



**LUXINNOVATION**

#MakingInnovationHappen

**2022**

**LUXINNOVATION ANNUAL REPORT**

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# LUXINNOVATION: A RELIABLE PARTNER

**2022 got off to a good start: after two years marked by the pandemic, we were finally looking forward to going back to business as usual. Yet this optimistic outlook was dramatically transformed by Russia's invasion of Ukraine. This geopolitical disaster also provoked an energy crisis, which is paralleled by the increasingly harmful climate crisis.**

These global events have a great impact on our economy, and Luxembourg companies once again face major challenges. Innovation is often key to overcoming them, and as the national innovation agency, Luxinnovation has an important role to play. With decades of experience in supporting innovation, the agency has over the past years also become a catalyst for digitalisation and digital transformation. In addition, in 2022 it boosted its ability to support companies in becoming more sustainable through innovation.

Putting its multidisciplinary team into play within its Sustainability Innovation Hub, Luxinnovation took up the management of the newly launched Fit 4 Sustainability programme, published a simplified guide to aid for environmental protection and mapped the national ecosystem of sustainability enablers. The agency also worked on several pilot

projects aimed at developing sustainable solutions for groups of companies. All these efforts are now being taken further through the "Klimapakt fir Betriber", a government initiative supporting businesses in dealing with the climate crisis and the energy transition that Luxinnovation implements together with Klima-Agence.

The Luxinnovation team is driven by its desire to help companies innovate to find new opportunities, rise to challenges and remain competitive in a rapidly changing world. For the members of the board – the Ministry of the Economy, the Ministry of Higher Education and Research, the Chamber of Commerce, the Chamber of Skilled Crafts and FEDIL – The Voice of Luxembourg's Industry – it is very valuable to be able to count on such a reliable and reactive partner able to contribute to the design and implementation of new initiatives that benefit the national economy. I'm convinced that Luxinnovation has much more to offer as a driver for making innovation happen in the years to come.

**Mario GROTZ,**  
Board Chair



# PREPARING OUR ECONOMY FOR THE FUTURE

**2022 has been the first year of implementation of our latest four-year performance contract based on Luxinnovation's strategy adopted in 2021. We began the year facing tremendous new challenges and uncertainty brought about by the geopolitical, energy and climate crisis that has hit society and business in many ways. In this context, our strategy has been fundamental in giving us a clear sense of direction, whilst allowing us to adapt to the many changes impacting our daily work. Having a shared vision and clarity with regard to our mission has helped us to focus on the areas where our work can make a positive difference and give hope, especially in times of disruption and uncertainty. This annual report will provide an insight and some examples of what we are proud of having achieved during the first year of implementation of our strategy.**



Our strategy comprises seven strategic objectives that guide the way we seek to empower companies to innovate, provide value to the national economy and improve our own internal functioning. The following pages will provide an overview of how we have generated knowledge about the capacities, trends and challenges within our national innovation ecosystem, and how we have used this knowledge to support companies and research centres. We will present projects that we initiated and that we hope shall contribute to shaping the future of Luxembourg's economy through innovation. The report also lays out how we have promoted Luxembourg's economic and innovation "know-how" within the country and across the globe and how we have attracted and supported innovative companies and start-ups.

Over the past year, it has been incredibly encouraging to see the extent to which our staff have embraced the strategy and have managed to gear their individual efforts towards the objective of rendering our companies and our economy ready for the future. I am particularly grateful for their engagement in turning Luxinnovation into a truly knowledge-driven, human-centric and data-driven organisation.

One of the key features of our organisation is the close relationship we nurture with the companies that we support. This is what that enables us to promote innovation with a true sense of purpose. We listen closely to our companies, fully apprehend the questions they raise and understand the difficulties they encounter. The solutions we suggest take account of their specific needs. Together with our partners, we are proud to contribute to making Luxembourg's companies more competitive, but also more sustainable and digital, through innovation.

