

# AALTO DESIGN FACTORY

annual report  
'23-'24

A”

Aalto University  
Design Factory


A woman with dark hair is leaning over a table, working on a Raspberry Pi. She is wearing a dark top and a white bracelet. The background is a workshop or office setting with various electronic components and tools. The text 'WHY UP?' is overlaid in large white letters.

# WHY UP?



# ART'S

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A frequently asked question is how the Design Factory has changed over the 16 years since its founding. The original vision included supporting students by improving the accessibility of the facilities. The machines, equipment, materials, and most importantly, the empathetic experts are still focused on the same goal as in the beginning: training the best product developers in the world. In fact, the vision hasn't changed at all!

Naturally, over these years, there have been many surprises. The global network of 39 Design Factories was not part of the original plans; it emerged unexpectedly - against all odds, you might say. Moving away from Betonimiehenkuja wasn't planned either, but it became a significant step. Every coin has two sides, or as Matti Nykänen once said, "Every threat is an opportunity."

One of the positive changes in recent years has been the increase in foot traffic due to the move. While students used to come to the old Defa only for compelling reasons, nowadays many want to come "just" to study in the evenings, meet friends, play ping pong, or simply hang out. The new building has certainly brought changes, including the cohabitation of many groups under one roof. All the anticipated pros and cons have materialized, along with many others besides.

Continuity in Design Factory's operations is also reflected in my transition to the background, as the new director, Tua, has grown alongside Defa since 2007. The recruitment process was conducted very thoroughly, and Design Factory was also evaluated this spring. As a result of these thorough processes - and despite them - Defa continues its mission cheerfully and eagerly, welcoming students 24/7!

*Kalevi "Eetu" Ekman*





# COMMUNITY



During the 2023-2024 academic year, our community has settled comfortably into our new building alongside our amazing neighbors. We've been able to extend our vibrant community to both existing and many new Aalto students. One of the best aspects of our new home at the Design Factory is the growing number of students and others who have discovered the Viima community. Viima provides us with a lively, dynamic space, welcoming a diverse range of people, activities, projects, and events.

In Viima, we continue to offer students the opportunity to study, explore, and innovate. We are happy to have seen a big growth in interest toward Design Factory as a physical location and community, offering interdisciplinary, hands-on courses and low-threshold workshop facilities. With our new housemates, we are excited to see what new shapes the community will take in the future!

STAFF MEMBERS

44

NEW STAFF

7

COMMUNITY BREAKFASTS

32

CUPS OF COFFEE:

28 204

BOTTLES RECYCLED

5 240

ADF TOURS

151

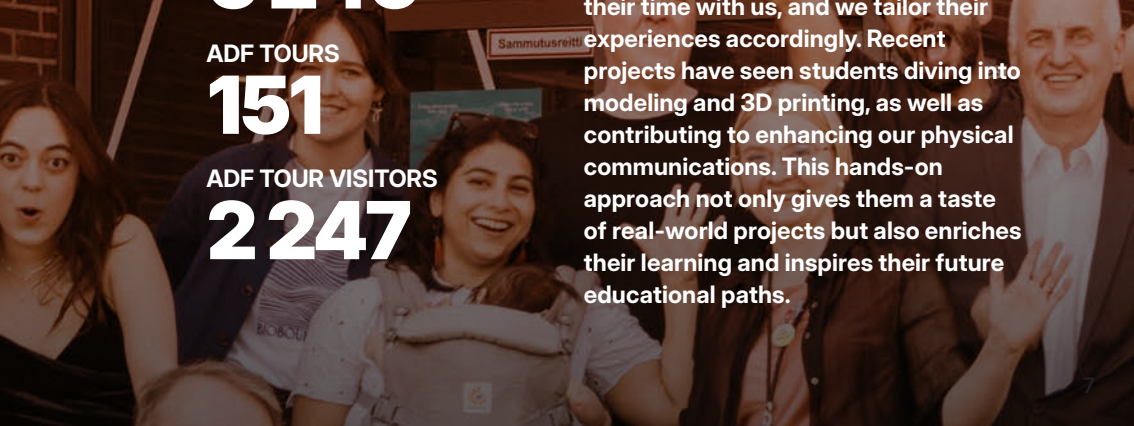
ADF TOUR VISITORS

2 247

# TET students

Before embarking on their university journey, we invite high school students to spend a week or two at the Design Factory for their TET experience. This year, we've welcomed 34 students from 15 high schools around Helsinki and Espoo, doing 1110 hours of their TET work.

At Design Factory, we encourage our TET students to share their interests and what they hope to learn during their time with us, and we tailor their experiences accordingly. Recent projects have seen students diving into modeling and 3D printing, as well as contributing to enhancing our physical communications. This hands-on approach not only gives them a taste of real-world projects but also enriches their learning and inspires their future educational paths.



# SPACES &

## New spaces & usability development

In April 2023 we bid farewell to our old premises at Betonimiehentie and moved in with our new neighbors at Puumiehenkuja 5 which used to be the K3 building - now renamed Viima.

Our spatial design team has been hard at work transforming the

**3,759 m<sup>2</sup>**  
**of fresh premises** to meet diverse

user needs. Along with workshops and staff workspaces, Design Factory now offers multiple hot desks for students and visitors, nine meeting rooms, two classrooms, and an event space, all bookable through the Aalto Spaces App, DF website, and Aalto Booking.



A person is holding a white sign with the text "Fighto DF" and a star symbol. The background is blurred, showing a yellow highlighter and a pink object. The word "COMMUNICATIONS" is overlaid in large, bold, white capital letters.

# COMMUNICATIONS

Staying true to our tradition of bringing people from different backgrounds together, DF also features a communal kitchen open to everyone, and a cozy Kafis lounge for chats over a hot beverage. For informal gatherings, there's even a sauna with a rooftop terrace!

