Annex 2: Catalogue of challenges

This annex details each challenge proposed for the Open Call | LAUDS Replication, including the proposed challenges and expected outcomes.

LAUDS Factories

CATALOGUE OF CHALLENGES

LAUDS REPLICATION **OC2-2025-laudsrep-01**

CALL COORDINATOR:

INOVA+

Co-funded by the European Union

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CHALLENGES PRESENTATION

MOBILITY-RELATED CHALLENGES

Challenge M1: Designing Effective Solutions for Active and Non-Motorized Transport

Description: As urban congestion and environmental challenges continue to rise, active mobility presents a sustainable alternative to motorized transportation. However, existing systems often fail to address key needs like accessibility, safety, and seamless integration into urban infrastructure. We invite innovative solutions that enhance non-motorized transport options—such as walking, cycling, and other eco-friendly alternatives. These solutions should focus on improving infrastructure, services, and overall user experience, while prioritizing accessibility and sustainability. The goal is to make non-motorized transport a practical, attractive, and eco-friendly option for people and goods, helping reduce reliance on motor vehicles and fostering healthier, more livable cities.

LAUDS Factory hosting the challenge: BUW

Challenge M2: Imaginative Solutions for Inclusive and Accessible Transportation

Description: Ensuring equitable access to mobility remains a critical challenge for low-income and underserved populations, particularly individuals with disabilities, who face systemic barriers to employment, healthcare, and social inclusion. This challenge seeks practical, cost-effective mobility solutions that prioritize functionality, durability, and adaptability across varied terrains, without reliance on high-cost technologies or complex electronic systems. Emphasis is placed on the use of locally sourced or repurposed materials, modular design principles, and intuitive user interfaces to enable scalable, context-sensitive interventions. Solutions should respond to real-world constraints, including poor infrastructure, limited maintenance resources, and the need for easy local manufacturing or repair.

LAUDS Factory hosting the challenge: SUPSI

Challenge M3: Reducing Carbon Footprint of Urban Transport Systems

Description: Urban transportation is a major driver of carbon emissions, demanding innovative solutions to achieve sustainable cities. The challenge calls for the development of transformative approaches to

decarbonize urban transport systems. Participants are encouraged to explore diverse strategies, such as integrating electric and hydrogen-powered vehicles, advancing shared mobility models, and designing cutting-edge infrastructure that fosters clean, efficient, and accessible transit. Solutions should prioritize reducing environmental impact while enhancing urban livability, accessibility, and resilience, paving the way for greener, smarter, and more connected cities.

LAUDS Factory hosting the challenge: TMDC

Challenge M4: Innovative solutions for informed, accessible decision-making

Description: As technology reshapes the way we navigate truth and the physical-digital divide, reliable access to information plays a vital role in informed decision-making. The challenge invites participants to develop tangible, human-centric solutions that enable users to monitor, verify, and visualize energy consumption and mobility patterns in real-time, fostering sustainable choices in urban transport. Proposals could include interactive tools, apps, or systems that provide insights into energy-efficient routes, shared transport availability, or vehicle energy usage. Integrating actionable and accessible information into these solutions encourages environmentally conscious decisions while promoting trust and inclusivity. Focusing on practicality and scalability, participants will create prototypes designed to empower sustainable mobility habits, reducing environmental impact while enhancing accessibility and user engagement.

LAUDS Factory hosting the challenge: UL

ENERGY-RELATED CHALLENGES

Challenge E1: Reimagining Energy Delivery Systems

Description: Access to energy can be a challenge in areas dependent on centralized delivery systems, which can be vulnerable to disruptions and inefficiencies. However, with the rapid advancement of technology, there is a growing opportunity to move beyond this reliance and explore the potential of autonomous energy systems. These systems could offer a more decentralized and resilient solution to energy distribution, addressing many of the issues associated with traditional infrastructure. How can we creatively reimagine autonomous systems to seamlessly integrate into our daily lives, ensuring their efficiency and reliability while also considering their broader societal, ethical, and emotional implications? This challenge calls for ideas that not only push the boundaries of technology but also spark deeper reflection on the role of autonomy in society, ensuring that these systems are designed with consideration for the collective well-being and future sustainability.