**Sasha BAILLIE,**  
CEO

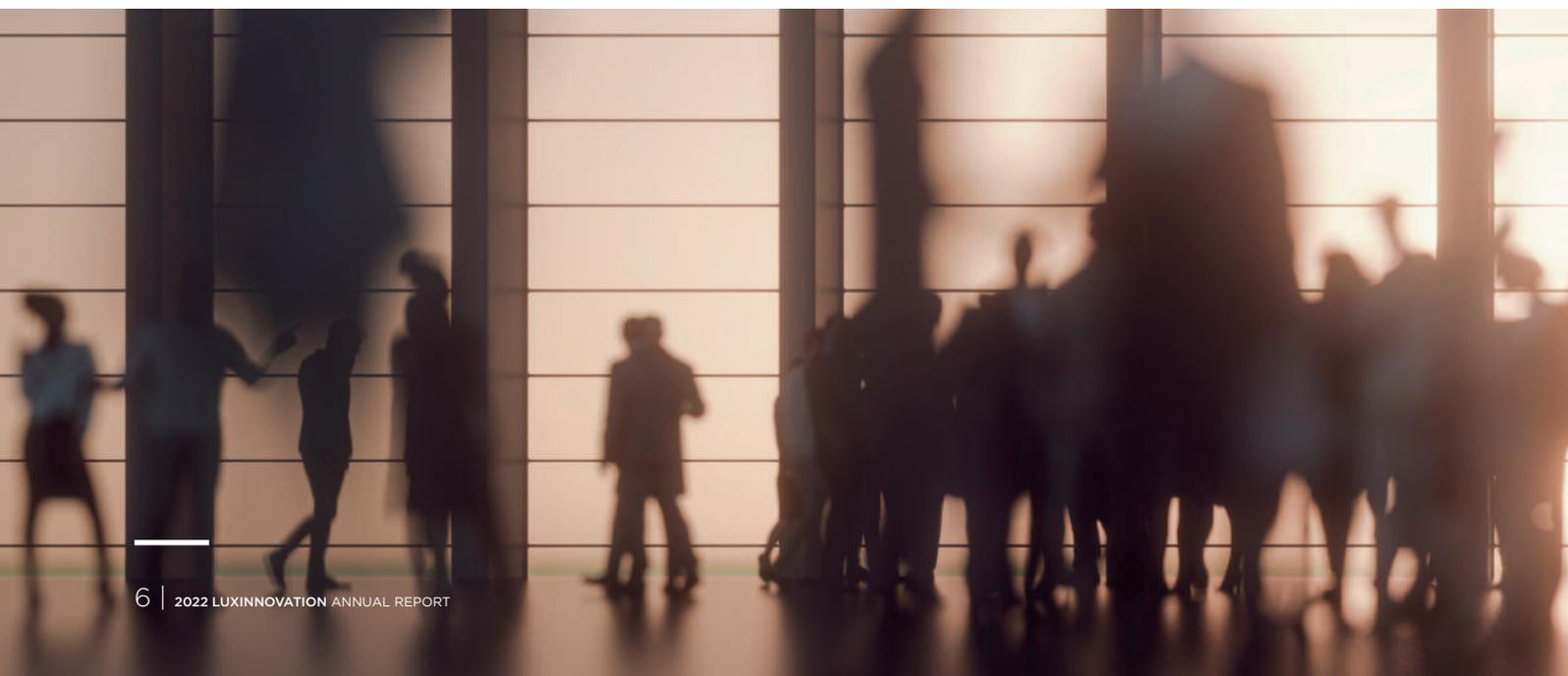
# OUR STAFF

AS OF 30 MARCH 2023

Sanna ALARANTA  
Jean-Philippe ARIÉ  
Anthony AUERT  
Jean-Claude BACKENDORF  
Sasha BAILLIE  
Sven BALTES  
Fatiha BEN LAKBIR  
Paul-Louis BENÉ  
Stefan BEREND  
Sylviane BISQUERT  
Avit BLANCHY  
Francesca BORRELLI  
Sara BOUCHON  
Johnny BREBELS  
Carole BUTTIGNOL  
Lionel CAMMARATA  
Ramona CAULEA  
Lauriane CHUZEVILLE  
Régis CIRÉ  
Joachim CLEMENS-STOLBRINK  
Stéphanie COTTE  
Rébecca DAMOTTE  
Brigitte DE HAECK  
Marie-Hélène DOURET  
Marco EISCHEN  
Virginie ERODIADDES  
Laura FICHTNER  
Gabriel FLOREA  
Charles Albert FLORENTIN  
David FOY

Elisabeth FRISCH  
Astrid FURGALA  
Laurent FUTIN  
René GARCIA  
Julie GASPAR  
Jean-Michel GAUDRON  
Virginie GODAR  
Barbara GRAU  
Rémi GRIZARD  
Martin GUÉRIN  
Nadège HÉGUÉ  
Isabelle HENNEQUIN  
Sue HEWITT  
Isabel HOLGUERA VERA  
Kristian HORSBURGH  
Claude HOSTERT  
Anja HÖTHKER  
Ralf HUSTADT  
Jenny HÄLLEN HEDBERG  
Emmanuelle KIPPER  
Ralf KÖHLER  
Muriel KONDRATUK  
Arnaud LAMBERT  
Eric LAUER  
Clément LAVAL  
Alexander LINK  
Jean-Michel LUDWIG  
Romane MARQUET  
Sandra MATECKI  
Philippe MAYER

Francisco MELO  
Jonas MERCIER  
Anne MEUNIER  
Marine MOMBELLI  
Caroline MULLER  
Lena MÅRTENSSON  
Abigail OKORODUS  
Joost ORTJENS  
Gabor PATAKI  
Inna PEREPELYTSYA  
Andreia PIRES  
Stefano POZZI MUCELLI  
Maximilian PRZYBYL  
Benjamin QUESTIER  
Nathalie RAHMÉ  
Eric RAVOAVY  
Christophe RIGOULET  
Cesare RIILLO  
Christiane SANDRI  
Nicolas SANITAS  
Georges SCHAAF  
Stéphanie SILVESTRI  
Giuseppe TARANTINO  
Angela TEIXEIRA LIMA  
Antoine THOMAS  
Jérôme TIBESAR  
Leonardo TONETTO  
Mohamed TOUMI  
Félix WEIS  
Emilie ZIMER



# MANAGEMENT BOARD

AS OF 30 MARCH 2023

## BOARD MEMBERS

### Mario GROTZ

Board Chair &  
1<sup>er</sup> conseiller de  
gouvernement

Ministry of the Economy

### Sasha BAILLIE

CEO & 1<sup>er</sup> conseiller de  
gouvernement

Ministry of the Economy

### Romain MARTIN

1<sup>er</sup> conseiller de  
gouvernement

Ministry for Higher Education  
and Research

### Philippe OSCH

Senior Partner & COO

Hitec Luxembourg

### Gilles REDING

Directeur Affaires  
environnementales,  
techniques et innovation

Luxembourg Chamber of  
Skilled Crafts

### Georges SANTER

Head of Digital and  
Innovation

FEDIL - The Voice of  
Luxembourg's industry

### Gilles SCHOLTUS

Conseiller de  
gouvernement 1<sup>ère</sup> classe

Ministry of the Economy

### Marc WAGENER

Directeur  
Entrepreneurship

Luxembourg Chamber of  
Commerce

## SUBSTITUTE BOARD MEMBERS

### Alexa BALLMANN

Gérante

Institut de beauté Alexa  
Ballmann

### Françoise GAASCH

Attachée

Ministry of the Economy

### Robert KERGER

Conseiller

Ministry for Higher Education  
and Research

### Eva-Maria LANG

Conseillère Technologies  
& Environnement

Luxembourg Chamber of  
Skilled Crafts

### Philippe LINSTER

CEO

House of Startups  
Chamber of Commerce

### Patrick NICKELS

1<sup>er</sup> Conseiller de  
Gouvernement

Ministry of the Economy

### Marco VALENTINY

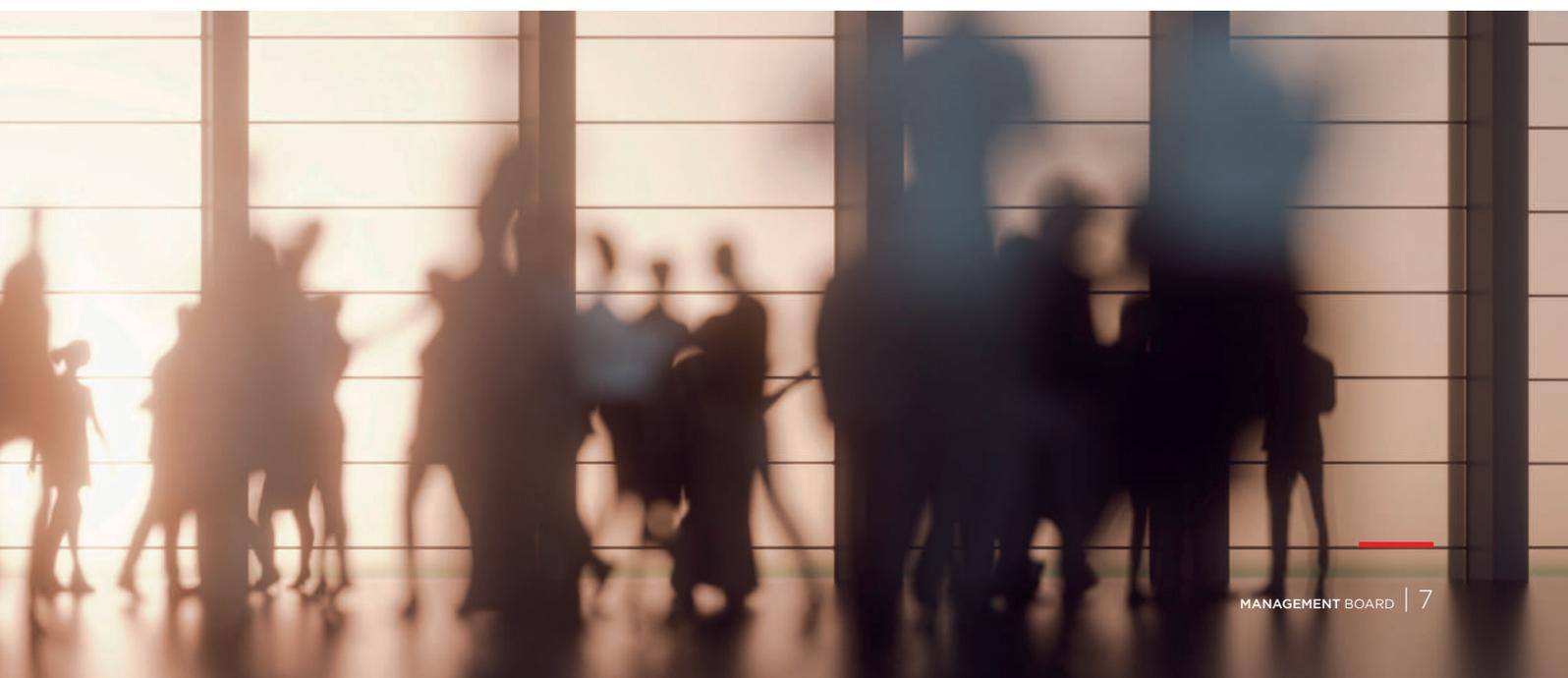
Conseiller de direction  
1<sup>ère</sup> classe

