

Inholland-labs

Joint learning communities in the field of energy transition, circular economy, food, health, technology and innovative professionals.



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Inholland labs

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Foreword

'If you do what you always did, you'll get what you always got.'

This interesting quote, attributed to Einstein, feeds my need for ongoing development. Especially now that social issues are becoming more and more complex in this fast-paced world.

As a university of applied sciences, our ambition is not only to contribute to the development of agile professionals who make a significant contribution to tomorrow's inclusive world. We also have a social task to initiate innovations. After all, our organisation brings together many different disciplines and is affiliated with various regions in North and South Holland. We have extensive experience in connecting research, work and learning with all kinds of different stakeholders. In this way, we can jointly make an impact as we work to achieve a sustainable living environment and a resilient society.

In the Inholland labs, parties from education, research, the professional field and the local area come together to work on current and future challenges, on the basis of specific themes. In this brochure, we have brought together various examples to demonstrate how students, researchers, partners from the field, end users and other parties collaborate to come up with new knowledge and insights.

For example, an apartment in the Poelenburg district of Zaandam gained a creative space where students can do crafts every week with children from the local area. In the meantime, discussions are held with their parents to identify



their own needs for a liveable district.

For example, based on design thinking, a student designed an escape room as a means of communication for the Zuidplein neighbourhood in Rotterdam. People gained much more insight into the district as a result.

For example, the researchers discovered that storytelling lends great added value to other research in the Sustainable Fashion Lab.

For example, a teacher at a primary school in North Holland modified her actions based on a reflective interview with a student who is training to be a primary school teacher.

And they all got what they didn't get before.

I also hope that everyone who reads this brochure gains a great deal of new knowledge and, above all, inspiration that will allow us to contribute together to the social issues that connect us all.

Marije Deutekom, Executive Board member of Inholland University of Applied Sciences

A wide range of Inholland labs

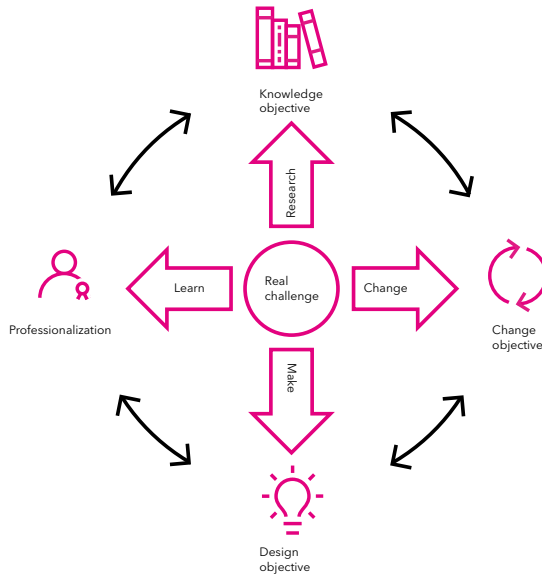
Collaborative learning, working and research are becoming increasingly common at Inholland University of Applied Sciences. Whether you are a student, professional partner, lecturer or researcher, we challenge you to collaborate on current, complex social issues in new ways. We do this in Inholland labs, where the boundaries between the classroom, ivory research tower and professional practice are blurred.

Labs are dynamic learning and experimentation environments in which we collaborate in ways that suit the 21st-century professional. This is our umbrella term for variants such as field labs, living labs, learning and innovation networks and knowledge workshops. Some of the labs are initiated by Inholland, while others form part of a broader collaboration in which we participate as a partner.

The number of labs is growing rapidly and they are constantly developing. This lab brochure introduces you to a number of illustrative examples and the great diversity that Inholland University of Applied Sciences has to offer!

The new approach to learning, research and innovation

We verschuiven naar een nieuwe praktijk van leren, onderzoeken, veranderen. We are shifting to a new method of learning, researching, changing and making (see figure). The challenges that we face in practice increasingly require different and partly new skills, knowledge and experience. Whether they are social challenges such as the energy transition, healthcare or safety, the issues are becoming increasingly large and complex and are also interconnected. The world is not standing still; new technologies, methods and knowledge are succeeding each other at a rapid pace and building on each other. This requires collaboration across disciplines, lifelong learning for all the parties involved and a common eye for where the real needs lie.



Adapted from: Cirkelen rondom je onderzoek. (Circling around your research.) Version 1.0 By D. Andriessen and M. Ganzevles, 2019

The characteristics of Inholland labs

Inholland labs take the form of learning communities: learning and experimentation environments in which education, research and practice overlap and enhance each other so that all the parties involved can work together on complex practical issues. Labs are distinguished by the fact that they involve the co-creation of knowledge by multiple parties rather than the implementation of an assignment for an external client, for example.

Students, lecturers, researchers, partners: in a lab, all the parties actively participate on the basis of equality and using various different methods. They are proactive, development-oriented and learn with and from each other. The learning and experimentation environment itself consists of a physical lab space (meeting, co-creation, experimentation, presentation) and the work field, such as a district, hospital or airport.

Lab = collaboration + learning and experimentation environment + range of teaching and research methods

The labs are very diverse in terms of the composition of objectives (learning, knowledge, design and change objectives), the substantive focus and the way in which the collaboration takes shape. However, Inholland labs do share various starting points:

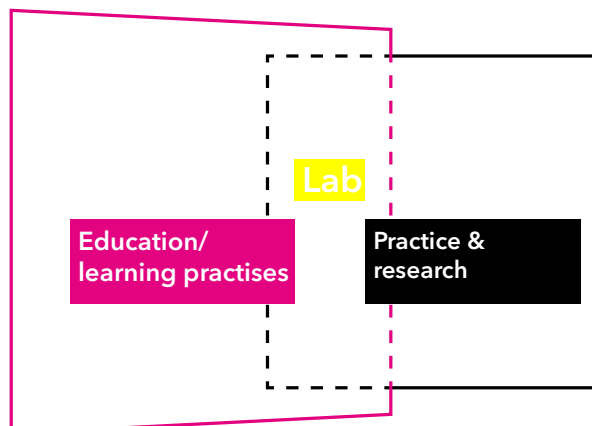
- The focus is on people.
- Researchers, lecturers, students, professionals and any end users work and learn together.
- Education and research are closely intertwined.
- The labs focus on concrete, complex practical issues that often involve a sense of social urgency.
- The collaboration is based on equality.
- We work in an ethically responsible manner.

