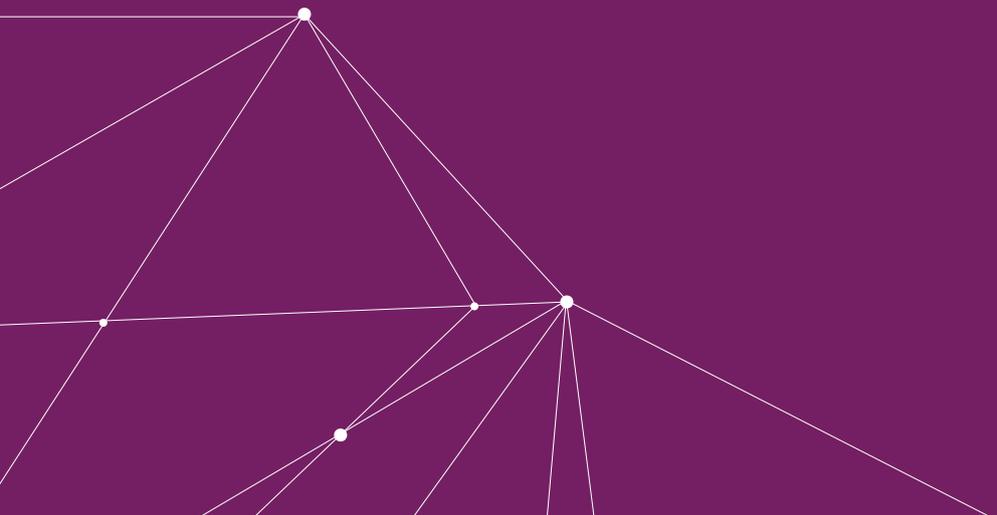




Transition(s).
Transition

[Chapter 2]

March 2021



OUR FOUNDING INSTITUTIONS



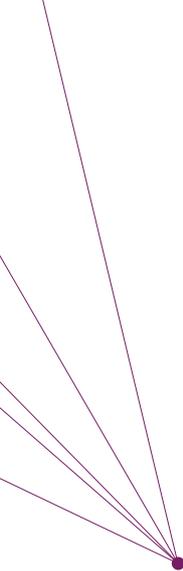
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THE UNIVERSITY OF LILLE 2022: looking ahead toward the transition



Gilberte Chambaud,
President
of I-SITE ULNE

“Every decision has been made in concert with the legal representatives of the institutions, taking care to achieve a broad consensus and ensure the greatest possible transparency at every turn.”

Taking an active role in the deep structural transformations in Higher Education Institutions (HEIs) called for by the French government, the HEIs of Greater Lille formed the I-SITE ULNE initiative, which officially received the I-SITE label in February 2017 for a period of four years. This Initiative of Excellence (IDEX) project showcases every aspect of the national I-SITE label - Science, Innovation, Territory, and Economy - with a focus on the transitions needed to respond to the sweeping changes taking place in society.

The result was a vibrant group composed of the University of Lille, Greater Lille's Grandes Ecoles, Lille University Hospital, and several Public Scientific and Technical Research Establishments (EPSTs), with an annual budget allocation totalling €15m. In January 2018, the Foundation and its governance were created to manage the project.

This initial period was rich in exchanges between communities with different cultures who, although they already knew and had been in contact with one another, were now given the opportunity to work side by side in the service of a shared project. The Foundation was faced with

a number of challenges, including having to adapt to a change in its managing director in the spring of 2018, a shift in the institutional makeup of the project required by the ANR in the fall of 2018, and, more recently, the consequences of the pandemic.

Each of these hurdles was overcome through widespread participation from everyone involved - not just from operational staff, but also from the Foundation's Board of Directors. Every decision has been made in concert with the legal representatives of the institutions, taking care to achieve a broad consensus and ensure the greatest possible transparency at every turn.

To achieve our aim of furthering environmental, economic, and societal changes, four initiatives combining research, training, and international social and economic partnerships - our “hubs of excellence” - were created to structure our priority areas of activity: “precision health”, “science for a changing planet”, “the human-friendly digital world”, and “changing culture, societies and practices”. These initiatives stand out through their forward-thinking approach and their commitment to applying interdisciplinary solutions by combining the diverse areas of expertise possessed by the site's research units.

This commitment was put to the test with the arrival of the COVID-19 pandemic in March 2020, as the site collectively set out to find the solutions required, mobilising a €2m budget to fund 21 research projects that were selected and financed in under two months.

The strategic location of the Hauts-de-France region has enabled I-SITE ULNE to take advantage of its strong ties with foreign universities, driven by a cross-border network with KU Leuven and Ghent University in Belgium and the University of Kent in the United Kingdom.

Together, they have jointly conducted research projects within the context of numerous student and researcher exchanges and joint PhD programmes. Because one important aspect of the I-SITE's activities is training and education, over ten large-scale projects in the area of educational innovation have received support, including the creation of the Lille Learning Lab in collaboration with our partners at KU Leuven and UC Louvain. This focus on education has also taken the form of equipping campuses to enable hybrid learning - which, for obvious reasons, became a priority during the current pandemic.

The transformation of the graduate level of studies through interdisciplinary and international programmes was recently approved within the context of the SFRI call for proposals, reserved solely for member sites of the IDEX.

Lastly, as one of the key aims of universities is to foster innovation and serve as a bridge to pass on this innovation to the industrial and economic world, I-SITE ULNE, with the unwavering support of the Hauts-de-France Region, was able to implement apprenticeship programmes and create industrial university chairs in collaboration with partner firms.

Numerous steps have already been taken to enable the upcoming creation of the University of Lille 2022 in just a few short months, even if several crucial institutional milestones remain. Involvement has come from every side, particularly thanks to the numerous inter-institutional programmes that have, with the support of the Foundation, enabled partners to come together in the service of a shared vision. Obstacles have been shattered, new ways of working together have become the norm, and a strong local dynamic has taken shape to prepare, in ideal conditions, the advent of an entirely new university in Lille.