Ministry of the Economy

### Jean-Marc ZAHLEN

Chargé de Projets

FEDIL - The Voice of  
Luxembourg's Industry



# PROVIDE IN-DEPTH AND RELEVANT KNOWLEDGE ABOUT OUR CUSTOMERS AND THE ECOSYSTEM

In-depth knowledge about Luxembourg companies, economic ecosystems, general trends and challenges, is an essential basis for the implementation of our multiannual strategy. In 2022, we generated unique knowledge about topics related to innovation (e.g. in the fields of manufacturing industry, start-ups, health technologies and the automobility sector), digitalisation (e.g. high performance computing and metaverse) and sustainability (sustainability enablers).

We mapped potential **high performance computing** users to better understand the national market for supercomputing. We also analysed the expected market growth related to companies' use of high performance computing.

In order to contribute to the implementation of Luxinnovation's corporate strategy, we studied the players active in the field of **sustainability** and produced a mapping and a directory of enablers that can support companies in their efforts to become more sustainable. We also identified concrete areas in which companies can intervene. In addition, we released a new mapping of the **automobility** sector.

## UNDERSTANDING ECOSYSTEMS

We continuously map, analyse and monitor relevant ecosystems in order to better understand their development, trends and needs. The **national start-up ecosystem** was a key area studied in 2022. Based on the updated ecosystem mapping, we produced a series of key insights on the specialisations of the start-ups and their international outreach, as well as of Luxembourg's performance in various international start-up rankings. We also published a start-up directory.

We updated the mapping of the **manufacturing ecosystem** (covering both manufacturing companies and enablers that can support their transition towards smart manufacturing), and used the data collected to produce a directory of industry 4.0 enablers as well as key insight reports on the ownership and patent generation of the manufacturing industry.



## MARKET TRENDS AND MARKET RESEARCH

In order to better understand trends and new business opportunities, we studied what players in Luxembourg are positioning themselves in the **metaverse market**. We also supported the Ministry of the Economy and the European Commission in identifying key players of the semi-conductor supply chain in Europe.

To support international economic missions, we generated two **country reports** on the links between Luxembourg and Canada. We issued three reports on market trends in regions or sectors that are relevant for attracting international companies to Luxembourg, and developed eight prospection lists to support the identification of international companies that could potentially complement the national business and innovation ecosystem.

## FORTHCOMING KNOWLEDGE HUB

Creating a Knowledge Hub that will make our knowledge accessible to internal and external parties is one of our key priorities. Preliminary work on the hub is ongoing. Once completed, it will be part of Luxinnovation's forthcoming new web platform. Meanwhile, a "resource centre" bringing together mappings and thematic reports was set up on our existing website.



### 8 PROSPECTION LISTS

used for international prospection



### 3 MARKET TREND REPORTS



### 16 MARKET STUDIES AND ANALYSES

including ecosystem mappings, key insights, etc.

# PROVIDE COMPANIES WITH THE BEST CUSTOMER EXPERIENCE AND RELEVANT PRODUCT PORTFOLIO TO RENDER THEM READY FOR THE FUTURE

One of our key objectives is to offer and continuously improve a portfolio of products and services that meet the innovation needs of companies in a digital, data-driven and sustainable economy. In 2022, we worked to help businesses accelerate the adoption of digital technologies, unlock business opportunities generated by more sustainable products, services and processes, and pursue the path of innovation in order to remain competitive.



# INNOVATION

## ENCOURAGING COMPANIES ON THE PATH OF INNOVATION

Any company, regardless of its size, age, target market and technology level, can benefit from innovation. We offer a range of tools to meet companies' needs and help them capitalise on new market trends and opportunities.

Our **"Fit 4" performance programmes** are aimed at stimulating SMEs on their innovation journey. To maximise the added value provided, we reworked the programmes in 2022 to fully reflect our mission. In addition to the well-proven Fit 4 Innovation and Fit 4 Digital programmes, the new Fit 4 Sustainability programme was launched and immediately attracted interest with eight participations already in 2022. We transferred the operational management of Fit 4 Service and Fit 4 Digital Packages to the House of Entrepreneurship, which has made them part of its SME Packages.

Fit 4 Innovation was enriched with a new component, **Fit 4 Innovation HealthTech Market**, aimed at helping companies define their regulatory roadmap to obtain CE marking for their new and innovative medical devices. Applications to this component will open in 2023. We also worked on a concept for a Fit 4 Innovation component focusing on **business model innovation** to be launched in 2023.

Four **Club Innovation** events, co-organised with the Chamber of Skilled Crafts, brought together skilled crafts companies to discuss innovation in the fields of business models, digital transformation, gamification and e-mobility.

Companies and research organisations active in several of Luxembourg's key sectors can find a discussion partner for their R&D and innovation activities in the **Luxembourg AutoMobility, CleanTech, Creative Industries, HealthTech, Materials & Manufacturing and Wood Clusters** managed by Luxinnovation. Our cluster managers provided information and guidance to companies, connected them with potential business and innovation partners and helped them access all types of Luxinnovation support. They also organised networking activities and thematic workshops, and participated in initiatives and projects that benefit their respective sectors.

