-up transformer in cold conditions for Siemens Energy.

Test results in the Sirris climate chamber allow Siemens Energy to refine the transformer's cold start procedure.

COLD-START TESTS UNDER EXTREME CONDITIONS

During a test project, the transformer was set up in the large climate chamber for three weeks at a temperature of -25 °C. An external cooling circuit of 500 kW was provided to cool the transformer and its integrated heat exchangers. In addition, an external 2 MVA power supply with a variable voltage between 3 kV and 11 kV was provided. Sirris conducted several 24-hour cold-start tests on the test rig supervised by Siemens Energy.

The test series were very successful, and Siemens Energy is pleased to look back on a fruitful collaboration. The company gained insights into the internal cooling behaviour during a cold start: cooling was indeed found to be a problem at low temperatures due to the high viscosity of the insulating fluid. The test results allow Siemens Energy to further refine the cold-start procedure.



Our expert for this innovation project

BRAM CLOET

The Rotating Company uses extensive digitisation to improve expert report handling

The Rotating Company (TRC) - actually the holding company for Motoren Francoys and Pump Fleet Services - has more than 50 years of experience with technical partners of professional and industrial customers in managing the complete life cycles of rotating equipment, including electric motors, pumps, reduction gear, drives, fans, blowers and generators.

The company specialises, among others, in the overhaul, servicing and sale of electric drives. The company, whose customers are mainly in Belgium and northern France, is distinguished by its reliability and short delivery times, for which it can rely on a large stock of parts, extensive machinery and specialised employees. Offering high-quality solutions with very short lead times tailored to the customer is a real challenge, for which the company is constantly working on an appropriate approach.

DIGITISATION OF EXPERTISE STEPS AND FURTHER HANDLING

One of the most important activities is the maintenance of motors, which can be done in very short time frames. Before effective maintenance work is carried out on a motor that has been brought in or collected, an expert assessment must be carried out. This step is needed to determine what exactly needs to be repaired and to estimate how many work hours this will take. This report is used to draw up a quotation which is then sent to the customer for signing. It is therefore important that the assessment is as thorough and complete as possible. The operator who carries out this assessment is at TRC also supported by a digital guidance & check system.

With this in place, TRC wanted to take things a step further by digitise the rest of the reporting procedure. A digital guiding & checking system makes it possible to



The Rotating Company's new automated approval flow ensures that all processes run much more efficiently running and less manual work needs to be done.

send a trigger when the expert assessment is completed. In this case, the trigger is captured by another platform, which then automatically retrieves the entire expert report and starts an approval flow that enables the production manager to review the report. If the report is complete and correct, it will be automatically forwarded to the ERP system, where the report will be linked to the correct order number or dossier. The ERP system has a portal where customers can view these reports themselves. If the report turns out to be incomplete, the production manager can 'reject' it and the operator can resume or supplement the report. If the operator then goes through the last step again, the whole flow starts again. Based on this expert report, a quotation is drawn up and sent to the customer. The operator will only start the work after this has been signed.

The actual work is guided in the same way by the same digital platforms. At some steps in this process, tests are performed with certain measuring devices. These devices also generate reports that are also automatically linked to the respective dossiers.

NOTHING BUT BENEFITS

This approach involves much less manual labour. No more files have to be downloaded and no more PDFs have to be created and moved to the right place on the network share. The manual linking of the reports in the ERP system is also a thing of the past. All this now happens automatically. The automated approval flow makes everything run much more efficiently.

The complete automation of the expert report procedures was carried out in collaboration with Sirris, supported by the [Voka Digihub](#) process. TRC can now further expand this method of automation itself to other activities or flows within the company.



Our expert for this innovation project
CHRISTOPHE MICHIELS

VO Group develops platform to form creative teams

What team characteristics generate surplus creativity during a co-creation session? What circumstances enable us to attain such a surplus? How can we form a team that guarantees achieving expected creativity surplus? VO Group, UCLouvain and Sirris have focused specifically on these questions to be able to find a strategy to optimally compose such teams.

VO Group, a Brussels-based company reuniting six active agencies in the communication sector, has developed extensive expertise in participative methodology thanks to its VO Lab. The Lab assists VO's clients throughout their innovation process, by mobilising - over 4-hour sessions - a group of creative profiles with varying expertise and outlooks, in order to generate ideas and solutions likely to satisfy their future needs and challenges.

SCIENTIFICALLY SOUND RESEARCH

VO Lab adopts a dynamic and structured approach, propitious to provoking co-creation and collective intelligence. During its co-creation sessions, VO Lab strives to find the perfect combination of people and profiles that are capable of conceiving creative solutions in response to a given issue, and to define the associated tools/exercises to bring such solutions to fruition.

To ensure their research relies on a solid and reproducible scientific basis, VO Group called upon Sirris. Together, they defined an R&D project concept enabling such questions to be approached, with the support of Innoviris. They invited the UCLouvain LouRIM research institute, specialised in the study of organisations and their societal challenges, to join the project.



Sirris contributed its expertise in data processing and artificial intelligence to scientifically validate the composition of the co-creation teams.

*The project's objective?
To develop a scientifically validated solution for the (semi-) automatic composition of co-creation teams and toolsets.*

Within the context of this project, LouRIM focused on the modelling of profile and tool combinations likely to stimulate creativity and of the right circumstances to profitably exploit them. Sirris's EluciDATA Lab provided its expertise in data processing and artificial intelligence to determine the right approaches for the (semi-) automatic composition of teams and useful tool sets for co-creation sessions, based on matchmaking. As the project initiator, VO Group looked after the accessibility of appropriate data sets for research and result validation within a prototype platform for composing co-creation teams.

MATCHMAKING

To find a solution for (semi-)automatic team composition and tool set identification, Sirris focused initially on characterisation and profiling among individuals likely to participate in a cocreation session (contributors), together with the tools they could use to coordinate the discussion. For contributors and tools are precisely the two types of entity that need to be matched with a cocreation session request. Classical approaches from feature engineering were used to define the types.