For all the participants, working in labs requires empathy and openness towards each other and new role divisions. (See Guide to Reference Roles for Collaboration in Labs: shorturl.at/nrtUV)

Inholland labs are more than just a project. A lab usually has several (sub-) projects. Labs often fall within a larger programme or public-private partnership (PPP), such as a Centre of Expertise (CoE).

Interdisciplinary education, research and practice

Within labs, work fields and research come together with (interdisciplinary) teaching/learning practices (such as minors, lab tracks and graduation projects) based on the complex practical issue and the substantive focus of the lab. As a result, the lab also helps to safeguard and disseminate the growing pool of shared knowledge and expertise.



Added value of a lab

Inholland labs drive multiple value creation. Working together in a very diverse group creates value for all the participants and the impact goes beyond that of a single end product, credits or research result. It goes without saying that we usually work on an innovative solution to a specific issue, but the benefits of the lab can also be seen on other levels such as learning together, expanding network contacts, collaboration that continues to exist outside the context of the lab, familiarising people with new working methods, building up new knowledge and skills, safeguarding them and developing new ideas and impetus for a follow-up.

How to use this lab brochure

This lab brochure features a selection of Inholland labs and explicitly does not contain a complete overview. The aim is to provide a reflection: illustrative examples of labs at Inholland. The total number of labs is increasing steadily. At the same time, some are more temporary in nature. If you look at the multitude of labs, you will discover not only similarities but also clear differences in emphasis, such as areas of focus or working methods. Some labs operate at a local level. Others have an explicit regional, national or even international focus. In some labs, external partners participate for a relatively long period of time while in others the involvement is linked to shorter projects. The ways in which students can participate in the labs also vary. Some labs have developed special interdisciplinary lab tracks. In others, students can participate through regular minors or as a graduating student or intern. In brief, Inholland labs form an extremely varied whole.

This lab brochure invites you to explore this diversity and aims to inspire you to participate in the exciting transition in the areas of learning, research and innovation. Whether as a student, lecturer, researcher or professional partner.

At the back of this brochure, you will find a concise glossary of the terms that we often use with regard to labs.

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A wide range of Inholland labs

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CDM@Airports Living Lab

Within the CDM@Airports lab, education, government bodies and the business sector seek out solutions to make the air-cargo movements at and around Schiphol as efficient as possible and thus reduce CO2 emissions. This lab demonstrates that logistics affects us all and that we are involved with it at every level. With CDM@Airports, we are writing a new story about sustainable and agile logistics. Conducting applied research with relevant stakeholders allows us to think and act together to find solutions and share results in an accessible manner. We also ensure that our knowledge and experience is disseminated in society. The ultimate goal: the well-being of people and the planet.

Substantive focus

How can joint decision-making between air-cargo stakeholders at (European) airports be achieved by means of 'neutral governance', using digital and innovative methods, in order to optimise the sustainability of the airport?

Working method

Researchers and students conduct applied research with all the stakeholders in order to contribute to the resolution of 'wicked problems' in a transdisciplinary collaboration.

Contribution and results

By means of transdisciplinary collaboration and data sharing, this lab contributes to achieving concrete, measurable results in terms of CO2 emissions, as well as new methods of educational development and professionalisation.

The concrete results include research reports and transparency. Our partners and students learn skills in the areas of conducting research, interview techniques, test techniques, analysis and professional conduct.

We are particularly proud of the 'digital twin', which was developed to test new ideas and assumptions. After successful test results have been achieved, these can be implemented directly in the 'real' system.

Participation

Students develop skills such as analysis, professional conduct and interdisciplinary collaboration. Researchers and new partners with an inquisitive attitude are welcome and can email us for more information.

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Sustainable Fashion Living Lab

The fashion industry is the second most polluting industry in the world. Together with education, (local) government and the business community in the fashion and textile sector, the Learning & Development in Organisations professorship aims to collaborate with the Sustainable Fashion lab to answer the question: how can you develop new, sustainable revenue models in the circular economy in the fashion and textile sector?

The research question consists of three pillars:

1. deepening knowledge and experience of how a local fashion and textile ecosystem can contribute to making the fashion sector more sustainable,
2. comparing local fashion and textile ecosystems internationally and creating learning communities between these local systems,
3. deepening experience of sustainable marketing.

Substantive focus

Our lab focuses on the task of developing new, sustainable revenue models in the circular economy in the fashion and textile sector.

Working method

Researchers and students conduct applied research with all the stakeholders in order to contribute to the resolution of 'wicked problems' in a transdisciplinary collaboration.

To this end, we are constantly expanding our collaboration and working on an open innovation platform and the development of start-ups and scale-ups. We also conduct experiments, for example with different forms of marketing, and examine how this can contribute to making fashion and textile ecosystems more sustainable.

Contribution and results

Examples of results achieved by our lab include research reports, advice, marketing strategy in the form of storytelling and the formation of partnerships. Students learn about interview techniques, analysis and collaboration, both between themselves and with the business sector.

Participation

Interested partners are very welcome! We are mainly looking for parties from the government or business community with an interest in researching ways to influence the behaviour, attitude and knowledge of young people with regard to sustainable fashion and storytelling strategy. We expect a cooperative partnership in which all parties learn together. Researchers are also invited to contribute.

Students can work on skills such as analysis, professional conduct and transdisciplinary collaboration during the five-month free elective period.

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The Circular City

The Randstad area is becoming increasingly densely populated, there are more and more mouths to feed and the pressure on the climate is increasing. How can we work together to create a future-proof city, so that our cities become healthier, more attractive, more social and more resilient with greater biodiversity? In the Circular City lab, we collaborate on transition issues in the urban environment (city and surrounding area). The transition to a circular city requires interaction: intensive collaboration between 'specialists', local residents and end users.

Substantive focus

Using a 'layered approach' (see example on the next page), in this lab we seek out strategies for combining the spatial design of the urban environment with the management of flows: water, energy, traffic, food and waste. In doing so, we tackle challenges in the areas of climate adaptation, the circular economy, a healthy living environment, civic participation and the energy transition.