## SUPPORTING R&D AND INNOVATION PROJECTS

Providing companies and research centres with relevant and timely information about national and European funding opportunities and helping them structure their projects so that they have the greatest chance of success is an important part of our activities. In 2022, we supported 88 **applications for national R&D, innovation and environmental protection subsidies**. We also contributed to the definition, implementation and improvement of **thematic joint calls for R&D projects** funded by the Ministry of the Economy and the National Research Fund. Two calls on high performance computing and defence were opened in 2022, and a call on health technologies was prepared for 2023.

In order to inform companies and raise their awareness about other relevant funding opportunities, we supported the Ministry of the Economy, the Klima-Agence and the Ministry of Energy and Spatial Planning with webinars on **new financial aid** available for electric vehicle charging infrastructure, the construction and operation of solar photovoltaic power plants and companies particularly affected by the rise in energy prices. We also guided companies applying to the charging infrastructure and photovoltaic power plan schemes.

## CROSS-BORDER PARTNERSHIPS PROGRAMMES

Luxinnovation is the National Contact Point for **Horizon Europe**, the EU's framework programme that funds research and innovation projects involving participants from different European countries. In 2022, no less than 139 new projects involving Luxembourg participants were signed, including the two first-ever EIC Accelerator projects awarded to Luxembourg companies. Luxembourg applicants had a success rate of 19,1%, which is well above the EU average of 16%. We organised two editions of Horizon Europe Day as well as several workshops highlighting different dimensions of the programme and its funding opportunities. We also represented Luxembourg in the **Horizon Europe programming committees**.

We supported four applications to funding provided by **Eureka**, the world's largest public network for international R&D and innovation cooperation, and six applications to the **IraSME** programme funding international research activities by small and medium-sized enterprises

In our role as members of the Luxembourg hub of the **Enterprise Europe Network** (EEN), which also includes the Chamber of Commerce and the Chamber of Skilled Crafts, we participated in the organisation of several cross-border events and matchmaking sessions. We supported the publication of one technology offer from a Luxembourg organisation, which received two expressions of interest from potential international partners.

Together with the Directorate of Defence at the Ministry of Foreign and European Affairs, we worked on helping Luxembourg companies and research organisations that offer **solutions in the area of security and defence** get access to relevant national, European and international opportunities. We published a Luxembourg Defence Industry Catalogue, organised bilateral exchanges with national defence industry associations in France, Belgium, the Netherlands, Denmark, Canada, Finland and Latvia and integrated Luxembourg players in the European defence value chain via various programmes.

**210 SMES PARTICIPATED**

in the "Fit 4" performance programmes

**88 NATIONAL AID APPLICATIONS**

supported by Luxinnovation (R&D and innovation + environmental protection)

**139 HORIZON EUROPE PROJECTS**

with 159 Luxembourg participants funded

**€74.78 MILLION OF HORIZON EUROPE FUNDING**

obtained

**7 EUROPEAN DEFENCE FUND PROJECT APPLICATIONS**

supported by Luxinnovation funded

**6 EUROPEAN DEFENCE AGENCY CAPTECH PROJECT APPLICATIONS**

supported by Luxinnovation funded

**311 COMPANIES SUPPORTED**

by the Luxembourg Cluster Initiative

# DIGITALISATION

## DIGITAL TRANSFORMATION

The adoption of digital technologies and the implementation of digital transformation processes based on innovation are essential for companies to enhance their sustainability, efficiency and competitiveness. We manage the **Luxembourg Digital Innovation Hub** (L-DIH), whose objective is to accelerate the digital transformation of Luxembourg's manufacturing sector towards industry 4.0. In addition to informing companies on digital strategies and technologies and supporting them with minor digital assessments and partner searches, we connected companies in need of digital expertise with service providers through the DIH Marketplace.

Several L-DIH events were organised, including the L-DIH Talks webinars and the DIH ON TOUR event series. Together with our partner organisations, we also prepared an application to the European Commission to become an E-DIH with an extended range of services.

## PROMOTING SUPERCOMPUTING AND DATA EXCHANGE

As coordinator of the **EuroCC** project, we work together with the University of Luxembourg and LuxProvide to manage the National Competence Centre in supercomputing. To promote the use of supercomputers in the business and research sectors, we organised several events, notably the HPC Thursdays webinar series and 2022 Supercomputing Day. We produced a series of eight short videos, "Supercomputing Explained", and a mapping of

potential high performance computer (HPC) users. We contributed with expertise to the joint call for R&D projects on HPC issued by the Ministry of the Economy and the National Research Fund and to the HPC track in Fit 4 Start edition #12. We also met with 30 companies throughout the year to inform them about HPC initiatives and support available in Luxembourg.

Luxembourg is part of the European GAIA-X project aimed at shaping the future European sovereign cloud infrastructure and contributing to a coherent approach towards sector-oriented data spaces. We manage the **GAIA-X Hub Luxembourg** and continuously liaised with Luxembourg stakeholders in the field, other national GAIA-X hubs, the groups in charge of the sector-oriented verticals and the European coordinator of the initiative. We supported the 10 Luxembourg organisations that are direct members of GAIA-X as well as a wider group interested in the initiative, and closely followed the health vertical that is led by the Luxembourg Institute of Health. We also hosted a GAIA-X conference organised to discuss the ambitions and milestones of this pan-European initiative.



**38 COMPANIES  
SUPPORTED**

by the Luxembourg  
Digital Innovation Hub  
(L-DIH)

# SUSTAINABILITY

## SUSTAINABILITY INNOVATION HUB

Over the past few years, Luxinnovation has played an increasingly important role as facilitator and driver of sustainability through innovation. In 2022, we set up our **Sustainability Innovation Hub**, which brings together all our activities that help companies succeed with their sustainable transformation. The Hub is part of the Klimapakt fir Btriber initiative that we run jointly with the Klima-Agence.

The services bundled in the Sustainability Innovation Hub notably include the **Fit 4 Sustainability** programme that was launched in 2022 to help companies assess and reduce their

environmental footprint. In coordination with the Ministry of the Economy, we published an **“Aid for environmental protection – Simplified guide for companies”** to provide an overview of existing aid schemes in this field, the main granting criteria and the elements to be prepared to submit aid applications. The guide details the four most frequently used environmental protection investment aid schemes using practical cases and examples with figures.

## IDENTIFYING SUSTAINABLE SOLUTIONS

We conducted a **mapping of sustainability enablers** that can help companies become more innovative. We also worked with our partners on a range of sustainability-related innovation projects aimed at identifying potential **sustainable solutions for groups of companies** in the same field of activity, value chain or geographical location. These include, for example, a pilot project on a decentralised system for production, storage and auto-consumption of renewable energies in an industrial zone and a forthcoming catalogue that will highlight innovative solutions and good practices for the energy transition of companies in the crafts, retail and hotel and restaurant sectors.