To compose the teams, different approaches were explored for matching the types of the entity mentioned above. Inspiration was drawn from research techniques of pattern mining and hierarchical agglomerative clustering to suggest different approaches from which the session organiser could choose to compose their team.



Our expert for this innovation project
NICOLÁS GONZÁLEZ-DELEITO

Omco Metals strengthens market position with new alloy

To meet the market's demand for less expensive but equally performing materials for high-temperature applications, Omco developed an equivalent alternative.

Omco Metals manufactures castings from cast iron and aluminium bronze in small and medium-sized series. Since its beginning and definitely under the current conditions—primarily the price pressure from low-wage countries - the Belgian foundry specializes in the manufacturing of small- to medium-sized series of "difficult" castings – especially castings that impose very high demands both metallurgically and in terms of casting technology. A significant fraction of Omco's current manufacturing consists of castings in SiMo cast iron and NiResist cast iron for high-temperature applications in engine construction.

ALTERNATIVE FOR EXPENSIVE NICKEL

SiMo cast iron is one of the economically most interesting iron-based materials for such high-temperature applications because of its good castability and the relatively inexpensive alloying elements added to it. The maximum temperature at which SiMo can be used, however, is limited to 800 °C. If the material must be able to withstand even higher temperatures, it is necessary to change to NiResist cast iron. Depending on the type of NiResist, the nickel content of these alloys ranges from 20% to 35%. However, these alloys cost much more because of their high nickel content.

Omco achieved new material developments on this market, developing new types of SiMo cast iron that can withstand higher temperatures and can mean a less expensive alternative to NiResist in the long run.



To answer market demand for cheaper, equally performing materials for high-temperature applications, Omco developed an equivalent alternative.



Omco meets its customers' and market demands with a cheaper but equally performing cast aluminium alloy cast iron, that can withstand high temperatures, thanks to multiple testing campaigns in the Sirris test lab and on site.

CASTING TECHNOLOGY CHALLENGE

Therefore Omco pursued the question of whether a less expensive alternative can be used to fulfil the high requirements of high-temperature applications. The company wanted to study the effect of adding aluminium to SiMo cast iron on the temperature resistance, castability and properties by analysing experimental research and to evaluate the possibility of implementation within the plant-specific context. The addition of aluminium to cast iron does indeed increase the resistance to high temperatures, but this is also accompanied by a number of casting technology challenges. These had to be resolved, and therefore Omco worked on this with the experts from Sirris.

To achieve a readily castable material with the required properties, several steps were taken. Test castings were performed on site under coordination by the Sirris experts to tackle the casting challenges. In parallel with this, a search was done for possible compositions with the desired properties. Several test campaigns to achieve the desired properties were initiated.

The project resulted in a castable aluminium-alloyed cast iron that is resistant to high temperatures, with which Omco can offer an answer to its clients and the market.



Our expert for this innovation project
KURT BEGHYN

RESA improves quality of welded gas pipelines

RESA wanted to improve the quality of welded plastic gas-distribution pipelines. A series of thorough tests meant the organisation was able to achieve the desired improvements.

RESA – with activities in 73 municipalities, over 14,000 km of electricity cables and more than 4,000 in gas pipelines – is the leading distribution network manager in Liège Province in Belgium. This energy provider's mission is to have energy at everyone's disposal every day, private individuals and professionals alike. This is why RESA is committed to delivering quality, providing services and creating reliable and efficient solutions for continually enhancing energy distribution. RESA is furthermore developing a strategy to accelerate the energy and ecological transitions to benefit society, and through specific activities has resolved to strive ahead for the tomorrow's climatological, social and economic aspirations.

TESTING WELDED PLASTIC STRUCTURES

In order to achieve its enhanced-quality targets, RESA is constantly improving its infrastructure. It thus uses high-density polythene (HDPE or PE-HD) for its gas-distribution network pipelines, and wished to take on the major challenge of improving the quality of pipelines welding. This is because plastic polythene is frequently and readily used due to its range of qualities: thermoplastics are strong, wear-resistant, relatively inexpensive, heat-resistant, extremely durable and easy to recycle. HDPE is therefore often used for gas, drinking water and sewerage pipelines. However, the welds between the pipes can form a weak link.



RESA's challenge: welds between gas distribution pipelines can be a weak link. How can the company improve the quality of these joints?

The result of the collaboration between Resa and Sirris? A significant improvement in the quality of gas infrastructure construction made from high-density polyethylene.

A high-quality connection is essential, and so RESA assumed the challenge together with Sirris: in its testlabs in Seraing Sirris saw to testing the material used to weld high-density polythene, and conducted destructive tests on the HDPE assemblies (according to the four standards ISO 13953 : 2001, ISO 13954 : 1997, ISO 13955 : 1997 and ISO 13956 : 2010). Sirris is ISO 9001 certified and the test lab is accredited by BELAC, the Belgian accreditation organisation, under the certificate n° 232-TEST (EN ISO/IEC 17025:2017).

The activities undertaken by Sirris meant that RESA succeeded in achieving a considerable improvement in the structural quality of its high-density polythene gas infrastructure.



Our experts for this innovation project

HILDE KRİKOR
FRANCINE SCHOUMAKER

ContenO performs extreme climate testing on containerized water bottling factory

ContenO wanted to ensure the quality and reliability of a containerized water bottling factory by subjecting it to extreme weather condition tests. This would help to identify any weaknesses or vulnerabilities, ensure that the factory is able to operate efficiently and maintain its performance even in the most challenging environments. The tests were performed successfully in Sirris's Large Climatic Chamber.

ContenO is a Belgian leading manufacturer of smart bottling factories. Its engineers provide state-of-the-art equipment, services and complete solutions for packaging liquids, foods, chemical products, home and personal care products. The containerized bottling factory is commercialized by ContenO throughout the world.