Working method

Issues from the 'Living in an urban Delta' programme pathway form the basis for research programmes within this lab. We partly implement these issues together with students from various degree programmes at Inholland UAS.

Students learn to apply their own (subject-based) expertise and to understand and utilise perspectives from other disciplines. The student teams work with our researchers and partners on new knowledge and professional products.

Contribution and results

Depending on the issue, the projects provide potential solutions (professional products) for use in practice, such as publications, prototypes, products/services, advice, videos or infographics. A valuable aspect of this approach is that everyone learns from and with each other. The involvement of different disciplines leads to surprising insights and ideas. Students also learn skills that are important for their future as professionals (such as speaking another person's 'language'). The partners also like to see the participating students become involved in their professional field.

Participation

Partners, researchers and students can contribute to this lab by seeking collaboration at project level (see contact details).

Students can register for the interdisciplinary minor 'The Future-Proof City', but the possibilities also include graduation projects or internships.

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Sample project: The Circular City

Opportunities for Greenport West-Holland

Which opportunities exist in the future circular metropolitan region of Greenport West-Holland, where there is plenty of room for everyone to live healthily, happily and safely? Students have come up with various potential solutions. The social connection between horticulture and citizens can be stimulated by combining functions, providing information and increasing social cohesion.

Students made plans for a sustainable and circular cycling route, art on the greenhouses, organising a festival and living in and around the greenhouses. Students were free to choose their own methodology. They followed training courses in the areas of curiosity, critical thinking & creativity, system thinking, design thinking, scenarios, stakeholder participation and transversal skills.

They also worked together on plans for a sustainable and pioneering future for the Waarderpolder business park in Haarlem. In addition, they drew up a plan for the future of the circular metropolitan region of Greenport West-Holland.





Smart Farming

The Smart Farming lab stems from the Vertical Farming Field Lab, which has created an innovative ecosystem in South Holland. We bring together knowledge institutions and (SME) companies in the areas of high-tech production systems and techniques in the agrifood sector. The aim is to increase efficiency (minimum use of raw materials) and sustainability (maximum circularity).

Substantive focus

We work together and offer companies facilities for 'business-driven' research within open and closed cultivation systems and food production systems in North and South Holland. Our research focuses on mechanisation, robotisation and data-driven innovation. Issues relate to vertical farming (a high-tech daylight-free cultivation method) and mechanisation within open cultivation. The aim is to further develop this into high-tech solutions for the entire agrifood sector.

Working method

The lab focuses on new methods of open and closed cultivation (also in the absence of daylight) that offer significant opportunities for supplying the market with clean, safe, healthy, unsprayed and long-lasting vegetables. Students are given the opportunity to participate in various research projects via teaching, internship and graduation assignments. Inholland University of Applied Sciences also develops teaching materials in the area of vertical farming and shares knowledge and experience with the intended users.

Contribution and results

The lab's partners develop physical and digital facilities that companies can use. In addition, during projects the lab works to increase the sustainability of the collaboration between the various parties. Although the lab started out with a grant in the area of vertical farming, we are now working to develop a governance, financing and earnings model that will allow us to continue and expand our collaboration. By working together in areas such as production, sales, technology, research and education, this collaboration differs fundamentally from current practice in fresh fruit and vegetable production chains in the Netherlands.

Participation

Partners, researchers and students can participate at lab and project level. We are also working on new grant proposals. Please contact us for more information.

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Food Science and Innovation

The growing world population, advancing urbanisation and increasing global prosperity demand innovation within the food sector to ensure survival. Creativity and the application of (new) knowledge are indispensable here. Although they are aware of this, some companies lack sufficient creativity and access to new knowledge; this makes it difficult for them to focus on the future. Conversely, others can see opportunities in the protein transition and cellular agriculture and are starting companies so they can apply new knowledge without delay.

Our Food Science and Innovation lab brings together knowledge development, application and entrepreneurship. This takes place in the facilities, educational institutions and companies of FIA, Vlaardingen, and FICA (Food Innovation Community Amsterdam), for example. We will also be working with Biotech Campus DSM in Delft to set up a new portfolio in the areas of food science, biotechnology and entrepreneurship.

Substantive focus

How can we continue to feed the world, as sustainably and healthily as possible, in a way that is safe, tasty, appealing and affordable for consumers?

Working method

Researchers and students from the Food Commerce and Technology degree programme address complex practical issues raised by the partners. Students contribute in the form of projects, modules, internships or graduation projects. Depending on the specific issue, we will involve other researchers and programmes including our MBO partners Lentiz, Yuverta and Vonk. We are also developing a new portfolio for the further development of the food science arena.

Contribution and results

Our lab consists of partnerships in which students, food companies, knowledge institutions and government bodies collaborate on 'food'. In addition to new knowledge and products, the most valuable contribution consists of the knowledge and creativity of our researchers and students. The fresh look contributed by students helps companies to gain new insights and the students themselves gain a wide range of practical experience by working together on 'wicked problems'.

Participation

For companies, it is instructive and inspiring to participate in a lab in which they collaborate with other organisations on a relevant theme. The intensive exchange of knowledge, experience and information also takes place with students, lecturers and researchers. Many test and research facilities are also available. Students can contribute through projects and by means of internships or graduation projects at companies within one of the partnerships. Lecturer and research internships are also possible.

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Sample project: Food Science and Innovation

Bean me up!

The term protein transition 2.0 might not mean much to you. Nevertheless, this is an extremely important sustainable transition in which imported soy is replaced by locally grown protein sources. This development is central to the Bean me up project, in which the Inholland Food Science and Innovation lab is collaborating with various partners.

This is a broad project that responds to new opportunities in the cultivation of protein-rich crops, including through the fast-growing market for vegetarian, vegan and flexitarian products. We do not limit ourselves to cultivation, but also emphasise processing and consumption.

For example, a group of students recently worked with lab partners to develop bread enriched with broad bean protein. It may not be obvious at first glance, but this project directly focuses on finding a solution to the issue of protein shortages in the elderly. No less than 35% of elderly people living at home and receiving home care eat less varied meals and suffer from a protein shortage. Since they do not often skip bread products, bread enriched with protein could still provide the necessary proteins. This makes the transition tangible in something we all know, a crispy brown roll!





