

SOMMAIRE

DRIVING SUCCESS WITH INNOVATION	4
BUSINESS DEVELOPMENT	6
HOW TO OPTIMISE ECONOMIC PROSPECTION	8
TOWARDS THE FACTORY OF THE FUTURE	10
NATIONAL FUNDING	12
DIGITALISATION FOR ENHANCED COMPANY PERFORMANCE	14
SME PERFORMANCE	16
CLUSTER CONNECTED CREATIVES	18
INVESTING IN THE FUTURE	20
LUXEMBOURG CLUSTER INITIATIVE	22
PLASTICS LOOP: ON BOOSTING RECYCLING, REUSE AND DESIGN	24
START-UP SUPPORT	26
STRESS FREE CROSSBORDER COMMUTING	28
EUROPEAN FUNDING	30
A SMART ROBOT FOR INNOVATIVE THERAPIES	32
MARKETING AND COMMUNICATION	34
COMMUNICATION COLLATERAL 2017: SOME EXAMPLES	36
ANNUAL ACCOUNTS	
MANAGEMENT BOARD / OUR TEAM	40

DRIVING SUCCESS WITH INNOVATION

As of 2017, Luxinnovation operates under a new tagline that expresses the very heart of our mission: "Trusted Partner for Business". It englobes our long-term objectives of fostering innovation and fuelling the international growth of Luxembourg companies. It also highlights our more recent key role in promoting the Luxembourg economy at the international level and attracting foreign direct investment. The ultimate goal of all our activities is three-fold: to drive business renewal, accelerate qualitative business growth and create employment. 2017 was a year of transformation and measurable success for Luxinnovation. In close collaboration with our partners, we fully took up our new role of driving international business development and attracting relevant companies to set up activities here. We reinforced these activities by launching sector-specific business development strategies supported by market intelligence expertise and extensive marketing and communication efforts. The first results are already visible.

The Luxembourg Cluster Initiative experienced a surge in growth in terms of membership and new flagship projects, and extended its activities with the launch of two new clusters: Creative Industries and Wood. We intensified our support to small and medium-sized enterprises (SMEs) and start-ups, notably with the full-scale launch of the Fit 4 Digital programme that involved 15 new companies during the year. We also worked closely with the Ministry of the Economy to implement the funding measures available under the new law relating to the promotion of research, development and innovation and helped our clients apply for this attractive funding with success.

Remaining attractive to clients requires constant innovation – and this is also true for us. During our last performance contract, concluded with our stakeholders for 2014-2017, Luxinnovation largely exceeded the objectives set up. In addition, we launched a range of measures whose success proves their usefulness to our clients. Since 2014, 62 SMEs have participated in the performance programmes Fit 4 Innovation, Fit 4 Circularity and Fit 4 Growth. The Fit 4 Start programme, launched in 2015, has attracted over 600 applications from more than 30 countries. 25 ICT start-ups have participated in the first five editions and 17 have graduated with success.





We have intensified our support to organisations applying for funding from the EU's framework programme for research and innovation, Horizon 2020. The expertise provided by Luxinnovation has helped Luxembourg organisations obtain a total of €72 million of Horizon 2020 funding since 2014. In addition, the Luxembourg Cluster Initiative has implemented five flagship projects and/or transferred them to other organisations, and ten more are in the pipeline. During the time of this performance contract, Luxinnovation has also provided assistance to 49 foreign direct investment projects.

Luxembourg's strong innovative capacity together with its openness and flexibility are the catalysts that have made our country what it is now: an attractive location for dynamic start-ups and international businesses. Today, Luxinnovation is firmly established as an important national engine for this innovative transformation. Over the past few years, we have developed an efficient and performing

organisational structure and a stimulating work environment able to both attract and retain talent. I am proud that Luxinnovation has evolved in such a positive direction during my time as Board Chair, and I am convinced that this will provide a robust foundation for continuing to boost innovation in Luxembourg in the years to come.

Raymond Schadeck Board Chair

BUSINESS DEVELOPMENT

Luxinnovation's work with sectoral business development and foreign direct investment represents a key contribution to the economic development of Luxembourg. With a particular focus on three main sectors - the automotive industry, clean technologies and the digital economy - Luxinnovation participates in Luxembourg's international prospection efforts and provides tailor-made support to companies interested in locating activities here. Although the decision-making process and practical preparations to set up a venture in a new country is usually quite long, these activities have already yielded their first results in terms of newly established international companies.

set up activities in Luxembourg and the follow-up of another six will continue in 2018.

The Nordic countries were the geographical focus for the cleantech business prospection with two prospection missions to Sweden (in September) and Denmark (in November). A prospection mission to South Korea (in September) also took place, and Luxinnovation supported an official mission to Tunisia (in November). The organisation attended four international congresses and exhibitions in order to stay up-to-date with recent global and regional trends in clean technologies. The

For the automotive sector, Luxinnnovation supported two sector-specific prospection

continents (Europe, Asia Pacific and North

America). In order to increase its international

visibility, the sector was actively represented at

two major congresses/exhibitions: IAA Cars in

and smart mobility (in November). In addition,

congresses and fairs to sharpen its view on global

and regional technology trends. Five companies

Japan Digital Seminar on digital economy

Luxinnovation attended nine international

Frankfurt (in September) and the Luxembourg-

missions to China and the United States and one official mission to Japan. A total of 30 face-to-face

prospection meetings were held on three different

The business development strategy for the digital economy sector is focused on the value chain of Big Data and more specifically on

work undertaken made it possible to identify

incorporation in Luxembourg.

several interesting foreign companies and work will continue in 2018 to support their possible

LUXINNOVATION PARTICIPATED IN AND SUPPORTED

12



SUPPORT PROVIDED TO

49

12

2



COMPANIES INTERESTED IN ESTABLISHING ACTIVITIES IN LUXEMBOURG



COMPANIES PARTICIPATED IN ACCOMPANIED VISITS TO LUXEMBOURG

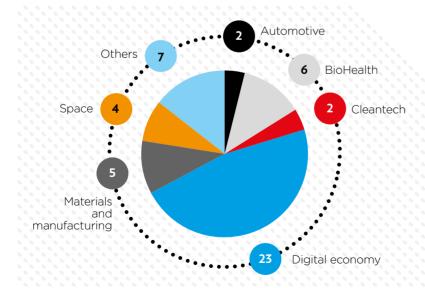


with support from Luxinnovation

the collection and visualisation of this type of information. In the six months that this strategy has been effective, Luxinnovation undertook five international prospection missions and held individual meetings with over 40 potential target companies in the United States, Lithuania, Dubai,

Russia and Japan. Keynote addresses were also made at a number of international conventions focusing on fintech and blockchain as well as on the ICT sector in general.