For an important French Army project, the company wanted to ensure the quality and reliability of a containerized water bottling factory, which is designed

to purify water, produce PET bottles, fill them with drinking water and close them. This by subjecting it to extreme weather condition tests, which would help to identify weaknesses or vulnerabilities, allowing for improvements to be made to the design and construction of the water bottling container. The tests could be done in Sirris's Large Climatic Chamber.

EXTREME TESTING

The 20ft container with a bottling factory underwent a 3-day/night climatic test to assess its performance under various extreme weather conditions. The aim of the test was to determine the robustness and durability of the containerized bottling factory. The climatic conditions during the test were carefully controlled and followed a predefined profile between -35 °C and +73 °C in storage conditions and between -10 °C and +50 °C in operation mode. To simulate the effects of solar radiation in desert heat, an IR array of 950 W/m² was used.



Thanks to the insights from the Sirris climate chamber tests, the Conteno water bottling plant can operate efficiently and effectively under a wide variety of environmental conditions. As a result, Conteno's customers can count on a top-quality, reliable product.

The test is divided into two phases: low ambient temperature survival and high ambient temperature performance. The objective was to ensure that the factory is able to operate efficiently and maintain its performance even in the most challenging environments.

SAFETY FIRST!

The bottles filled during the test had to be manually evacuated from the climate chamber. This was done by pushing them manually through a PVC tube to the outside of the climate chamber, a clever solution which dramatically reduced the physical exertion on the personnel handling the bottles. Additionally, the person inside the climate chamber was being replaced every 15 minutes, to prevent discomfort caused by extreme temperatures. In this case the high ambient temperature phase combined with infrared heat is the most challenging part of the test, and personnel safety is of the utmost importance.

Overall, the climatic test was a crucial step in ensuring the quality and reliability of the containerized bottling factory for military purposes. By subjecting the factory to extreme climate conditions, the test helped to identify any weaknesses or vulnerabilities that may exist, allowing Conteno to make improvements to the design and construction of the bottling factory. This, in turn, helps to ensure that the factory is able to operate efficiently and effectively under a wide range of environmental conditions, providing a reliable and high-quality product for customers.



Our expert for this innovation project
BRAM CLOET

Shayp chooses AI for intelligent and sustainable water management

In many countries, access to fresh water is very limited. Moreover, old and poorly maintained water installations are at risk of leaking, leading to massive wastage. To detect those leakages earlier, Shayp started analysing water consumption data in a cloud-based environment.

Brussels-based organisation Shayp gives new water consumption insights in buildings with the goal to eradicate water waste and improve water efficiency.

Water consumption highly depends on the type of building that is being monitored - schools, residential homes, offices, etc., but even per type, a variety of consumption data patterns can be observed. Hence, identifying a leakage via consumption data analysis is not a trivial task. The data are also severely altered by the particular strength of a leakage, which makes it even harder to distinguish abnormal patterns.

In addition, Shayp does not just want to provide a binary warning of 'leakage' or 'no leakage', but the company aims to provide an additional risk score of a leakage – as quickly as possible.

DETECTING ABNORMAL CONSUMPTION PATTERNS

Shayp and Sirris set out to detect abnormal consumption patterns by means of a resource-efficient data-driven approach, which was sufficiently light to run on a battery-driven microcontroller, a so-called 'edge device'.

To optimize the stream of messages between the edge device and the central cloud-based solution, and by that extending the battery lifetime of Shayp's device, researchers of Sirris explored a compression-based method. This approach took into account that leaking and non-leaking devices produce different messaging signatures.



Shayp and Sirris started detecting abnormal water consumption patterns using a resource-efficient, data-driven approach. The results of those data compression methods were extremely accurate.

The resource-efficient, data-driven and 'light' approach could - in an initial prototype - extend battery life by four years. At the same time, leaks were detected earlier and a secure and privacy-protected dispatch schedule was guaranteed.

Two types of compression methods (run-length encoding and Fibonacci encoding) helped spot those different signatures and, as a result, enabled a leakage risk calculation. This risk calculation allowed the edge device to decide whether to alert the cloud back end right away or not. Results were highly accurate.

SECURE DATA TRANSMISSION

However, the risk-based messaging approach posed a security risk since one could derive leakage data from mere message statistics – without having to actually read the message itself. That is why the messaging mechanism was equipped with a stochastic vector, creating random sending times to guarantee a secure data transmission.

With their lightweight approach, in a first prototype the battery lifetime could be extended by four years, while detecting leakages earlier and ensuring a secure and privacy-preserving sending schema.

This case was realized as a part of the [MIRAI project](#), supported by ITEA and funded by the Brussels-Capital Region – Innoviris.



Our expert for this innovation project
SARAH KLEIN

Data-driven usage analysis helps Van Hoecke to monitor distributed assets

Van Hoecke NV provides the industry and specialist dealers with functional components for utility furniture. Side-panel calibration machines are an integral part of the manufacturing process. To improve and streamline those operations, Sirris helped to identify low-performing motors in the Van Hoecke fleet.

A calibration machine usually mills around 2.5 mm at the two ends of a panel, with an approximate accuracy of 0.1 mm. Both sides of the machine contain a motor carrier, each housing two milling motors. Those four milling motors mill panels via a series of asset-specific operating steps. Van Hoecke aimed to analyse their performance, so as to swiftly detect degradation. The company could count on the help of the Sirris experts.

FOUR-STEP METHODOLOGY

To analyse the performance of the motors, a four-step methodology was proposed:

1. Pre-processing of the raw parameters, to clean, synchronize and impute the signal
2. Analysis of the energy consumption of the motors, to identify operating modes
3. Design of a 'normal behaviour' model for each operating mode
4. Comparison of those models with real-life data, to find anomalies

The logo for Van Hoecke, featuring the company name in red capital letters with a stylized red lightning bolt symbol between the words.

