



AALTO DESIGN FACTORY

ANNUAL PUBLICATION

2018/2019



Hey you!

ADF started as a research project in 2008. It was the first building of Aalto University, and a prototype building for its interdisciplinary approach to education. In essence ADF is a place where students, teachers, researchers, and Industry partners can interact under the same roof. As we know, when people collide the magic happens!

In your hands is our 10th annual publication. It highlights key figures and collects stories from ADF over the academic year 2018-2019. This being the 10th issue of the annual publication, we have squeezed in some stories from past years to show the impact that ADF has made on people.

We hope that you enjoy the ride through the pages!

**Hugs and love,
The annual report team**

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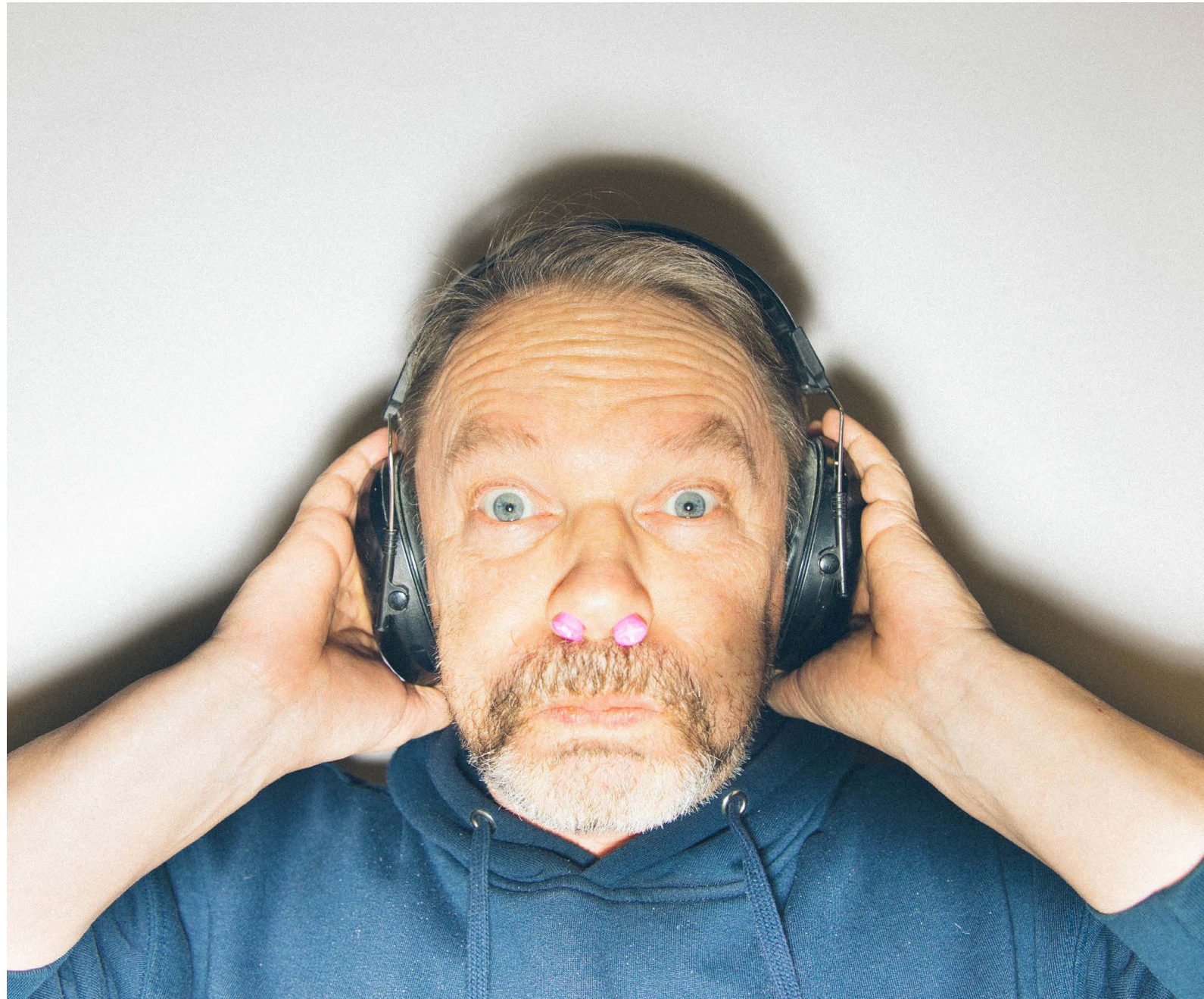
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KALEVI “EETU” EKMAN

Aalto University is approaching its 10th birthday, but the Design Factory took a jump start and has already over 11 years of existence. What we had in mind when redesigning the former VTT research lab, was to build an experimental learning environment for interdisciplinary courses and similar activities. We thought it would be beneficial to reinforce the bridge between theory and practice by having stronger involvement of industry and other organizations. The idea of openness, availability 24/7, and low threshold of entering the building first time has been the most important drivers in designing the activities and infrastructure. The presence of experts and help available when needed has always been important from the students' perspective. At the time when the first plans for the university merger were drafted, one of the main concerns was the competitiveness and quality of Finnish graduates on the global employment markets.

If we look back and try to shortly sum up what has happened in these past years, we can say that Design Factory has served as a platform for roughly hundred Aalto University courses or course pilots. The presence of industry and the public sector has been strong and visible. There are hundreds of ADF key tags loaned to students and other users who thus have access to ADF at any time including later hours and weekends. According to the feedback we have collected, the skills and guidance from our in-house experts is at such a level that people gladly cross great distances to come here.