SUPPORTED COMPANIES BY SECTOR:





"Our first task was to help Luxinnovation's business developers develop relevant strategies to target priority sectors, mainly the automotive industry, cleantech and the digital economy," says Sara Bouchon, who heads the market intelligence unit. "In order to do this, we developed two specific services: Market Studies and Market & Technology Watch."

IDENTIFYING POTENTIAL THROUGH MARKET INTELLIGENCE

A market study includes an in-depth analysis of the main technological developments expected within the targeted sector over the next 5-10 years. The aim is to identify sub-sectors with strong development potential for which Luxembourg would be an attractive location. The study also analyses which countries are already at the forefront in the selected fields to determine the most relevant geographical region for prospection activities. Once the study has been concluded, Dr Bouchon and her team continuously keep the business developers updated through their on-going market and technology watch.

The next step is to work on how to make contacts with individual companies more proactive and better targeted. "Luxinnovation, the House of Entrepreneurship and the Ministry of the Economy are often contacted by firms that want to know more about Luxembourg, but in addition to that we want to reach out to those that do not yet know what the country has to offer," says Dr Bouchon, who underlines that the prospection efforts are being done in close collaboration with the Ministry. By analysing a multitude of sources and databases, her team can come up with lists of companies that focus on interesting technologies and have other relevant characteristics. "When speaking to previously unknown companies at large international events, there is always a risk of spending too much time on less relevant ones only to discover, for example, that they already have a foothold in a nearby European country and thus would not consider Luxembourg. Our lists help the business developers seek out firms that are of real interest. This makes their work far more effective," Dr Bouchon points out.

When a relationship has been initiated, it is often useful to have more detailed information about the companies concerned. The market intelligence team develops company profiles that include key information such as ownership, financial health and recent news. According to Dr Bouchon, this service is often solicited by the international business support team: "It helps them ensure that the companies they work with are in good standing."

OPENING DOORS FOR LUXEMBOURG COMPANIES

In addition to analysing foreign companies, the market intelligence unit also conducts sector mappings of Luxembourg's own economic landscape. The aim is to identify international companies that are already present here but have the potential to upscale their activities in the country. Opening doors abroad for Luxembourg companies is also part of Luxinnovation's Cluster Initiative activities. Dr Bouchon and her team develop country reports, often as part of the preparations of official Luxembourg missions abroad, to identify the most dynamic sectors in the country that will be visited and the potential trade opportunities for Luxembourg-based firms.

"Our main aim in 2017 was to set up standardised processes and methodologies for our work that will allow us to produce customised information quickly and efficiently to facilitate business development," says Dr Bouchon. "I'm confident that we will see constantly increasing interest in Luxembourg as a business location over the coming years."

TOWARDS THE FACTORY OF THE FUTURE

Husky, a leading global industrial technology provider to the plastics processing community, has chosen its facility in Luxembourg as the location for the development of its "Factory of the Future". With support from Luxinnovation, the company has designed a proof of concept for smart factories based on Industry 4.0 principles. In addition to boosting its competitiveness, the Luxembourg site will be the Husky Centre of Excellence in digitisation and Industry 4.0.

An important part of Husky's business is the design and manufacturing of highly customised PET (Poly-Ethylene Terephthalate) moulding systems for the beverage packaging industry. "The Factory of the Future will give us a competitive advantage in speed and quality," says Gerardo Chiaia, President of the Beverage Packaging business at Husky.

R&D SUPPORT

While Husky was firmly committed to undertaking the project, Luxinnovation helped the company prepare a successful application for a research and development subsidy from the Ministry of the Economy. "This support allowed us to allocate additional resources to the project and to speed up the implementation," explains Mr Chiaia.

STRATEGIC PARTNERSHIPS

In collaboration with Luxinnovation, the project was designed so that it would mainly be managed and implemented by Husky Luxembourg and create value and new skills for the country. Luxinnovation's contact network also facilitated the establishment of two strategic partnerships for the project. "We collaborate with Siemens Luxembourg, who provided support on the shop floor connection," says Jean Christophe Witz, Husky's Director of Digitisation. "Luxinnovation also put us in contact with Professor Peter Plapper at the University of Luxembourg, with whom we will develop research activities based on value stream mapping."

"So far the initiative has been very successful. We have been able to digitise the entire end-toend process for a specific product improving drastically the speed and the quality," Mr Witz concludes.



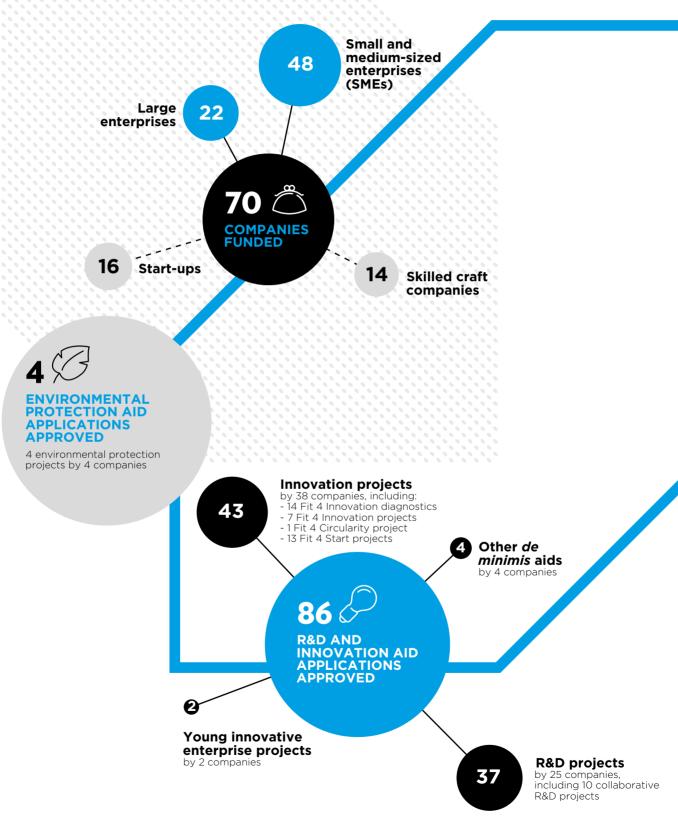
LUXINNOVATION 2017 ANNUAL REPORT

NATIONAL FUNDING

Any organisation applying for research, development or innovation funding from the Ministry of the Economy can receive precious support from Luxinnovation to find the most suitable funding instrument, design their R&D or innovation project in an optimal way and draft a successful application. In 2017, Luxinnovation supported a high number of applications and collaborated closely with the Ministry of the Economy on the implementation of new aid schemes.

Luxembourg has a new framework for national funding, the law of 17 May 2017 relating to the promotion of research, development and innovation. The new law increases the funding measures available for companies, in particular SMEs, with aid measures targeting innovation in SMEs, young innovative enterprises and feasibility studies. It also includes schemes supporting national R&D and innovation initiatives (innovation clusters and research infrastructures).