LAUDS Factory hosting the challenge: BUW

Challenge E2: Democratizing energy through DIY Renewable Energy Solutions

Description: Many communities rely heavily on centralized energy systems, making them vulnerable to disruptions and limiting their ability to achieve energy independence. While portable renewable energy systems offer a way to decentralize energy production, they are often expensive and difficult to access, preventing widespread adoption in local communities. This challenge invites you to design accessible, low-cost DIY renewable energy systems that can be developed and maintained by communities themselves. By leveraging open-source technologies and creative engineering, the goal is to empower communities to generate their own clean energy.

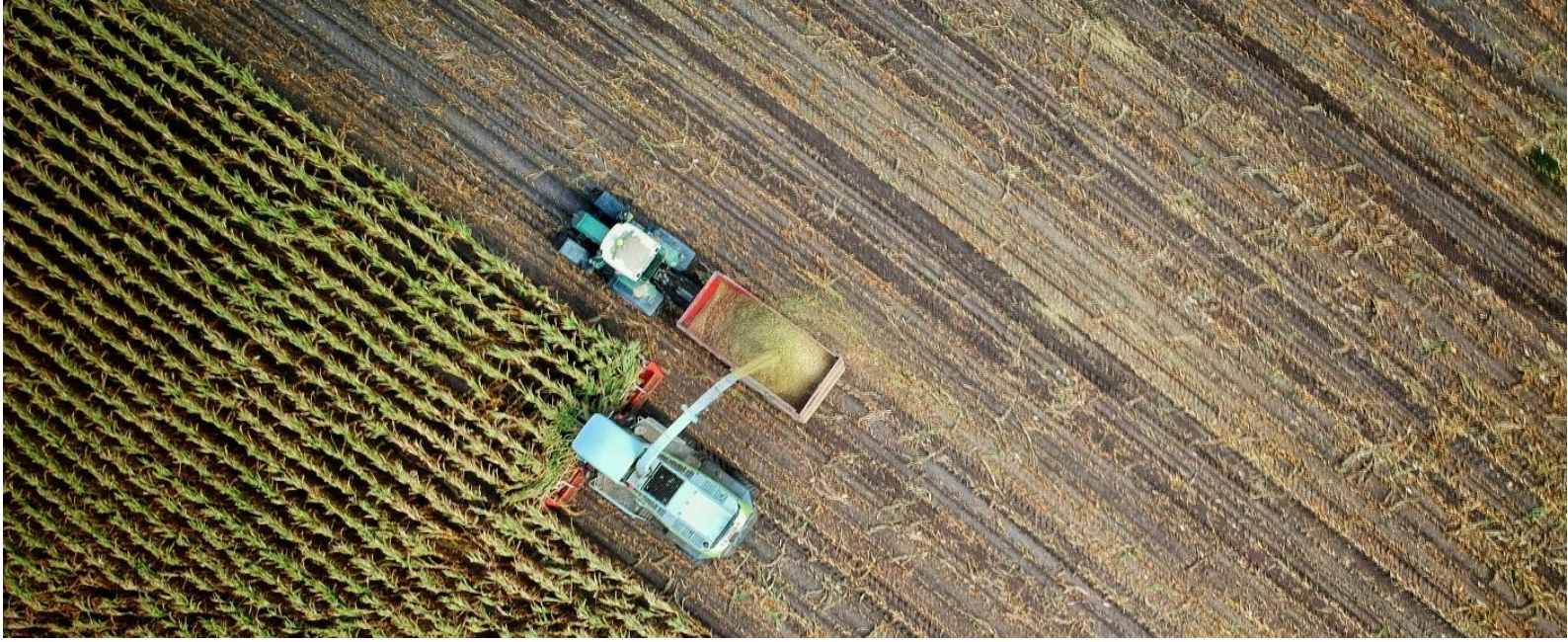
LAUDS Factory hosting the challenge: TMDC