3 questions with

Régis Bordet
Managing Director
of I-SITE ULNE



I-SITE ULNE's trial period is scheduled to end in March. Has a timeline for future milestones been established? Yes, the SGPI and the ANR have announced that in the third week of January 2022, a committee will organise an assessment to determine whether final approval will be granted. An on-site visit by part of the committee will take place in late November 2021. In the meantime, the end of the trial period is slated for 24 March 2021, and on 30 July 2021, we will submit an assessment and planning report to the committee for evaluation. In April 2021, the articles of association of the future Experimental Public Institution (EPI) will need to be approved by the boards of directors of the University of Lille and the other member institutions, to be published by the ministry in the months thereafter, with the creation officially set for 1 January 2022. Elections held in mid November 2021 will select the team who will take over the EPI and argue before the committee that we should be allowed to keep our label.

What will the I-SITE's leadership do during this time?

First and foremost, they will need to establish a comprehensive survey of all the activities made possible and supported, so that this can be expressed in memorable terms, from research to

training, international visibility, and ties with society and the business world. We have been working on this survey since the start of the academic year. It will provide suggestions for new large-scale projects that will serve as a trajectory of sorts for the decade to come. I-SITE ULNE's leaders will also participate in further structuring the organisational model of the future EPI at a crucial moment for the site's future.

Can you describe roughly what the initial trajectory for these projects will be?

The risk with an EPI as big as the one in Lille is that each department and institution can continue working on its own, independently, without a project to bring them all together.

It will be I-SITE ULNE's role to spark large-scale initiatives bringing together different faculties and institutes, institutions, and research units in a comprehensive interdisciplinary approach to issues related to transitions.

A few examples come to mind: sustainable public policies in the service of transition, innovative engineering for tailor-made healthcare, etc. It is by promoting a culture of ambitious initiatives that ULNE will be able to take its place on the national and international stage and train its students for careers that will enable them to face - and change - a complex world!

EDUCATIONAL INNOVATION

A central focus area for I-SITE ULNE



Coordinated and funded by I-SITE ULNE, the Lille Learning Lab (LLL) is part of the overall strategy for educational transformation within the University.

Operated in conjunction with various partners from the world of research and higher education (including KU Leuven, UC Louvain, the TELS* chair, and the LearningLab network), the Lille Learning Lab project offers a network of training and work spaces in Lille entirely devoted to testing and disseminating innovative teaching practices.

In addition to existing spaces such as the one at the Cité Scientifique campus, the LLL will eventually feature locations on three campuses, with a strong focus on interdisciplinarity and coherency:

- the Villeneuve d'Ascq Pont-de-Bois campus (central location of the project);
- the Faculty of Law and Political Science (FSJPS) in the Moulins district of Lille;
- the Lille University Hospital and Medical School's "Campus Santé".

Encouraging pedagogical thinking

These labs integrate technologies in a creative way to foster innovation and encourage pedagogical thinking, with the aim being to:

- Offer a network of innovative training and work spaces;
- Create a favourable environment for training and assisting research faculty;
- Enable exchanges of best practices within the community to allow a shared culture to emerge;
- Offer tools that simplify learning analytics research in order to improve practices and spark questioning.

This project will also repurpose existing spaces to suit evolving needs and teaching and learning methods.

For instance, a traditional auditorium at the faculty of pharmacology will be transformed into a hybrid collaborative learning space.

This will enable both traditional transmissive modes of teaching and the quick reorganisation of the room to allow students to be broken down into groups.



"The aim of educational innovation is to foster student success by offering the right learning paths for each type of student, whether in traditional or in remedial education programmes, as well as to help teaching staff learn to adapt their teaching methods."

Christophe Mondou,
Vice-President of Academic Programmes at the University of Lille

*Technology Enhanced Learning Spaces

A TELS chair on connected learning spaces coordinated by an expert from KU Leuven

Since the start of November 2020, I-SITE ULNE has been home to Annalies Raes, researcher in Education and Educational Technology at KU Leuven.

At the head of the TELS chair, she will be tasked with coordinating research from HEIs in Lille on the themes of innovative digital learning spaces and learning analytics.

She will also bring her expertise and experience to assist with the creation of the Lille Learning Lab.



“The research will be rooted in a design-based research methodology. This methodology has been proven to contribute both to enhancing scientific knowledge and to improving educational programmes and learning.”

Annelies Raes,
iTEC research laboratory (KU Leuven)

Equipping classrooms with cameras

To encourage hybrid classrooms in the wake of the COVID-19 epidemic, I-SITE ULNE's Board of Directors decided to grant €710,000 in funding to install video cameras in many of the classrooms of Greater Lille's higher education institutions.

Moodle for schools

In a context in which digital life and the use of digital technology in education have become ever more institutionalised within schools and HEIs, the “Moodle for schools” project aims to use the Moodle platform to promote, support, and sustain the systematic use of technologies that allow teaching content and learning activities to be digitalised.

Overseen by the digital and educational assistance department of Centrale Lille, this project brings together teams of professors from the National School of Chemistry of Lille (ENSCL), the National School of Textile Arts and Industries (ENSAIT), and the National School of Architecture and Landscape of Lille (ENSAPL). This programme, in place since January 2020 at the ENSCL and ENSAIT and since the start of the 2020-2021 academic year at the ENSAPL, features two components:

- regular “proactive” support sessions to allow users to discover, begin using, and master advanced features of Moodle.
- personalised or individualised “reactive” support on the ways the platform's features can be used in a classroom setting.

PROFFiteROLE: the icing on the cake

With financial support from I-SITE ULNE's Educational Innovation Fund, PROFFiteROLE** is a platform capable of automatically generating a variety of different teaching materials (flash cards, quizzes, serious game components, competitive tools based on more traditional linear media, etc.) from a single document. This saves significant amounts of time at no extra cost. The system allows modifications and updates to the original document to be automatically applied to the various teaching materials derived from it, rendering it possible to easily keep them all up to date. PROFFiteROLE also enables teachers to automatically insert “sensors” to engage in learning analytics in a way far superior to what is possible with platforms such as Moodle. While it is currently used to train pharmacists, the method used can be deployed in other fields.