As we moved to new premises, we also established signage and navigation throughout the Viima building – everything from spatial identities and brand touchpoints to plain user infographics. It's an iterative process that encompasses one of DF's slogans: 'Always ready, never finished!'

# Space usage

TOTAL RESERVATIONS

**664**

STAGE

**372**

STUDIO

**174**

WAVE

**69**

WORKSHOPS

**10**

PIXELHUB

**39**

WORKSHOP ELEVATOR USE

**57 000**

LOBBY ELEVATOR USE

**153 000**

*Welcome to*

**AVANTO DESIGN FACTORY**

*educating the best product developers*

*in the world since 2008*

# Social media

To keep everyone connected and showcase the vibrant happenings within our community, we actively use a variety of social media channels! Our goal is to strengthen the community with engaging content, ensure transparent communication about events at Design Factory, and reach new students.

In our lively Telegram group, we share everything from DF opportunities and external events to open job positions and a wide range of activities. We've also started creating short Instagram reels to capture the ADF spirit in action, helping us to expand our reach and engage more effectively across social media.

IG FOLLOWERS

**2814**

IG REELS VIEWS

**43 234**

LINKEDIN FOLLOWERS

**1077**

FB FOLLOWERS

**7188**

X FOLLOWERS


**5870**

INSTAGRAM

@aaltodf

TELEGRAM

AaltoDF



Situated at the heart of Aalto Campus, our new location has opened up opportunities to host a diverse array of events and activities. We're thrilled to offer our spaces for everything from student associations and academic events to more unique gatherings. Whether it's hackathons, gaming jams, dance practices, guild events, cooking classes, sailing training, career and networking events, or even choir and orchestra sessions, our facilities are designed to accommodate and enrich all types of events.

**THIS YEAR'S EVENTS HIGHLIGHTS INCLUDE:**

**Mechatronics Circus**

**Actionable Sustainability Talks**

**PDP Gala**

**PD.X**

**Teekkarispeksi practices**

**ENG Dean's coffee**

**DME Department meetings**

**LOBSTER School in Chemical Bonding Analysis**

**Deep Dive workshops**

**Avoimen tieteen päivät**

**Tutki-Kokeile-Kehitä event**

We're delighted to see our spaces become a hub of creativity and connection, bringing together the community in dynamic and exciting ways.

# EVENTS



A man with a mustache, wearing a white shirt and a dark scarf, is speaking into a microphone. He is looking to his left. In the background, other people are visible, including a man with glasses. The scene is dimly lit, suggesting an indoor event or conference. The text 'PD.X - Empowering Collaboration 2023' is overlaid on the image in a large, white, sans-serif font.

# PD.X - Empowering Collaboration 2023

In 2023, we hosted the second edition of PD.X, an event centered on product development and innovation, first introduced at the Design Factory in November 2022. With the theme 'Empowering Collaboration', we brought together professionals from various industries to ignite meaningful conversations and share valuable insights with both students and industry experts.

Marina Madanat (Huhtamäki Oyj) spoke about the crucial role of entrepreneurship in launching new businesses, while Ari Kynäslähti (Nokia Oyj) stressed the importance of product development. Liisa Åström (Vaisala Oyj) focused on team motivation, and Ulla Iimonen (Taitos Design Oy) provided insights into innovative packaging development.

To foster engagement from both students and stakeholders, we introduced a discussion circle, offering everyone the chance to voice their opinions, ask tough questions, and break away from the passive nature of traditional panel formats. This approach was a big success and is something we plan to incorporate more often at the Design Factory, especially to involve students more actively in the conversation.





# WORKSHOPS

Aalto Design Factory workshops are dedicated to shaping the world's best product developers. Equipped with top quality tools and staffed by knowledgeable experts, our workshops cater to all your needs in electrical work, 3D printing, wood, and metal prototyping. Whether you're part of a course at ADF or an individual student working on a project, our workshops and staff are here to help. Don't hesitate to reach out to our team for support with your school project!

Over the past academic year, our workshops have been buzzing with new projects and courses, primarily focused on mechanical engineering at both the bachelor and master levels. As the workshops continue to adapt to their new, one-year-old location, we've seen increased demand and usage, leading to continuous improvements in how we operate. It's not just students making use of the space – staff from neighboring facilities and laboratories have also started utilizing the ADF workshops, bringing fresh perspectives to managing and maintaining a space that serves a diverse range of users with varying skill levels.

A major highlight of the year was the introduction of the Mechatronics Circus in April, now one of two large showcase events on our annual calendar, alongside the PdP gala. This event took over the entire workshop, creating an electric atmosphere as students showcased their impressive projects.

The PdP course remains a key highlight, not just for its innovative projects, but for the valuable insights it provides. This year, students have once again put the workshop layout and facilities to the test, presenting new and exciting challenges that keep our staff engaged and on their toes.

NUMBER OF CNC PROGRAMS

**618**

WELDING HRS

**303 h**

WATER JET CUTTER HRS

**106 h**

MILL & LATHE HRS

**1457 h**

# New machinery!

**Epilog Fusion Pro 36 (80W CO2 50W fiber) laser cutter**

**Formlabs Fuse 1+ 30W SLS printer**

Ultimaker S7 FDM printer FDM printing (02.06.2023 - 20.08.2024)

In the spring of 2024, Design Factory upgraded two of its workshops with new equipment. First, we added a Colchester Triumph VS manual lathe, an essential addition for mechanical engineering courses that rely on traditional manufacturing methods. Not only does this machine increase our capacity, but it also comes with enhanced safety features to ensure a secure working environment. The second upgrade is the acquisition of a new Kemppi Master M358 MIG/MAG welding machine, replacing the previous model. This new welding machine offers greater ease of use, along with several convenient features that make it even more user-friendly.