In addition, together with the House of Training and the not-for-profit organisation Umweltberodung Lëtzebuerg, we developed a concept for a **training course on the eco-design of websites**, targeting web design agencies. We also cooperated with LuxDev on the preparation and implementation of the two 2022 calls for proposals of the **Business Partnership Facility** programme, which encourages the Luxembourg and European private sector to join forces with partners in developing countries to implement sustainable business projects. We supported companies selected for the second call stage with formulating the economic and financial aspects of their applications.



**42 NEW SERVICE PROVIDERS**

listed by the L-DIH

# ATTRACT AND SUPPORT INNOVATIVE COMPANIES AND START-UPS

Luxinnovation works to attract innovative and high value-added businesses from abroad that fit into Luxembourg's ecosystem in order to help our country reach its twin goals of becoming a completely sustainable and data-driven economy. We also facilitate the creation and development of innovative start-ups in Luxembourg.

## ATTRACTING INTERNATIONAL COMPANIES

2022 was a year of rebound and growth of our work to attract international companies to Luxembourg. Benefitting from our market intelligence country reports and other analyses as well as the excellent support from the Luxembourg Trade and Investment Offices (LTIOs), we identified and contacted over 250 new leads and organised over 60 soft landings in partnership with the House of Entrepreneurship. 16 companies incorporated in Luxembourg with our help.

During the year, we saw great interest from companies in the United States, Canada, Israel, South Korea and the United Kingdom. Our core focus areas are smart mobility and digital technologies, but we are also working with companies in fields such as smart manufacturing, space, cybersecurity and metaverse.



We contributed to Luxembourg's **trade missions to Canada and South Korea** with the organisation of visits and events that were part of the programme as well as with interactions with local participants. Both missions generated important deal flows that will be followed up on in 2023. We also promoted the Luxembourg defence industry via a national pavilion at the global defence and security event Eurosatory.

## NEW PARTNERSHIPS

Luxinnovation signed **cooperation agreements** with the Global Commercialization Center of Korea Advanced Institute of Science and Technology (KAIST GCC), the Japan External Trade Organisation (JETRO) and the Japanese City of Tsukuba. These agreements will promote innovation exchanges between the countries and contribute to attracting South Korean and Japanese companies to Luxembourg.



## 257 NEW LEADS FOR FOREIGN DIRECT INVESTMENT

from 41 countries approached



## 64 SOFT LANDINGS ORGANISED

for international companies



## 46 START-UPS CREATED

with support from Luxinnovation



## 16 INTERNATIONAL COMPANIES INCORPORATED

in Luxembourg with support from Luxinnovation



## 20 START-UPS PARTICIPATED

in Fit 4 Start edition #12

## PROMOTING THE START-UP ECOSYSTEM

We continued to **support Luxembourg-based start-ups**, and 46 new innovative companies were created with our support. 20 start-ups in the fields of ICT, space, healthtech, HPC and data analytics participated in edition #12 of **the start-up accelerator programme Fit 4 Start**. We also organised the call for applications and selection process of Fit 4 Start #13.

To enhance the international exposure of the start-up ecosystem, we published a **start-up directory** including 465 Luxembourg start-ups. As the coordinator of **Startup Luxembourg**, the common brand for the Luxembourg start-up ecosystem, we participated at Startup Luxembourg-branded national pavilions organised by the Ministry of the Economy and the Chamber of Commerce at major tech events in Canada (Collision) and France (Vivatech).

We organised side events to highlight Luxembourg at Vivatech, Slush (Finland) and Web Summit (Portugal), and an event in partnership with Startup Portugal during Luxembourg's state visit to Portugal. We also organised side events at Luxembourg tech events ICT Spring and Arch Summit, as well as a much-visited Startup Luxembourg Village at Arch Summit.

# BE A FORCE OF PROPOSALS TO SHAPE THE FUTURE OF LUXEMBOURG'S ECONOMY THROUGH INNOVATION

Luxembourg's economy and its companies are faced with constant change that they need to embrace. We seek out and engage in emerging European and international innovation initiatives that can provide Luxembourg's economy and companies with opportunities to become more data-driven, digital and competitively sustainable. We also support the government and our key stakeholders in assessing innovation opportunities and obstacles and make concrete, tangible and relevant proposals to key stakeholders.



Generating ideas and turning them into concrete innovation projects that address the challenges and opportunities relevant to local players in a sustainable and data-driven economy is a central activity for Luxinnovation. The following overview highlights selected key projects that we worked on in 2022.

## KLIMAPAKT FIR BETRIBER

In 2022, Luxinnovation and the Klima-Agence developed a concept paper for a **"Klimapakt fir Betriber"**, which is aimed at guiding and supporting businesses in dealing with the climate crisis and the energy transition. Our role in this context is to support companies in their sustainable transition through the services grouped together in our "Sustainability Innovation Hub": the Fit 4 Sustainability programme, access to aid for environmental protection, the development of sustainable solutions for groups of companies and an overview of sustainability enablers.

As part of this initiative, we outlined the development of a **forthcoming catalogue** that will present innovative solutions for the energy transition

of crafts companies. We also prepared a pilot project aimed at developing a **decentralised system for the production and consumption of renewable energy** in an industrial zone.

## SUSTAINABILITY IN THE CONSTRUCTION SECTOR

The construction sector plays a key role in the sustainable transition of the Luxembourg economy. We pursued our pilot project promoting the **systematic recycling of concrete**, as well as the feasibility study of a **deconstruction platform** enabling the reuse of materials from demolished buildings.

## HYDROGEN

Hydrogen is a clean, safe and versatile energy carrier that can be used for transportation, heating, power generation and storage. However, its adoption requires that hydrogen is made available locally at an acceptable cost. In order to promote the use of hydrogen by national companies, we supported the EU project **Hydrogen Valley**, the **deployment of dual fuel lorries** by transport company Haesaerts and a **feasibility study of green hydrogen production** in the town of Kehlen.

## SUSTAINABLE FOOD PRODUCTION

The demand for local value chains, especially in the food production and processing sector, is increasing. As a direct result of the post-COVID ideation process that we led during the pandemic, we prepared a forthcoming **agrifood supply chain pilot project** that will promote a competitive and sustainable agrifood sector and resilient, diversified and local value chains.

Luxinnovation is also an associate partner in **the Interreg project Perciponie**, which focuses on aquaponics, i.e., compact food production systems that mimic natural ecosystems by coupling aquaculture – raising fish in tanks – with hydroponics – cultivating plants in water.

## CIRCULAR BY DESIGN CHALLENGE

The **Circular by Design Challenge** aims at stimulating the development of innovative, sustainable solutions and products. 12 start-ups and established designers participated in the 12-week coaching programme of the second edition of the challenge that came to an end in April 2022. The call for application for the third edition of the Challenge was opened in November 2022. This edition focuses on sustainable solutions in the fields of business events, multifunctional urban furniture, development cooperation and humanitarian aid, and sustainable products for the LuXembourg Collection.