Challenge E3: Reusing Fabrics and Advanced Biomaterials for Energy-Efficient Interiors

Description: Rising energy costs, inefficient insulation, and the prevalence of disposable designs are creating significant challenges in the construction of public and private spaces. At the same time, there are underused resources, often considered waste, such as discarded fabric. This challenge calls for aesthetically pleasing and energy-saving solutions that address interior construction needs while promoting fabric reuse. Proposals shall explore and advance the digital craft by incorporating advanced biomaterials or recycled fibers to solve issues like insulation and noise reduction. Focus on local, custom production, to reduce transportation, foster community involvement, and tackle (emotional) obsolescence—where products lose their appeal or function.

Solutions can be tailored to specific environments or use context. Real-world testing will be critical to measure energy savings, user satisfaction, and overall impact, ensuring that the solutions provide lasting benefits to both users and the environment.

LAUDS Factory hosting the challenge: SUPSI



AGRICULTURE/FOOD PRODUCTION -RELATED CHALLENGES

Challenge A1: From Waste to Resource: community-driven food waste valorisation solutions

Description: Food waste is a significant global issue, often discarded without fully harnessing its potential to generate valuable resources, such as bioenergy, compost, or materials. Many existing solutions fail to integrate effectively within local communities or motivate active participation, leading to limited impact and adoption. This challenge invites you to develop scalable, community-driven systems that transform food waste into useful resources. The solutions could include compact, modular units for composting, bioenergy, or material recovery that can be deployed in urban neighbourhoods and should incorporate educational elements and incentives to engage communities and promote sustainable, circular economy practices.

LAUDS Factory hosting the challenge: UL

Challenge A2: Advancing Urban Sustainability Through Community-Based Green Education and Cultivation Systems

Description: Urbanization has not only disrupted local food systems but also widened the gap between citizens and the skills needed to cultivate and sustain green urban environments. This challenge calls for well-designed, scalable solutions that integrate food production, environmental awareness, and hands-on education into the urban fabric. Whether through modular vertical farming systems, intelligent indoor cultivation setups, or multifunctional growing interfaces, the focus is on enabling communities, schools, and shared urban spaces to actively participate in the greening of cities. Solutions should prioritize accessibility to practical knowledge—ranging from basic cultivation techniques to soil health and natural fertilization—while fostering continuous learning and community engagement to build long-term capacity for sustainable urban transformation.

LAUDS Factory hosting the challenge: METALAB, with support of SUPSI

Challenge A3: Local production of affordable and sustainable materials for agriculture

Description: Urban gardeners or organizations focusing on urban food production often struggle with high production costs, wasteful resource use, and limited access to sustainable materials. How can we support urban gardeners or urban food productions with sustainable and affordable materials and tools? This challenge calls for low-cost and locally produced solutions using for instance recycled fabrics, food production byproducts or secondary raw materials from construction sites to reduce food production's environmental impact. We invite you to design biodegradable pots, nurseries, protective materials for young plants, or other innovative solutions integrating low-energy and digital processes like machine development and molding. Focus on simplicity, community engagement, and scalability to meet users' needs while promoting sustainability, real-world adoption.

LAUDS Factory hosting the challenge: METALAB

Co-funded by the European Union, 2024-2026, GA 101135986

LAUDS FACTORIES HOSTS PRESENTATION

BUW

Referring to environment as a concept from artistic practice of the nineteen-fifties that emphasizes the mismatch between life and art, the Media Environments Research Chair (GMU) at Bauhaus University Weimar aims to redesign everyday situations, objects, devices and practices. The Multi-layered mixture of cultures and technologies and further, the production of knowledge all call for a permanent repositioning of artistic practices within society. Through transdisciplinary experimentation with art, technology, biology and nature, we aim to challenge our own self-conceptions in a rapidly changing world.