Van Hoecke wanted to analyse the performance of its calibration machines to quickly detect degradation. The company could count on the help of Sirris' experts. The elaborated model helped the company assess the actual performance of the machines and detect anomalies.

Thanks to Sirris' data-driven usage analysis, Van Hoecke was able to monitor all the machines in its fleet, and quickly detect poorly performing engines.

Pre-processing happened as follows: researchers calculated the mean of fixed non-overlapping windows, synchronized timestamps and took the median of a larger rolling window. That enabled them to impute missing values and guarantee a 'clean' signal. Since the industrial assets performed in a dynamic environment, observed levels of energy consumption could vary. Clustering those different degrees of consumption in all assets helped to distinguish separate operating modes.

For each operating mode, researchers studied a time period that reflected normal operating behaviour. A predetermined percentile of those values was then used to calculate the expected (and 'normal') energy consumption per operating mode. Those models helped to assess the actual performance of the machines and detect anomalies.

This approach enabled Van Hoecke to easily monitor all assets in their fleet, and to quickly identify low-performing motors.

This case has been realized as a part of the [AI4DETAIL Project](#), a COOCK project, funded by VLAIO.



Our experts for this innovation project

ELENA TSIPORKOVA
KEVIN VAN VAERENBERGH

Belgium Invest Holding develops and markets connected air purifier

Belgium Invest Holding is a company specialising in the field of HVAC and air treatment. It has, for several years, been marketing ventilation, analysis and air purifying systems designed for various environments.

In 2021, the company director called upon Agoria and the BluePoint business centre, who put him in touch with Sirris, in view of innovating and creating his own connected device. This partnership resulted in the development of several prototypes towards an innovative product named 'Immunizer'.

AIR CLEANING REINVENTED

Immunizer is a small-sized energy-saving device which enables air quality to be analysed in real time in different public and private environments such as offices, schools, nurseries, lifts, public transport, etc. Immunizer treats the zone it is installed in on a permanent basis! To do so, it is equipped with a liquid recharge which purifies air through vaporisation, using the OH radical technique. It is non deleterious,

eco-friendly and simple to deploy on all sites. It also satisfies increasing demand from clients in quest of air quality, particularly within the context of the pandemic.

The product is also connected to the Internet and can be remotely monitored, hence enabling recording, visualisation of climatic and environmental settings, alert management based on defined thresholds and data exportation. Thanks to a complete set of embedded sensors, a contagious risk indicator can be calculated based on recording settings (microparticles, volatile organic compounds, CO₂, humidity, etc.).



A small, energy-efficient, connected air purifier that can analyse air quality in real time in different environments.

The design of the of the prototypes of the innovative Immunizer product and the cloud application was completed successfully thanks to the collaboration between Belgium Invest Holding and Sirris.

FROM DESIGN TO VALIDATED PROTOTYPE, THEN ONTO PRODUCTION AND CLOUD APPLICATION

Collaboration with Sirris began with meetings to ascertain the product's aesthetics, dimensions and specificities. Then Sirris focused on the design of various electronic chips and embedded software, whilst determining system and consumable dimensions compatible with the generation and distribution of OH radicals.

After facing a number of design and integration challenges, Sirris provided an initial prototype, which could be installed in a test zone at ULiège in order to validate its efficacy against various bacteria and viruses in vitro. Tests proved conclusive. Once the prototype

was validated, Sirris transferred the complete product file, including native 3D and electronic design files, together with the cloud application and embedded software source code, to industrial partners involved in the various fields required (electronics, plastics, design, IT) for the product's further development towards production.

Successful development of the prototypes and cloud application for the innovative Immunizer product was made possible thanks to collaboration between Belgium Invest Holding and Sirris. The final product will be available on the market as of the summer of 2023, after extensive laboratory and real-life testing.



Nos experts pour ce projet d'innovation

THIERRY COUTELIER
HENRI APPELDOORN

Blade damage monitoring in Otary's wind farm Rentel

In offshore wind farms blade damage caused by erosion is a frequent cause for blade failure and power loss. To offer a durable solution, Sirris has developed a methodology, based on the detection of changes in the aeroacoustics response of the wind turbine blades due to erosion. This system is currently operational on one of the wind turbines in Rentel, one of Otary's offshore wind farms.

Otary is a wind farm operator who owns several offshore wind farms in the Belgian North Sea: Rentel and SeaMade, which consists of the Seastar and Mermaid wind farms. Together, these wind farms have 100 wind turbines and are responsible for 796 MW of offshore wind power in total.

Blade damage, which leads to edge erosion especially, is one of the most frequent reasons for blade failure in offshore wind farms. Repairs are difficult as they are normally done between the months of March and September, when the temperatures are above 15 °C. When not repaired, blade damage may cause up to 5% power reductions and blade failures. Wind farm developers need independent monitoring methods that are cheap, durable and preferably installed on a position that will not influence or interface with the existing systems or operations of the wind turbines.



In offshore wind farms, rotor blade damage due to erosion is a frequent cause of outages and power loss. To provide a sustainable solution, Sirris developed a methodology for Otary to detect changes due to erosion.

The methodology - developed for Otary by Sirris - acts as an early warning system for rotor blade damage, which would otherwise only be detected once a year during drone inspections.

MICROPHONE COLLECTING DATA

To respond to Otary's need, Sirris came up with a methodology which is based on detecting the changes in the aeroacoustics response of the wind turbine blades due to erosion. This system, which consist of a microphone designed for operating in harsh conditions with an independent data acquisition system (provided by 24Sea), is currently operational on one of the wind turbines in the Rentel offshore wind farm. Data is being analysed and models are being developed to capture the relevant signals in this challenging operational environment.