Taking the Product Development Project course as an example, we see that in 10 years the number of international

participants - both from within Aalto University and partnering universities - has grown from 10% to 72%. Every team now has their international partner team in another country. The majority of company partners at the end of the first decade of 2000 belong to the group of “usual suspects”, e.g., Nokia, Kone, ABB or Valmet. The course 2019-2020 has only three such partners (ABB, Airbus, and Rocla) as the majority represents startups or medium-sized companies that may not be very familiar to a greater audience.

What was never planned so well – or actually not at all – was the growing global network of Design Factories. The organic growth is now a bit more organized, and we are looking forward to signing the 30th partnership agreement to join the Design Factory Global Network. The value of the network is no big surprise; it encourages student and faculty mobility, it provides a platform for realizing research or educational ideas together with others, it helps in applying for research funding together. However, the most beautiful thing is that it helps to really and personally know the people from other Design Factories; who they are and what are their dreams and visions about the future of higher education, not only in theory but also on the very grass root level.

On behalf of Design Factory, I just want to say how happy we are to be a part of Aalto University. We are looking forward to a great 10 years anniversary party in January 2020 and we have our fingers itching to bring in some ADF flavor.

Design Factory Janitor

LEARNING & EDUCATION

The ADF community is made out of a diverse set of people, hugs, love, and funny coincidences. The Aalto students bring the factory to life, together with our teachers, researchers, industry partners, DFGN and ADF staff. Our work environment and spatial arrangements encourage informal collaboration and knowledge exchange between community members. The following section is dedicated to the whole ADF community and to the activities that we have initiated.





2018 / 2019
47+ COURSES
OUT OF WHICH

40%	15%	13%	9%	15%	6%
ENG	ARTS	BIZ	CHEM	ELEC	SCI / Other

COURSES RUN AT ADF

Year-round, Aalto Design Factory is the home base for numerous different Aalto courses. Apart from offering space and tools, Design Factory also offers a synergetic environment and collaborative culture that contributes to the success of the courses.

- PDP(Product Development Project)
 - ME 310
 - GamesNow
 - System Design
 - Product Analysis
 - Real Estate Business and Entrepreneurship course
 - Marine Design Co-work
 - Research Project
 - Biomass Pretreatment and Fractionation in Laboratory
 - Sales and Marketing
 - Korkeakouluopiskelijan ABC
 - Professional Development
 - IDBM Industry Project
 - ADD Basics
 - Design for Value Start-ups
 - Crossroads Case Competition Course
 - Sustainable Entrepreneurship
 - Lukiolaisten innovaatiokurssi
 - New Materials and Means of Production
 - Visual Narrative
 - Creating Value
 - Biomass Pretreatment and Fractionation
 - Digital Aura Studies
 - 3rd Aalto BIM Digital Design and Construction Summer School
 - Challenge Breakers
 - Design Your Business
 - DF Junior
 - Love the Problem kurssi
 - CHEM-koulun BIO2-laitoksen "Summer School".
 - Introduction to Design Studies in Aalto
 - Personal Project Seminar
- Methods in Early Product Development
 - Opportunity Prototyping
 - Pack-Age
 - Producing and Analysing Visual Data
 - SCI-projektikurssi
 - Product Sustainability
 - Yrittäjyys Aalossa
 - IDBM Challenge
 - Designing an electric device for Business and Production
 - Network Partnering and Product Innovation
 - Design Learning UWAS-kurssi
 - Termodynamiikka ja lämmönsiirto
 - Magnificent Life
 - Design & Innovation in Context
 - Crystal Flowers in the Halls of Mirrors

for more info visit:
www.designfactory.aalto.fi/courses

PRODUCT DEVELOPMENT PROJECT

PDP is the largest product development course organized at Aalto Design Factory and one of the project-based courses that attracts the most number of students at Aalto University. Each year, students from all over the world form interdisciplinary teams to work on real-life challenges provided by the industry. Students learn by creative problem solving and hands-on prototyping.

“You learn about things way beyond product development in PDP. Most importantly, PDP taught me how to work with others.”

Shreyasi Kar PDP alumni

“I restored my enthusiasm for finding answers to complex questions by utilizing a multidisciplinary approach...”

Sanna Kotisaari PDP sponsor

“PdP is an interdisciplinary roller coaster!”

Serpil Oguz PDP alumni

pdp

pdp.fi
Instagram: @pdpaalto
Facebook: pdpaalto

AALTONAUT

Aaltonaut is an interdisciplinary bachelor-level minor program focusing on product development, at Aalto University. Aalto Design Factory staff facilitate interdisciplinary collaboration in teams while students solve problems with set goals through hands-on building. It ensures that everyone is included and allows both teachers and students to work as a team towards mutual goals. Aaltonaut encourages everyone to question, and supports learning skills essential for working life.

“In the Aaltonaut courses, I really liked the interdisciplinarity, problem and project oriented learning, and learning by doing and making mistakes. Also, some of the other Aaltonaut students have been the most talented students I have met here in Aalto University, certainly worth networking with”

Eero Prittinen
Aaltonaut student

Aaltonaut

aaltonaut.fi
Instagram: @aaltonaut
Facebook: aaltonaut

2018 / 2019

107
Students

17000+
Hrs of Extreme work

20
Different Nationalities

10
Partner Universities

SPONSOR COMPANIES THIS YEAR

Aalto Industries
Future Memory Care (FMC)
Haapaniemen Tietotekniikka
Kavo Keri

KONE
Nose Academy
Omnia AI Lab
Pexraytech

Rapala
Saab
Trenox
Wärtsilä

2018 / 2019

10
International & Local Industry Collaborations

7
Teaching Development Sessions

665
ECTS Granted

88
Students Participating in Aaltonaut Courses

40
Students Currently in the Minor Program

ME310 AALTO

ME310 Aalto Global Innovation Program is a product and service development course at Aalto University. It is part of the SUGAR network where universities from around the world collaborate and follow Stanford University pedagogy by teaching human-centered design through real-life corporate projects. This year ME310 Aalto partnered with industry sponsor Xylem Inc, to solve some of the world's challenges related to water, in two global projects. One of the teams partnered with Stanford University and the other with the University of Science and Technology of China.