Ninety projects, submitted by seventy different companies, were co-funded by the Ministry of the Economy in 2017. In addition to providing support to applicants, Luxinnovation together with the Ministry prepared new, simplified guidelines in English, French and German for all aid measures. Luxinnovation also published a brochure (in French and in English) presenting the different grants made available under the new law.





"I have always been interested in innovation and performance improvement. When I heard that Fit 4 Digital helps SMEs to put digital tools in place in order to become more profitable and efficient, I saw this as an excellent opportunity for us," says Georges Mischel, General Manager of Garage Mischel. "I knew that we had the potential to improve our use of information technology and found the combined offer of expert support and co-funding from the Ministry of the Economy very attractive."

Garage Mischel sells and rents several different brands of gardening machinery – chain saws, bush cutters, lawn mowers, micro tractors and so on – as well as specialised forestry, cleaning and civil engineering equipment and protective clothing. The company also offers reparation and maintenance services. Its Fit 4 Digital participation started with an in-depth analysis of all aspects of its activity, undertaken by a reliable specialist, approved by Luxinnovation. The aim was to determine where and how the company could benefit from using information and communication technologies.

INTERNET SALES BOOST

"We started off by reviewing our website, which was a bit outdated," says Mr Mischel. "We sold almost nothing through the site, the main reason being that we just didn't have the time to publish what we had for sale." Together with the Fit 4 Digital expert, a modern and attractive website was designed. It includes a catalogue that provides an overview of Garage Mischel's complete offer. The entire staff was trained and now contributes to keeping the site up to date. Two months after its launch online, the positive effects can already be seen.

"We always have some second-hand equipment for sale, and usually these machines sit around the shop for quite some time," says Mr Mischel. "To my astonishment, they were sold almost immediately once they had been posted on the new website. The site has also helped new clients discover our rental programme, and the demand is increasing." To speed up payments, Garage Mischel introduced the electronic Digicash system, which allows clients to pay via smartphone by scanning a QR code on their invoice. This has had a positive effect on the company's cash flow.

THE KEY TO ENHANCING QUALITY

Fit 4 Digital has also had an impact on the internal communication and daily management of Garage Mischel. An internal messaging service has been developed where tasks to be done are introduced and assigned to the person concerned. "With everything being done in writing less things are forgotten, and it is much easier for me to follow up together with my heads of department," Mr Mischel explains. He also outlines the electronic management system set up in the repair and maintenance workshop. The status of each machine is indicated in the system and updated throughout the work process. Once a piece of equipment has been finalised, the company has introduced a compulsory quality check. The client is notified that the machine can be picked up or delivered only after this quality control has proven to be satisfactory.

In order to further improve the daily management of the company, Mr Mischel and his colleagues are now setting up dashboards based on business intelligence tools. He is very satisfied with the outcomes of his participation in Fit 4 Digital. "The whole process has helped us improve the overall quality of our services," he concludes. "Service quality is our strength and what makes our clients come back. With our new tools, new clients quickly discover what level of quality they can count on when dealing with us."

SME PERFORMANCE

Increasing the competitiveness, performance and innovation capacity of Luxembourg-based small and medium-sized enterprises (SMEs) is one of Luxinnovation's key objectives. Individualised support is combined with a range of performance programmes and dedicated events. Luxinnovation also facilitates transnational technology partnerships via the Enterprise Europe Network (EEN).

OVER

100



PROACTIVE VISITS TO SMES

to evaluate their potential for innovation

51



COMPANIES

participating in international matchmaking events organised by the Enterprise Europe Network 2017 was the fifth year of Luxinnovation's Fit 4 Innovation programme and one of the best in terms of the number of new participants and projects. After an initial trial period in 2016, the Fit 4 Digital programme, which aims to help SMEs become more efficient, profitable and attractive through the use of digital tools, was fully implemented in 2017. Two companies also joined the most recently developed performance programme, Fit 4 Growth.

Luxinnovation functions, together with the Chamber of Commerce and the Chamber of Skilled Crafts, as the Luxembourg node of the EEN network. In 2017, the organisation mobilised over 50 companies that participated in 10 matchmaking events in Belgium, France, Germany, Brazil and Tunisia in order to meet potential technology and business partners. Almost 260 contacts with potential partners were facilitated.

The Club Innovation has been created by the Chamber of Skilled Crafts and Luxinnovation as a meeting point primarily for skilled crafts companies. Three meetings were organised in 2017 on the topics of circular economy, the mutualisation of services, and circular economy in nutrition. Luxinnovation also organised two events for Fit 4 Innovation participants and "Rencontres de l'innovation", an event focused on growth strategies for SMEs that was open to all companies with an interest in innovation.

PERFORMANCE PROGRAMMES:



JOINED THE "DIAGNOSTICS" PHASE,

representing a total investment of almost €300,000

15 Fit 4 Digital Diagnostics started



15 Fit 4 Innovation Diagnostics started



2 Fit 4 Growth Diagnostics started







SMES JOINED THE "PROJECT" PHASE,

investing a total of €1.7 million and with an estimated return on investment of €3 million

9 Fit 4 Innovation Projects started



CLUSTER CONNECTED CREATIVES

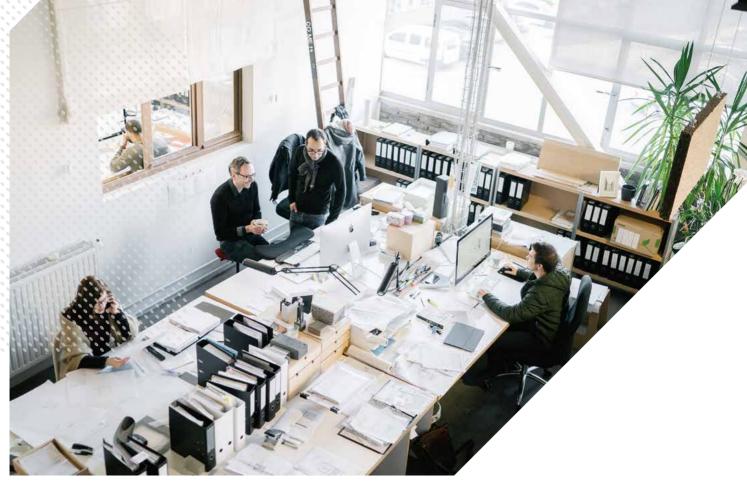
The latest member of the Cluster Initiative family was born in 2017 in order to strengthen the visibility and innovation capacity of Luxembourg's dynamic creative industries. The rapidly growing Creative Industries Cluster is currently focusing on two main priorities: launching an online platform that connects creatives and their clients, and supporting member companies with exporting their services beyond Luxembourg's borders.