✓ The Lille Learning Lab provides a network of training and work spaces in Lille.

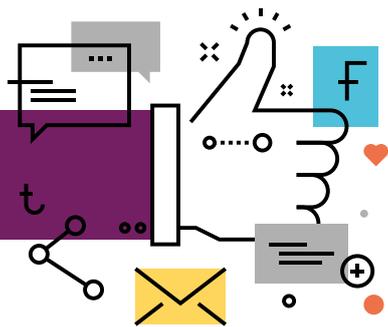


2 million euros invested in a Learning Lab

14 An educational innovation fund has enabled 14 projects to receive nearly 3 million euros in funding

*Technology-Enhanced Learning Spaces & learning analytics
**Acronym for “Pratiques OFFicinales et jeux de ROLE”

STRENGTHENING partnerships with I-SITE ULNE's international partners



From providing funding for international academic chairs to strengthening cross-border initiatives and bringing in international talent, I-SITE ULNE is consolidating its international presence.

The humanities and social sciences go international!

To enable greater international visibility for research in the humanities and social sciences, I-SITE ULNE offers support to further the development of international networks for research projects falling within the scope of its “Changing cultures, societies and practices” hub.

It also funds exceptional international academic chairs, offering Lille's scientific community the opportunity to develop privileged relationships with internationally renowned researchers brought to Lille for projects jointly put into place with their host laboratories. In addition, the InklusU consortium, created in response to the “European Universities” call for proposals, has enabled the University of Lille to join forces with six other academic partners* in Europe to research issues related to inclusion and vulnerability. Funding from the French and German governments will enable the teams to move forward with this project in perfect harmony with I-SITE ULNE's “Vulnerability and inclusion” cluster.

Increased cross-border cooperation on joint research projects

I-SITE ULNE funds a number of initiatives from the 3i network (the Interregional Internationalisation Initiative) between the University of Lille, Ghent University, the University of Kent, and KU Leuven.

In particular, it encourages networking between faculty and researchers through its short cross-border exchange programme. For instance, this funding gave Gilles Maury, professor at the National School of Architecture and Landscape of Lille (ENSAPL), the opportunity to work with a network of faculty members from three European schools of architecture. The aim was to encourage students to focus on how religious architecture can be repurposed in France by assessing how architects have gone about doing so in Belgium and the UK.

Nearly twenty Master's students were given the opportunity to visit the University of Kent's School of Architecture and take part in an event with the architect Terry Farrell in which

Studying how the young people of Europe move

Winner of the European and International Studies CEI, the HYPEM** project, coordinated by François Potdevin of the URePSSS*** research laboratory, aims to identify the physical and athletic activities in which young adults in Europe prefer to engage in different countries. Understanding this phenomenon can help reveal the individual and cultural reasons young people take part in physical activity, at a time when many stop exercising at the start of their university studies. Adapted to the context of the COVID-19 pandemic, this study will survey a sample of first-year students at fourteen European partner universities via a multilingual website. Interviews will also be conducted remotely on typical profiles. Quantitative and qualitative analysis should then render it possible to measure the effect of living in different European regions on the way people engage in athletic activity.



✓ Workshops featuring students from three different European architecture schools.

the students were able to examine the broader context of the transformation of architectural heritage in the United Kingdom.

Bringing talented researchers to Lille

The Catalysis and Solid-State Chemistry Research Unit (UCCS - UMR 8181), has hosted two Brazilian researchers for several months, Fabio Bellot Noronha (expert in heterogeneous catalysis and biosourced hydrogen production), and Ivaldo Itabaiana (expert in biocatalysis and medical bionanotechnology), for the CatBioInnov project funded by the Lille European Metropolis (MEL), I-SITE ULNE, and the Hauts-de-France Region. The project is based on the concept of a "zero-waste" biorefinery, and aims to develop flexible and modular processes to use every component of a given biomass. Within the scope of this same project, the Laboratory of Electrical Engineering and Power Electronics (L2EP) has hosted the American researcher

Eric Hittinger. An expert in public policy and economics in the area of electricity and technology, Hittinger's work aims to better grasp the benefits and limitations of emerging technologies, and particularly energy storage, electric vehicles, and renewable energy sources.

*Malmö University (Sweden), the University of Minho (Portugal), the European University Viadrina (Germany), Babeş-Bolyai University (Romania), the University of Wrocław (Poland), and Mykolas Romeris University (Lithuania).
 **How do the Young People of Europe Move?
 ***Sport, Health, and Society Pluridisciplinary Research Unit



54
 joint PhD candidates from the 3i cross-border network

400
 exchange grants funded



"I-SITE ULNE's support offers the experts from its member institutions the opportunity to structure and consolidate their networks of European and international partners. A large-scale international research project can't be built in a single day. These 'jump-start' funding instruments are crucial to learning to forge stronger ties, identify points of complementarity and connections between partner groups, and foster the emergence of ambitious projects."

Pauline Ravinet,
 Vice President for European Affairs, University of Lille

A joint PhD project with KU Leuven The Internet of Things as an enabler of a circular economy: Is the current liability regime fit for purpose?

A PhD student in a joint PhD programme, Elias Van Gool's thesis work is supervised by Denis Voinot of the University of Lille and Evelyn Terrin of KU Leuven. The topic of his thesis is the adaptation of the legal system to allow the Internet of Things to contribute to a more sustainable economy - and, more specifically, a circular economy. The complexity of the system and the diverse nature of those involved in it complicates the division of liability among them. The aim of this study is to reveal whether the current European Union product liability system allows the Internet of Things to fully play its part as a catalyst for the circular economy.

A PROJECT IN SYNC

with the social and economic challenges of the region

I-SITE ULNE conducts activities in collaboration with the Hauts-de-France Region, the Lille European Metropolis (MEL), and SATT Nord. The aim: increase the number and scope of innovative projects related to society and the economy at large.