TO THE BENEFIT OF ALL

The results are expected at the end of 2023, after an experimental campaign, called the "artificial leading edge erosion experiment", which will be conducted in the summer of 2023. If successful, this method has a potential of being implemented in all wind turbines, not only Otary's, but also at other onshore and offshore wind farms, since it would work as an early warning system indicating blade damages, which otherwise could only be detected during drone inspections once a year.

The campaign is being carried out in the context of the Rainbow project.



Our expert for this innovation project
OZLEM CEYHAN

Xeikon uses AI to augment conventional analytics with log data

Today, operators are often dealing with machine sensors and event logs in a rather passive way: reading failure notifications, performing post-mortem analyses, etc. A more active way could enable them to better understand the behaviour of the machines, recommend adjustments or predict failures before they actually occur. For that purpose Xeikon and Sirris studied how to develop such pro-active approaches for printers.

Xeikon is an innovator in digital printing technology. The company designs, develops and delivers web-fed digital colour presses for labels, packaging applications, and commercial printing purposes. Advanced usage of event data proved crucial to operate and maintain printer engines more efficiently.

Developing more pro-active approaches is not a trivial task, as there are many challenges: first of all, continuous numerical sensor data must be combined with textual discrete event logs. There is no ground truth about the actual behaviour of the printers. Operators have a significant impact on printer behaviour, which requires to distinguish between “operator behaviour” and “printer behaviour”. Lastly, event logs were designed for debugging purposes, not to provide detailed information on the state of the printers.



Xeikon and Sirris characterised the behaviour of the printers - faulty, healthy, slight overheating, etc. - using a data-driven approach, combining sensor data and event logs.

AI AND DATA-DRIVEN SOLUTION

Xeikon and Sirris set out to characterize the behaviour of the printers - faulty, healthy, slight overheating, etc. - by means of a data-driven approach, which combines the sensor data and the event logs.

The approach starts by extracting the typical behaviours of the printers from the event logs, as they reflect the internal processes of the printers. First, the event logs are cleaned and segmented (i.e. the event logs are grouped by printing period), to create atomic event logs that contain all the events pertaining to one specific process, such as a print job. The segments are then clustered to extract the typical internal processes using a variety of approaches borrowed from text mining, such as term frequency scoring, random indexing-based clustering, etc.

The typical internal processes are then characterized by combining event logs and sensor data, to build a wide variety of KPIs, such as the density of warning events, the presence of certain events, the increase of unsolved events, the speed at which a sensor/feature reaches its setpoint (i.e. the operator-specified value), etc. The values of these KPIs for the different clusters provide an indication of the performance related to the typical behaviours.

CHARACTERIZED CLUSTERS

These characterized clusters and typical behaviours can then be used to better understand the behaviour of the printers, assist operators, and facilitate predictive maintenance. For example, if a printer showed up multiple times in the overheating cluster, a specific part was probably malfunctioning.

This case was realized as a part of the [TRACY project](#), funded by Flanders Innovation & Entrepreneurship (VLAIO).



Our expert for this innovation project
PIERRE DAGNELY

OBVIO-Labs develops and industrialises innovative diving buoy reel

OBVIO-Labs has developed an ergonomic reel offering a solution to the practical problems many divers struggle with, which makes it easier and safer for them to dive at greater depths. Once successfully developed, the company has taken steps to start industrialising the reel.

Over the years, the number of professional and amateur divers has increased exponentially. Yet, this activity requires specific training and knowledge of basic safety measures in order for it to be experienced in the safest possible way. One of these measures consists in controlled inflation and release of the decompression buoy.

NEED FOR MORE SAFETY AND EASE OF USE

The buoy, in the form of an inflatable sausage, is attached to a line held by the diver. If the line is longer than six or seven metres, it can conveniently be rolled onto a bobbin, this bobbin being mounted onto a reel held by the diver. Towards the end of a sea diving expedition, before returning to the surface, the diver inflates and releases the buoy, which ascends to the surface, then pulls and unrolls the bobbin line. At the water surface, the buoy indicates the diver's position for passing boats and for the recovery boat to follow the diver.

However, there is a serious problem: inflating and releasing this buoy is a delicate operation that can lead to accidents. In order for the buoy to be perfectly visible at the surface, the diver must inflate it sufficiently ... however, the inflated buoy pulls the diver upwards: so, in order not to ascend abruptly, they must release



nifti

Sirris helped OBVIO-Labs by selecting the right materials, the most efficient mechanisms in terms of performance and the most suitable ergonomics for comfortable use of the reel.

All the reel parts were designed in 3D, perfecting aesthetics to render the product as attractive as possible.

the buoy precisely at the right moment (neither insufficiently nor excessively inflated). Furthermore, whilst inflating, the diver must hold both the buoy and the bobbin (reel) and inflate at the same time... this is a lot for just two hands: there is a risk of dropping the bobbin, or worse, of becoming entangled with the line, and in making a precipitous ascent, which is dangerous.

FROM DESIGN TO INDUSTRIALISATION

To solve these problems and to enable more - even inexperienced - divers to deep-sea dive, OBVIO-Labs has invented an ergonomic reel: this innovative reel reduces the number of handling movements required to release the buoy, whilst considerably facilitating them, and lowers the risk of entangled wire.

With artisanal resources, OBVIO-Labs successively created several prototypes, which were tested in diving settings to improve and validate their design.

Sirris helped OBVIO-Labs by selecting the right materials, the most efficient mechanisms in terms of performance and the most suitable ergonomics for comfortable use of the reel. Sirris designed all the reel parts in 3D, perfecting aesthetics to render the product as attractive as possible.

Shortly on the market under the brand name 'Niftidiver', this new ergonomic diving buoy reel will enable even more divers to head for the high seas, over a simpler and safer experience.