Along with creating artwork for exhibitions, GMU works throughout everyday situations; cooperations with the sciences and cultural institutions; the internet; game environments and public spaces. We develop audio visual installations; mise-en-scènes; performance and interventions in urban space. Media Environments co-workers work with a variety of tools and techniques to create wearable technology; smart objects; digital visualizations; electro-mechanical sculptures, experimental games and simulations of utopian city planning. Media Environments encourages students to experiment with technological processes, creative coding, DIY electronics and further with species, organisms, plants and animals. At GMU we investigate new ways to perceive ideas of environment by cultivating connections between art, technology, science and nature in adventurous ways.

Resources and technology available to the Hybrid Teams

DIY BioLab

The DIY Biolab is a working environment equipped with professional laboratory equipment to perform (micro)biological experiments. For example, plants, algae and fungi as well as harmless microbes can be cultivated and researched here. The laboratory has a solid basic equipment (glassware, scales, centrifuges, microwave, heating stirrer, incubator, etc.) as well as a sterile workbench and powerful microscopes.

Figure 1. Image from the DIY Biolab, by Media Environments, University of Weimar]. URL: https://www.uni-weimar.de/en/art-and-design/chairs/media-environments/laboratories/diy-biolab/

This enables students to engage in an artistic and scientific study of living organisms, in which they can design the respective environmental conditions themselves and observe the reactions of living organisms. For the experiments, only organisms are used in which a health hazard can be excluded and which, for example, are also approved for work in schools. In recent years, work has been carried out with various plants (e.g. duckweed), fungi (e.g. oyster

mushrooms), single- and multicellular microorganisms (e.g. euglena and nematodes) and the so-called slime-mold Physarum Polycephalum. Some impressions of the organisms are shown in the picture gallery below, information on specific projects can be found under 'Projects'.

The DIY (Do It Yourself) aspect of the Biolab refers to the establishment and development of technical processes (DIY microscopes, Arduino Boards, etc.) and interfaces between different systems, whether biological or otherwise. For example, bio-electronics courses are offered which are dedicated to the combination of technology and biology.

Maker's Corner

The Maker's Corner is a dedicated workspace equipped with professional tools to support the DIY Biolab and digital fabrication processes. It features a CNC milling machine and a laser cutter, providing essential resources for precision manufacturing. Our partner facilities at the Interface Design Chair offer an extended range of fabrication tools, including multiple 3D printers, an additional Epilog Laser Fusion M2 laser cutter, and various CNC machines such as Roland CNCs and Shaper Origin, along with other equipment for both digital and analog fabrication. Additionally, Bauhaus University provides access to a diverse selection of workshops and specialized labs, including woodworking, metalworking, electronics, and sound studios. The university also hosts event spaces for conferences, exhibitions, and symposiums, fostering interdisciplinary collaboration and knowledge exchange.

Period for cooperation

Experiments may be implemented between November 2025 and March 2026. Co-workers at GMU are available to cooperate directly with the hybrid team from November 2025 to August 2026.

METALAB

At METALAB, we are dedicated to promoting sustainability, community development, affordable housing, and innovative product design. Our projects unite individuals who share a commitment to these values, creating collaborative environments that support collective progress. Our mission is to empower these communities, helping them build inclusive, sustainable, and comfortable living spaces. Currently, we are focused on two impactful projects: POLE and CO-HATY.

POLE is a centre for innovation and sustainable development, where traditional crafts meet modern technologies. At METALAB, we envision a collaborative ecosystem that brings together makers from diverse backgrounds. To achieve this, we created a makerspace—a platform for learning, experimentation, and knowledge sharing about production. Central to this initiative are the principles of the circular economy and universal design, ensuring that the space is both innovative and inclusive.