ME310
AALTO

me310.aalto.fi
Instagram: @me310aalto
Facebook: ME310Aalto



2018 / 2019

9

ME310 Aalto
Students

24

Sugar network
Universities

34

Global projects

348800

Miles traveled across
the world

YOUTH AT DF

Every year, Aalto Design Factory becomes the home of various initiatives for younger students who are yet to enter universities.

TET Trainees

The abbreviation TET comes from the words "työelämään tutustuminen", which can be translated to //work practice program// or //practical training//. Every Finnish secondary school student does a TET-training at a professional workplace. During the few weeks of training, the students learn about practical work and other work life skills in companies and organizations. This year, ADF had 29 TET-trainees who worked on different in-house projects.

TuKoKe Finals

Tutki Kokeile Kehitä is a science and technology competition for young students of all ages encouraging interdisciplinary learning and supporting research and development amongst the youth. TuKoKe was once again held at Design Factory, and this year 45 projects were rewarded with approximately 20,000 euros altogether. The projects varied from mathematical proofs to cleaning robots, from water quality research to noise reduction in schools.

Sciinno-projekti (Pyhäjoki High School)

Sciinno is a Nordic science innovation project supported by Nordplus Horizontal Programme. The main purpose of the Sciinno project is to bring together high school students from Finland and Denmark to work in multidisciplinary teams and learn by doing in the digitalized learning environment. Aalto Design Factory worked in collaboration with Sciinno and organized a workshop on prototyping, team building, and user-centered design to the students.

Other events and courses for the youth organized at DF:

Love the problem-course
Startup High School Pitching Competition
Shaking up Tech
Soiva laite-course
LUMA-kehityspäivät lukilaisille
Design Factory Junior



The awarded TuKoKe finalists Ronja Holopainen and Olli Järvinen were also sent to EUCYS (EU Competition for Young Scientists) in Sofia on September 2019. Ronja's prototype was slightly redesigned and reproduced with the assistance of DF model maker Kari Kääriäinen. Ronja won the Special Donated Prize of Bioeconomy, and Olli won the Second Prize of 5000 euros plus an Honorary Prize that enables him to participate a two-week intensive summer science festival during July-August 2020 in London.

2018 / 2019

29

TET students

7

Youth related courses/events

BITS AND PIECES FROM THE PAST 10 YEARS

Gadgets, TV crews, royalties, theatre plays, weddings and tractors. These are just few things that you have might have stumbled upon in the hallways of DF. Here are some memories pulled out from the archive



2008

Cars brought to DF for different projects, have always got a lot of attention. In 2008, a car was hung to a wooden pole in front side of ADF to demonstrate a new generation of power cable clamp as a part of a PDP project sponsored by ENSTO.



2009

DF is very well known of it's practical and experimental spatial design that supports innovation. Do you still remember **Olokolo and mobile meeting room-trailer** 2009. When was the last time that you used the Sauna Savu -sauna that was designed for the Habitare design exhibition at the garage of DF?



2010

Aalto Design Factory is a home base for students. The idea has been to encourage and support projects that are pursued in the ADF premises without judging. "The sky's the limit!" Probably few of the most memorable student initiatives were different Aalto on X projects. For example **Aalto on Tracks** took over 100 students by train from Helsinki to the Shanghai World Expo and the opening of Aalto-Tongji Design Factory with the aim to spread the word about Finnish education in 2010.



2010

Aalto Design Factory has a long tradition of organizing community breakfasts known as **breakfasts at DFfany's** every Tuesday. It is hosted by different members of the ADF community like students, researchers, startups or other active members. It is also a great opportunity to test out prototypes and get feedback on different projects. There have been more than 400 breakfasts hosted till date. Fun fact: The idea for Breakfast at DFfany's came from an EU funded project which was trying to find ways to support international talent in the Helsinki metropolitan region to create networks. Compared to scheduling weekly appointments at government offices, hosting a breakfast with all parties involved was less formal and boosted interaction. The very first breakfast was organised by Melissa



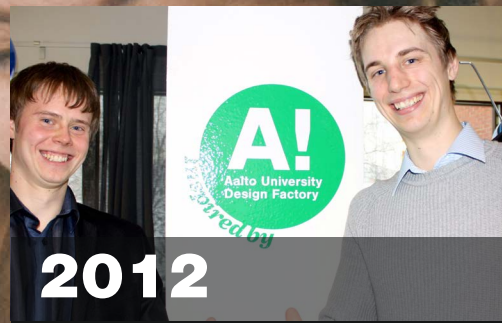
2010

Around 2000 people gathered at DF for some **sumo wrestling**, art battling, karaoke, food, and drinks. The academic year 2010-2011 kicked off with a bang!



2011

Numerous research focusing on entrepreneurship and design thinking takes place at the Design Factory. The research groups bring together people from diverse fields like engineering, design, and psychology. In the early years, the MIND research group at DF had a goal of creating a world-class innovation ecosystem by bringing together the 'movers and shakers' of the public and private sector for creating strategic innovations. "Licence to Act Differently" card is one of the trademarks of MIND and by the end of the year 2011 over 1000 agents had been officially licenced to make a change in different workplaces.



2012

Design Factory is often said to be the sandbox for experiments with pedagogy and space for Aalto University. Some of the designs of the spaces and practices around using shared spaces originating from DF can be found around the Otaniemi campus. An example of this is the **Sun Deck at the K1 building**. The DF team renovated the community space and introduced a social media component to it. The Sun Deck is still in use and one can also get an "inspired by DF" sticker from there.