✓ The Hackatech 2020 event held at Lille's Chamber of Commerce in March 2020.



Twenty-nine innovative companies were created in 2019 in association with I-SITE ULNE's member institutions and the Euratechnologies, Eurasanté, Blanchemaille, Euralimentaire, Plaine Images, Cré'innov, and APUI business incubators. Ten are the fruit of or are related to ULNE research, two of which have a licence with SATT Nord. An example: Zymoptiq, a biotechnology firm co-founded by Alexis Vlandas of the University of Lille's IEMN research laboratory, offers world-class enzymatic testing solutions. Zymoptiq was a recipient of a Start-up Force Award from I-SITE ULNE.



Fostering entrepreneurial culture Inria - Hackatech 2020

To encourage the creation of new startups in the area of digital technology, I-SITE ULNE supported the Hackatech event, which was organised and overseen by researchers from the Inria and the University of Lille. It was broken down into four phases: conceptualisation, project launch, a 54-hour sprint, and support for projects over six months. Hackatech brought together fourteen teams and 117 participants (corporate employees, students, PhD students, entrepreneurs, and researchers).

Let's grow deeptech

By partnering with the regional project selected for the Bpifrance "SATT integration, incubators, and accelerators" call for proposals coordinated by Eurasanté, I-SITE ULNE is supporting two key aims:

- Attracting students to entrepreneurship and deeptech (technological breakthrough innovation): 48-hour creativity sessions (bootcamps) held

by Eurasanté (twelve interdisciplinary corporate projects and involvement from 150 students) and support for eight winning projects over five months.

- Helping PhD students discover the world of entrepreneurship:
 - A two-day event organised by the Doctoral College for 600 first-year PhD students and their thesis supervisors featuring conferences, first-hand accounts, and workshops.
 - The launch of a "Start Your PhD" contest by SATT Nord for 2nd- and 3rd-year PhD students, followed by support for selected projects.



“Chicory, a plant that is emblematic of the North of France, has brought together passionate individuals from both the private sector and academia to work on shared health- and nutrition-related projects. This rich, people-centric venture has today resulted in the creation of a joint research team. There is no doubt that this new team, organised flexibly to leave ample room for creativity, is just one of many phases in what will become a long-term partnership.”

Bruno Desprez,
CEO of Florimond Desprez

the programme and received their diplomas on 28 September 2020. A new session, offered remotely, began on 6 November, which also offers an E-health curriculum.

Lille Innovation & Business Academy: “Sharing excellence through the circular economy”

The goal of this training programme, created especially for professionals, is to offer sustainable solutions to the issue of the qualifications and skills required by the arrival of the circular bioeconomy. A research-backed interdisciplinary educational offering, the programme is centred around three pilot modules: “reinventing my business by thinking of life cycles”, “managing change in a circular economy”, and “Industry 4.0: New manufacturing tools for the chemicals of the future”.

Université de l’alternance (“Dual education project”)

A project that aims to truly transform and expand the offering in terms of university apprenticeships and the services proposed to apprentices, faculty, and businesses, the programme helps fund innovative initiatives created by member institutions through a dedicated €500,000 fund allocated by I-SITE ULNE. By making innovation a focal point of its research and experiments, I-SITE ULNE aims to render its educational programmes more attractive, showcase its areas of expertise, and respond to the challenges of the new regulatory environment for 2022.



Encouraging partnerships between the private sector and academia

The RECONVERT industrial chair

Coordinated by Arnaud Doniec and Emmanuel Lemelin of IMT Lille-Douai, this chair offers an approach that better enables the selective deconstruction of buildings by organising the flow of products and materials created through the process to allow them to be better reused and recycled locally. Master’s students, corporate executives, and researchers came together in a collaborative approach to innovation that took the form of “creative labs”. Cofunded by the Lille European Metropolis and I-SITE ULNE, the RECONVERT project brings together an exhaustive value chain through its partners: three research laboratories from the University of Lille (CRISTAL, TVES, CLERSE), two research centres from IMT Lille-Douai (Materials and Processes and Digital Systems), five companies (Rabot Dutilleul Construction, Nacarat, Suez, BatiRIM, Neo Eco), the Hauts-de-France Public Land-Management Corporation, and the Team2 competitiveness hub.

The Chicory for One Health Joint Research Team

Coordinated by Caroline Rambaud from the University of Lille, the Chicory for One Health Joint Research Team (CHIC41H) brings together the genetic and plant-selection expertise of the company Florimond Desprez,

headquartered in Cappelle-en-Pévèle, and the expertise in plant biotechnology and functional genomics of the Charles Viollette Institute.

The objective: to create new varieties of chicory and develop new ingredients. The underlying aim is to improve the plant’s qualities in terms of nutrition (health benefits), taste (bitterness), and physiology (the plant’s natural defence mechanisms).

This research laboratory is jointly funded by the ERDF and I-SITE ULNE.

Offering educational programmes that account for the needs of businesses

University Certification (DU) in Health Entrepreneurship (University of Lille in collaboration with Eurasanté)

To foster the creation of healthcare-industry startups, I-SITE ULNE has offered its support for the creation of this innovative interdisciplinary programme that combines theory and practice. It includes a period of immersion within the companies themselves. It transmits a culture of entrepreneurship to students in professionally oriented periods of their studies (completing PhDs or in their final year of Master’s studies), researchers, healthcare professionals, and business executives, by offering a programme that showcases the value of research through an innovative educational experience. An initial class of seven students have successfully completed

25

PhD theses co-funded with companies and ERDF/Regional funds

39

incubated projects to be transferred to the private sector, co-funded by the Hauts-de-France Region and SATT Nord, including 10 in the humanities and social sciences



PROMOTING research and disseminating knowledge in the outside world



"It is particularly beneficial for our institution to be able to rely on strong and recognised local expertise to build collaborative projects and showcase the skills of our students."

Pierre Savary,
Director of ESJ Lille

is no doubt that this event has enabled the start of numerous exchanges between research laboratories that might ultimately lead to new collaborative projects.