# ElectroShop

Over the past year, Electroshop has been thrilled to support countless student projects across various departments at Aalto. We've introduced new and improved workshops, upgraded our premises and equipment, and restructured the shop to better meet student needs. With enhanced organization and new tools like high-precision multimeters, updated power supplies, and three additional hot air/desoldering units, we've created a more efficient workspace. To accommodate growing demand, we also increased the number of soldering stations from four to six and added two extra workbenches.

We're particularly excited about our recent acquisition of a FLIR E54 Thermal Imaging Camera, which will be a valuable asset in the coming years. In response to the surge in mechatronics projects, we've stocked up on new components to make student prototyping even easier.

Beyond equipment upgrades, we milled 33 custom PCBs and hosted several workshops and events. For the first time, we ran a Shaking Up Tech workshop, guiding high school students through interactive projects. We also held our annual PDP Introduction to Electronics workshop and organized two AI and robot-focused hackathons.

# PrintShop

PrintShop has had an exciting and busy year! We've upgraded our manufacturing capabilities and assisted countless students with their digital fabrication needs. This year, we welcomed a new SLS printer, FDM printer, and laser cutter, while fondly retiring our original in-house-built printers, Nunu and Coco.

Our new laser cutter, the Epilog Fusion Pro 36, has significantly boosted our capacity with faster speeds, more power, and the ability to etch metal using a fiber laser. The addition of the Formlabs Fuse 1+ 30W SLS printer has been a game-changer, allowing us to produce intricate, highly detailed parts with interlocking designs and walls as thin as 1 mm - all without the need for supports. We've nearly doubled our FDM printing capacity with the Ultimaker S7 and are excited to explore new materials using carbon fiber and stainless steel expansion kits.

This past term, we completed over 1,100 jobs, dedicating 186 hours to laser cutting, 2,851 hours to FDM printing, and 335 hours to SLS printing. We used 36 kg of material for FDM printing and 21 kg of Nylon PA12 powder for SLS printing. As we move into the new school year, we're thrilled to empower students even further by adding an FDM printer they can manage independently, giving them more hands-on 3D printing experience.



PRINTING HOURS

**2,851h**

RUN TIME

**26.69%**

of the time the printer is running

PRINT JOBS

**658**

SUCCESS RATE

**72%**

MOST USED MATERIAL

PLA (22.01kg), ABS, PETG

MATERIAL USED

**35.86 kg**

SLS PRINTING

01.06.2023 - 21.08.2024

PRINTING HOURS

**335 h**

RUN TIME

**3.12%**

of the time the printer is running

PRINT JOBS

**35**

MATERIAL USED

**20.7 kg**

of Nylon PA12 powder

# EDUCATE TEACH

At Design Factory, we both organize and host courses from across Aalto University. Our own teaching focuses on multidisciplinary product development and co-creation, where students tackle real-world challenges. In the 2023–2024 academic year, our courses and visiting lectures reached over

**1 800 learners from  
Aalto and beyond.**

The courses we host in our spaces often seek the flexibility of the teaching environments and prototyping opportunities that we offer.

# ATTENTION & TRAINING

We're always experimenting with new educational practices, whether through our courses or various development and research projects. Over the past year, in collaboration with several partners, we've explored creativity in teaching (CREATNet), delved into generative AI and the integration of deep tech with entrepreneurial education (INCREDIT), fused radical creativity with entrepreneurship education (C-ACCELERATE), and deepened our understanding of the societal impacts of new technology (ATTRACT).

COURSES HOSTED AT DF

**21**

STUDENTS

**707**

ATTAINMENTS IN COURSES

**106 h**

CREDITS

**5729**

# Courses

AAN-C2006 Product analysis

AAN-C2009 Designing an Electronic Device for Business and Production

AAN-C2012 ADD Basics - Additive manufacturing: from idea to business

ELEC-E9900 Networked partnering and product innovation - NEPPI

JOIN-E7007 IDBM Capstone: Industry Project

JOIN-E7010 IDBM Project, Global Team Track

KON-C3003 Mechatronics Exercises

MARK-C0079 Driving Creativity and Innovation in Marketing:

User-Centric Innovations

MEC-E1001 Mechanical Engineering in Society

MEC-E3001 Product Development Project V D

MEC-E3002 Methods in Early Product Development D

MEC-E3005 Prototyping for Innovation

MEC-E3006 Design thinking and creativity for innovation

MEC-E3007 Product Sustainability

MEC-E3999 Product Development Course with Varying Content V

MEC-EV10 Design Thinking and Product Development

MEC-EV11 Radical Creativity

MNGT-E3003 Social Innovation

TU-E4040 Opportunity Prototyping D

TU-E4060 Design & Innovation in Context D

Design Thinking Summer School UNITE!

Nordic Product Design Summer School

# Integrated teaching on development practices

The Design Factory team not only organizes interdisciplinary development courses, but also actively brings workshops and lectures on creative collaboration, prototyping, and design thinking to various courses and programs. We believe that every student and professional can benefit from a deeper understanding of co-creation practices!

**1100+**  
LEARNERS

**300+**  
HOURS






A close-up photograph of a student with a beard and glasses, wearing a white t-shirt with red and blue stripes on the sleeve, focused on working on a prototype. The student is using a red handheld tool, possibly a soldering iron or a heat gun, on a green component. The background is a white table with various tools and materials, including a blue ruler and a white marker with a green cap. The text 'Course highlights:' is overlaid on the left side of the image.

# Course highlights:

This year, we ran the second edition of the

**Prototyping for innovation** course, which blends theoretical understanding of prototyping methods with hands-on practical skills. The course aims to immerse students in the principles of purpose-driven experimentation, enhance their ability to create a wide range of prototypes with varying fidelity, and guide them in planning meaningful experiments relevant to their professional fields. Open to all Aalto students, we were excited to welcome participants from three different Aalto schools. Throughout the course, students conducted small experiments, visited companies to explore their prototyping facilities, and dug deep into successful prototypes from various industries.