Figure 2. Image from the POLE project, METALAB. URL: https://metalab.space/en/project/pole/

CO-HATY emerged in March 2022 as a response to the devastation caused by Russia's full-scale invasion of Ukraine. In collaboration with the Urban Curators, METALAB has been working to provide housing solutions for those who lost their homes due to the war. Through the efforts of dedicated partners and volunteers, we are renovating buildings, designing spaces with thoughtfulness and care, and furnishing homes with dignity and love.

Resources and technology available to the Hybrid Teams

At POLE, Hybrid Teams are provided with a wealth of resources and advanced technologies to foster innovation and creativity. The makerspace is fully equipped with state-of-the-art facilities to support a wide range of activities.

Figure 3. Image from the POLE project, METALAB. URL: https://metalab.space/en/project/pole/

The Woodworking Studio features professional-grade tools for cutting, milling, sanding, and assembling wooden structures. The Metalworking Studio includes comprehensive equipment for welding, cutting, and shaping metal components. The Ceramics and Molding Studio offers facilities for clay modelling, mold-making, and prototype creation using diverse materials. Additionally, there are Laser Cutting and CNC Machines, which are high-precision machines used for rapid

prototyping and customized production. The 3D Printing and Prototyping Zone includes various 3D printers, enabling the design and testing of intricate components.

The Community and Knowledge Hub provides access to Expert Mentorship and Peer Support, where teams can tap into a network of professionals from various industries who offer guidance on technical challenges and innovation processes. There is also a strong Focus on Circular Design, with an emphasis on integrating circular economy principles to inspire teams to create products with minimal environmental impact and sustainable lifecycles.

In terms of activities and support, POLE offers rapid prototyping and testing, hands-on experimentation with new materials and technologies, small-scale production runs, and collaborative workshops with industry experts and mentors.

Main expectations for the Hybrid Teams

Since the Hybrid Teams will be working on challenges focused on sustainable urban food production, reducing environmental impact, and designing affordable solutions for urban gardeners, our expectations are aligned with creating practical, scalable, and community-driven innovations.

- **Development of Low-Cost, Locally Sourced Solutions**

We expect teams to design cost-effective and easily replicable solutions that make use of recycled materials, food production byproducts, and secondary raw materials from construction sites. The goal is to minimize costs while promoting sustainable practices that can be adopted by urban gardeners and small-scale producers.

- **Integration of Circular Economy Principles**

A key priority is for teams to integrate circular economy principles into their designs. This includes creating biodegradable pots, protective materials, and other cultivation tools that can be produced sustainably and either reused, recycled, or composted at the end of their lifecycle.

- **Simplicity and Real-World Adoption**

We expect teams to focus on simplicity and practicality—solutions should be intuitive and easy to implement for urban gardeners and community organizations. Teams should consider user-friendly designs that require minimal technical knowledge and can be maintained with limited resources.

- **Scalability and Replicability**

We encourage teams to consider scalability from the outset. Solutions should be designed in a way that they can be easily replicated or adapted to different contexts, allowing for broader adoption across various urban environments.

We are excited to see how Hybrid Teams will apply these principles and leverage the METALAB resources to develop impactful solutions that contribute to sustainable urban food production.

Period for cooperation

Experiments may be implemented between November 2025 and August 2026.

TMDC (TALLER PARA LA MATERIALIZACIÓN Y EL DESARROLLO DE CONCEPTOS)

TMDC (Taller para la Materialización y Desarrollo de Conceptos) is a pioneering industrial coworking space located in Barcelona, encompassing 7,000 m² of facilities designed to empower local manufacturing and foster collaboration among artisans, designers, and small businesses. Our mission is to create a vibrant ecosystem that champions sustainability, innovation, and the dignification of work in the manufacturing sector. With access to advanced machinery, training programs, and a supportive community, TMDC facilitates the growth of creative projects and promotes economic resilience within the city.