The Transition(s) lecture series: informing civic discourse and public policy

The Transition(s) lecture series, open to the general public, was launched in autumn 2020 with the arrival of Catherine Larrère, philosopher and professor emeritus at Paris I Panthéon-Sorbonne University, a specialist in ethical and political issues related to the climate crisis and new technologies. She and her counterpart, Philippe Sabot, Professor of Modern Philosophy at the University of Lille, discussed the topic "The Anthropocene: An era for transitions?". This series, scheduled for the 2020-2021 year, will bring together experts from a variety of specialities. The aim is to illustrate the challenges that I-SITE ULNE is working to overcome in response to the different transitions that are taking place in its region. Lectures are already scheduled to discuss the issue of shifts in gender and economic and social transitions.

Expertise in scientific journalism in Lille

While the scientific expertise of Lille's research community is undeniable in many subject areas, few are aware that the Lille School of Journalism (ESJ) is one of the rare journalism schools in France to offer a scientific journalism programme. I-SITE ULNE is naturally interested in showcasing this aspect and promoting these skills, in light of the scientific potential of its member institutions. This has included putting the directors of this programme in touch with the media The Conversation, which it has joined in order to work on shared projects.

Lilloprojets, Transition(s) conferences, expertise in scientific journalism, scientific experience and events, etc. I-SITE ULNE is committed to funding academic and scientific events to disseminate knowledge outside of the academic community.



Lilloprojets: Creating interdisciplinary networks

In September 2019, a networking event was held that brought together members from a variety of backgrounds in I-SITE ULNE's research laboratories. Created under the name "Lilloprojets", it made a networking application available to each participant. Approximately sixty researchers from a variety of disciplines were present.

The aim was to create a space for local academics to meet and initiate new interdisciplinary projects on the general theme of transition.

Among the collaborative projects, which were showcased on posters to aid in the search for local academic partners, three were selected by a jury of PhD students and were granted funding in the form of a Master's scholarship. In addition to the projects that received funding, there





“When the pandemic struck, I was contacted very early on by The Conversation. We felt it was important to take part in the work of this media outlet, which functions in a collaborative way that helps explain concepts that can be very hard to grasp by having articles verified by a scientific journalist, who is there to help restate the information in an intelligible way. It is a very serious media outlet and an excellent way of keeping our fellow citizens informed.”

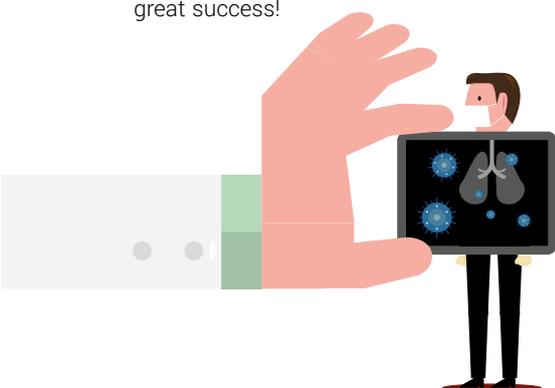
Anne Goffard,
Doctor and Virologist at the Lille University Hospital

The 2020 Science Festival: An exceptional year with small workshops directly in schools!

Since joining the higher education and research community in Lille, the I-SITE ULNE Foundation has taken pride in supporting local science outreach initiatives, one of the most significant of which is coordinated in large part by HEIs during the Science Festival (Fête de la science) that takes place each autumn. This year, the CNRS, the University of Lille, and the I-SITE ULNE Foundation, who organise the “Science Village” traditionally held at Lille’s Gare Saint Sauveur event space, had to show a bit of creativity to adapt to the COVID-19 crisis.

Researchers travelled directly to schools to meet with students from the local area. Six schools hosted researchers from one research unit per day, who led workshops in small groups while respecting social distancing measures. Ten research laboratories took part in the event this year, with workshops on the theme of the relationship between human beings and nature.

For the general public, one workshop per day was broadcast live at 12:15 p.m. on the YouTube channel Sciences&Co, a partner for this year’s rather unique Science Festival, which ultimately was a great success!



Xpérium season 4

A showcase for research partnerships in Lille, Xpérium, housed at the LILLIAD Innovation Learning Centre in the centre of the Cité Scientifique campus, offers an extraordinary experience to the general public. It aims to allow visitors to discover the research currently underway in Lille’s laboratories and to explain the fundamental principles and potential applications that it offers.

I-SITE ULNE contributes to the strategic positioning of this important science outreach programme, which helps increase the visibility of our researchers throughout the local community. The programme for the fourth year, “Kaleidoscope”, offered visitors a multifaceted view of images, which have been the topic of studies and innovations both in terms of technology and society as a whole. Be it in the area of law, history, sociology, philosophy, or the use of images and the role of human beings in the past, present, and future uses of images, this fourth year of Xpérium showcased the vibrancy of Lille’s research community in this strategic and highly active area of research.

Providing support to allow academic events to be held in Lille

With nearly thirty events sponsored since its creation, I-SITE ULNE has tirelessly worked to make it possible to organise outstanding academic events in Lille. For instance, in May 2019, the city hosted the “Innovatives SHS” exhibition. This trade exhibition, created by the CNRS in 2013, aims to showcase the ability of researchers in the humanities and social sciences to meet the needs of society and transfer their findings to local governments, associations, and businesses.

Held at the Lille Grand Palais event space, this exhibition drew over 600 visitors over two days and showcased a selection of approximately forty extremely diverse projects in the areas of education, digital technology, architectural heritage, health, and territorial studies.

THE CONVERSATION

Lille’s researchers in the headlines of media outlet The Conversation

In these hectic times, with science constantly making headlines, the media outlet The Conversation, a champion of academic expertise, showcases its worth by offering the general public free access to reliable information based on scientific research.

I-SITE ULNE’s participation in this media outlet has resulted in heightened visibility for the work of our local researchers, who contributed twice as often as last year, publishing nearly one hundred articles in all! In particular, the expertise of specialists from Lille’s research community was showcased in nearly twenty articles that helped readers understand particular aspects of the COVID-19 crisis.