Our expert for this innovation project
OLIVIER GRAMACCIA

A photograph of a worker in a blue hard hat working on a complex industrial machine. The machine features numerous copper pipes and wires, with a large horizontal pipe in the foreground. The worker is looking up at the machine. The background is a warm, orange-toned industrial setting. A white circular graphic is overlaid on the image, framing the text.

Innovation
forward



Innovation forward

As the innovation centre for and by the technological industry, Sirris is the reference for technology adoption and innovation. For all companies who are looking for practical and pragmatic support, to shape their business – now and in the near future.

To turn technological innovation projects into a success stories, companies need to master a growing number of disciplines. A daunting challenge for many companies, which is why Sirris is here to help. Together we reduce the risk and successfully enable innovation challenges.

FOR AND BY THE TECHNOLOGICAL INDUSTRY

This approach results in more than **1.300** innovation projects a year, working for and with **1.500** companies – the majority SMEs. From technological advice to custom innovation projects, from a wide range of publications, training courses and masterclasses to tailored innovation management.



SATISFIED
CUSTOMERS

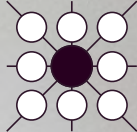


Our key advantages:

150 Experts, industrial labs
with high-tech infrastructure and
an extensive network



150
MULTIDISCIPLINARY
EXPERTS



8
STATE-OF-THE-ART
INDUSTRIAL LABS

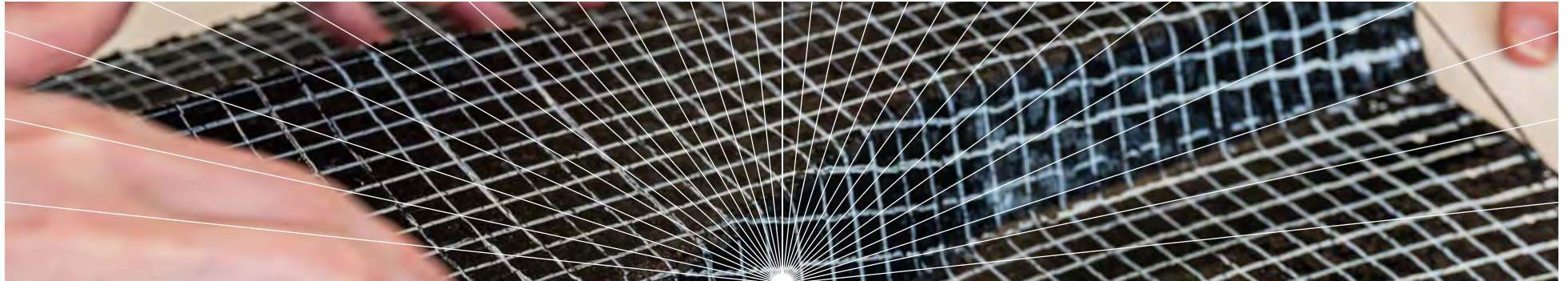


5
DOMAINS OF
EXPERTISE



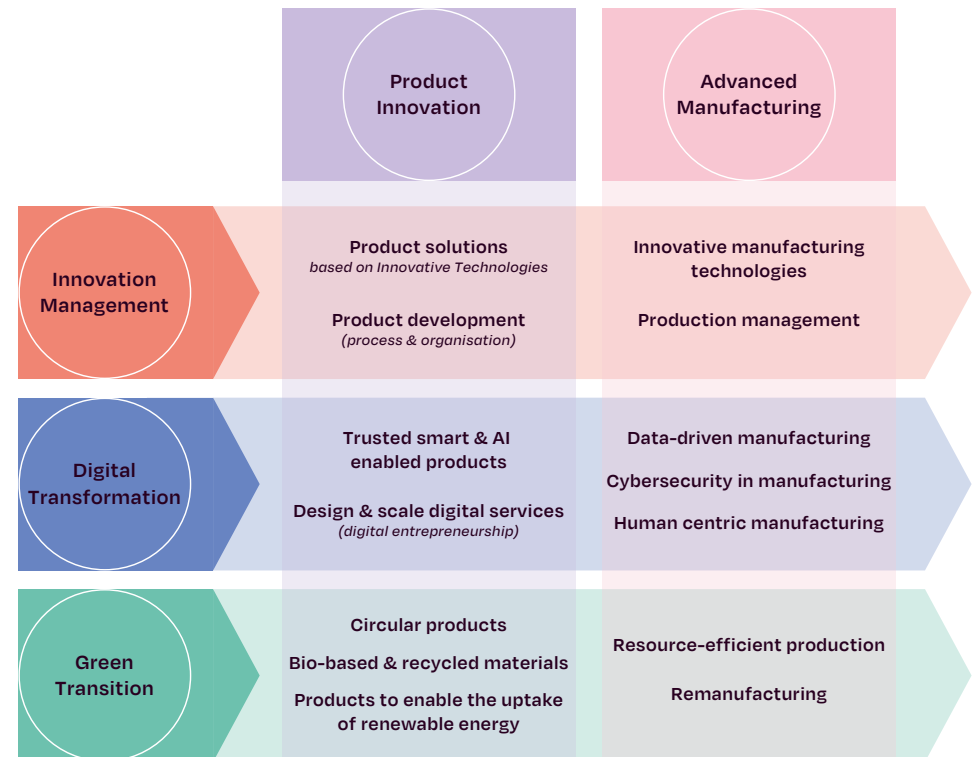
**BIGGEST
PARTNERNETWORK
IN BELGIUM**

Sirris has **150 experts** working in multidisciplinary teams, on a wide range of innovation projects for companies, large and small alike. We help companies introduce and adopt technological innovations – in a concrete and practical way.



Our expertise

Our expertise spans both product innovation and advanced manufacturing. We approach the challenges twofold: from the point of view of innovation management and from the point of view of the dominant transformations of the moment, the digital and green transitions. This results in state-of-the-art capabilities in over 20 technologies.