Figure 4. *Overview of the A08 assembly area at TMDC, showcasing a spacious and well-equipped workshop where creativity and hands-on projects come to life, TMDC. URL: https://www.tmdc.es/*

In line with the objectives of the LAUDS project, we are committed to contributing to the establishment of local urban factories that emphasize open and sustainable production practices. By collaborating with a network of partners, we aim to drive innovative solutions that address the unique challenges of urban manufacturing in Europe. Our facility not only serves as a space for fabrication but also as a hub for knowledge exchange and community engagement, fostering a holistic approach to sustainable development.

Resources and technology available to the Hybrid Teams

TMDC is a fully equipped workshop with a diverse array of tools for working with wood, metal, plastic, and electronics. Hybrid Teams have the freedom to use the tools and the space to meet their specific project goals, fostering creativity and innovation in a hands-on environment.

Some of the materials available for use include:

- Wood: Plywood, MDF, hardwoods (oak, walnut, maple), and softwoods (pine, fir).
- Metal: Aluminum sheets, steel rods, copper, and brass.
- Plastics: Acrylic, PETG, polycarbonate, and PVC.
- Electronics: Circuit boards, microcontrollers (e.g., Arduino, Raspberry Pi), and sensors.

All available tools and machinery can be explored here: https://www.tmdc.es/herramientas-tmdc.

In addition to the infrastructure, TMDC offers various workshops and induction classes designed to help teams fully understand and maximize the capabilities of our equipment. These workshops cover a wide range of topics, including carpentry, metalworking, CNC milling, and 3D printing. Hybrid Teams are encouraged to participate in any of these courses to enhance their skills and knowledge.

Upcoming courses available for Hybrid Teams include Introduction to Carpentry, Metalworking Fundamentals, CNC Milling Basics and Advanced 3D Printing Techniques.

All courses can be explored here: https://www.tmdc.es/cursos

Furthermore, TMDC is home to a thriving community of 170 members with diverse expertise in fields ranging from design and prototyping to engineering and technology. These members, with backgrounds in areas such as robotics, sustainable materials, and electronics, can become invaluable strategic partners for Hybrid Teams seeking to develop and refine their products. Whether you're looking for guidance on industrial design, need assistance with advanced machine settings, or require a partner for collaborative research, the TMDC community is here to support you.

Figure 5. Image from TMDC. URL: https://www.tmdc.es/tarifas

Main expectations for the Hybrid Teams

Hybrid Teams are expected to work in a professional manner within the space. We expect all members of TMDC to take care of the machines and the space. Depending on the skill set from the hybrid team, some inductions are compulsory to be able to use the workshop´s machines. Some machines require the induction regardless of the experience of the team members. Besides that, we hope to encounter motivated individuals passionate about their projects.

Period for cooperation

Experiments may be implemented between November 2025 and August 2026.

UNIVERSITÉ DE LORRAINE, LORRAINE SMART CITIES LIVING LAB

Led by ERPI laboratory, the Lorraine Smart Cities Living Lab (LSCLL - https://lf2l.fr/projects/lorraine-smart-cities-living-lab) is a collaborative project of the Université de Lorraine (UL) to support the early design stage of development of systemic innovations towards an industry 5.0 and sustainable territories. It advocates for a commons-based technology framework and a circular economy, promoting collective resource management for sustainability.

The core competencies are based on structuring collaborative approaches to co-create intermediate design objects (IDO) linking the multilevel perspective of the innovation from technological development, organisation maturity, and the territorial development perspective. At each level, the integration of different stakeholders (e.g. company, providers, partners, academics… and the end-users and/or consumers) along the design and production process is fostered to better understand the socio-technical systems.

Furthermore, UL LAUDS Factory (LSCLL-UL) aims to implement the Do-It-Together (DIT) concept, an alternative co-creation and open-manufacturing process that enables customized production, promoting local manufacturing closer to consumers and open-communities who actively contribute to the production (see: https://www.inedit-project.eu/).

Finally, the LSCLL creates the conditions for Public-Private-Population Partnerships (PPPPs) that are aware of the environmental challenges and willing to develop solutions to serve the common good. That means we adopt a quintuple helix approach to disseminate innovation and related practices in the service of Research, Development of Innovations, Training, a Citizen Culture, and environment.