A close-up photograph of students' hands working on a blue printed circuit board (PCB). One student is using a red-handled soldering iron to work on a component. The background is blurred, showing other students and equipment in a workshop or classroom setting.

Using emerging technologies from the ATTRACT EU projects, the

# Design Thinking Summer School UNITE!

was a hands-on product development course focused on innovation and how to apply it to solve real-life problems. In multidisciplinary teams, students developed solutions by leveraging user-centered prototyping processes such as electronics, additive manufacturing, and extended reality. The course included both the theory and application of design thinking in various contexts.

A new addition to Aalto University's graduate-level offerings, the 2023 Radical Creativity summer course

# MEC Radical Creativity Summer School

provided an exciting two-week journey into innovative thinking for a sustainable future. In this hands-on, challenge-based course, students explored innovative tools and methods to tackle real-world business scenarios and create tangible impact. At the same time, it served as a platform to explore the concept of "radical creativity". Working in interdisciplinary teams, students collaborated with St1, the City of Espoo, and VTT, experimenting with systemic approaches to radical creativity. This course not only gave students the chance to explore fresh ideas but also helped them reimagine the future of the industries that they worked with, making a lasting difference.

# Course highlights:

The 'Product Sustainability' course highlights the importance of communication skills for addressing complex sustainability issues. Sustainability is rarely straightforward; it involves a mix of facts, approximations, and uncertainties. Solutions to sustainability challenges often hinge on values, making effective communication crucial for presenting different viewpoints, critically assessing data, and collaborating constructively with people who have varying values. Using

## **debate as a teaching method**

supports this goal well.

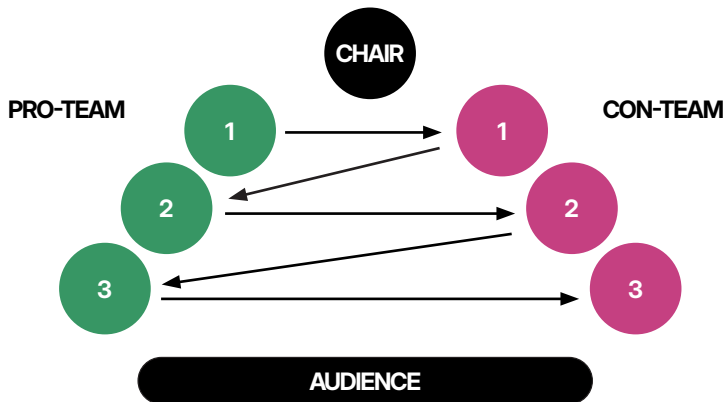
In this course, teams work on creating a greener version of a product. The debate's goal is to determine which team has developed the most sustainable product, supported by solid reasoning. The debate process involves several key steps and is tied to this task: 'Pro-team's green product is the greenest possible version of the product and there is a solid reasoning to support it.'

The pro team presents their green solution and supporting arguments. The con team critically examines these arguments and formulates counterpoints. Both teams must listen to each other's arguments and develop their own responses.

To ensure a productive debate, a clear structure and practice are essential. This structure ensures that everyone has an equal opportunity to argue for and against the proposed solution and prepare effectively.

### THE DEBATE PROCESS:

- *The pro team introduces their position (2 minutes)*
- *The con team follows with their introduction (1.5 minutes)*
- *Each team then presents their refutations and arguments (1.5 minutes each)*
- *After two rounds of debate, the con team delivers a summary (2 minutes)*
- *Finally, the audience votes on the winning team, while the chair manages time and facilitates the debate*



**x2**

A photograph of a student presentation stage. In the background, a man in a light-colored shirt and blue jeans stands next to a large, stylized graphic of a person with arms raised. The graphic is in shades of yellow and orange. The word 'Team' is partially visible in blue letters at the top right. In the foreground, a person's silhouette is visible on the left, and a small, white, stylized figure is on the stage floor. A large, white, bold 'PDP' is overlaid on the center of the image.

Course highlights:

# PDP

This year's Product Development Project was a remarkable success, showcasing


**16 innovative student projects**

involving

**161 students**

- 120 from Aalto and 41 from our ten global partner universities.





It was our first full year in the new Viima building, which seemed to energize the students. The excitement of the new space, along with the final year of Eetu and Albin, contributed to a record number of patent applications, with five submissions to PRH before the Gala!

In the fall, teams focused on research and ideation, with biomaterials taking center stage. The PCMI-backed Bioinsulateam made headlines by participating in Slush, while Biobouncers collaborated with Woamy, a company specializing in edible packaging foam, to develop innovative insoles.

Spring was dedicated to prototyping, and the excitement of seeing the prototypes come to life was exciting. Almost all global teams made it to the Gala, with sub-teams traveling from four continents, some staying with us for a full month. The Final Gala was the perfect culmination of the year, drawing around

**600 visitors**

on-site and many more online. Of course, the teaching team couldn't escape the traditional project manager payback at the gala banquet.