## E-HOLZHAFF TIMBER TRADE PLATFORM

Developed by Luxinnovation to facilitate the connection between supply and demand in the wood sector, the **digital marketplace e-HolzhaFF** was launched in September 2022. The tool, which is available in German and French, targets timber companies, associations and private individuals in Luxembourg and the Greater Region. Its overall aim is to help valorise locally produced wood and support wood-processing companies that want to use raw material from the region.

## INCUBATION FORUM FOR CIRCULAR ECONOMY IN EUROPEAN DEFENCE (IF-CEED)

Managed by the European Defence Agency and co-funded by the EU and the Luxembourg Directorate of Defence, the IF-CEED is aimed at incubating collaborative and **transnational circularity projects and/or roadmaps in defence**. Following the set-up of the initiative in early 2022, we supported its implementation and facilitated the involvement and active participation of Luxembourg industry representatives in the forum. 10 Luxembourg companies and research centres are currently part of various project circles whose objective is to incubate dual-use flagship projects.

# PROMOTE LUXEMBOURG'S ECONOMIC AND INNOVATION "KNOW-HOW" NATIONALLY AND INTERNATIONALLY AND ENSURE AWARENESS OF LUXINNOVATION'S SERVICES

Luxinnovation offers a wide range of innovation support services to many different types of companies. We are also in charge of building a strong image for Luxembourg's economy as a smart location for high-performance business and industry. We develop coherent content to raise awareness and render clear and explicit the added value of Luxembourg's economy and Luxinnovation's services for different types of national and international target audiences.

## HIGHLIGHTING THE ROAD TO SUCCESSFUL INNOVATION

Any company can benefit from innovation to become more competitive, digital and sustainable – and Luxinnovation is there to help. Raising businesses' awareness of the value of innovation and how we can support them is a priority.

We constantly published **articles and information** about our activities as well as interviews with companies and research centres that have benefitted from our support on our website. This content was

disseminated via our social media channels, the *Insights* newsletter and the targeted Horizon Europe newsletter. We also benefitted from an extensive coverage of our activities in **national media**.

We ran **sponsored campaigns on social media**, promoting notably the Circular by Design Challenge, e-Holzhaft, supercomputing opportunities and Fit 4 Sustainability. We organised a **wide range of events**, including, for example, Smart Manufacturing Week, the DIH ON TOUR with 10 stops across the country, the L-DIH Talks and HPC Thursdays webinar series, Supercomputing Day and the Circular by Design Challenge awards ceremony.

## PROMOTING LUXEMBOURG AS AN ATTRACTIVE BUSINESS LOCATION

In close collaboration with the Ministry of the Economy and the Chamber of Commerce, we promote the Luxembourg economy internationally under the brand "Luxembourg Trade & Invest". We continuously published articles and interviews on the **Trade & Invest website**, which were disseminated through social media and our international newsletter *Crossroads*. We published two editions of our

international publication Crossroads Magazine, and ran a sponsored social media campaign on why international companies should choose Luxembourg.

The content we produce also feeds into the websites, newsletters and social media channels of the Luxembourg Trade and Investment Offices (LTIO). In 2022, we also did a **complete review of the LTIO websites**, adding new content that considerably increased the number of visitors.

Together with the Ministry of the Economy and the Chamber of Commerce, we implemented extensive promotion campaigns of the Luxembourg trade missions to Canada and South Korea with very successful results.

## SHOWCASING THE START-UP ECOSYSTEM

In order to make the start-up ecosystem more visible on the national and the international level, we created and published an online **start-up directory** featuring several hundreds of start-ups. We also promoted the participation of Startup Luxembourg at the **major international tech events** Collision (Canada), Slush (Helsinki), Vivatech (Paris) and Web Summit (Lisbon).

News about the start-up ecosystem was continuously published on the **Startup Luxembourg website** and disseminated through social media and the monthly newsletter. We ran an international communications campaign on the call for applications to **Fit 4 Start #13**, and organised a two-day pitching event for pre-selected candidates during national tech event Arch Summit. At the same event, we also organised a Startup Luxembourg Village.

## ENHANCING OUR WEB PRESENCE

We **expanded our web presence** notably with a new section on the Luxinnovation website featuring our Sustainability Innovation Hub and French and German versions of the Digital Innovation Hub website. As the first phase of a major, game-changing project for our web presence, we developed a prototype for a unified web platform that will be implemented in 2023-2024.



**75,000 FOLLOWERS**

on social media  
(+5% compared to  
2021)



**300,000 VISITS**

to our websites  
(+13% compared to  
2021)

# EMPOWER STAFF IN A KNOWLEDGE-DRIVEN AND HUMAN-CENTRIC ORGANISATION

The ability to fully benefit from the creativity and great ideas of staff members requires a work environment where people feel a sense of purpose. We aim to ensure that Luxinnovation is an attractive place to work, that we acquire and develop the skills that the agency and its employees need and that the staff have the opportunity to grow and leverage their networks.

The Luxinnovation team continued to grow in 2022. We welcomed nine new employees during the year, who contributed to increase the diversity of the team in terms of skills, professions and nationalities. No less than 12 nationalities were represented among our staff at the end of 2022. We celebrated this diversity by participating in **#DiversityatBelval**, a photo exhibition created together with the Luxembourg Institute of Science and Technology (LIST), IMS Luxembourg and DeWidong to highlight the diversity to be found behind the walls of the Maison de l'Innovation in Belval.

In order to ensure that our management team exercises true leadership and is able to capitalise on the full potential of our staff, the **development of leadership skills** was on top of our training agenda in 2022. We organised tailor-made leadership coaching for the management, as well as a series of leadership training sessions for our team managers ("heads of"). We also launched a review of our **performance**

**evaluation process** in order to make it more future-oriented and better capture the visions and fields of interest of our collaborators.

Stimulating the cooperation throughout our ecosystem is essential. During the year, we organised eight **"Interconnected at all levels"** sessions when the directors of key players in Luxembourg: the Confédération luxembourgeoise du commerce, IMS Luxembourg, Luxembourg for Finance, Technoport, FEDIL, the Luxembourg Stock Exchange, the Chamber of Skilled Crafts and the Chamber of Commerce. In order to strengthen the links and cohesion of the growing Luxinnovation team, we also put in place a social committee with volunteers developing an inclusive offer of staff social activities.



# ENSURE EFFICIENT, DIGITALISED, OPTIMISED AND SUSTAINABLE INTERNAL OPERATIONS

Empowering our staff and the entire organisation through better access to and use of our own data - or, in other words, becoming a truly data-driven organisation ourselves - is a central objective. Our aim is to use the right digital tools in an efficient manner, implement clear workflows and ensure that our operations are run in accordance with sustainable principles.