2013

The arts have always been present at the Design Factory in different forms. Every year, the DF stage becomes the practice venue for a full-sized symphony orchestra. The Lobby has been transformed into a **gallery** exhibiting a graffiti exhibition in the past. In 2013, electronic music association Entropy gathered techno music enthusiasts to DF to learn the basics of VJ-ing from the top professionals in Finland. Since then, Entropy has brought names like Samuli Kemppe, DJ Orkidea, Jori Hulkkonen and Julius Verne to DF for different workshops.



2014

The Paper Bot Challenge in the ME310 course challenges the students to build a robot in one week. They have no prior experience in working with electronics and they learn by doing. The point of Paperbot challenge is to get familiar with electronics and not be afraid to prototype with it. In 2014, students had to build circus robots that were able to perform at least one circus trick and to answer to at least 2 inputs.



2015

Throughout its existence DF has been a launchpad for at least 100 different startups like Catchbox, Powerkiss and Safera. The years include variety of cheerful moments such as Majja Itkonen of Gold & Green Foods being named the Innovation leader of the year in 2010 or **Perttu from Entocube** presenting cricket snacks for Prime Minister of Finland in 2015 before legalization of insect based food products.



2016

DF-based projects and people have also gained recognition on multiple occasions. In 2016, the city of Espoo awarded 10 000 Euros for Design Factory Community. The money was used to cover the costs of DFers travelling to the opening of RTU design Factory in Riga Latvia. On the same trip **Eetu received World Cultural Council's education award** for the humanistic approach to education.



2017

In 2017 ADF philosophy got compressed into a book called "Passion-Based Co-Creation". The book discusses the DF ways of working and was written jointly with the members of the Design Factory Global Network. The book was one of the six mentioned in the LUSCINUS website for Six books you don't want to wait to see in the movies.



THE COMMUNITY

DF community is made out of diverse set of people hugs, love and funny coincidences. Students from business, design and engineering, teachers, researchers, industry partners, DFGN ADF staff are the members who bring the life inside the walls of ADF. Our working environment and spatial arrangements encourage informal collaboration and knowledge exchange between students, researchers, companies, sta - and even visitors. The following section is dedicated for whole community of DF and for the activities that we have overtaken to make DF even greater place to be.

ANOTHER YEAR AT THE FACTORY

Over the last 10 years, Aalto Design Factory has established itself as *the interdisciplinary collaboration platform of Aalto University*. With the vision to educate the best designers in the world, hundreds of student projects have been carried out in close collaboration with industry partners. At the heart of our pedagogical philosophy is to provide students with learning opportunities by combining theory and practice. At ADF, we see experimentation and hands-on activities as key ingredients for learning and nurturing innovation. For us, students come first, and we aim to provide them with the best possible learning experience.

The academic year 2018/2019 was very special for us. On October 3, 2018, we celebrated our 10th anniversary! We are proud to have been the cornerstone of Aalto's

interdisciplinary education, and we are looking forward to continuing to support students, while prototyping the future of education. This academic year also marked the move of Aalto ARTS (School of Art) and BIZ (School of Business) from Helsinki to the Aalto campus in Otaniemi, making ADF more accessible to the students.

Last year, we received over 230 requests for tours of ADF from different delegations across the world. Our visitors have been interested in knowing more about our educational approach and seeing first-hand the Design Factory way of doing things. Design Factory was also the venue for over five hundred events ranging from academic conferences and courses to events such as the DF Bootcamp, and TuKoKe – the science competition for youth.

ACTIVITIES IN NUMBERS

47+	12	500
Different courses	Hackathons	Educational events

VISITORS IN NUMBERS

> 230+n	43%	24%	11%	22%
Tour requests	Universities and educational institutes	Companies & Startups	Government representatives	Other



ADF EXPERIMENTS

ADF Experiments

In February 2019, the ADF staff got together for workshops to discuss and design our next steps. Collectively, we reflected on our learnings from the last 10 years, revealed the painpoints, and imagined what the future will be. The result of the workshops was a set of different experiments, addressing different needs, that were planned and already initiated within the semester.

AALTO RESOURCES NETWORK

Aalto University campus is the home of a lot of specialist services and equipment. Sometimes they can be difficult to locate, which is why our captain Eetu took on the challenge of **mapping them out and compile them in one single database**. This way students at ADF know where to go and who to see when needed.



DF SUMMER GRANT

Students bring life to Design Factory. The goal the DF summer grant was to make the students of Aalto familiar with ADF. Any student team could apply for up to **1500€** to build their dream project that does not fit within any academic course work. They would work over the summer at DF. The organizing team received several applications and one grant was given to the "Los Amigos Team" for building a sleeping filter for improving air quality at home.



DF METASTASIS

It is often said that the best thing about ADF is its resources when it comes to ideating, building, and facilitating. Inspired by this feedback, ADF Metastasis is a collection of both material and immaterial resources that can be taken to any location to support creative teamwork. The prototype of this concept was a "design cargo bike" which was tested in May at an IDBM prototyping lecture. The second iteration of DF Metastasis took place at the Aalto Service Leaders seminars, advancing experimentation culture.



DF + COMMUNITY

The "open door" style of the ADF 10-year celebrations brought **500+** new visitors to DF. Inspired by this, to get the word out about the activities under the umbrella of ADF community, a series of thematic events were planned. The events focused on the intersection of design with different themes. As a part of the event, talks, workshops, prototyping, and many other activities were planned. The first event to take place in spring was around the theme of Design + Community. Also, a part of this event was Rat Relay, a global product design hackathon.





**10 YEARS OF
LEARNING BY DOING,
2 DAYS OF SHARING BY MAKING**

10 YEARS OF ADF

The opening ceremony of Aalto Design Factory took place on October 3rd 2008. To celebrate the 10 year anniversary, two days of festivities were hosted on the 14th and 5th of october 2018.

The two-day event was packed with different activities ranging from community meals, seminars, workshops, talks, and a great party! The open doors event style brought in a large number of first time visitors to ADF. Some of have become a part of our community and have participated in other DF events such as the Rat Relay since then. Altogether, we estimate that around 1000 people visited in the 26 different sessions of activities organised over the two days.