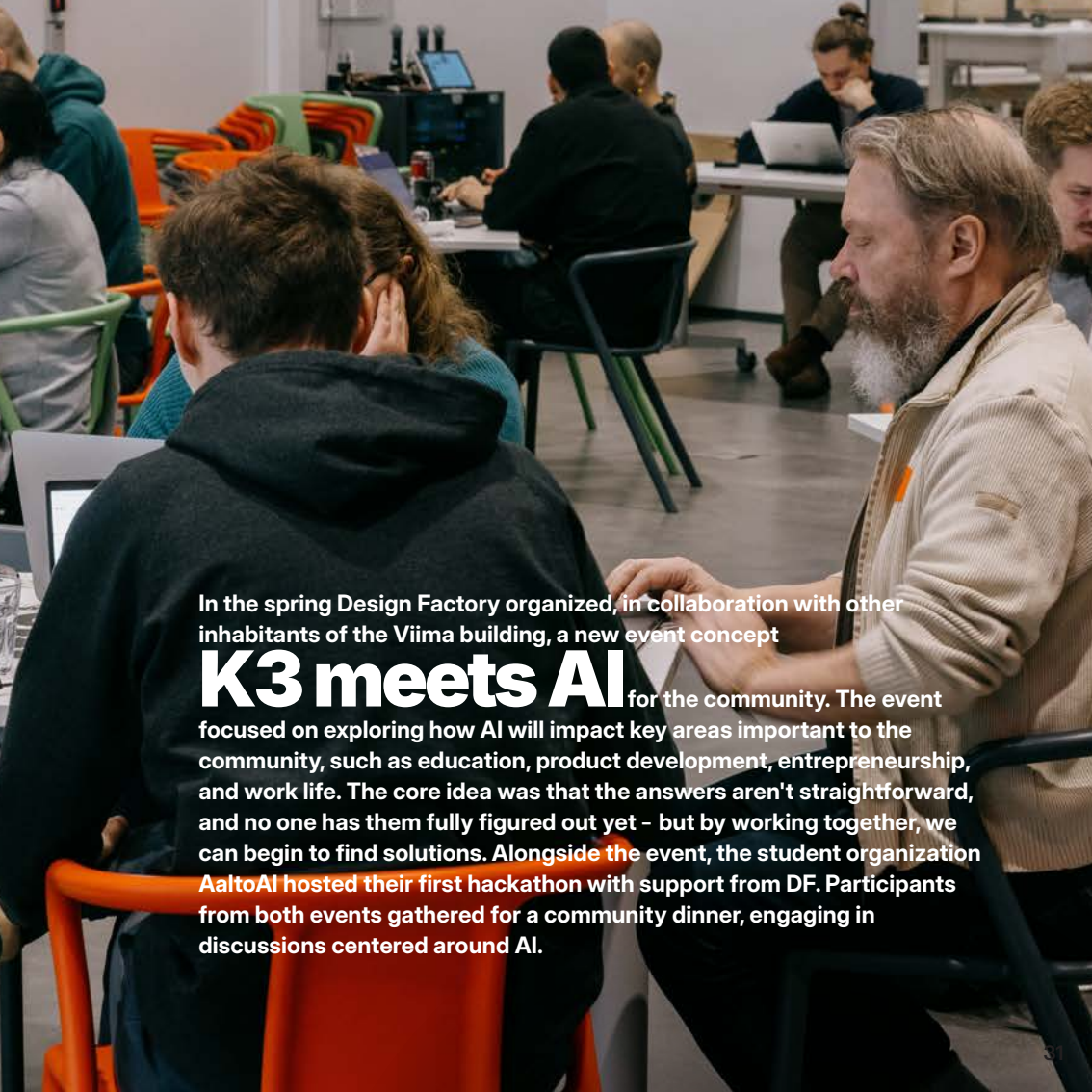
# Course highlights:

In the **ATTRACT SPOT** project we've combined insights from Aalto and TU Delft to better understand the societal connections in innovation projects. As a result, we've developed two new open-access toolkits. You can visit our website to find materials that can help educators and students organize effective needfinding and reframing workshops.

[designfactory.aalto.fi/toolkits/](https://designfactory.aalto.fi/toolkits/)

In the **ATTRACT BASE** project two PdP teams took on the challenge of finding new applications for ATTRACT technology. Team Megamorph, made up of students from Aalto and HAMK, developed a novel method for measuring gas composition using Megamorph technology - and even secured a patent for it. Meanwhile, Team Aquavengers focused on creating innovative microplastic filters. The Aalto team worked on consumer faucet filters, while their Colombian counterparts focused on wastewater plant filters. In February, the BASE teams had an exciting week at CERN, where they collaborated with the IDBM ATTRACT group. Additionally, three PdP teams from BASE were represented at the Pre-AFC conference.

*Read more on the ATTRACT projects on chapter 'EU Projects', page 42.*

A photograph of a workshop or meeting. In the foreground, a man with a grey beard and a beige jacket is pointing at a laptop screen. He is looking towards a group of people whose backs are to the camera. The setting is a modern, open-plan office or workshop with several tables, chairs, and people working on laptops. The lighting is bright and even.

In the spring Design Factory organized, in collaboration with other inhabitants of the Viima building, a new event concept

**K3 meets AI** for the community. The event focused on exploring how AI will impact key areas important to the community, such as education, product development, entrepreneurship, and work life. The core idea was that the answers aren't straightforward, and no one has them fully figured out yet - but by working together, we can begin to find solutions. Alongside the event, the student organization **AaltoAI** hosted their first hackathon with support from DF. Participants from both events gathered for a community dinner, engaging in discussions centered around AI.

# Teachers at DF

In 2023, the teacher's survey revealed key insights into the teaching approaches and collaborative efforts within various schools. The majority of courses surveyed belonged to the School of ENG (61.1%), followed by the School of SCI (16.7%), the School of ARTS (11.1%), and the School of BIZ (11.1%).

A significant number of teachers emphasized collaborative teaching methods. For instance, 68.4% of respondents reported having visiting teachers, and the same percentage confirmed engaging in co-teaching. Interestingly, these collaborative efforts often spanned diverse academic fields (86.7%), with many also involving different schools (66.7%) and departments (53.3%), indicating a strong interdisciplinary approach to education.

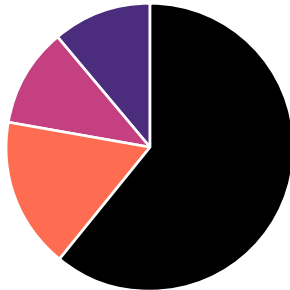
In terms of pedagogy, an overwhelming 94.1% of teachers employed problem or project-based learning (PBL) in their courses. External collaboration played a significant role as well, with 85.7% of respondents incorporating visiting lecturers or keynote speakers, 57.1% using real-world cases or challenges, and 50% organizing site visits. Furthermore, some courses featured external coaching (21.4%) and interaction with industry partners through PBL activities (35.7%).