Creative industries employ around 7,000 people in Luxembourg and include 12 subsectors: architecture (including engineering and town planning), crafts and manufacturing, visual arts, films and audiovisual production, design, fashion design, gaming, marketing and communication, literature, digital media and publishing, performing arts and music.

When Marc Lis joined Luxinnovation as the manager of the Creative Industries Cluster in May 2017, his first objective was to gain an in-depth knowledge of the sector. "I organised a high number of face-to-face meetings with companies to learn about their activity and projects and to understand their needs and expectations vis-avis the cluster," says Mr Lis. "I quickly saw that the most useful support we could provide was to facilitate contacts between members and help them develop their business."

A PLATFORM FOR CROSS-SECTOR SKILLS

Creative projects often require the involvement of people from several different disciplines. "The chances to win a project are higher if you can offer all the skills needed, which is a challenge for many creatives who work on their own. Having a good network and getting personal recommendations is extremely important," says Mr Lis, who saw that the various subsectors often have little contact with each other. During his first six months at Luxinnovation, he facilitated the establishment of 100 relationships between creative companies. While these individual introductions by a facilitator are very important, he realised that an online creative hub would reach much further.



That is when the idea to create a web-based platform, showcasing the skills, expertise and work of cluster members and making it easy for them to connect and collaborate, was born. "A main priority is also to boost members' business activity," says Mr Lis. "The website will be a unique entrance point to Luxembourg's creative industries where potential clients can find the professionals they are looking for and upload projects or calls for tenders." With a planned launch online in April 2018, the website will also offer information on funding opportunities, legal issues, events and so on. Alongside this virtual meeting place, the cluster is regularly organising networking events where its members can meet in a relaxed atmosphere.

CROSSING BORDERS

The interest in the Creative Industries Cluster is steadily increasing and the membership is growing. According to Mr Lis, some subsectors, including architecture, music, communication and marketing, audiovisual production and gaming, are particularly active: "These are expansive, well established fields where many are looking for new business opportunities. For more mature

companies, it is very interesting to target new markets abroad." To support them with this endeavour, the cluster aims to strengthen the links with the Greater Region and help them take advantage of Luxembourg's business promotion activities such as official economic missions to selected countries.

While Mr Lis can easily see 250-300 members of the cluster in a year or so, he thinks it is important to keep the figure on a level that still allows for personal relationships. "For me, the ideal long-term added value of the cluster would be to see the sector become more connected and have stronger cohesion. I would also like to see stronger links between the creative industries and other sectors in Luxembourg. When faced with a problem, creatives tend to search relentlessly for an unconventional solution and not give up until they find one. I think their potential to contribute to the development of any kind of activity is great."

INVESTING IN THE FUTURE

Sawmill Bois Brever is well aware that innovation is the number one key to long-term sustainability: the company recently made a massive investment in new machinery to supply its clients with locally produced highquality construction wood. Its **Administrative Director Corinne** Brever is a firm believer in the potential of Luxembourg's wood industry. Since 2017, she plays an active role in the Luxembourg Wood Cluster to defend the interests of the sector and boost its future development.

Until recently, Bois Brever focused on traditionally produced construction wood and saw the demand for its products decrease. "Builders and architects favour solid finger-jointed wood and laminated wood which they often buy in Germany and Austria," Ms Brever explains. "We were losing clients and realised that if we remained a traditional sawmill it would be difficult for us to survive."

LOCAL WOOD FOR LOCAL CLIENTS

With new equipment installed in 2017, Bois Brever can now produce the kind of CE certified construction wood that is requested on the market. Contrary to large mass-producing sawmills abroad, the company can also adapt lengths and dimensions to the exact needs of each customer, thereby reducing waste and the need to stock unused materials. "We are happy to see clients return, in particular those who want to work with a Luxembourg company and use locally sourced wood. We are off to a good start and believe that our business will expand even more in 2018," says Ms Brever.

Ensuring the future of the company is of prime importance to Ms Brever. Ten years ago, she decided to join the family business established in 1947 by her grandfather, which she now runs together with her father. In her opinion, long-term planning must go beyond the activities of her own company: "We face two important challenges for the future that we cannot solve on our own: access to raw material and qualified staff," she points out.

Bois Brever uses softwood, essentially spruce, and there are indications that the local plantation of softwood may be decreasing. "Currently we buy 25% of our wood in Luxembourg and 75% in the Belgian Ardennes. Wood is an ecological material that allows for the building of ecofriendly housing, for example, but if we have to buy it abroad and transport it over long distances before processing it the environmental advantage is lost." And just as in many other skilled crafts companies, Bois Brever also struggles to find well-trained employees with the necessary expertise, motivation and sense of responsibility to fit into the organisation.



ANNIAL BEDORT

LUXEMBOURG CLUSTER INITIATIVE

The Luxembourg Cluster Initiative includes seven clusters: AutoMobility, BioHealth, Creative Industries, EcoInnovation, ICT, Materials & Manufacturing and Wood. Their aim is to support members' R&D, innovation and business activities and to promote synergies and partnerships between members as well as with other relevant players. Two new clusters and a number of cross-sectoral flagship projects were set up in 2017.

304



2,000



143



COMPANIES

received individual and tailor-made support provided by the cluster managers

The clusters put a great deal of effort into flagship projects in 2017: the Digital Cross-Border Testbed supported by the AutoMobility Cluster, the Wiltz Circular Economy Hotspot that is assisted by the Ecolnnovation Cluster, as well as the National Composite Centre - Luxembourg where the Materials & Manufacturing Cluster plays an active role, to mention but a few examples. A number of events and workshops were organised, the largest being the Luxembourg Circular Economy Hotspot 2017 international conference that was arranged by the Ecolnnovation Cluster in collaboration with the Ministry of the Economy and the Ministry of Sustainable Development and Infrastructure on 20-22 June. The cluster managers contributed to a range of other major national events as well, such as ICT Spring (in May), the Cybersecurity Week (in October) and Sonic Visions (in November).

The creation of the Luxembourg Wood Cluster and the Luxembourg Creative Industries Cluster was very positively received by the companies concerned. After less than a year in operation, each cluster counted around 130 members at the end of 2017. Individual meetings and company visits, combined with dedicated workshops and excellent visibility in national media, allowed both clusters to gain a good reputation and credibility within their sectors.

Facilitating internal company innovation and collaboration between cluster members is a main priority. This requires, however, a personal relationship based on trust and confidentiality between members and the cluster management. The clusters have implemented several new methodologies on a trial basis during the year aiming to build and strengthen trust-based relationships with the Materials & Manufacturing Cluster as the forerunner.