DDSS Data Lab

The number of data-related issues is increasing sharply in all sectors. For example, this might involve issues regarding the analysis of data from the healthcare sector or digitalisation issues in horticulture. Each issue has two sides, the data-related side and the application. Within the DDSS Data Lab, both aspects are addressed and lecturers, students and the work field seek out solutions to social issues. DDSS stands for Data Driven Smart Society.

Substantive focus

In the DDSS Data Lab, we conduct applied research into social issues in a learning community in which our professorships collaborate with partners from the work field and education sector. The exchange between sector-related knowledge and IT knowledge takes centre stage here. We are building a technical infrastructure for data storage, contributing to the innovative development of professional practice and providing future-oriented education. Together with the lab partners, we are working to achieve process and product improvements that will benefit a future-proof society.

Working method

In the DDSS Data Lab, we combine IT knowledge with sector-related knowledge based on the connection between research, education and the work field. In the learning community, lecturers, students and the work field collaborate intensively on social issues from various sectors. The common thread is the IT component. All future professionals, regardless of the professional field for which they are being trained, therefore acquire IT skills as a regular part of their skillset.

Contribution and results

At the DDSS Data Lab, the whole is more than the sum of its parts. Since research, education, companies and society work together (the so-called quadruple helix), we learn both from and with each other. The DDSS Data Lab helps to raise the level of knowledge about data science in all sectors, thus increasing the 'data literacy' of our society. The results are also very tangible. For example, take practical data-driven solutions such as the automatic detection of diseases in the blood by image analysis.

Participation

Partners of the DDSS Data Lab collaborate as clients, field experts and consultants in their own area of expertise. The lab also offers the opportunity for participants to learn and grow in the field of data science. Within the DDSS Data Lab, students can work on research questions during internships, graduation projects and the interdisciplinary, cross-domain Data Driven Smart Society minor.

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Alkmaar Innovation Lab

The Alkmaar Innovation Lab is the technical heart of Inholland Alkmaar. Here, we work on innovations in the world of composites, machine construction, arable farming and crop cultivation. All segments are experiencing an increasing demand for robotisation, (remote) maintenance and digitalisation in general. We are responding to this on the basis of our expertise.

Substantive focus

Our focus lies on innovating the environment in the area of technology. The Alkmaar Innovation Lab is the connecting link between research, education and the business community. We work on projects such as the solar boat, as well as others put forward by the academic world and research groups. The lab offers multidisciplinary project spaces, workshops, meeting rooms and flexible workspaces for students, lecturers and researchers.

The Innovation Lab is closely linked to Greenport Noord-Holland HN in the Smart Farming NHN partnership. We have set up a field lab for 'Smart Industry' in collaboration with companies from the business association FME and the development company NHN, in which we focus on 'vision'. A third platform is composites.nl, of which we are a partner and for which we carry out composite-related projects. The fourth, growing programme line is the energy transition in the broad sense. As an addition to the Innovation Lab, we also have the 'sustainable energy house'. In this workspace, students can learn more about new technologies.

Working method

We are creating a learning environment in which students from different degree programmes can work together on social issues. These include issues and technical themes put forward by the research groups, academic world and business community. The aim is to work towards a sustainable society.

Contribution and results

The Innovation Lab increases the innovation potential of the partners in the region. We contribute to the professionalisation of students and lecturers and increasingly aim to achieve structural alignment with the degree programmes. This involves many different applications such as our wind truck project, the Solar Boat, Smart Farming, drones, borehole renovation (scanning) and the 'robot pick & place line'.

Participation

As a partner, you can expect the Innovation Lab to contribute the necessary enthusiasm and considerable knowledge from students, researchers and lecturers. We expect our (consortium) partners in a project to exchange knowledge. Together, we look for the question underlying the question. There are opportunities for students to take part via minors, as an intern or graduating student and as a working student or via class projects.

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TechValley Field Lab

The TechValley Field Lab is a physical field lab that takes a more in-depth technical look at the collaboration between a number of SMEs and Inholland. In this lab, which forms part of the Alkmaar Innovation Lab, the participating SMEs and students are given access to high-quality knowledge, technology and facilities. The aim is to accelerate the development and marketing of innovations in the field of smart machine construction.

Substantive focus

The core theme of the TechValley Field Lab is 'Smart Machine Construction', or 'smart design and engineering' for the benefit of 'smart machines and smart services'. This has 'data-driven mechatronics' at its core. Here, we use data as a basis for the (re)design of smart machines and the development of new services and solutions.

Working method

In the field lab, students collaborate with SMEs and (lecturer-) researchers on issues that contribute to smart machine construction. The students work in interdisciplinary teams. We continuously ensure good coordination and alignment between regional SMEs and knowledge institutions.

Contribution and results

This lab contributes to a more resilient labour market in various ways, whereby:

- SMEs have better access to knowledge, innovation facilities and skilled technical staff.
- The lab is an appealing place which makes it easier to attract technical talent.
- The lab gives us the opportunity to align education and research more closely to business practice.

The TechValley Field Lab serves as an extension to the R&D processes of companies. This enables them to bring their innovations in the field of data-driven mechatronics to the market more quickly. For the participating students, this provides not only a learning experience but also a special network.

Participation

Several regional SMEs in the field of high-tech machine construction are affiliated with the TechValley Field Lab. Our partners help to determine the content of the research and also co-invest in certain high-end materials. Students can contribute through an internship or graduation project. Please contact us to discuss collaboration options!

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Energy and Smart Materials

For the North Holland region, in conjunction with the Regional Development Agency (ROM) a learning community is being developed with knowledge institutions, companies and government bodies. This connects the energy transition to the human capital agenda. Lecturers, students and the work field collaborate on issues put forward by local companies. The issues have both a technical nature and a human capital nature. We work from the innovation and composite labs in Alkmaar and Delft, and since recently can also be found at the Chemistry department in Amsterdam.

Substantive focus

The lab focuses on composites and integrated technical and system design: how can smart, multifunctional materials and constructions contribute optimally to addressing social issues in the energy transition arena? Sub-topics include:

- the automation of (composite) production and maintenance,
- the use of extended reality in this process,
- circular and biobased design,
- multifunctional materials (sensorisation, structural batteries),
- electrochemistry.