Workshops were utilized during teaching, with 83.3% of teachers using them during contact teaching, while 75% used workshops

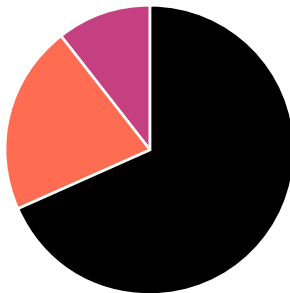
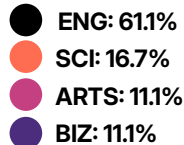


to complete assignments outside of class. A smaller portion (8.3%) reported using workshops for prototype building.

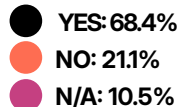
The data highlights a strong focus on interdisciplinary collaboration, hands-on learning, and real-world engagement across the surveyed course teachers.



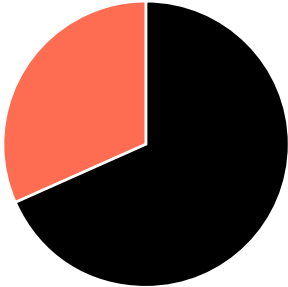
## **courses per school**



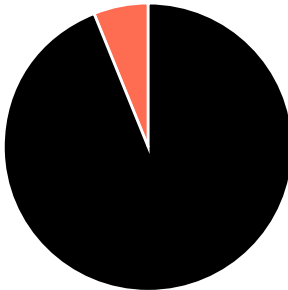
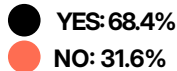
## **visiting teachers included**



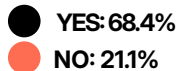




## co-teaching with other teachers



## including problem-<sup>and/or</sup> project- based learning



## use of work- shops

CONTACT TEACHING: 83.3%

OUTSIDE CONTACT TEACHING,  
COMPLETING ASSIGNMENTS: 75%

BUILDING PROTOTYPES: 8.3%

# co-teaching & visiting teachers

DIFFERENT ACADEMIC FIELD: 86.7%

DIFFERENT SCHOOLS: 66.7%

DIFFERENT DEPARTMENTS: 53.3%

DIFFERENT ORGANIZATIONS: 53.3%

BOTH ACADEMIA & INDUSTRY: 53.3%

BOTH ACADEMIA & SERVICE OR TECHNICAL STAFF: 20%

# collaboration with external partners

VISITING LECTURE OR KEYNOTE: 85.7%

CASE OR CHALLENGE: 57.1%

DIFFERENT ORGANIZATIONS: 53.3%

SITE VISIT: 50%

INTERACTION IN PBL: 35.7%

COACHING: 21.4%

EXHIBITION: 7.1%

# RESEARCH

## 3

RESEARCH PROJECTS

## CREATNet

CREATNet is an interdisciplinary research project that brings together the study of technological innovation, organizational psychology, and design thinking to explore new ways of understanding radical creativity in networked collaborations. We recognized that the dialogue between diverse definitions and conceptualizations of creativity across disciplines is a significant strength for Aalto's operations. However, there was a gap in scholarly understanding of these conceptualizations.

To address this, CREATNet – a collaborative project across Aalto's ENG, BIZ, ARTS, and SCI departments – aimed to strengthen the scientific foundation for developing Aalto's strategy and operations in radical creativity. Our research focused on how radical creativity is conceptualized and framed in various emerging transdisciplinary contexts and the impact of these frameworks on organizing creativity within these networks.

# ARCH



As part of the project, our research team conducted 54 interviews with Aalto faculty members to gain insights from this key user group. A 2023 report based on these interviews offered fascinating insights and vivid examples of how Radical Creativity plays a crucial role across research and teaching at Aalto.

## Educating for Innovation

One of our latest research initiatives digs deeper into pedagogical practices in problem-, project-, and design-based learning for innovation. As a first step, we conducted interviews in 33 different Design Factories in our Global Network in the Spring of 2024. The first results from this study were already shared in September 2024, check out the Educating for Innovation report on our website! Our goal is to inspire and support teachers in learning and experimentation efforts and build a basis for evidence-based teaching practices for innovation.

[designfactory.aalto.fi/research/educating/](https://designfactory.aalto.fi/research/educating/)



# CORE

Innovative ecosystems are complex, multilayered networks that encompass a wide range of collaboration types. The flow of knowledge and creative collaboration at the network level is driven by individual interactions and motivations at the micro level. To support effective investments in European Research Infrastructure innovation ecosystems, the CORE research project builds an understanding of the social capabilities and networks that these ecosystems depend on.

Collaboration between individuals and organizations within a network is key to fostering innovation through creativity. CORE has explored how collaboration functions within European Research Infrastructure innovation ecosystems and how knowledge circulates among them. By conducting two rounds of interviews with network consortia, the project examined the social and societal connections that are leveraged to achieve team goals, particularly focusing on the tensions between private and public sector methods and motivations. The insights gained from this research will result in publications, providing valuable perspectives on the nuances of technology and science-based innovation practices within the EU.