The 10-year celebrations also brought together the people whose journeys at some point in the last 10 years have passed through Design Factory. Family members from other Design Factories around the world also joined the celebrations. Friends, old and new, from near and far, got together to raise a toast to the last 10 amazing years and wish us luck for everything that the future holds. The celebrations concluded with the guests heading to the prototyping bunker which had been transformed into a party venue.

THE EVENT IN NUMBERS

10	2	720	73%	51	26
Years of learning by doing	Days of activities	Participants	Participants were first time visitors	Organizers	Different events



PARTNER PLAZA

COLLABORATION WITH INDUSTRY

As industry collaboration and interaction with companies is such an important aspect of the experimentation platform that is ADF, we have given startups their own space. We call it the **Partner Plaza**, and our students are encouraged to interact with its inhabitants.

Some companies require desk space, others prototyping space, and some others are here for the community. The companies also contribute to Aalto Design Factory activities such as hosting the Tuesday morning breakfasts. The objective is to foster mutually-beneficial collaborations. These can take many shapes - some companies sponsor thesis work, course projects, or PD6 (product development in six hours) workshops, some hire students, and some others bring their specialised equipment and expertise to the students working at Aalto Design Factory. Some of the in-house startups are entrepreneurial ventures of former students or companies that started with a conversation between strangers while waiting for a coffee at ADF!

PARTNERS IN NUMBERS 2018 / 2019

18

In-house companies

"We at Caidio specialize in assuring the quality and improving the productivity of the ready-mix concrete process worldwide, so we couldn't be located in any better-named street than at Betonimiehenkuja, or, in English, Concrete Man's Alley.

Caidio was founded in April 2018, and soon after that, our first Concrete Intelligence designers located their desks in Partner Plaza in Aalto Design Factory. We felt very welcome from day one in the ecosystem, where we quickly found everything the new firm might need, from office space to new friends who helped us design business cards or web pages, just to name a couple of examples. If you missed something, just ask, and they make it happen. The Aalto Design Factory staff even helped us to get access to the AWS (Amazon Web Services) startup program, which was very valuable for us in designing our AI technology.

Caidio's CTO, Pasi, is a China enthusiast, and he enjoys organizing Chinese Hot Pot evenings at Design Factory. It has been super nice to get to meet with so many Design Factory members in these events. The hot pot is tasty stuff, but oh, man how the kitchen smells like spicy food at the end of the evening."

Aku Wilenius, Caidio Oy

"I was a PDP student in 2013, and found ADF to be a great platform for rapid idea development. The staff has always been open-minded and supportive. When we grew as a company, I thought it might be a good time to partner with ADF more officially. Besides the rental agreement, we use the machine shop for CNC machining or Sauli's machining services. The trailer has been helpful as well and we have used the sauna a few times for team building activities."

Shahab Haeri, Surgify Medical

for more info visit:
www.designfactory.aalto.fi/companies



CURRENT IN-HOUSE PARTNERS

Kuori Oy	KorentoBikes Oy
Omuus Oy	Sensible4 Oy
Onnivation Oy	Surgify Medical Oy
Riihi Consulting Oy	AuroraPropulsionTechnologies Oy
Teraloop Oy	Protorhino Oy
TrickTechnologies Oy (Catchbox)	Trenox Oy
Consair Oy	Tietokonekauppa Vihreä Omena Oy
BlueleafLab Oy	Caidio Oy
EntoCube Oy	StrategyCo.Global Oy



DUTCH INVASION

Fruit of our international collaboration efforts! This year we hosted no less than four of our friends from the Frisian Design Factory, either for internships or research exchanges.



LENNART HIELKEMA

For me it all started when we did a visit from the Frisian Design Factory to the Aalto Design Factory. I met Eetu and asked him if I could do an internship. From the very next day we were already arranging things. I had an absolutely amazing time, and even came back later that year for my graduation project. I got in touch with other Design Factories as well and even did an exchange with the Porto Design Factory. I learned more that year than I could ever imagined. The ADF community is a very welcoming environment with lots of learning opportunities as long as you're open for it. Right now I've graduated, and I am exploring the world of nature conservation and human-nature relationships (ADF reminded me to follow my passion).



FLORIS VAN DER MAREL

Having fallen in love with Design Factory, hearing that my contract at the Frisian Design Factory could not be continued due to a merger devastated me. It lasted only a few days though, because Tua Björklund offered me the Design Factory experience of a life time; one year doing research at Aalto Design Factory, and then guinea-pigging the PhD surf school, an Aalto-Swinburne collaboration to do PhD research at both universities. Currently at Design Factory Melbourne, I know I will keep moving between Design Factories, to challenge myself and others, and contribute to the Design Factory way of working.



THOMAS VAN DER VEEN

Joining the FDF, I was mesmerized by the global network. Once I heard about my fellow students going to ADF, I decided I wanted to go too. After some mailing and talking I had gotten myself an internship! As a Communication & Multimedia Design student, I had a broad scale of things to do. The most important thing it showed me is that joining forces and expertises is the key to success. Currently I am back at the FDF once again, getting ready to write my thesis.



LARS WEIRDA

The coordinator of the Frisian Design Factory, Eric Voigt, introduced me to the possibilities at Aalto Design Factory. It turned out to be surprisingly easy to arrange. I spent a semester at Aalto, mostly to focus on graphic design, but I ended up learning a lot about photography, website building, and presenting. I learned a lot of things I didn't even expect to learn and it was just a really awesome time in overall.

VÄRE

The Väre building is a new home to all departments of the School of Arts, Design and Architecture, and also for School of Business. It has been designed according to user-centric and sustainable principles. Being located so close to ADF, Väre has been enabling great opportunities for collaboration in terms of teaching spaces and laboratories and also taking Aalto one step further in interdisciplinary education.