PILOT PROJECTS WITH CROSS-SECTOR PROJECT MANAGEMENT IN PLACE:

- HPC Big Data Industry 4.0
- Plastics Loop Circular Economy
- Wiltz Circular Economy Hotspot
- National Composite
 Centre Luxembourd
- Digital Cross-Border Testbed
- Virtualisation of Research Development and Validation
- National Additive
 Manufacturing Centre



The efforts have already borne fruit in terms of new partnerships and projects. In addition, the transversal character of Luxinnovation's services allows the clusters to offer very comprehensive support, including specialist

advice on national and European funding and

support to innovative start-ups.

PLASTICS LOOP: ON BOOSTING RECYCLING, REUSE AND DESIGN

According to the Ellen McArthur Foundation, over 300 million tons of plastics are produced across the globe every year. Only a fraction of the production is recycled, while the rest is used as landfill, burnt or ends up polluting the Earth and its oceans. Via its Cluster Initiative, Luxinnovation plays a leading role in "Plastics Loop", a flagship project on improving plastics recycling, reuse and eco-conception that is well in line with the government's ambition to boost the circular economy in Luxembourg. "Plastics are a convenient material to use, but very difficult to dispose of in a sustainable way," says Charles-Albert Florentin, Manager of the Luxembourg Ecolnnovation Cluster. "The sorting and recycling process is very complex, and it is generally cheaper to produce new than to use recycled polymers." Finding better solutions for recycling is urgent, however. New EU directives aiming to increase recycling rates are putting pressure on producers. In addition, China, the world's leading importer and recycler of plastic waste, has recently banned all import of plastic garbage. "The raw materials used are not infinite either," Mr Florentin adds.

After initial discussions with a small number of firms, Luxinnovation invited all Luxembourg companies working with plastics to a workshop with the aim of better understanding the industry's needs for improving the plastics processing cycle and identifying possible synergies between different players. Ten companies joined the brainstorming on problems and possible solutions. "The inferior and inconsistent quality of recycled polymers and their relatively high cost are clearly a problem," says Anja Höthker, Project Manager - Flagship Projects at Luxinnovation. "There is a lack of communication between designers, producers and recyclers, and the recyclability and reusability aspects are often not taken into account in the design of plastic objects. Another issue is that





producers add various additives or combine different types of plastic materials for functional or aesthetic reasons. This alters the polymers considerably, and it can be very cost intensive – if not impossible – to recycle them."

TARGETING THE COMPLETE VALUE CHAIN

The workshop participants demonstrated a strong motivation to tackle these issues together and find efficient solutions. A first discussion on how the difficulties could be addressed yielded ideas that concerned the whole value chain, from raw materials, design, production, distribution and consumption to legislation. Individual meetings are now being held with relevant companies and a follow-up workshop, aimed at determining the first concrete steps, is under preparation. "We have also decided to conduct an in-depth study of the use and recycling of plastics in Luxembourg, as comprehensive statistics and other data are missing," Ms Höthker adds, pointing out that the project is also supported by the Luxembourg Institute of Science and Technology.

So far, the project has mainly targeted members of Luxembourg's Materials & Manufacturing and Ecolnnovation Clusters, but this scope might be widened. "Plastics are used by a variety of sectors that could be interested in the project," says Mr Florentin. "It could also be interesting to discuss innovative design ideas with the Creative Industries Cluster."

GREATER REGION COLLABORATION

Addressing the need for more efficient use of plastics is high on the agenda of the EU, and Luxinnovation is already looking into possible European partnerships. "The political willingness to reduce the amount of plastics used in Luxembourg is clearly there and the government supports the Plastics Loop project," Mr Florentin points out, "but as a small country we don't have the necessary volumes of plastic waste to launch a large-scale project. We are therefore talking to our partners in the Greater Region, in particular the clusters we are cooperating with in the EU project GREATER GREEN. A transregional project team is in the process of being set up, and we hope to be able to set an example at the European level."

LUXINNOVATION 2017

START-UP SUPPORT

Luxinnovation provides support to innovative start-ups throughout the whole process from the initial idea to the accelerated company. The focus in 2017 was on stimulating entrepreneurs to optimise their budding companies through personalised advice, tools and key contacts as well as via the exclusive acceleration programme Fit 4 Start.

Luxinnovation worked with a high number of start-ups, notably to help them improve their business ideas, business models and pitch decks. The organisation also helped them find suitable public funding instruments in line with their strategies by analysing their business plans, current financial situation and financial forecasts. An interesting support measure for high-growth companies in their acceleration phase, the Young Innovative Enterprise aid, was introduced under the law of 17 May 2017 relating to the promotion of research, development and innovation. Two companies applied successfully for this aid with support from Luxinnovation.

The methodology of the Fit 4 Start programme, which offers selected ICT start-ups 16 weeks of intensive coaching and €50,000 of preseed funding, was further refined in 2017 and now includes the Lean Start-up and the Agile methodologies. Support from Luxinnovation and the Ministry of the Economy also made it possible for two Luxembourg start-ups to spend several months at the Plug & Play Tech Center in Silicon Valley to benefit from an exceptionally dynamic entrepreneurial environment and access the US market.

Luxinnovation contributed to several high-profile national events, including Pitch Your Start-up (in May), Start-up Week (in November) and Mind & Market. The organisation also represented the Luxembourg start-up ecosystem at several European key events such as VivaTech in Paris (in May), Websummit in Lisbon (in November) and Slush in Helsinki (end of November/beginning of December).

REQUEST FOR SUPPORT AND INFORMATION FROM OVER

500



ENTREPRENEURS

ACTIVE SUPPORT PROVIDED TO

253



INNOVATORS AND VENTURES

65



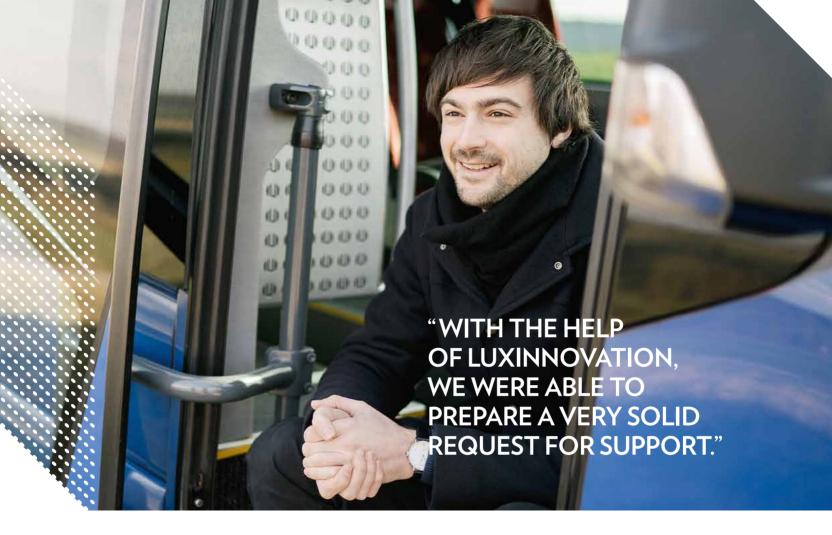
STRESS-FREE CROSSBORDER COMMUTING

Over 180,000 people cross the French, German and Belgian borders every day to go to work in Luxembourg and often spend too much time in traffic jams and motorway queues. Luxembourg start-up Kussbus has come up with a simple yet brilliant idea for making these journeys easier: a personalised door-to-door commuting service that transports people from home to work quickly and efficiently.