In 2022, we began work on Luxinnovation's comprehensive digital transformation with the goal of **optimising the user experience** of our staff members and the companies and external organisations with which we interact. The transformation process will continue over the next year.

Internally, our focus was on implementing relevant new tools to be used by our team. During the year, we worked on the implementation of a new information system that would improve the user experience of staff members, notably in the fields of customer relationship management, project management, recruitment, organisation of conferences and budgeting and financial reporting.

To facilitate our interaction with external contacts, we worked on the prototype of a new web platform. We started preparing the implementation of new, user-friendly digital tools for the organisation of conferences and events as well as for the management of job offers and recruitment processes.



# A VERY GOOD RELATIONSHIP FOR YEARS

- AVERY DENNISON

**In 2022, innovative packaging materials solutions provider Avery Dennison Luxembourg started working with the Luxembourg Digital Innovation Hub (L-DIH). This contact, which builds further on the “very good relationship” the company has had with Luxinnovation for decades, has already provided a new push forward in its digital transformation journey.**

Since the late 1980s, Avery Dennison has operated in Luxembourg. Its Rodange plant, which produces almost half of its output in Europe, is its biggest manufacturing facility in the region. “Conducting business in Luxembourg has many advantages: the country is located in proximity to other important European markets, there is a logistical ease of doing business, and a long-term commitment to industrial growth,” says Adrien Villani, Plant Manager at Avery Dennison Luxembourg.

Innovation and digitalisation are strategic concepts. “They are a good means to achieve our goals, manage complex supply chains and increased orders,” explains Mr Villani. Luxinnovation has

supported the company with applications for R&D and innovation funding several times in the past, and when the L-DIH team knocked on the door to discuss how it could support Avery Dennison in its integration of industry 4.0 technologies, the interest was immediate.

## DESIGN THINKING WORKSHOP

The company invited Luxinnovation to hold a design thinking workshop in August 2022 at its premises with representatives from its other European sites in attendance. The purpose of the workshop was to develop a strategic roadmap for digital innovation using a bottom-up approach, with in-depth discussions on artificial intelligence, machine learning, internet of things (IoT), and cybersecurity.

## DIGITAL TRANSFORMATION JOURNEY

Avery Dennison also volunteered to host the one of the stops of the DIH ON TOUR bus which cross-crossed the country to support the local manufacturing sector’s digital transformation. The hosted sessions sparked discussions with one of the invited speakers, software solutions provider DataThings.

“DataThings’ presentation inspired a lot of new ideas. Recently, we held a meeting with CTI Systems – with whom we have worked in the past on the automation of our warehouse management system – and DataThings to scheme how we could take our automation and digitalisation initiatives further,” states Mr Villani.

According to Mr Villani, hosting DIH ON TOUR ‘22 gave the company many new ideas. “Thanks to the tour, we realised that one of the major areas where we could do something was machine learning and artificial intelligence for our automated warehouse. The more we work on improvements, the more we realise that tasks that require lots of iteration must be performed by computers.”

**Healthtech start-up Arspectra has been in contact with Luxinnovation ever since its creation in 2018. After participating in the Fit 4 Start accelerator programme the same year, it has also received valuable input from the agency to get innovative projects off the ground and, most recently, to successfully apply for funding from the prestigious European Innovation Council (EIC) Accelerator.**

Arspectra develops and offers unique proprietary augmented and mixed reality solutions for various applications in healthcare. “With our augmented reality glasses and unique visualisation solutions, we are able to display data that healthcare specialists can benefit from without taking their eyes off their patients,” says CEO Cédric Spaas.

## MEDTECH REALITY CHECK

When creating the company, the founders of Arspectra were new to Luxembourg and its start-up ecosystem. “We initiated the first contact with Luxinnovation after just a few months,” Mr Spaas remembers. “It evolved into a very good and highly supportive relationship. Luxinnovation has played a fundamental role in the growth of our network as well as in the launch of our innovative developments.”

In 2018, the company joined the healthtech vertical of the Fit 4 Start programme. The experienced coaches and jury members proved to be a valuable resource. “They kept challenging us and took all our plans through a thorough, necessary and constructive reality check. This prepared us well for what to expect and helped us plan for the adventure ahead. Today, almost five years later, I can clearly see that this early feedback has played a significant role in many of our key choices and milestones.”



# ” A FUNDAMENTAL SOURCE OF SUPPORT

- ARSPECTRA

## SUPPORT FOR FUNDING

Arspectra has also interacted with Luxinnovation when applying for R&D and innovation subsidies. In order to take its technology to the next level – a step that eventually requires very large investments and clinical trials with hundreds of patients – Arspectra successfully applied for funding from the EIC Accelerator. “Luxinnovation proof-tested our team while giving key advice. They connected us to a variety of experts who challenged us on all aspects of the go-to-market approach and trained us to successfully apply for this very competitive funding.”

Mr Spaas sees the contacts with Luxinnovation as a long-term relationship. “The agency, and more specifically its HealthTech Cluster, is a fundamental source of support. We enjoy working with the team of advisors, and appreciate all their efforts to interconnect the players within and beyond the Luxembourg ecosystem.”



# LUXINNOVATION IS A BUSINESS FACILITATOR

- CFL

**National railway company CFL places a high priority on exploring the potential of innovation in the transportation industry. To expand its mobility services, it sought to work with strategic partners on its pilot autonomous shuttle project. Luxinnovation supported this ambition by forging crucial partnerships to drive this agenda and fostered crucial collaborations for associated projects.**

Innovation and autonomous driving are top priorities in CFL's strategy. "Our autonomous shuttle project broadens the range of our multimodal services focusing on the passenger's first and last mile connection, and the local development of associated mobility technologies, says Carlo Hansen, Business Unit Head at the national railway company. "It was also an excellent opportunity for CFL to gain some autonomous driving experience and develop mobility on demand and virtual stops."

Besides providing an additional service to its customers, CFL wanted to be one of the first in Luxembourg to present autonomous shuttles in

public. In order to receive support for this strategic innovative project, CFL contacted Luxinnovation to benefit from the agency's in-depth knowledge of the ecosystem and global contact-base.

## INTERNATIONAL BUSINESS CONTACTS

Although in its early stages, the development of self-driving vehicles holds enormous market potential. To implement this ambitious project, CFL was looking for the most suitable provider of autonomous shuttles.

"Luxinnovation has a very good knowledge of the technology and an impressive range of business contacts around the world. They helped us to get in touch with several international shuttle manufacturers, contacts that would have been impossible to find just by searching on Google," states Mr Hansen.

In the end, the contract was awarded to Ohmio, a New Zealand based shuttle and connected vehicles manufacturer that was first attracted to Luxembourg with the support of Luxinnovation. Ohmio is now providing CFL's first two autonomous shuttles that will become operational in 2023.