Working method

We work on the basis of curiosity and complex issues from the professional field. Enthusiastic students and knowledgeable (lecturer-) researchers make great things possible! In addition to MBO, HBO and WO institutions, the knowledge institutions TNO, AMCEL and Techport are involved. The business community is represented by Tata Steel, Schiphol, Port of Amsterdam and the HyCC hydrogen plant. The government is represented by the North Sea Canal Area Programme Office (PBNZKG) and the Amsterdam Metropolitan Region (MRA).

Contribution and results

In addition to innovations, prototypes, educational materials and (trade) publications, this learning community helps to attract and develop a new generation of professionals in the energy transition. We are also gaining important new knowledge about the possibilities and difficulties in the world of composites and the associated manufacturing, testing and repair techniques.

Participation

Participating in our learning community means being part of the growth process. Students can work in an interdisciplinary environment on concrete issues involving technology and electrochemistry and can therefore make a valuable contribution. Call in for a cup of coffee and tell us what motivates you!

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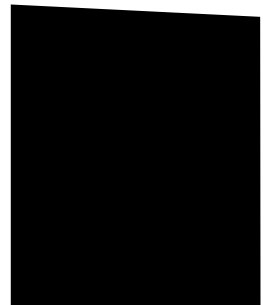


Sample project: Energy and Smart Materials

Dragonfly project

What would an electric and emission-free aircraft look like? Students and professionals in Delft have been working together in the Dragonfly project since 2019, developing the very first model of a small aircraft that is both fully electric and completely emission-free. And this is quite a challenge, as it requires the use of all kinds of new technology and insights need to be gained from a wide variety of fields such as aerodynamics, system simulation and everything related to composites.

The team has now proven that such a challenge can be tackled successfully. The electric Dragonfly was officially unveiled in the spring of 2022, to loud applause from more than 300 alumni who have worked on the project in recent years. The single-engine aircraft can accommodate two passengers, has a wingspan of just under seven metres and a cruising speed of 100 miles per hour.





Urban Leisure & Tourism Lab Amsterdam and Rotterdam

The Urban Leisure & Tourism Lab (ULT Lab) has locations in Amsterdam and Rotterdam and explores how both cities can be made more attractive to visitors while still remaining liveable for residents and entrepreneurs. How can we connect the local community more closely with their environment and with each other? Together with the municipalities, (non-) profit, cultural, civil society organisations and city users, we seek out answers in the lab. The lab is affiliated with the Creative Business research group. The ULT Lab designs, tests and refines multiple physical and digital prototypes in various cycles and collects feedback on these concepts from experts, users, policymakers and other stakeholders in the lab community.

Substantive focus

Our common goal at the ULT Lab is to collaboratively create innovative, inclusive and sustainable tourism and leisure experiences, in such a way that these have a positive impact on the districts in Amsterdam-Noord and Rotterdam-Zuid and all their users (from residents to visitors and from entrepreneurs to artists).

Working method

The ULT Lab works on various challenging issues. We do this with a team of our students, lecturers and experts from both the Netherlands and abroad. A so-called lab track lasts twenty weeks and consists of various 'sprints': the discovery & definition phase, the development phase and the delivery and documentation phase. Using design thinking techniques, we make physical and digital prototypes of what could ultimately become a new product, service or other solution. The lab is based on authentic leadership, design-driven research and self-directed learning.

Contribution and results

Tourism, leisure and events not only serve an economic purpose, but also help to achieve social, cultural and urban development goals. This may take the form of smart partnerships and the development of innovative and regenerative solutions. We apply a design-oriented approach and provide practical, usable tools that local residents, entrepreneurs, municipalities and companies can put to use themselves.

Participation

Our current partners include Cinekid, Theater Zuidplein, Stadstheater Noord, Accor Hotels, SAIL Amsterdam, Heijmans, the municipality of Amsterdam and the municipality of Rotterdam, Amsterdam & Rotterdam Partners, VISIT Beemster and various (social) entrepreneurs. Amsterdam and Rotterdam are both cities that are full of possibilities, so join us! We also work with international universities and exchange knowledge and experience.

Are you ready to get creative and work with us on real-life challenges in Amsterdam or Rotterdam and the neighbouring areas? Students: register for the lab track!

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Haarlem Citylab

In the Haarlem Citylab, we work with lab partners on challenging commercial and social issues with the goal of successful innovation. In addition to various Inholland professorships, the following are affiliated: companies from the Waarderpolder business park in Haarlem, the municipality of Haarlem and regional initiatives such as the organisation behind the Bevrijdingspop music festival.

Substantive focus

Haarlem Citylab, based on the Waarderpolder business park, forms part of the Expertise Network for Systemic Co-Design (ENSCD). In this network, that brings together various different knowledge institutes and commercial and non-commercial organisations, we seek out opportunities to accelerate social transitions. The aim is to contribute to a liveable, happy, creative, inclusive, healthy and sustainable world in which as many people as possible can participate. Citylab focuses in particular on the people behind the success. Personal development, leadership and the ability to work together in complex situations constitute the basis of a learning adventure in the lab.

Working method

At Citylab, we are inspired by design thinking, methods of systemic co-design and developments around authentic leadership. Students are linked to lab partners to come up with new innovations that will make Haarlem more sustainable. They are free to choose the field in which they think they can contribute. This helps them to develop into professionals who act in a socially and ecologically responsible manner.

Contribution and results

Innovations from Citylab may relate to a variety of issues. However, they are always innovations that make a difference and that are (or could be) actually implemented in practice. This allows Haarlem Citylab to come up with creative and innovative solutions.

Participation

Partners can expect innovations from Citylab in a process in which personal development and learning how to collaborate, design thinking, art and creativity play an important role. We expect partners to be willing to open up their own network, provide critical reflections, share information and be open to innovation and learning. Not only are partners the owners of assignments (clients), they are also actively involved in the search and learning process for innovation. Students who participate in Citylab follow a 20-week study programme that is offered as a lab track. There are also opportunities for internships and graduation projects.

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International Music Industry Lab

Music is more than just a commodity, it has the power to tackle global problems. At the International Music Industry Lab (IMI Lab), we believe that the music industry can be inclusive, sustainable and an open, engaging environment for everyone.