Otaniementie 14, 02150 Espoo

MARIA 01

MARIA 01 is a community of entrepreneurs that provides the most thriving environment for ambitious tech startups, venture capitalists, and large enterprises. We all help each other develop and succeed. Maria 01 gathers the Helsinki-based innovation ecosystem, and enables collaboration opportunities between the actors, including Aalto-based startup initiatives.

<https://maria.io>

Lapinlahdenkatu 16, 00180 Helsinki

A GRID

A Grid is the biggest startup hub in the Otaniemi area hosting a community of over 140 startups and unique talents. A Grid is a gateway to the university's ecosystem and therefore, it also offers a home base for spin-off companies that have been established in DF. Vice versa, a number of companies located at A Grid also partner with ADF when ideas are made into prototypes, and products.

<https://agrid.fi>

Otakaari 5, 02150 Espoo

AALTO DESIGN FACTORY

THE NEIGHBORHOOD

In 2019, Otaniemi is filled with different sorts of innovation activities making it to a cornerstone of Finnish innovation ecosystem. Aalto Design Factory is one player in this game and together with other key members at the community we make things get done through collaboration.

URBAN MILL

Urban Mill opened its doors for urban innovation initiatives in 2013. Nowadays, it acts as a solid member of our local innovation ecosystem, and it is annually utilized by startups, researchers and for example by PDP teams during the Product Design Gala in the end of May (see page 11).

<http://urbanmill.org>

Betonimiehenkuja 3 E, 02150 Espoo

STARTUP SAUNA

Startup Sauna is the home base for the Aalto Entrepreneurship Society. The community consists of a startup accelerator program, a variety of hackathons, and other entrepreneurial activities. ADF and Startup Sauna are located right next to each other which offers a bunch of synergies for student innovation activities.

<http://startupsauna.com>

Betonimiehenkuja 3D, 02150, Espoo



Linda Liukas
Student
2008-2010
Currently:
Childrens Book Author
of Hello Ruby

"ADF made me realize I want to work at the intersection of different things."



Mikko Reinikainen
Student, Staff, Sponsor
2008-2019
Currently:
Co-Founder at Safera

"Without ADF (& Eetu) I wouldn't be an entrepreneur. Thanks for all the support & possibilities!"



Wycliffe Raduma
Student, Staff, Teacher, Sponsor
2008 - Forever and Ever
Currently:
Lead Mechanical Engineer at Pexray Tech

"In ADF I learned that learning never ends... and that sharing knowledge is the best way to internalize knowledge."



Pia Hannukainen
Student, Researcher, Staff
2005-2015
Currently:
Senior Specialist at OP

"The best thing in ADF was that it still feels like home when I visit it! <3"



Stefania Passera
Researcher & Staff
2009-2017
Currently:
Founder of Passera Design

"In ADF I learned that every assumption must be challenged and everything can be prototyped and experimented with."



Heidi Tulensalo
Student & Staff
2012-2014
Currently:
Service Designer at Wärsilä

*"Without ADF I wouldn't have realized that design is not only form-making, but rather a mindset that encourages you to do crazy stuff with your team. *starstruckfaceemoji*"*



Maria Boychenko
Student & Staff
2012-2015
Currently:
Digital Marketing Specialist at EIT Digital Accelerator

"ADF helped me to discover what I am capable of! In ADF I met some of my closest friends and learned how to be brave in the face of failure :) Still learning...!"



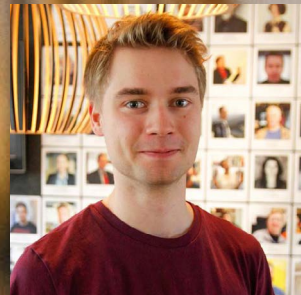
Tik Ho Lee
Student & Staff
2012-2015
Currently:
Commercial Pilot

"Without ADF, I wouldn't have tried to finalize my studies."



Ville Kukko-Liedes
Student, Researcher, Staff
2013-2019
Currently:
Senior Mechanical Designer at Nextfour group

"Not only did I learn everything I know from the people around me - I also grew as a person with them by my side"



Tuomas Isola
Student & Staff
2013-2018
Currently:
Process Consultant at Elisa

"ADF taught me that community is the key."



Clemens Westrup
Student & Staff
2013-2016
Currently:
Data Science Lead at Sanoma

"ADF showed me how extremely energizing and effective a problem-based self-directed and self-motivated approach to learning can be :)"



Sushi Suzuki
Sponsor
2013-2014
Currently:
Associate Professor at Kioto Institute of Technology

"It's amazing to see how ADF culture has transcended so many boundaries."



Miro Nurmela
Student & Staff
2014-2016
Currently:
Senior Software Developer at Futurice

"ADF taught me that good teams are the only way to succeed."



Ivelina Mechkarova
Student & Staff
2015-2016
Currently:
Architect at Arkkitehtitoimisto Huvila

"ADF helped me find my way as a professional, because I got into the right project at the right time. It also helped me get through self-doubt and tackle the imposter syndrome. "



Bijan Bayat Mokhtari
Student, Startup & Staff
2016-ongoing
Currently:
Manufacturing Manager at Surgify Medical

"ADF gave me a second family in Finland. <3"



Maud Bocquillod-Silverang
Student & Staff
2011-2016
Currently:
User Researcher at Viessmann

"In ADF I learned true multi-disciplinary collaboration! Best thing in DF was amazing people with a passion for impact!"



Oula Antere
Student
2013-2014
Currently:
Full Stack Web Developer at Upright Project

"ADF taught me how important strong ownership is in achieving... well, anything. And also how hard it is to transfer established ownership from one person/party to another!"



Tiina Tuulos
Student & Staff
2011-2017
Currently:
Innovation Coach at Swinbourne University

"ADF enabled me to find my place and it has given me opportunities I was not even able to dream of. For me, discovering DF was like winning a life-lottery."