"The road infrastructure in Luxembourg is sufficient, but the current situation is that only 1.2 people on average are in each car and this is simply not sustainable," says Nicolas Back, Kussbus co-founder and COO. "We need to find ways of getting more people into each vehicle. Public transport helps of course, but it does not meet the needs of everyone." The Kussbus offer is somewhere between public and individual transportation and consists of 19-seat buses with timetables and itineraries fully adapted to the needs of the users. Clients can reserve their trip via a smartphone app indicating their home and work addresses. A unique algorithm defines pickup points that are suitable for several people and optimises the journeys. "Passengers don't have to walk more than 5 minutes from their homes to get to the bus, and they are dropped off in close vicinity to their workplace," Mr Back explains proudly. "Due to the journey calculations made by the algorithm, we are also able to avoid making extensive detours that would be annoying for the first passengers who get on the bus."

WEB-BASED ENTHUSIASM

Mr Back and his business partner, Jean-Luc Rippinger, came up with their idea after seeing a system of shared transportation for the employees in a German BMW factory. "Before investing a lot of money in developing the service, we wanted to find out whether there was a real interest on the market," he says. "In late 2016, we launched a promotion campaign on the internet. The response was overwhelming: in one month, 5,600 people registered their interest in our offer." The company also pitched its idea to Luxinnovation to get advice.



Armed with this clear proof of customer interest, Kussbus contacted potential investors and began exploring the possibilities of receiving financial support from the Ministry of the Economy. Luxinnovation stepped in again to help the company determine the most suitable aid measure and prepare an aid application. "The start-up support team reviewed our business plan and financial model in great depth and asked a lot of relevant questions," says Mr Back. "With the help of Luxinnovation, we were able to prepare a very solid request for 'Young Innovative Enterprise' support that was quickly processed and approved by the Ministry." Kussbus also raised funds from private investors.

After an intensive year of development, a successful test run of the Kussbus service was conducted in December 2017. Now the company is just waiting for the last formal transport authorisations from all countries concerned to launch its full-scale services. "Our business works if people are willing to change their travelling habits. This might take some time, but I'm sure

it will come," says Mr Back, who also thinks that some potential clients need to see the system running in order to trust that they will really arrive at work on time. For him, launching the commuting service is but a first step.

INTERNATIONAL AMBITIONS

"While there clearly is a peak in demand during work hours, we see a potential for offering additional services during day time. Some clients are interested in using our transportation to go to work meetings, and others have asked whether we can take children to music or sports lessons or provide transport for elderly people. This type of services could be developed on our platform at a second stage," says Mr Back, whose visions stretch well beyond Luxembourg and the Greater Region. "There are other European cities – for instance Basel, Geneva, Antwerp or Brussels – that have a similar situation to that of Luxembourg. Once our system is fully working here, we will look into an international expansion."

EUROPEAN FUNDING

Horizon 2020 is the European framework programme for research and innovation, offering funding for international collaborative research through highly competitive calls for proposals. As the National Contact Point for Horizon 2020. Luxinnovation offers personalised services to all interested Luxembourg stakeholders. In addition to supporting applicants to increase their chances of success, Luxinnovation contributed in 2017 to determining the topics that will be funded during the last three years of the programme. Luxinnovation's European funding team grew to six full-time experts in 2017, which made it possible to further improve the detailed coverage of all Horizon 2020 topics such as health, ICT, transport and energy. Potential applicants were invited to present their strategies and plans to the Luxinnovation expert in their field and could benefit from a screening of relevant calls, a validation of their choice of topic and, when needed, full support all the way to the proposal submission. Luxcor, the Brussels liaison office for Horizon 2020 managed by Luxinnovation, offered dedicated support upon request as well as inside information and helped both public and private stakeholders increase their presence and visibility in Brussels.

The number of funded projects in Luxembourg was lower than in 2016, which is in line with the global European trend as less Horizon 2020 projects were funded than in previous years. In participating in the various Horizon 2020 Programming Committees, Luxinnovation was part of developing and finalising the new work programmes for 2018-2020. To help applicants prepare for the future, several workshops and trainings were organised on Horizon 2020 in general as well as on specific topics such as ERC grants and Marie Sklodowska Curie Actions. Luxinnovation also provided tailor-made training for individual teams and institutes.

2017

51

NEW CONTRACTS SIGNED

for Horizon 2020 projects with Luxembourg participants

€ 16.64

MILLION

of Horizon 2020 funding obtained

LUXEMBOURG PARTICIPATION IN HORIZON 2020

Accumulated figures for 2014 - 2017

210

PROJECTS

involving Luxembourg participants

€ 71.73

MILLION

of Horizon 2020 funding obtained

A SMART ROBOT FOR INNOVATIVE THERAPIES

The social QTrobot of Luxembourg start-up LuxAI brings new hope to autistic children and their families. It has proven to be an excellent tool for teaching these children social interaction and improving their communication skills. To ensure that the robot fulfils all necessary privacy and security requirements, LuxAI has joined a European R&D project funded by Horizon 2020 and benefited from Luxinnovation support to optimise its participation.

"If you invest in early-age education and training of autistic children and do it intensively enough, you can improve their lives enormously. The problem is that at the moment, there is a dramatic lack of educators and adequate therapies to provide this vital support," says LuxAl CEO Pouyan Ziafati. "We believe that our QTrobot can contribute to turning this situation around."

DISRUPTING HEALTHCARE

Dr Ziafati came up with the idea of QTrobot when looking for a way to commercialise the technology he had developed as a PhD student working on the programming of smart and intelligent robots at the University of Luxembourg. "Social robotics is a new area that I think has the potential to disrupt the healthcare and educational market," he says. The humanoid QTrobot teaches facial expressions and emotions as well as body language to autistic children. Dr Ziafati points out that the messages sent out

by the robot are simplified compared to human beings and can more easily be understood and repeated as many times as necessary. "Extensive research led by Dr Andreia Costa at the University of Luxembourg shows that when the training is given by QTrobot instead of a person, the children are more engaged and show less stress and disruptive behaviour."