**JOURNAL** **10**  
**PUBLICATIONS**



- *Perttunen, E., Jung, S., Talvinko, M. & Björklund, T. (2024). Opportunities amidst adversity: The enabling impact of COVID-19 for entrepreneurial value creation. The International Journal of Entrepreneurship and Innovation.*
- *Surma-aho, A., Kirjavainen, S. & Björklund, T. (2024). It ain't over till it's over: adjusting the intensity and conformity of championing efforts after initial failure. Creativity and Innovation Management.*
- *van der Marel, F., Björklund, T., & Sheppard, S.D. (2024). Moments that matter: Early-career experiences of diverse engineers on different career pathways. Engineering Studies, 16(1), 33-55.*
- *Björklund, T.A., Gilmartin, S.K. & Sheppard, S. (2023). The dynamics of innovation efforts in the early career. Creativity and Innovation Management, 32, 80-99.*
- *Eriksson, V., Keipi, T. & Björklund, T. (2023). Identifying and framing potential stakeholders in complex innovation ecosystems. CERN IdeaSquare Journal of Experimental Innovation, 7(3), 8-13.*
- *Feng, X., Ylirisku, S., Kähkönen, E., Niemi, H., & Hölttä-Otto, K. (2023). Multidisciplinary education through faculty members' conceptualisations of and experiences in engineering education. European Journal of Engineering Education, 48(4), 707-723.*
- *Kirjavainen, S., Lahdenne, S. & Björklund, T. (2023). Prototyping in practice – Paths and partners for testing novel industrial product and service ideas. CERN IdeaSquare Journal of Experimental Innovation, 7(3), 14-19.*
- *van der Marel, F. (2023). How participatory design influences issue framing: a hospital case study. CERN IdeaSquare Journal of Experimental Innovation 7(3): 38-42.*
- *Perttunen, E., Keipi, T., Hwang, S., & Björklund, T. A. (2023). Getting by with a little help from my friends: the impact of the pandemic on the collaboration of small Finnish food and beverage ventures. International Journal of Entrepreneurship and Innovation Management, 27(1-2), 51-76.*
- *Barnes, V., Theo, L. J., & Eriksson, V. (2024). Towards a definition of 'empathic understanding' in industrial design practice. The Journal for Transdisciplinary Research in Southern Africa, 20(1), 1426.*

# MAKING PEOPLE VISIBLE

How people come with new ideas. Creating something new relies on a range of people to provide and implement ideas. Furthermore, implementing ideas also affects others, being aware of the people needed to and affected by change in the first step creates being able to consider their needs.

## Grasping Creativity exhibition

Grasping Creativity was an innovative exhibition that invited visitors to explore the often hidden dimensions of the creative process. By delving into the social, mental, and material practices that spark creativity, the exhibition offered a unique glimpse into how ideas evolve into tangible works of art, as well as both physical and digital artifacts.

Visitors embarked on a journey through the often unseen stages of creation, witnessing firsthand the intricate interplay between mind and materials, the impact of societal influences, and the collaborative nature that drives artistic innovation. Grasping Creativity celebrated the unseen efforts and offered a deeper appreciation for the complexities that shape creativity.

Held at the Aalto Design Factory and the Väre main lobby between August and October 2023, the exhibition's opening on August 25th featured keynote presentations, the unveiling of the exhibition itself, and a special showcase of student prototypes and process work from the Radical Creativity Summer School.

# Doctoral dissertation

On June 19th, Floris van der Marel successfully defended his dissertation, titled 'Amplifying Unheard Voices - Towards Inclusive Innovation and Development', with TU Delft professor Giulia Calabretta as the opponent. The thesis was supervised by Professor Tua Björklund from Aalto Design Factory and Anita Kocsis from Design Factory Melbourne, as part of a collaborative double-degree PhD program. This unique program allowed Floris to conduct research at both Aalto Design Factory and Design Factory Melbourne.

During his defense, Floris emphasized that a diverse engineering workforce enhances innovation and creativity. However, the extent to which diversity improves organizational performance hinges on whether employees feel empowered to voice their concerns and ideas. His dissertation reveals that workplace motivation and collaborative sensemaking are crucial factors in determining whether employees choose to speak up or remain silent.

*van der Marel, F. (2024). Amplifying Unheard Voices – Towards Inclusive Innovation and Development. Aalto University publication series DOCTORAL THESES, 126/2024.*

MAKING  
THE BOX  
VISIBLE

HOW TO  
IDEATE?

MAKING  
MEANINGS  
VISIBLE

Being creative is typically defined as creating something that is new and valuable, but what about being creatively invisible? There are different ways of understanding radical creativity, and making these meanings visible can help to foster better conversations that help us work to create in our teams and communities.

Instead, based on 34 interviews with Aalto faculty members, radical creativity is often an experience: a sense of feeling heard or heard and addressing problems, as well as receiving one space of working.

A person wearing a light blue button-down shirt is working on a laptop. A name tag is pinned to the shirt. The name tag features the ATTRACT logo and the text: 'ATTRACT', 'Advanced Imaging and Detection Technologies', '2024-2026', 'DOCK Airco', 'University of Cambridge', '100 Brookside Drive', 'Cambridge, MA 02139'. The person is also wearing a dark green smartwatch on their left wrist. The background is slightly blurred, showing what appears to be a meeting or workshop setting.

# EU PRO

## ATTRACT

**ATTRACT is a groundbreaking initiative uniting Europe's leading research and industrial communities to advance the next generation of detection and imaging technologies. Supported by the European Commission's Horizon 2020 program, the project aims to boost Europe's economy and enhance lives by fostering the creation of new products, services, companies, and jobs.**

**Building on the success of ATTRACT phase 1, ATTRACT phase 2 aimed to fund the most promising breakthrough technologies with potential for scientific, industrial, and societal impact. ADF participated in three project consortia, namely BASE, CORE, and SPOT. BASE and SPOT expanded**



A group of people are seated around a dark table in what appears to be a meeting or workshop. Several laptops are open on the table. One person in the background has a tattoo on their arm. The scene is brightly lit, and the overall atmosphere is professional and collaborative.

# PROJECTS

opportunities for young entrepreneurs while CORE is a Socioeconomic Study of an emerging innovation ecosystem, developed by collaborators from various perspectives.

In addition to being active consortium members in various ATTRACT phase 2 projects, ADF took the lead in the ATTRACT Academy, which monitored over 100 student projects and supported over 700 participating students. The inclusion of student projects in ATTRACT phase 2 through the ATTRACT Academy was designed to create a new generation of professionals who perceive co-innovation between academia, research infrastructures, and commercial organizations as a natural way of working.