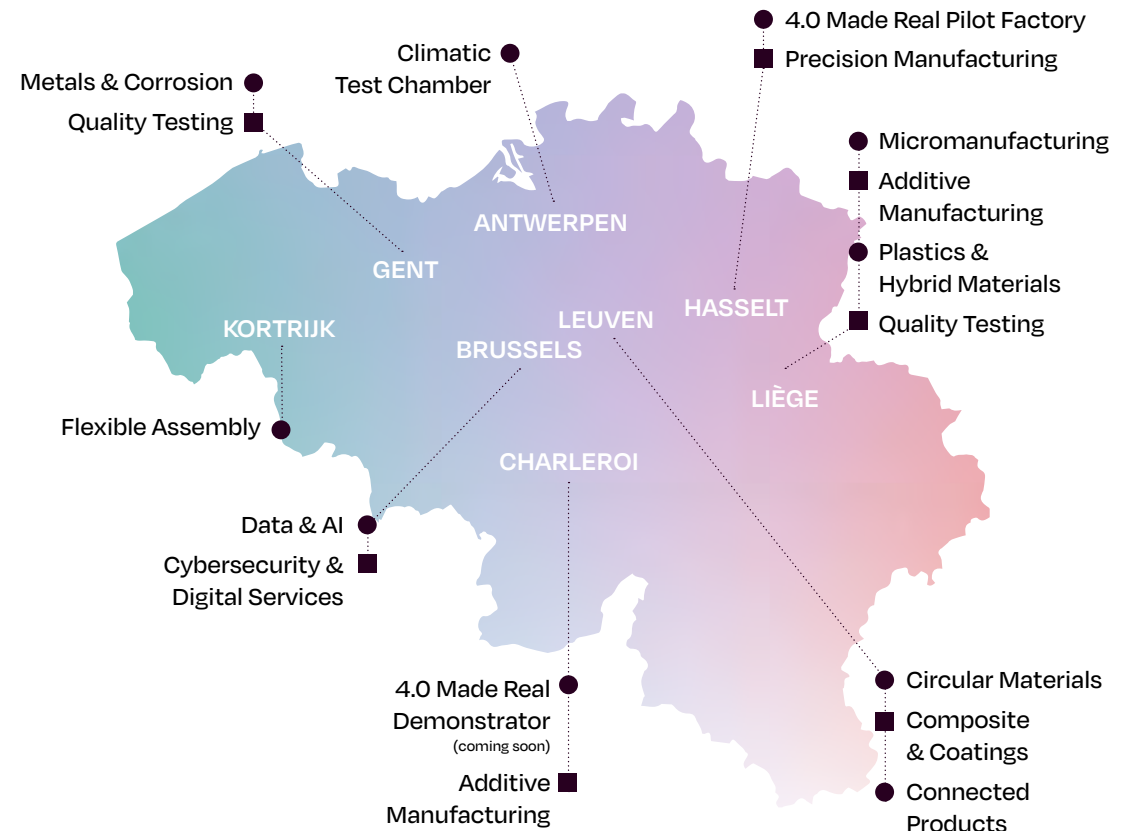


Our infrastructure



Our industrial labs with high-tech infrastructure, located all over Belgium, offer the option of carrying out proof of concepts, feasibility studies, experiments with prototypes and pilot lines and running comprehensive sets of technical tests. This “test before invest” approach significantly increases the chances of successfully implementating new technologies.

Innovation is co-creative. Sirris collaborates with an extensive network of university labs, research centres, government agencies, clusters and other partners. These collaborations result in 130 yearly national and international joint R&D projects, across the various fields of expertise – allowing us to accelerate building knowledge across the themes that are relevant to industry in our sector.



Trusted & neutral companion

As the collective centre of the Belgian technological industry, founded by Agoria in 1949, we operate as a non-profit organisation. Our objective is to support achieving sustainable economic growth in Belgium, by helping companies to reap the benefits of technological innovation.

The intellectual property of the innovative application or solutions we work on always stays within the companies we work with and for.

Sirris currently counts 2.500 member companies with 95% satisfied customers each year. The drive towards the continuous improvement of our operations is emphasised by our ISO 9001-2015 quality management certification.