Iñigo Flores Ituarte
Student, Staff, Researcher
2011-2015
Currently:
Assistant Professor at Aalborg University

"ADF and especially PDP helped me to conceive engineering design as the product of multiple factors and disciplines."



Regina Casteleijn-Osorno
Student, Startup
2011-2014
Currently:
Senior Program Manager at Aalto EE

"ADF enabled me to test my skills, make contacts, and bake till my heart's content. I was able to grow as a person, entrepreneur, and I will always be thankful!"



Lisa Gerkens
Student & Start-up
2012-2014
Currently:
Team Lead Strategic Design at Lab 1886

"ADF taught me the incredible impact of a truly supportive community."

BEYOND THE WALLS OF ADF

They came to Design Factory and got DF'd.

As we say: All you need is Love, Design, usiness, and Engineering. The past ten years, ADF has been a home base for ambiguous projects and people who are not scared to pursue their dreams.



Saurabh Ingale
Student & Staff
2013-2017
Currently:
Product Development and Design Thinking

"In ADF I learned the importance of a good teacher and maybe even how to be one. Without DF I wouldn't have known the magic, power and beauty of a hammer."



Laura Wirtavuori
Student, Staff, Researcher
2016-2019
Currently:
Business Analyst at Synocus

"In ADF I got to experience how good it feels to really create - be it products or events. "



Anna Rekola
Intern, Student, Staff
2017-2019
Currently:
Economics Student at Aalto University

"ADF taught me to reach for the impossible and beyond and made me realise that together we are much more powerful."



Pasi Karppinen
Startup
2017-ongoing
Currently:
CTO at ProtoRhino, CTO at Caidio

"I found my home as innovator in ADF."



John Alongi
Visiting Student
2018
Currently:
Business Solutions Architect at Cisco

"ADF made me realize that the sky is the limit. Anything you can think of can be imagined, designed and built at Aalto DF. It is an amazing place."



Joana Moreira
Staff
2018-2019
Currently:
Consultant at MINDSHAKE

"In ADF I like the spirit, and the family feeling and sense of belonging I wish I can work with all this lovely people in the future. ADF for sure had an impact on my mindset, ways of working and the way I get out of my confort zone (which is all the time). "

GLOBAL ACTIVITIES

Aalto Design Factory is only one node in a network of Design Factories spanning across the globe. The next pages are an introduction to the Design Factory Global Network and its activities across the world, from a bootcamp for prospective Design Factories, to a one-week-long workshop together with Yonsei University from Korea and Nelson Mandela African Institution of Science and Technology in Arusha, Tanzania. The passion, ideas, and values behind Aalto Design Factory has spread altogether to 27 research and educational institutions around the world. Together, we are changing the concepts known as education and learning.

EXUS
DESIGN
FACTORY

IdF
W

International
Design
Factory
Week

DF
GN

Jefferson
Philadelphia University &
Thomas Jefferson University



PÄIVI OINONEN

VILJAMI LYYTIKÄINEN

KLAUS CASTRÉN

MARTHE DEHLI



DESIGN FACTORY GLOBAL NETWORK – AN INTRODUCTION

At the very end of a hallway in Aalto Design Factory sits a team of four with the task of supporting the existing Design Factories and facilitating the development of new ones. They call us the Design Factory Global Network team.

The Design Factory Global Network (DFGN) is made up of innovation hubs in different universities and research institutions, spanning from North America to Oceania. Common values and practices enable us to collaborate across time zones and cultures, despite differences in governance and setup.

Design Factories are experimentation platforms, and it is through experimentation that our network moves forward towards its overarching goal: to create change in the world of education and learning. We facilitate and conduct workshops, events, and courses revolving around concepts like design thinking, experimentation planning, and pedagogical development. No two sessions are the same, each one is tailored for its participants and their needs and goals.

There's a famous painting by Laurentius de Voltolina titled *Liber ethicorum des Henricus de Alemannia*. It's from the 1350's, and we like to use it as an example of how the framework of education has been the same for at least 700 years; it shows a man standing on a podium in front of a group of students. At least one of the students has fallen asleep, another one is reading a book, others look bored out of their minds. Save the clothing, this painting could have been done in any educational institution today.

The world is constantly changing, and education should change with it. Traditional ways of teaching theory should be complemented by hands-on training across disciplines and schools. Classrooms should be swapped for workshops and laboratories.

Learnings should become tangible. That's how we enable our students to meet the future head-on.

for more info visit:
www.dfgn.org

DESIGN FACTORY BOOTCAMP 2019

In March 2019, 20 brave men and women from 6 different institutions across the world packed their bags and traveled towards Otaniemi, Espoo, Finland. Their destination: The Design Factory Bootcamp – a one-week-long hands-on introduction to the Design Factory way of thinking and doing.

This year's Bootcamp was the 6th of its kind and gathered participants all the way from Canada to South Korea (full overview of participating institutions on page 48). They were introduced to the different aspects that form a Design Factory, such as its history, pedagogical philosophy, and industry collaborations. Throughout the week, the participants started planning their own Design Factory-related experiments.

Two of the participating institutions have already joined the Design Factory Global Network, two others have started their application processes.



“I really liked how the program presented and integrated every dimension of the Design Factory. The quality of the information presented was impeccable.”

Bootcamp participant

“We experienced the Design Factory from the inside; it was immersive. I feel truly empowered.”

Bootcamp participant

“Every session came with something new”

Bootcamp participant

for more info visit:
www.dfbootcamp.aalto.fi

IN NUMBERS

20

Participants

6

Institutions

17

Sessions

4

Design Factories contributing





INNOVATION BOOTCAMPS IN SINGAPORE

Over the past few years, the Singapore Institute of Technology has been laying down the foundation for SIT Design Factory, closely supported and enthusiastically championed by Design Factory Melbourne and Aalto Design Factory.