Anne Goffard, a virologist at Lille University Hospital, was single-handedly responsible for the publication of seven articles on the topic, the first of which - entitled “What coronaviruses do to our bodies” - drew over 450,000 page views!

AN INSTITUTION centred around large-scale projects

The future Experimental Public Institution (EPI), built around the “University of Lille 2022” project, will bring together faculties, institutes, and other HEIs. The objective will be to foster interactions between the EPI’s structures in order to work together on emblematic, meaningful projects in the area of transitions. I-SITE ULNE has already begun providing support for this type of project.



fruit of a partnership between the Lille Institute of Planning and Urbanism, the National School of Architecture and Landscape of Lille, and Sciences Po Lille. The Faculty of Law and Political Science, Polytech’ Lille, and the Faculty of Economic and Social Sciences have also joined in, and this partnership will only increase in scope with a coming call for expressions of interest.

In 2021, this chair will host a series of conferences entitled “Productive metropolitan areas and territorial resilience” and a summer school entitled “Inventing a sustainable metropolitan campus”.

This is an original format for a project born out of an educational approach that has brought together a variety of research communities to participate in a socially responsible research project.



“Greater Lille’s territory, in all its complexity and with all its challenges, is a fertile ground for fascinating transitions that are capable of federating the different hubs of I-SITE ULNE.”

François Andrieux,
Director of ENSAP Lille

An “Urban Education” chair

In the midst of the current climate crisis and the pandemic, our academic and scientific communities are active on every front. In light of the issue of the overall transition that drives I-SITE ULNE, the “Lille Urban Education” chair is focused on quality of life and a number of aspects of life in the region: transport, energy, resources, housing, work, production, etc. The chair aims to create a foundation for producing knowledge, expertise, and innovation in the service of local governments in the Greater Lille area. Applying academic approaches to the challenges faced by society, it studies changes in metropolitanisation, reshoring, transitions, and resilience. It aims to be both an observatory and a place in which debates and experiments can take place between research and education. This academic chair is the

Graduate programmes

The start of the 2020 academic year marked the inauguration of three graduate programmes centred around I-SITE ULNE’s research focus areas: “Precision health”, “Science for a changing planet” (SCP), and “Information and Knowledge Society” (IKS), which will be supplemented in 2021 by “Changing cultures, societies and practices”. Their purpose is to promote high-calibre research-centred learning by fostering interdisciplinarity, international travel, and successful occupational integration. Each programme coordinates a selection of Master’s degrees from different areas of expertise associated with the related societal challenges, to bring together, today, those who will one day work together on collaborative projects.



“The new pharmacy features an educational and research aspect coordinated with the Faculty of Pharmacology. It offers an opportunity for our university hospital campus to develop projects that bring together teams from the future EPI’s different institutions.”

Bertrand Décaudin,
Dean of the Lille Faculty of Pharmacology

It also offers support to PhD students, whose research is placed at the heart of the theme. Additionally, the graduate programmes are an excellent example of cooperation between I-SITE ULNE’s different partners, with the Data Science and E-TECH programmes (IKS) and the BIOREF and IRACM (SCP) programmes co-accredited by the University of Lille and Centrale Lille.

A new pharmacy at Lille University Hospital

The Lille University Hospital’s pharmacy - one of the largest hospital pharmacies in Europe - centralises its activities on a single site, where all of the pharmaceutical activities of the hospital are conducted.

To modernise the production process and the capacity of its pharmaceutical operations to adapt, Lille University Hospital has begun construction of a high-performance, open, and modern central pharmacy, with a massive (8500 m²) building project including a modern pharmacotechnology platform, a single automated warehouse, and a service area to develop clinical pharmacy.

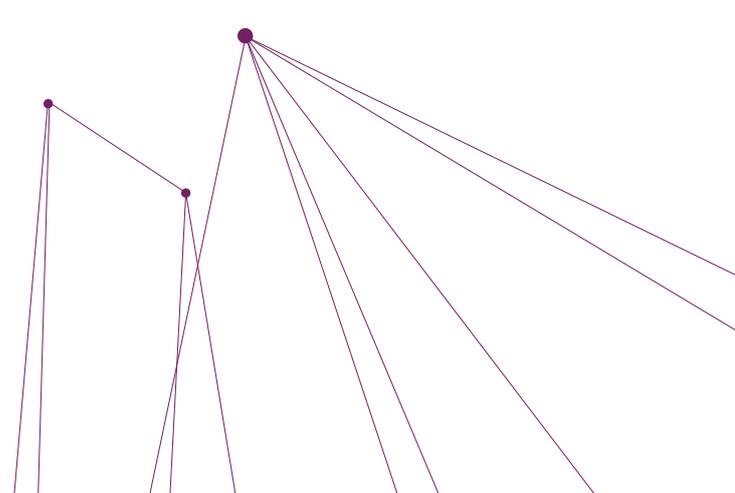
The new pharmacy will be located on the southern end of the hospital campus, near the metro station and across from the Faculty of Pharmacology. The aim will be to ensure synergy, day after day, between teaching and research. In this context, I-SITE ULNE will provide support for a project involving UFR3S, Lille University Hospital, the Lille University School of Management, Centrale Lille, and Sciences Po Lille, with several aims:

- Analysing the implications in terms of public health policy (production processes, purchasing policy, etc.) of this kind of project on a university hospital campus that is unique in Europe.
- Designing a model for supporting change and offering new educational programmes in a complex organisational structure that brings together different individual profiles and a variety of skills in a fast-changing environment.
- Evaluating the potential of the future pharmacy and future organisational strategies in terms of sustainable development and workplace quality of life.
- Searching for innovative solutions in terms of logistics (within the pharmacy and between the pharmacy and hospital services) and process automation.
- Engaging in broader reflection on pharmaceutical policy in France, particularly in terms of the scientific, social, and political issues at stake, in association with healthcare professionals, policy experts, sociologists, economists, etc.