We build and nurture a diverse learning community (young professionals, coaches, experts, professionals from the music industry and researchers) and investigate the global problems facing the international music industry. We turn these explorations into challenges and embrace innovation. For us, innovation not only involves trying out new things but also improving, testing, developing and implementing these ideas. Not to mention making mistakes and learning from them.

Substantive focus

How can we build healthier music ecosystems? At IMI Lab, we answer this question within the themes of sustainability, equality/diversity/inclusiveness, technological innovation and fair practices. We focus on new business models, entrepreneurship and economic approaches. For us, the music industry forms part of a broader music ecosystem and society as a whole.

Working method

At IMI Lab, we work on the basis of design thinking. We use design methods and tools to better understand the context of problems in the music industry, allowing us to come up with better solutions. We do this in an everyday setting (living lab). In the process, we use new and old technologies and social change and always try to give the various partners optimal freedom of choice with regard to their participation. We encourage a sustainable music world in an ecological, social and economic sense.

Contribution and results

We build healthier music ecosystems within our learning community by taking on design challenges. An overview of our publications can be found on our website. Students have the opportunity to create a network in the international music industry, develop problem-solving skills, learn how multidisciplinary collaboration works and develop their creativity.

Participation

There are numerous opportunities to participate as a partner. Participation means investing time in working with student teams, in supervision, providing input and feedback on the process and progress. If you would like to participate as a student, register for the lab track. Researchers can simply email us.

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Sustainable Media Lab

Rapidly changing technical, legal and social environments require a different way of thinking about media, technical complications and their significance in society. In the Sustainable Media Lab, we bring together leading researchers, experts and people from the professional field to examine these issues. The interaction between people, technology and systems takes centre stage. Students work with the lab's partners to solve 'wicked problems', complex issues in which many different parties are involved. Within the Sustainable Media Lab, students learn how to connect (networking), gain new insights in discussions with others (discourse) and promote interaction through the use of media (content and interventions).

Substantive focus

The Sustainable Media Lab facilitates new ways of thinking about the role of technology in society. Technology is becoming increasingly important in our lives. The main question in the lab is how human interactions with socio-technical systems can be reconsidered in a more sustainable and ethical way.

Working method

We use insights and methods from the field of design thinking for the innovation, research and education activities at the lab. In addition, we always work in a multidisciplinary way.

Contribution and results

We only launched this lab in February 2022 and are therefore still working hard to develop and implement our first projects and build our partnerships. Our aim is to deliver prototypes of economically and socially relevant products or services. We also wish to help with policy development and work to benefit the digital sector.

Participants learn about design thinking, as well as gaining experience of multidisciplinary collaboration and current issues in the fields of technology and society.

Participation

For students, a lab track comprises a 20-week programme. Would you like to participate as a partner? In this case, you will have the opportunity to pitch your ideas at the beginning of a lab track. You will then be able to get started with our students.

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North Holland Co-education

The North Holland Co-education lab (NHS) focuses on training education professionals and all the related aspects. Primary school teacher training (Pabo) students, teacher trainers, teachers and lecturer-researchers come together to form learning teams in which practice and theory enhance each other. The NHS is an initiative of Pabo Inholland Alkmaar and five school boards. Research is also conducted with universities and other knowledge institutions.

Substantive focus

The North Holland Co-education lab focuses on training future teachers to become reflective, context-aware professionals. By this, we mean professionals who are able to continuously improve their teaching and respond to what students need in a specific context. In the rich learning environment of the lab, we develop the research skills of all the parties involved and put the knowledge and expertise of primary schools to optimal use. The practical experiences of students form the starting point here. On extra practical training days, we discuss these collectively in learning teams and explore the topic in more depth.

Working method

The Pedagogical Assignment professorship supervises the school teams while also conducting research, enabling us to continually refine the methodology used in the lab. The relationship between collective discussion and the deepening of student experiences forms a central aspect of our research. We place this in the light of the development of students into reflective, context-aware education professionals. We also examine what this means for the role of the teacher trainer.

Contribution and results

The North Holland Co-education lab provides insights into how we can strengthen research skills in learning teams. We take the practical experiences of students as a starting point and examine what they contribute to the reflectiveness and context awareness of future teachers. By 2025, our ambition is for all primary school teacher training (Pabo) students at Inholland Alkmaar to be trained in accordance with the lab method of the North Holland Co-education lab.

Participation

In addition to their practical placements on Fridays, Pabo students at the North Holland Co-education lab also have an extra practical training day in which they form part of the learning teams. The learning teams work on the basis of equality, with each participant taking part based on their own expertise and with the realisation that they need each other. This means that it is not only the students, but also the teachers, teacher trainers and lecturer-researchers who constantly learn from and with each other.

Contact

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SLUISlab

SLUISlab is a place for social innovation in the Sluisbuurt neighbourhood of Zeeburgereiland in Amsterdam. It is also the place where the construction of our new Inholland location in Amsterdam will take place. In this lab, students, researchers, local residents and other partners will work together to find an answer to the question: how do you invent an inclusive and sustainable island? 'Placemaking' takes centre stage here. We devise ways to connect new residents with each other and with visitors and people from other parts of the city. We develop inclusive and sustainable placemaking concepts. As a result, the spaces where people live and work can become places they love!

Substantive focus

Placemaking, area development through co-design and role play in transition issues take centre stage in this lab. We are always working on challenges surrounding the experience of place, community and connectedness. For example, how can you make the Sluisbuurt neighbourhood more attractive for both residents and students?

Working method

We work in co-creation with the municipality of Amsterdam, Urban Resort and SAIL Amsterdam, as well as with local residents, entrepreneurs and organisations. We use design thinking, empathic design, prototyping, user testing and inclusive design. Issues form part of the curricula, research with professorships or experimental interventions.

Contribution and results

Our lab strengthens networks of local residents, organisations and companies, students and researchers and generates knowledge about placemaking and relevant related themes. This includes concrete experimental interventions, subsequent reflections and new forms of education (such as the student exhibition Faces of an Island) and research (such as the Soundwalk and Buurtkoffer projects).

Participation

For (future) partners, active collaboration in design research on social innovation and experimental interventions is essential, as is the desire to gain and share knowledge and experience. Students can participate by means of the Creative Future lab track, internship or graduation project in the lab. Researchers are also welcome to join.