Figure 6. Image by Laurent Dupont, Université de Lorraine - ERPI & ENSGSI. URL: https://inspiration.dgesip.fr/Espaces/Lieu/WuMr6/

Resources and technology available to the Hybrid Teams

A physical platform[1]

As a research and teaching platform, the LSCLL-UL has a wide range of equipment, some aimed at the general public, others highly specialized. Description of the available equipment can be found in the following pages (in French): https://fabmanager.lf2l.fr/#!/machines

Figure 7. Université de Lorraine - ERPI - LF2L

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[1] *Please note that as regulations evolve, certain areas of the UL platform may be subject to restrictions.*

https://pluginlabs.univ-lorraine.fr/fiche/lorraine-fab-living-lab/
https://inspiration.dgesip.fr/Espaces/Lieu/WuMr6/

On this last webpage, a description of innovation spaces, including laboratories, within the LSCLL-UL is available.

Figure 8. Université de Lorraine - ERPI - LF2L

A 2D-3D-4D process: from co-creation to test by use[2]

Support to the co-creation of concept (2D) and its suitability for its socio-technical and natural environment. Accompany projects for a validation of the prototype (3D) through an evaluation of the user experience in a real or virtual environment (4D) prior to physical production, to limit the number of trials and errors, while minimising wasted resources. Tests could be set up at LSCLL-UL (control environment), in relevant environment (open environment) or at the Foire Expo de Nancy with the Open citizen lab in pedagogical/citizen workshops, etc.

A territorial network

L'Octroi Nancy: creative, cultural and citizen third place of the city of Nancy, which provides access to additional spaces such as offices, a creative community, etc.

DHDA project: a regional and hybrid collective (entrepreneurs, foresters, artists, farmers, researchers, elected representatives, industrialists, financiers and naturalists, citizens...) to make the most of all the trees in our region.

Period for cooperation

Experiments may be implemented between November 2025 and August 2026.

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[2] *idem*

DIGITAL FABRICATION AND OPEN INNOVATION LABORATORY OF SUPSI

The FabLab is the Digital Fabrication and Open Innovation Laboratory of SUPSI, the University of Applied Sciences and Arts of Southern Switzerland. The lab facilitates the development of project in which digital skills cross various domains including architecture, construction, design, interaction, and creativity. The facility actively engages with students, lecturers, researchers, companies, organizations, and citizens to promote the open innovation model through the utilization of digital technologies.

University of Applied Sciences and Arts of Southern Switzerland

SUPSI

The FabLab collaborates with Institute of Design and other units of the Department of environment construction and design at SUPSI on topics that span from robotic fabrication, interactive products, reuse of constructions site materials to regenerate the territory to AI powered design.

It is the main facility for prototyping and production of MA in Interaction Design SUPSI, the international program dedicated to design and technology located in Mendrisio: www.maind.supsi.ch

Figure 9. SUPSI_FabLab_DACD_CCBYSA_0: General view of the SUPSI FabLab, under CC BY-SA 4.0 License.

Resources and technology available to the Hybrid Teams

The FabLab SUPSI, spanning 300 square meters, provides cutting-edge training to local and national creative communities on emerging technologies. It showcases how fast prototyping can be simplified and made accessible to designers, artists, and makers who are developing innovative products and experiences. The lab offers access to industrial-grade machines for large-scale production, including CNC machines and industrial 3D printers for architecture, sensors and electronics for interactive prototyping, as well as laser cutters and 3D scanners. Additionally, the lab interacts with other construction spaces on the Mendrisio campus, fostering collaboration across various disciplines. The FabLab is powered by the researchers and designers of the SUPSI Design Institute, whose expertise spans design thinking, electronics, and the advanced implementation of interactive installations. The team provides comprehensive support across all stages of design-driven projects, where aesthetics, functionality, and technology converge. Specializing in

human-computer interaction (HCI), user experience (UX) design, and digital fabrication, the team excels in helping clients bring their concepts to life through digital design and prototyping.