# INCREDIT

INCREDIT (INterdisciplinary CREative EDUCation In Deep Tech) takes an interdisciplinary approach towards deep-tech education aims to make the deep-tech industry more approachable, not just for technical students, but also for design and business students, and focuses on the interdisciplinary collaboration amongst them to create novel solutions.

Aalto was the Project Coordinator and the project involved both the Engineering School (Aalto DF) and the Business School (IDBM). Beyond Aalto, the consortium consists of 5 universities from 3 different countries (Finland: Aalto University, Hanken School of Economics, Vaasa University of Applied Sciences, Sweden: Umeå University, and Spain: Universidad Internacional deLa Rioja).

The project ran May 2023-July 2024, so largely during the academic year 2023-2024. Design Factory's share of the funding was 95k€.

TRAINED & MENTORED  
STUDENTS

**1809**

TRAINED & MENTORED  
PROFESSIONALS

**2296**

START-UPS/SCALE-UPS  
SUPPORTED

**7**

EXTERNAL FUNDING  
RECEIVED

**750k €**

# C-ACCELERATE

C-Accelerate is focused on increasing the innovation and entrepreneurial capacity in higher education in the fields of arts and creative practices. Aalto was the Project Coordinator and the project involved both the Business School (IDBM) and the Engineering School (Aalto DF). The project brings together the only European University in the cultural and creative industries (FilmEU, the European Universities Alliance for Film and Media Arts) with Tallinn University Foundation and Aalto University as core partners. The project ran July 2022-July 2024, landing on two academic years.

TRAINED & MENTORED  
STUDENTS

**1247**

TRAINED & MENTORED  
PROFESSIONALS

**410**

START-UPS/SCALE-UPS  
SUPPORTED

**9**

EXTERNAL FUNDING  
RECEIVED

**1.25 m€**



# PARTNER PLAZA

Partner Plaza operations largely continued “business as usual” with two new startups joining and four leaving. It is interesting to note that starting since the pandemic and further emphasized with our move to the new premises, the focus on Partner Plaza start-ups is heavily focused on prototyping activities, with more community and office-space oriented activities diminishing. This trend is also prominent in the discussions with the start-ups; office space is readily available, with places like A-Grid and Maria 0-1 often being mentioned, but early stage prototyping spaces and support are hard to get access to. The focus for Aalto Design Factory Partner Plaza activities will in the future increasingly focus on the niche of supporting start-ups with access to early stage prototyping spaces.



**42**

ENTREPRENEURS

**13**

COMPANIES

**Addcomposites Oy**

**Aiedu Oy**

**Aurora Propulsion Technologies Oy**

**Bioart Society**

**BroadBit Batteries Oy**

**Epiheart Oy**

**Gosta Labs Oy**

**Hyperion Robotics Oy**

**Kuva Space Oy**

**Surgify Medical Oy**

**Trick Technologies Oy**

**Urban Mill**

**Viima Aerospace Technologies Oy**



# DFGN

The Design Factory Global Network (DFGN) is a vibrant community of 39 innovation hubs, spanning universities and research centers across five continents. DFGN is all about shaking up how we teach, learn, and do research by fostering a culture driven by passion and practical problem-solving. United by a shared mindset, Design Factories spark change in their local communities with the backing of like-minded "partners in crime" worldwide. No matter the cultural, time zone, and organizational differences, DFGN members ignite creativity. Together, we connect diverse minds, build strong partnerships, and believe in driving real change in education - because innovation knows no boundaries.

DFs TOTAL

**39**

NEW DFS

**3**

WORKSHOPS ORGANIZED

**3**





# International Design Factory Week 2023

In October 2023, Design Factories from around the world gathered at the International Design Factory Week (IDFW) hosted by Middle East Technical University (METU) in Ankara, Türkiye. Over the course of a week, members collaborated on various projects, exchanged inspiration, and strengthened their sense of community.

REPRESENTATIVES

**50**

WITH 28 PARTICIPATING DFs  
FROM 23 COUNTRIES

PROJECTS SHARED  
& DEVELOPED

**30**

COUNTRIES REPRESENTED

**18**

HOURS OF PROGRAMS

**40 h**

# New website!

It's impossible to capture all the awesomeness of our members on a single website but we've given it our best shot. Now, you can explore detailed profiles of each member, including their primary focus, signature projects, and contact information. Take a look and dive into the amazing work they're doing!

[dfgn.org](https://dfgn.org)

# DFGN.R 2023

The second Design Factory Research Conference, titled 'Designing for Multiplicity', was held as part of the International Design Factory Week. Researchers from around the world presented their scientific contributions, sparking inspiration and new ideas among the DFGN members.

SCIENTIFIC CONTRIBUTIONS

**29**

COUNTRIES REPRESENTED

**13**

PARTICIPANTS

**120**

The background image shows two women sitting at a table. The woman on the left is resting her chin on her hand, looking towards the right. The woman on the right is wearing glasses and a red lanyard, looking down at a document on the table. There are several black and blue markers and a white cup on the table. The text is overlaid on this image.

# UnBoxed 2024

Building on the success of the DFGN.R 2023 experiment, we are excited to host UnBoxed 2024, an “unconference” dedicated to unpacking and exploring themes relevant to the DFGN. This year, members from across the globe will gather to share innovative teaching practices and methodologies, pushing the boundaries of education and collaboration even further.

## What else is new?

In 2024, Design Factories around the world collaborated with over 10,000 students, completed more than 780 student projects, and partnered with over 740 industry and external organizations. We're also thrilled to announce that we've grown even more, welcoming Design Factory Birmingham from England into our family! The DFGN now spans 25 countries with a total of 39 Design Factories. Let's keep spreading awesomeness across the globe!



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TELEGRAM:  
AaltoDF