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Sample project: SLUISlab

Baggerbak

In the Baggerbak project, a team of students are developing the first permaculture city garden for the Amsterdam Sluisbuurt neighbourhood as a prelude to the sustainable incubator 'Het Baggerbeest'. The incubator will be located on the site directly next to the entrance to the Piet Hein Tunnel and will offer space for around 100 artists. However, it will take a while before the incubator is actually created.

Lab partner Urban Resort therefore asked itself how local residents could already be involved in the preparations for and implementation of Het Baggerbeest. The potential solution put forward by the lab can be summarised in key words such as: fast movement to Sluisbuurt, active involvement of residents, use of the familiar Baggerbeest, permaculture, food forest and green city. As a result, residents of the Sluisbuurt will 'adopt' the Baggerbeest and make plans for the next phase in collaboration with partners. This will make the incubator more than just a place to visit. Instead, it will become a place that is co-created and developed with the efforts of local residents.





Blended Care Living Lab

In the Blended Care Living Lab: expertise & human resources (LLBZ), we aim to create a joint innovation community. After all, innovation in healthcare is not a luxury but an absolute necessity given the ageing population, growing number of patients and ever-increasing scarcity of care providers. In the lab, in which our university of applied sciences collaborates with SEIN and Heliomare, students, researchers and the professional field work on the renewal and improvement of treatments, care processes and service provision processes with digital means.

All based on offering added value for patients and professionals, with the focus on people.

Substantive focus

In the LLBZ, we design and implement care innovations in order to 'have them used' in the partner organisations. The focus is on the use of technological innovations, together with the effectiveness of blended care and professionalisation of employees. The aim is to research, develop, implement and/or scale up various concrete low- and high-tech innovations for healthcare provision in various care paths.

Working method

We identify issues and problems in the organisations that determine the lab's direction, as well as the methods used. Within the lab, practical sub-issues are addressed.

Contribution and results

Through participation, students gain experience of collaboration and the professional field.

In the lab, we also develop and design prototypes and knowledge that can be built on.

Participation

External partners can contact Laurence Alpay and go through the possibilities together. Students from various different degree programmes can participate. For example, Nursing students can participate by means of an innovation project (in the third year) and Dental Hygiene students by means of a graduation project. Computer Science students can take part by means of the User Experience minor or the Healthcare Technology minor (in collaboration with Rotterdam University of Applied Sciences - Vitale Delta consortium). Interested researchers are also very welcome to take part.

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StiPP: Students in Poelenburg and Peldersveld

Students in Poelenburg and Peldersveld (StiPP) is a lab run by Inholland University of Applied Sciences, the Municipality of Zaanstad and Amsterdam University of Applied Sciences. Students collaborate with local residents and professionals on solutions to local and social issues from the Poelenburg and Peldersveld districts in Zaanstad.

Substantive focus

The central focus of StiPP is not only working together, but also learning together. This is achieved by means of various different activities and research. Here, we follow the pillars of the 2020-2040 Poelenburg Peldersveld Pact:

1. young people,
2. housing, safety & participation,
3. poverty.

Health and language are recurring themes.

The municipality of Zaanstad works with a total of 28 partners on the above-mentioned pillars, to which StiPP also contributes. The main question here is: what is the health perception of residents in these districts and which initiatives can be taken together to work on health in the broadest sense?

Working method

We gather questions in discussions with the district professionals (District Social Team, Sportbedrijf sports complex, primary schools, housing associations, municipality, youth team and others). At Inholland, we then look for internal points of reference with different degree programmes and research groups. Conversely, degree programmes also regularly submit practical assignments to the district meetings.

Contribution and results

The results of our lab must tie in with the wishes and needs of local residents and neighbourhood partners. This is a priority. StiPP helps students to gain knowledge and experience in district work and integrated working methods, as well as a network with various organisations.

Participation

We expect commitment from students and degree programmes. If you have an inquisitive attitude and would like innovations to be as closely aligned as possible with the wishes and needs of local residents and partners, you can participate by means of minors, electives, graduation projects and participation credits. Partners provide feedback during the implementation and are involved in any further development and extension of the collaboration, intervention and/or research. Interested researchers, students and partners: free to email us.

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Learning and Innovation Network in Geriatric Rehabilitation Care

In three geriatric care organisations in the Greater Amsterdam region (Zonnehuisgroep Amstelland, Cordaan and Amsta), we work in Learning and Innovation Networks (LINs) to assess geriatric rehabilitation departments to see how we can improve client-oriented working methods with goals. In two projects, we use participatory action research (PAR) to investigate whether these improvements benefit the client and how the teams learn from each other and come up with innovations.

Substantive focus

At the Learning and Innovation Network in Geriatric Rehabilitation Care, the focus is on:

1. Investigating/optimising the learning effects of a LIN for staff and students.
2. Providing nurses and care providers with tools that enable them to better involve clients in their own care process and increase their autonomy.

The teams choose the themes that will be addressed in the LIN. Here, we examine the current work processes and opportunities for improvement and jointly implement new working methods.

Working method

We work by conducting participatory action research. A large number of students have joined the team to work on the implementation of care. This also gives the healthcare professionals time to focus on nursing tasks other than the actual provision of care. In the teams, nursing students work together with healthcare professionals, MBO nursing students and lecturers. They work on improvement projects in which the end user, the client, takes centre stage. Together, they participate in various learning activities such as clinical reasoning and moral deliberation.

Contribution and results

By means of the Learning and Innovation Network in Geriatric Rehabilitation Care, we contribute to improving the quality of care and align it with personal and meaningful goals on the part of the clients. Students learn from fellow students in a LIN internship, which creates a different learning and working environment. They also focus on overarching work processes.

Participation

We expect partners to be open to learning and improvement at all levels of the healthcare organisation. As a student, you can be assigned an internship in a LIN (this is currently only open to nursing students). Participatory action researchers in healthcare and well-being are most welcome.

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Haarlem Sport and Movement Lab

At Haarlem Sport and Movement Lab, we encourage participation in sports by developing new or revised offerings and innovative organisational forms that tie in with the wishes and needs of local residents. The aim is to develop an innovative range of sports to get more people moving. Although the initial focus lay on young people from North Haarlem, this has now been expanded to include several target groups and initiatives across Haarlem.