Moreover, the FabLab offers strong support in areas such as scalability and business model development, ensuring that projects are well-prepared for real-world applications. With a focus on data-driven processes, the team can assist in digital documentation and project monitoring, ensuring smooth development and seamless scaling of projects.

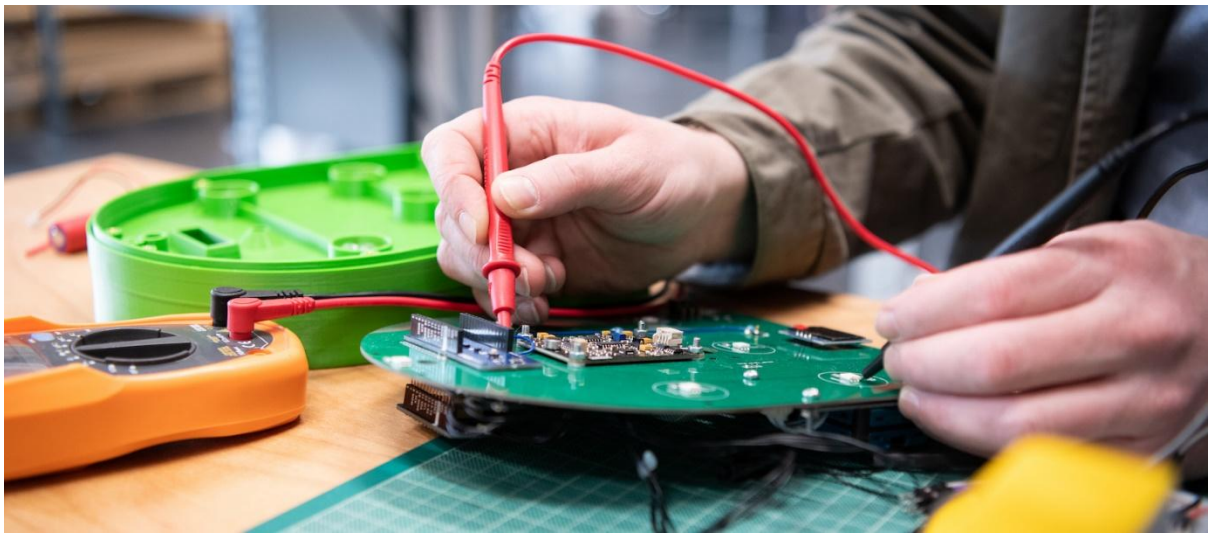

Figure 10. SUPSI_FabLab_DACD_CCBYSA_3: CNC Milling at the SUPSI FabLab, under CC BY-SA 4.0 License.

Period for cooperation

Experiments may be implemented between November 2025 and August 2026.

LAUDS OC#2 CALL:

CALL FOR PROPOSALS

GUIDE FOR APPLICANTS

CATALOGUE OF CHALLENGES

LAUDS FACTORIES CONSORTIUM PARTNERS

TECHNISCHE UNIVERSITÄT BERLIN / GRENOBLE INP-UGA / G-SCOP LABORATORY / UNIVERSITE GRENOBLE ALPES / HSU – HELMUT-SCHMIDT UNIVERSITY / UNIVERSITY OF THE FEDERAL ARMED FORCES HAMBURG / UNIVERSITÉ DE LORRAINE / ZENTRUM FÜR SOZIALE INNOVATION GMBH / INOVA+, INNOVATION SERVICES, S.A / MAKER V-10 / STICHTING DYNE.ORG / BAUHAUS-UNIVERSITÄT WEIMAR / FAB CITY HAMBURG E.V. / HIWW UG / FABLAB DIGITAL FABRICATION AND OPEN INNOVATION LAB SUPSI / MEKANIKA / METALAB / TMDC

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