Strengthening ties between engineers and healthcare professionals

The Laboratory of Multiphysics and Multiscale Mechanics (LaMcube), a joint CNRS research laboratory (University of Lille and Centrale Lille) has long conducted research on pelvic mechanics and age-related dysfunctions to further the development of innovative medical devices.

The arrival of Professor Tien-Tuan Dao, a specialist in biomedical and biomechanical engineering, in a position created by Centrale Lille Institut with the financial support of I-SITE ULNE, aims to bolster the ties between the engineering and healthcare sectors, with the firm conviction that this will act as a driver for innovation in the areas of medical devices, medical imaging, and digital healthcare.



FOUR LILLE LABORATORIES named laboratories of excellence (Labex)

**CAPPA, EGID, CEMPI,
and Distalz: these
four laboratories of
excellence foster
and further cutting-
edge research on
issues such as the
environment, health,
and mathematics.**



CAPPA

With research focused on the study of atmospheric aerosols and their impact on the climate and air quality, the CAPPA Labex (Chemical and Physical Properties of the Atmosphere) brings together over 160 researchers from seven laboratories and actively participates in orienting the activities of the “Science for a changing planet” hub. It boasts a large network of academic and international partnerships at both a national level (ADEME, ATMO, Hauts-de-France, IFPEN, CNES, IRSN, Météo-France, and INRAE) and an international level (the European ACTRIS project, international measurement campaigns, the development of global atmospheric models).

Work conducted in synergy with other hubs contributes to the deployment and operation of low-cost networks of portable connected sensors used to monitor air quality with very high temporal and spatial levels of sensitivity

and to measure personal indoor and outdoor exposures to hazardous air pollutants. By combining the expertise of its researchers in theoretical chemistry with that of outside experts in the area of nuclear chemistry and materials, the OVERSEE cluster's project, which is unlike any other in France, studies what becomes of radionuclides in the atmosphere. In terms of teaching, the Labex has also shown itself to be a top-tier laboratory with the foundation of an international Master's Degree in Atmospheric Sciences, making it a precursor in the creation of the graduate programmes offered by I-SITE ULNE. Lastly, in close collaboration with the CLIMIBIO regional project, its researchers help inform the public debate by providing robust data in response to societal questions on atmospheric pollution and the adaptations required in response to global climate change.

Project financed by the French government via the Investments for the Future Programme, project number ANR-11-LABX-0005.
Technical and scientific coordinator: Denis Petitprez

EGID

Founded in 2009, the Labex EGID (European Genomic Institute for Diabetes) offers unique translational integrative research solutions to provide the solid scientific foundations needed to optimise and tailor care for diabetics. Composed of five research units, EGID boasts a talented research staff of over 250 individuals that is unique in France. Not only has EGID demonstrated that precision diabetes medicine is both necessary and feasible, but it has also begun to implement this approach through its clinical branch, the PreciDIAB National Precision Medicine Centre.

EGID has an overall policy in place to showcase and draw attention to its scientific findings and create startups to utilise its most innovative data. Partnerships with

teams from the University Hospitals in Lille and Amiens, as well as those in Reims, Liège, Paris, Tours, and Angers as part of the PreciDIAB National Precision Medicine Centre's activities, enable EGID to optimise the impact of its discoveries to fuel new treatment options for diabetic patients. Another important aim is to revolutionise the understanding and prevention of diabetes and the care offered to diabetics, so as to enable truly Predictive, Preventive, Personalised, and Participative medicine. In addition, EGID is committed to training the doctors and scientists of tomorrow through an international graduate programme in precision medicine. This year, eighteen students in their final year of Master's studies and eleven PhD students will receive training in and through research from EGID laboratories.

Project financed by the French government via the Investments for the Future Programme, project number ANR-11-LABX-0046.
Technical and scientific coordinator: Philippe Froguel

Distalz

Alzheimer's disease is a condition that progressively leads to massive brain cell death. The medical, social, and economic impact of this disease on our society stands in stark contrast to the lack of available care options. That is why eight of the top French research units in Lille, Nice, and Paris decided to unite and bring their interdisciplinary expertise together to create the Labex Distalz (Development of Innovative Strategies for a Transdisciplinary approach to Alzheimer's disease) in hopes of fighting Alzheimer's more effectively.

This Labex applies a variety of fundamental approaches, from genomics to the most sophisticated biological models. It combines clinical perspectives with social and ethical concerns.

Distalz boasts a unique identity with a critical mass of over 300 researchers, engineers, and technicians capable of competing and working with the world's foremost research centres. This top-tier research apparatus is associated with an outstanding educational initiative that aims to create a leading international programme on Alzheimer's disease.

Project financed by the French government via the Investments for the Future Programme, project number ANR-11-LABX-0009. Technical and scientific coordinator: Philippe Amouyel

CEMPI

Since 2012, the Labex CEMPI (European Centre for Mathematics, Physics and their Interactions), backed by the Paul Painlevé mathematics laboratory (LPP) and PhLAM (Laboratory of Physics of Lasers, Atoms and Molecules), has boasted a broad range of expertise in pure and applied mathematics, atomic physics, optics, and technological research. CEMPI's focus is on the interactions between mathematics and physics, computer science, and biology.

PhLAM also operates FiberTech Lille, a technological platform dedicated to the manufacture of innovative optical fibres that benefits from FLUX, an "equipment of excellence" (Equipex); this platform is an added value both for theoretical research and for industrial and international partnerships. CEMPI has made several remarkable advances in fundamental mathematics and complex processes in optics and atomic physics. The relationship between research and learning is maintained by an extremely successful graduate school, with 80% of CEMPI's postdocs subsequently hired in permanent academic positions.

For these reasons, in 2019 CEMPI was recognised as one of the ANR's "flagship" projects.

Through the combined work of CEMPI's mathematicians and physicists, leveraging the "Emergent Topology in Photon Fluids" ERC Consolidator Grant, promising perspectives have been revealed for the application of topological concepts to new states of light.