Substantive focus

Together with users and partners, in the lab we work towards creative and innovative solutions for an issue that contributes to improved health, resilience and social cohesion in districts of Haarlem. This takes place in a real-life setting, in which the users play an important role.

Working method

At the Sport and Movement Lab, we regards sport as a means of making an impact. The integrated network has developed an innovative multi-sport subscription, tailored to the wishes and needs of the target group. This network subscription offers the following: parent-child activities, annual sports days at pre-vocational education colleges (VMBO) and placement schools in collaboration with CIOS, Sport Studies and Social Work and structural sports mornings at the placement school de Schakel.

Contribution and results

The lab promotes equal opportunities for people from vulnerable and disadvantaged situations.

We seek prevention in partnerships between local sports providers, social work, the municipality, primary care professionals, schools and other relevant stakeholders (such as the Sports and Culture Youth Fund). Our ambition is for local residents to exercise more, have a healthier lifestyle, need less care and have a reduced risk of falling back into unhealthy habits. We also focus on strengthening social cohesion in Haarlem districts.

Participation

The Haarlem Sport and Movement Lab is an initiative of Inholland (Sport Studies/Power of Sport), the municipality of Haarlem and SportSupport Kennemerland. Various additional partners, such as sports providers, the Youth Fund and social organisations, are involved in each project. New partners are also very welcome. Students can participate in the activities of the lab by means of internships. Interested researchers would be very welcome to contact us.

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Sample project: Sportlab

The whole of Haarlem is walking

The residents of the Schalkwijk district of Haarlem exercise less, are less healthy and feel more isolated than residents of other districts. The municipality of Haarlem wants to get the residents moving and more closely connected by means of walking interventions. In the 'Heel Haarlem wandelt' (All of Haarlem is walking) project, implementing professionals (neighbourhood sports coaches), municipal professionals and lecturer-researchers assess the extent to which the walking interventions are used and by whom, what is working well and where there is room for improvement. They also study the role of the public space in walking activities and the strong points and areas for improvement in the interdisciplinary collaboration between the implementing professionals and municipal professionals involved. .



Lab glossary

Disclaimer: the interpretation of the following terms is constantly developing in science and policy. On a regular basis, you may find that the same terms are used differently within different disciplines or that different terms exist for more or less the same approach. This is an inherent part of inter- and transdisciplinary work in labs.

Field labs are practical environments in which companies and/or civil society organisations develop, test and implement (mostly technical) solutions together with knowledge institutions. The role of end users is often limited to providing input and learning how to apply these solutions.

Living labs are practical environments in a realistic, everyday setting, in which knowledge and education institutions, companies and/or social organisations and end users contribute to solving social problems in co-creation.

Knowledge workshops are organised learning and working environments in which knowledge and education institutions and companies and/or civil society organisations collaborate on a shared issue; these form part of the curriculum. In general, these workshops focus on creative, interactive, short-term interventions.

Learning and Innovation Networks (LINs) consist of an intensive collaboration between a healthcare institution and the education sector. Students, nurses and care providers work together on quality projects that arise from questions and needs in the workplace. The aim is always to develop interventions that increase the quality of care and well-being of the clients within the institution.

Learning communities refer, in a broad sense, to the fact that education at Inholland is all about learning with and from each other: students, lecturers, researchers and professionals from the field. A learning community can be categorised according to the goal it is intended to achieve, because although the concept of 'learning' is built into the term 'learning community', it is important to know whether learning is the primary and possibly only goal of the collaboration or the secondary result of working together on a product. Living labs, field labs, knowledge workshops and LINs are all forms of learning communities.

Learning groups are related to learning communities, but nevertheless differ in terms of definition and use. In 2016, the term was developed in Dutch

innovation policy as a 'thinking model for optimally connecting learning, working, innovation and research in public-private contexts'. The cooperation is characterised by the fact that there is always a connection with the development of all participants (lifelong learning) and with scientific research and innovation.

Human capital is the collective name for all the skills, knowledge and experience that employees have gained.

Wicked problems are complex problems that are difficult to solve because of incomplete or contradictory information, within a changing context. This means that if you turn one button, other buttons will also turn whether you want them to or not.

Social issues are issues with which society is confronted and that affect almost everyone in society, such as climate change, environmental pollution or poverty. These kinds of issues are so complex and difficult that solutions require expertise from various disciplines.

Triple helix stands for the collaboration between government bodies, companies and the education sector. In order to fully exploit the potential for innovation and economic development in a knowledge-based economy, government bodies, the business community and knowledge institutions must work together.

Quadruple helix is the triple helix extended to include citizens.

Multidisciplinary collaboration involves knowledge sharing without the added objective of developing integrated knowledge. The disciplines involved do not need each other to solve a problem that transcends disciplines. The aim of the collaboration is only to bring together various different perspectives.

Interdisciplinary collaboration is used for complex issues that require a systemic approach. Professionals from various disciplines collaborate to develop new knowledge that transcends knowledge domains. Perspectives from different disciplines must be interconnected in order to achieve common knowledge construction. In interdisciplinary collaboration, professionals make use of each other's expertise and create an intermediate position where new insights emerge.

Transdisciplinary collaboration is the most integrative and therefore most complex form of collaboration. Transdisciplinary collaboration not only involves

the organisation of collaboration between professionals but also involves (all the) other stakeholders. Examples include the collaboration between target audiences, professionals and academics to jointly develop knowledge in relation to tricky practical issues.

Co-creation is a form of collaboration in which all the participants have an influence on the process and the result of this process. Prerequisites for successful co-creation are equality between the participants, reciprocity, openness and trust.

Co-design is an approach to design that seeks to actively involve all the stakeholders (such as employees, partners, customers, citizens) in the design process to ensure that the result satisfies their wishes and is usable in practice.

Note from the editors

Creating this brochure allowed us to dive deeper into the numerous wonderful labs at Inholland and its partners.

The Inholland labs are constantly in motion, depending on the current issues and the type of collaboration between researchers, the education sector and their partners. Please do not hesitate to contact our colleagues for more information, if you would like to participate or if you wish to collaborate together with your initiative on a particular topic or at a specific location.

More power ensures a greater contribution to solving the challenges that we face as part of society!