While autism is the main field of application, LuxAI also works with other areas such as care for the elderly. "Currently, only a handful of social robots exist in the world," says Dr Ziafati. "Our aim is to democratise their use and make it possible to use them anywhere – by teachers and specialised therapists in the classroom and even at home. Our technology makes it possible for anyone to adapt the robot to their training and therapy needs without having any specific IT knowledge."

A EUROPEAN PARTNERSHIP FOR STAYING ON TOP

QTrobot is already being used in therapy centres in France and Luxembourg. As it is equipped with cameras and microphones, it is imperative for LuxAI to be able to guarantee the privacy and security of collected data. To address this issue, the company turned to Horizon 2020, the EU's framework programme for research and innovation. "Horizon 2020 offers great support for our research activities as well as excellent opportunities to network with top European companies and research institutes in order to stay on top in a range of different fields," says Dr Ziafati. "Through the SecureIoT project, we are part of a network of 14 partners that aim to conduct research and develop predictive security for Internet of Things platforms and networks of smart objects. Our QTrobot will be securely integrated into the ambient assisted



MARKETING AND COMMUNICATION

Marketing and communication is central to Luxinnovation's efforts to promote innovation at the national level and profile Luxembourg as an attractive business location for international companies and investors. A new corporate identity that reflects Luxinnovation's new missions related to international promotion was developed and implemented in 2017. The organisation also developed a whole range of new communication collateral.

The new corporate identity was used publicly for the first time on 2 May, when Francine Closener, Secretary of State for the Economy, presented Luxinnovation's annual report 2016 and unveiled the organisation's new website. The promotional video "Luxinnovation - Trusted Partner for Business", which promotes Luxembourg as an innovative hotspot, was also launched on this occasion.

To further promote Luxembourg as an attractive business destination, Luxinnovation developed a new Trade & Invest website with two main sections: Invest in Luxembourg and Export from Luxembourg. New websites for the Luxembourg Trade & Investment Offices (LTIO) were also developed in close collaboration with the Ministry of the Economy and the LTIOs themselves. In order to regularly update international players on interesting business developments in Luxembourg, Luxinnovation launched the *Crossroads* newsletter that features original articles written by the organisation's staff.

The first edition of *Happen*, Luxinnovation's brand new annual business magazine, was published in November 2017. The magazine unveils the technological excellence and innovative spirit of Luxembourg and promotes its companies to an international audience. A new series of sector brochures was edited to highlight the advantages of Luxembourg as a business location: a general brochure highlighting ten good reasons to choose Luxembourg and three sectoral ones focusing on digital business, the automotive sector and logistics. Luxinnovation also conducted extensive promotional activities via social media.

11



NEW WEBSITES PUBLISHED:

Luxinnovation, Luxembourg Trade & Invest and websites for 9 Luxembourg Trade & Investment Offices

13



In order to increase the visibility of Luxinnovation's services to national clients, a new electronic newsletter called *Insights* - Connecting Innovation and Business was developed. Luxinnovation also organised a high number of events in 2017, including, for instance, conferences and workshops related to key topics for cluster members, information days on the Horizon 2020 programme and events dedicated to innovation for SMEs.

26



EVENTS ORGANISED

20,000



COPIES OF HAPPEN MAGAZINE disseminated in 145 countries



NEWSLETTERS PUBLISHED:

4 editions of Crossroads and 2 editions of Insights **FOLLOWERS SUR** MÉDIAS SOCIAUX EN 2017:

Luxembourg Trade & Invest accounts*



f 2,406 **+10%**



3,102 +17%

Luxinnovation corporate accounts



1,632 **+41%**



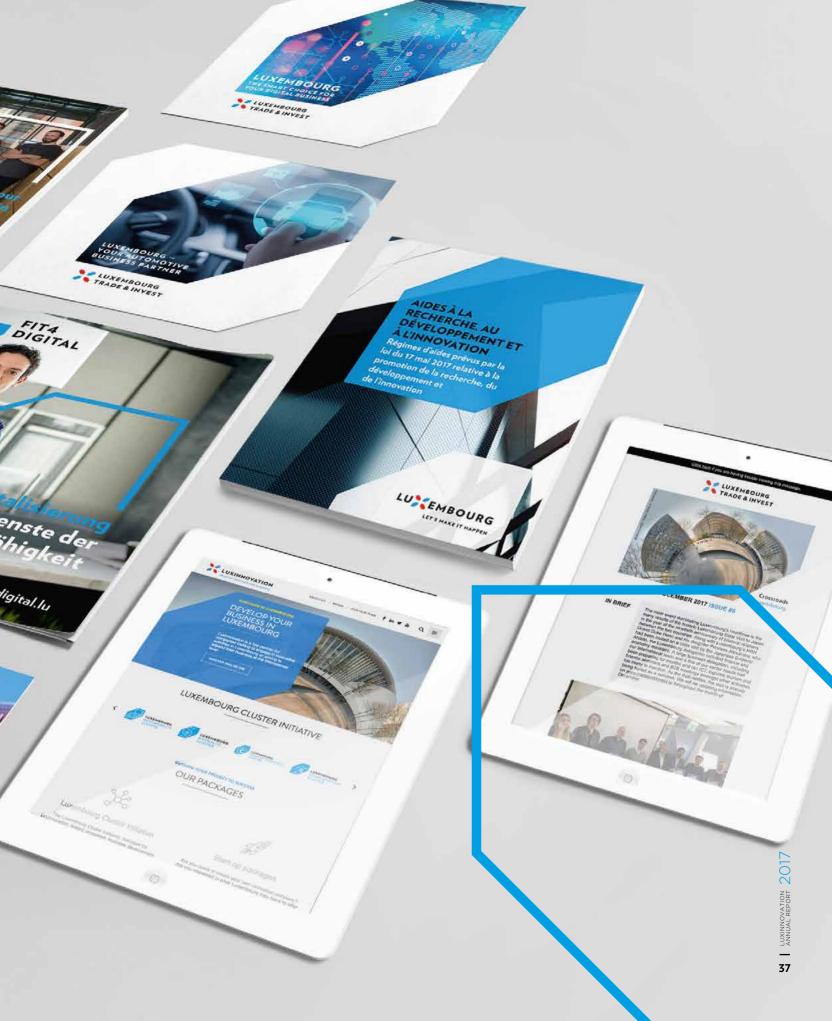
in 3,130 **+43%**



4,644 **+36%**

^{*}Limited increase of followers due to account name changes





ANNUAL ACCOUNTS

BALANCE SHEET 31 December 2017 (EUR)

ASSETS	2017	2016
FIXED ASSETS	704,371.43	682,457.89
Intangible assets	301,653.59	341,138.73
Tangible assets	402,717.84	341,319.16
CURRENT ASSETS	2,787,712.00	2,087,869.90
Debtors	2,373,478.71	1,507,082.41
Cash at bank and in hand	414,233.29	580,787.49
PREPAYMENTS	63,941.01	60,770.61
TOTAL	3,556,024.44	2,831,098.40