NON-PROFIT ORGANISATION



ISO CERTIFIED



IP STAYS IN COMPANY

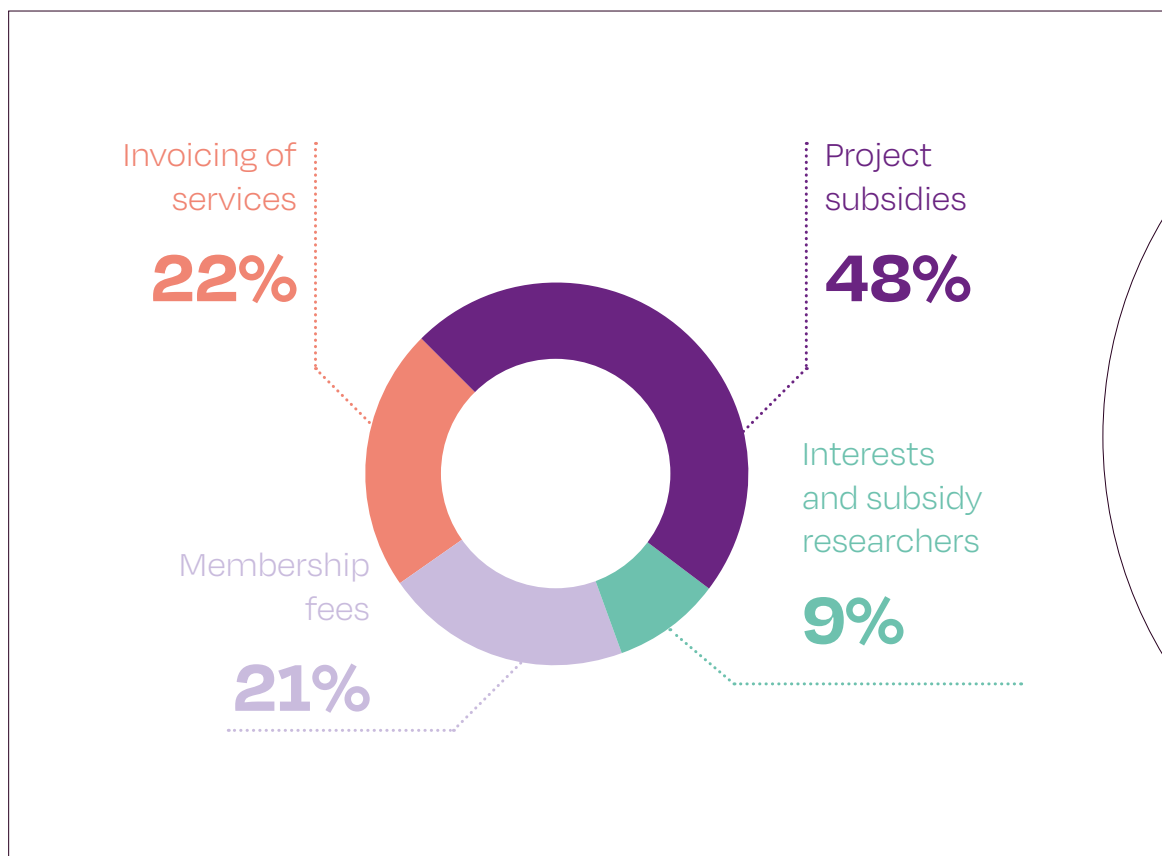


70 YEARS OF HANDS-ON EXPERIENCE

A futuristic blue globe with glowing lines and a white circle overlay. The globe is the central focus, surrounded by a white circle. The background is dark with many small, glowing blue and yellow lines, suggesting a digital or financial environment.

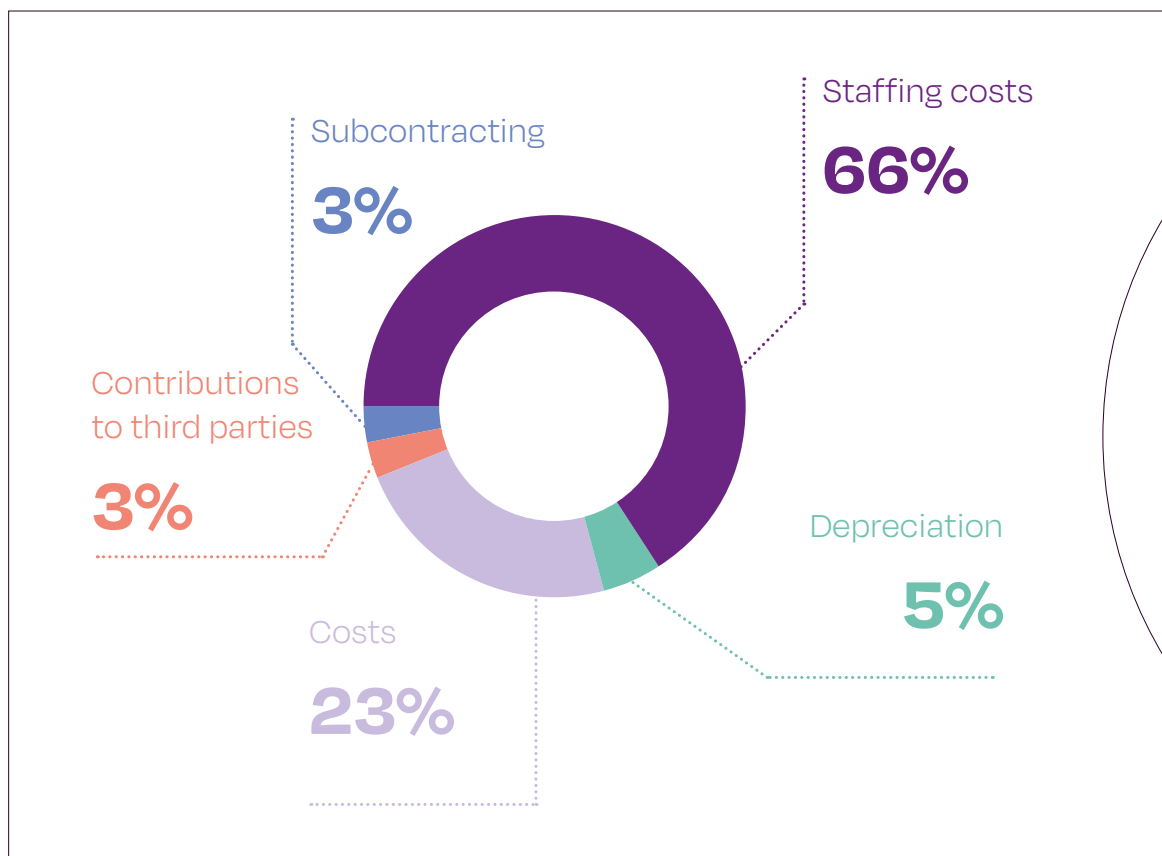
Finances 2022

#Breakdown of income



	% 2022	euro 2022
Membership fees	21%	€ 5 080 763,03
Invoicing of services	22%	€ 5 381 185,78
Project subsidies	48%	€ 11 678 807,48
Interests and subsidy researchers	9%	€ 2 296 641,94
Total INCOME	100%	€ 24 437 398,23

#Cost breakdown



	% 2022	euro 2022
Staffing costs	66%	€ 16 757 867,40
Depreciation	5%	€ 1 198 082,11
Costs	23%	€ 5 915 807,67
Contributions to third parties	3%	€ 823 218,21
Subcontracting	3%	€ 701 651,01
Total COST	100%	€ 25 396 626,40



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Dries Van den broeck

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