## FOSTERING PUBLIC-PRIVATE PARTNERSHIPS

CFL also benefitted from Luxinnovation's national network to set up auxiliary projects that will contribute to making the autonomous driving project a success. The railway company is now working with tyre manufacturer Goodyear, which will supply airless tires for the shuttles. The innovation agency also helped CFL initiate a project with the Luxembourg Institute of Science and Technology (LIST) aimed at creating a digital twin of the shuttle. This project is co-funded by the National Research Fund (FNR).

"I'm permanently in contact with Luxinnovation. Working with the team on this project has been a great experience and I hope that we will continue like that in the next years," says Mr Hansen.

# ANNUAL ACCOUNTS

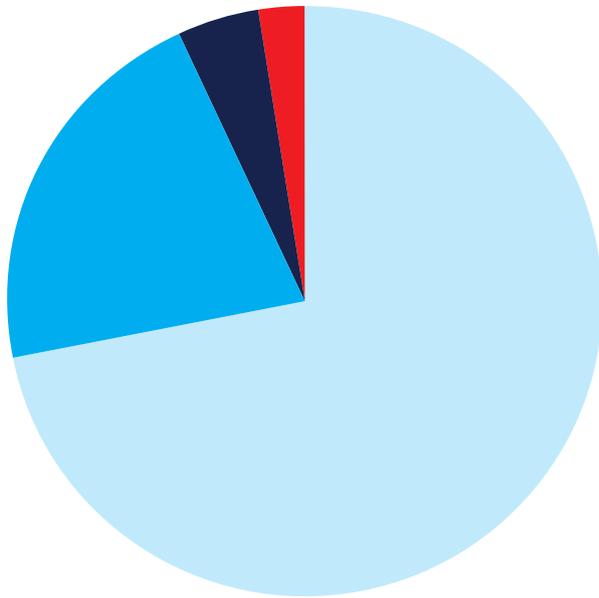
## BALANCE SHEET 31 DECEMBER 2022 (EUR)

<b>ASSETS</b>	<b>2022</b>	<b>2021</b>
<b>FIXED ASSETS</b>	<b>1.041.440,38</b>	<b>644.040,51</b>
Intangible assets	813.204,77	403.877,15
Tangible assets	228.235,61	240.163,36
<b>CURRENT ASSETS</b>	<b>8.379.522,17</b>	<b>7.686.660,21</b>
Debtors	1.343.837,67	696.353,62
Cash at bank and in hand	7.035.684,50	6.990.306,59
<b>PREPAYMENTS</b>	<b>393.731,80</b>	<b>254.121,61</b>
<b>TOTAL</b>	<b>9.814.694,35</b>	<b>8.584.822,33</b>

<b>CAPITAL, RESERVES AND LIABILITIES</b>	<b>2022</b>	<b>2021</b>
<b>CAPITAL AND RESERVES</b>	<b>7.799.887,45</b>	<b>6.878.214,66</b>
Subscribed capital	541.739,24	541.739,24
Reserves	7.252.419,51	6.321.055,57
Profit or loss for the financial year	0,00	0,00
Capital investment subsidies	5.728,70	15.419,85
<b>PROVISIONS</b>	<b>289.878,17</b>	<b>268.009,89</b>
<b>CREDITORS</b>	<b>1.201.539,74</b>	<b>1.175.351,36</b>
Amounts owed to credit institutions	15.777,59	15.069,78
Trade creditors	815.578,40	685.569,70
Other creditors	370.183,75	474.711,88
<b>DEFERRED INCOME</b>	<b>523.388,99</b>	<b>263.246,42</b>
<b>TOTAL</b>	<b>9.814.694,35</b>	<b>8.584.822,33</b>

## PROFIT AND LOSS ACCOUNT 31 DECEMBER 2022 (EUR)

	<b>2022</b>	<b>2021</b>
Other operating income	12.408.028,53	11.378.939,62
Raw materials and consumables and other external expenses	-2.638.561,40	-2.368.123,07
Staff costs	-8.959.997,30	-8.494.030,31
Value adjustments	-296.583,41	-222.313,29
Other operating expenses	-529.331,57	-294.073,06
Other interest receivable and similar income	16.957,34	0,00
Interest payable and similar expenses	-512,19	-399,89
Profit or loss after taxation	0,00	0,00
<b>Profit or loss for the financial year</b>	<b>0,00</b>	<b>0,00</b>

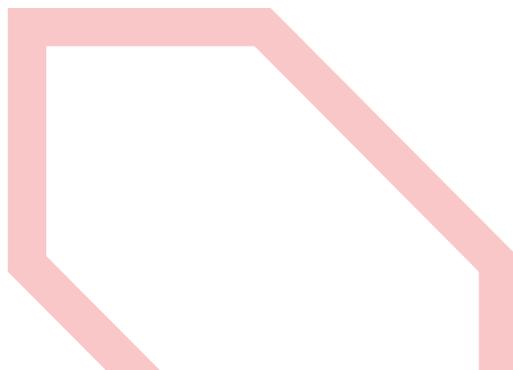
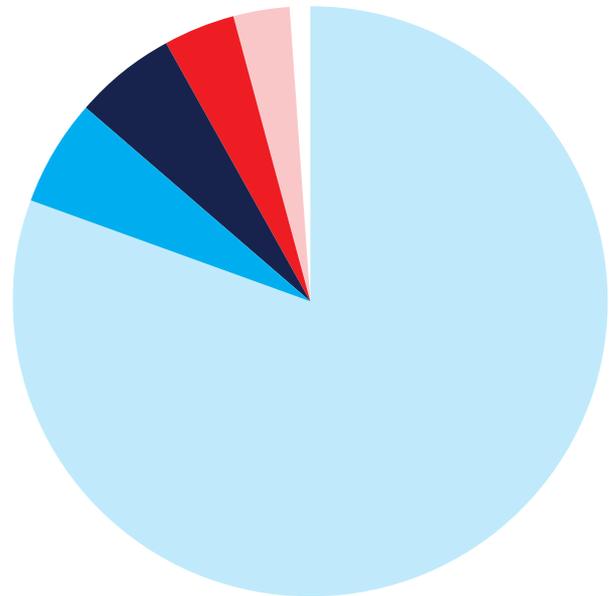


## EXPENSE CATEGORIES 2022

Staff costs	72,1%
Other external expenses	21,2%
Other operating expenses	4,3%
Value adjustments	2,4%
<b>Total expenses</b>	<b>100,0%</b>

## SOURCES OF FUNDING

Ministry of the Economy	80,9%
Ministry for Higher Education and Research	5,7%
European programmes	5,6%
Private stakeholders	3,8%
Other public funding	3,1%
Other	1,0%
<b>Total</b>	<b>100,0%</b>







**LUXINNOVATION**

#MakingInnovationHappen

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