CAPITAL, RESERVES AND LIABILITIES	2017	2016
CAPITAL AND RESERVES	2,614,631.68	1,955,259.83
Subscribed capital	541,739.24	541,739.24
Reserves	1,999,068.64	1,323,803.74
Profit or loss for the financial year	0.00	0.00
Capital investment subsidies	73,823.80	89,716.85
PROVISIONS	215,024.00	187,046.00
CREDITORS	568,179.59	574,637.08
Amounts owed to credit institutions	2,613.33	1,282.60
Trade creditors	318,971.75	313,512.65
Other creditors	246,594.51	259,841.83
DEFERRED INCOME	158,189.17	114,155.49
TOTAL	3,556,024.44	2,831,098.40

PROFIT AND LOSS ACCOUNT 31 December 2017 (EUR)

	2017	2016
Other operating income	9,157,388.71	7,065,868.11
Raw materials and consumables and other external expenses	-2,331,230.62	-1,566,101.23
Staff costs	-6,320,255.51	-5,061,778.91
Value adjustments	-200,072.47	-205,245.01
Other operating expenses	-306,239.63	-232,530.39
Other interest receivable and similar income	428.97	33.58
Interest payable and similar expenses	-19.45	-246.15
Profit or loss after taxation	0.00	0.00
PROFIT OR LOSS FOR THE FINANCIAL YEAR	0.00	0.00



MANAGEMENT BOARD

Until 27 March 2018

BOARD MEMBERS

Raymond SCHADECK

Board Chair

Independent director

Marco WALENTINY

Vice Chair

Conseiller de direction 1ère classe Ministry of the Economy

Gaston SCHMIT

Vice Chair

Premier conseiller du Gouvernement Ministry for Higher Education and Research

Gilles SCHOLTUS

Conseiller de gouvernement 1^{ère} classe Ministry of the Economy

SUBSTITUTE BOARD MEMBERS

Mario GROTZ

Premier conseiller de gouvernement

Ministry of the Economy

Daniel DA CRUZ

Conseiller de légation Ministry of the Economy

Lynn WENANDY

Chargée de mission

Ministry for Higher Education and Research

Luc HENZIG

Vice Chair

Member of the Board of Directors Luxembourg Chamber of Commerce

Jeannette MULLER

Vice Chair

Conseillère technique et économique Luxembourg Chambre des Métiers

Georges SANTER

Advisor

FEDIL - The Voice of Luxembourg's industry

Christel CHATELAIN

Conseillère économique

Luxembourg Chamber of Commerce

Charles BASSING

Conseiller de Direction

Luxembourg Chambre des Métiers

Henri WAGENER

Advisor

FEDIL - The Voice of Luxembourg's industry

SECRETARIAT GENERAL

Jean-Paul SCHULER

CEO

Luxinnovation

MANAGEMENT BOARD

As of 24 April 2018

BOARD MEMBERS

Mario GROTZ

Board Chair

Premier conseiller de gouvernement

Ministry of the Economy

Marco WALENTINY

Vice Chair

Conseiller de direction 1ère classe

Ministry of the Economy

Luc HENZIG

Vice Chair

Member of the Board of Directors

Luxembourg Chamber of Commerce

Gilles REDING

Vice Chair

Directeur Affaires environnementales,

techniques et innovation

Luxembourg Chambre des Métiers

Gaston SCHMIT

Vice Chair

Premier conseiller du Gouvernement

Ministry for Higher Education and Research

Georges SANTER

Member

Advisor

FEDIL - The Voice of Luxembourg's industry

Philippe OSCH

Member

CTO

HITEC Luxembourg

Sasha BAILLIE

CEO

1^{er} conseiller de gouvernement

Ministry of the Economy

SUBSTITUTE BOARD MEMBERS

Daniel DA CRUZ

Conseiller de légation

Ministry of the Economy

Christel CHATELAIN

Conseillère économique

Luxembourg Chamber of Commerce

Anne MAJERUS

Conseillère Technique et Économique

Luxembourg Chambre des Métiers

Jean-Marc ZAHLEN

Chargé de Projets

FEDIL - The Voice of Luxembourg's industry

Vera SOARES

Chargée de mission

Ministry for Higher Education and Research

Gilles SCHOLTUS

Conseiller de gouvernement 1ère classe

Ministry of the Economy

Carole WAMMER

Rédacteur

Ministry of the Economy

OUR TEAM As of 28 March 2018

Sanna	ALARANTA
Jean-Philippe _	ARIE
Anthony	AUERT
Jean-Claude	BACKENDORF
Stefan	BEREND
Charles	BETZ
Sara	BOUCHON
Johnny	BREBELS
Lionel	CAMMARATA
Mary	CAREY
lan	CRESSWELL
Brigitte	DE HAECK
Maxime	DELAHAUT
Marie-Hélène _	DOURET
Arnaud	DUBAN
Pascal	FABING
Laurent	FEDERSPIEL
Marc	FERRING
Laura	FICHTNER
Janine	FLECK
Charles Albert	FLORENTIN
David	FOY
Jean-Michel	GAUDRON
Philippe	GENOT
Virginie	GODAR
Barbara	GRAU
Rémi	GRIZARD
Géraud	GUILLOUD
Jannik	HAGEN
Nadège	HEGUE
Jean-Paul	HENGEN

HENNEQUIN

HERMES

Isabelle ___ Tom _____

1001113	1113/121
Anja	HÖTHKER
Laurence	HULIN
Muriel	KONDRATUK
Alexander	LINK
Marc	LIS
Jean-Michel	LUDWIG
Myriam	MAURICE
Frédéric	MELCHIOR
Marine	MOMBELLI
Sandra	MONTEVERDI
Caroline	MULLER
Lena	MÅRTENSSON
Eve	O'CALLAGHAN
Joost	ORTJENS
Mireille	PELLIN
Andreia	PIRES
Stefano	POZZI MUCELLI
Benjamin	QUESTIER
Valentin	RONGONI
Georges	SCHAAF
Martine	SCHEUREN
Jean-Paul	SCHULER
Noémie	SCHULER
Stéphanie	SILVESTRI
Luciana	SPANNAGEL
Solen	STORELLI
Jérôme	TIBESAR
Gaston	TRAUFFLER
Laurence	VAN LOOY
Etienne	VARIOT

Kathrin ____

___ WATTELLIER

HIJAZI

Younis ___



5, avenue des Hauts Fourneaux L-4362 Esch-sur-Alzette Luxembourg

> +352 43 62 63-1 info@luxinnovation.lu

> > luxinnovation.lu