This theme is also at the centre of the work conducted by the DYDICO research cluster, composed of the LPP, PhLAM, and IEMN laboratories. DYDICO works on the architecture and the hardware components required for a connected world, also drawing on the CEMPI's expertise in the area of fibre optics and complex dynamics. Lastly, the "Research" option of CEMPI's "Mathematics", "Scientific computing", and "Complex systems, optics & lasers" Master's degrees are an integral part of the "Information and Knowledge Society" graduate programmes.

Project financed by the French government via the Investments for the Future Programme, project number ANR-11-LABX-0007. Technical and scientific coordinator: Emmanuel Fricain



"I-SITE ULNE's Labexes are formidable drivers for research in physics, chemistry, mathematics, and space science, as well as for the application of this research to the crucial challenges of the digital and environmental transformation that is now shaping our societies. They are also tools for teaching in and through research, in the service of our laboratories and the synergy between teaching and research that exists between universities and research units."

Nicolas Arnaud,

Coordinating Scientific Director
for the Lille site (CNRS)



"Lille's healthcare teams are conducting cutting-edge research in precision healthcare; their research into diabetes and neurodegenerative diseases are just two illustrations of this."

Samir Ould-Ali,

Regional INSERM Delegate,
North-West District

PLACING INTERDISCIPLINARITY at the heart of projects and programmes

Only with interdisciplinarity is it possible to comprehensively tackle the complexity of the issues related to transition. I-SITE ULNE supports projects that enable the development of original methods that foster this interdisciplinarity. It also works to train young people to use and mix disciplines during their PhD studies.

Innovative methodology that combines logic, the economy, and chemistry

After beginning her career at George Washington University, USA, researcher Michele Friend agreed to join Lille's research community in late 2019 to fill an exceptional international academic chair. Specialised in the philosophy of mathematics, logic, the theory of relativity, chemistry, ecological economics, and computer science, Friend currently works at the Catalysis and Solid-State Chemistry Research Unit (UCCS).

She cooperates closely with chemists on work tied to the RECAPIO research cluster, which is part of the "Science for a changing planet" hub.

There, she is developing an extremely innovative decision-making tool to

evaluate industrial biomass refinery processes in the Hauts-de-France Region.

Her approach, which can be applied to other disciplines, uses an "institutional compass" as a multi-criteria decision-making tool. This novel approach, explained in a book currently being written by Friend, will open new possibilities for assessing projects, systems, organisations, and institutions. The multi-criteria decision-making system created by Friend provides a unique qualitative assessment based on three categories of data: economic (including technical performance), social, and environmental. It comparatively evaluates the appropriateness of activities within a given industry (here, biorefineries) in terms of processes, scale, and region. All decisions are ranked in terms of three qualities: harmony, passion, and suppression. The data sets are aggregated using normalisation, weighting, vector addition, and Euclidean geometry, and the result is a compass that indicates the dominant quality of the process being assessed.

By using a syncretic decision-making tool centred around the balance between various data such as "life cycle analysis", "economy", and "society", it becomes possible to rethink processes to achieve the desired effect.





“The PEARL project has enabled us to recruit brilliant candidates to conduct research into key interdisciplinary scientific questions requiring computer science researchers. Without a doubt, this PhD programme is an effective tool for fostering interdisciplinary research.”

Olivier Colot,

Director of the Research Centre in Computer Science, Signal and Automatic Control of Lille (CRISTAL)

Recruiting PhD students to boost interdisciplinary research

In February 2019, I-SITE ULNE was awarded a European Union Horizon 2020 grant for the “PEARL” project (Programme for EARly-stage Researchers in Lille). The aim of this ambitious PhD programme is to recruit 30 international PhD students to work on innovative interdisciplinary research projects, as well as to make foreign PhD students more at home and strengthen ULNE’s reputation in Europe and throughout the world as an attractive place to conduct research.

Thanks to substantial international publicity, over 200 applications were received. They were evaluated using a process that meets the highest standards (transparency, integrity, ethics, etc.), and seventeen doctoral students were ultimately recruited for the 2020-2021 academic year.

Another selection process is currently under way to recruit thirteen PhD students for the 2021-2022 academic year. These PhD students work on interdisciplinary research topics under the guidance of supervisors from different hubs, which strengthens the ties between different research units and/or institutions and furthers the cohesion policy of the future EPI.

Learn more at pearl-phd-lille.eu



The issue of gender in the agro-ecological transition in Europe

The Gender in the Agro-ecological Transition in Europe (GATE) project - winner of the call for proposals issued by the “Changing culture, societies and practices” hub - is coordinated by Clotilde Lemarchant of the Lille Centre for Sociological and Economic Research and Studies (CLERSE). GATE aims to assess the agro-ecological transition of farming production models from the perspective of the social practices at work in farming. In spite of the successive waves of modernisation in the agricultural world, gender is still deeply engrained in the way work is organised in the farming industry. The activities performed by men are strongly differentiated from those performed by women. The project focuses on the practices governing how work is organised, acting as an observatory that measures the changes brought about by the progressive introduction of environmentally friendly farming practices.

Today, the gendered organisation of farming work is undergoing a realignment and restructuring process, a reflection of the systemic cultural changes taking place throughout the industry - which, while small in terms of population, occupies a strategic position in terms of the contemporary environmental, economic, and social challenges at stake. The GATE project is rooted in a twofold hypothesis that the agro-ecological transition is realigning gender relations in agricultural work, and that, in turn, these realigned gender relations can inform us on the societal impact of the changes that are occurring. The purpose of this research is both to add to the existing literature on agro-ecology - which until now has been focused on the study of social actors in the agricultural world, their power relationships, and their role in disseminating innovations - and to contribute to the debate on the nature of this transition.

Is it limited to technical and economic adjustments, or is a more comprehensive shift taking place in the practices and representations seen in this industry? This project will compare findings from field research conducted in the Hauts-de-France Region with the practices observed in a comparable agricultural region in Spain, as part of a partnership with Complutense University of Madrid’s Applied Sociology Department.



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