A total of three Bootcamps have been organized to build the innovation capabilities within SIT and its ecosystem: one in 2017, 2018, and 2019. Members of the teaching staff have planned and executed small but significant experiments of their own, such as using each other's expertise across disciplines, schools, and faculties. They have been created in tight collaboration with industry partners Singapore Accountancy Commission (SAC) and the National Library Board (NLB). The collaboration between the Design Factories will continue to support the transformation of education in Singapore.

DFK BOOTCAMP

At ADF, we love hosting visitors, and in January we had the pleasure of welcoming a delegation of students and faculty from the Design Factory Korea. The students did a design thinking crash course, working on design briefs provided by the Product Development Project -team *Nose Knows*, which developed a puzzle solution to keep dogs busy while their owners are at work.

For three intensive days, the students worked on elements such as developing a How Might We-statement and user testing. At the end of the third day, they presented their concepts and prototypes to the ADF community.

It was great to encounter such an enthusiastic place for future innovators.

- DFK Bootcamp Participant

We were given very strict time limits. It helped me to think efficiently.

- DFK Bootcamp Participant

IN NUMBERS

18	5	3	17
Students	Faculty Members	Days	Hours



SOCIAL IMPACT BOOTCAMP IN TANZANIA

Four days, two design briefs, hundreds of cups of coffee and tea, seven excellent prototype presentations. The Social Impact Bootcamp in Tanzania challenged students from Design Factory Korea in Yonsei University and Nelson Mandela African Institution of Science and Technology (NM-AIST) to work together on solving challenges related to sanitation and inclusive access to water.

A parallel workshop was also organized for the NM-AIST faculty, introducing them to the Design Factory way of thinking and working, sparking their interest, and assisting them in developing their own teaching experiments. One of the outcomes was the blueprint for a coffee corner – a place where faculty and students can meet and discuss topics and ideas, across disciplines and hierarchical borders. That's where we hope to enjoy our next cup of Tanzanian coffee!

“The Boot Camp was an excellent experience to me and my colleagues. I'm expecting to practice “design thinking” with my students in the near future”

- Faculty Workshop Participant

IN NUMBERS

46	3	9
Students	Universities	Nationalities



DFGN OVER THE YEARS



DESIGN FACTORY GLOBAL NETWORK – THE CLOSEST FINLAND HAS BEEN TO WORLD DOMINATION SINCE 1917*

There was never supposed to be a network of Design Factories. Some would say that the dream of one Design Factory was crazy enough. But here we are, ten years after the opening of Aalto Design Factory, and the Design Factory concept has spread to 26 other university campuses and research institutions. The first to follow was the Sino-Finnish

Centre at Tongji University in Shanghai, China, which opened its doors in 2010. In November the next year, the Design Factory concept found itself surrounded by koalas and kangaroos when Design Factory Melbourne saw the light of day at Swinburne University of Technology. Next up was Duoc Design Factory in Santiago, Chile.

In 2012, the three first Design Factories got together for the first ever International Design Factory Week, hosted in Aalto by Aalto Design Factory. Since then, 24 more Design Factories have joined the fun, and the tradition has been kept up; every year, representatives from all the Design Factories get together to map out the next moves for the network. The honor of

hosting changes yearly based on when the institution joined the network.

When it comes to education, creativity, and prototyping, there is no “one size fits all”. 27 Design Factories worldwide means 27 different ways of being a Design Factory. What we all share is a devotion to interdisciplinary learning, passion-based co-creation, and effective problem solving. Our students come first, and their safety and development is our #1 priority.

* The Finnish senate declared independence from Russia on December 6th 1917.

NUMBERS OVER THE YEARS

27	6	8
Design Factories launched	Design Factory Bootcamps organized	IDFW Organized

DFGN MEMBERS ORGANIZED BY ORDER OF JOINING THE NETWORK

1	Aalto University Design Factory Aalto University, Helsinki, Finland (2008)	9	Frisian Design Factory NHL Stenden University of Applied Sciences, Leeuwarden, the Netherlands (2015)	18	Warsaw Design Factory Warsaw University of Technology, Warsaw, Poland (2017)	27	Hannam Design Factory Hannam University, Deajeon, South Korea (2019)
2	Sino-Finnish Centre Tongji University, Shanghai, China (2010)	10	METU Design Factory Middle East Technical University, Ankara, Turkey (2016)	19	Fusion Point ESADE, Universidad Politécnica de Catalunya and IED Barcelona, Barcelona, Spain (2017)		
3	Design Factory Melbourne Swinburne University of Technology, Melbourne, Australia (2011)	11	Design Factory Javeriana Bogotá PUC Javeriana, Bogotá, Colombia (2016)	20	Kyoto Design Lab Kyoto Institute of Technology, Kyoto, Japan (2017)		
4	Duoc Design Factory Duoc UC, Santiago de Chile, Chile (2012)	12	NYC Design Factory Pace University, New York City, USA (2016)	21	Cali Design Factory PUC Javeriana, Cali, Colombia (2017)		
5	Ideasquare @ CERN CERN, Geneva, Switzerland (2014)	13	RTU Design Factory Riga Technical University, Riga, Latvia (Oct 2016)	22	Inno.space Hochschule Mannheim, Mannheim, Germany (2018)		
6	Design Factory Korea Yonsei University, Seoul, South Korea (2015)	14	UPV Design Factory Universidad Politécnica de València, Valencia, Spain (2017)	23	University of Tartu Delta Sandbox University of Tartu, Tartu, Estonia (2018)		
7	Porto Design Factory Porto Polytechnic, Porto, Portugal (2015)	15	Design Factory São Paulo Universidade São Paulo, São Paulo, Brazil (2017)	24	SIT Design Factory Singapore Institute of Technology, Singapore (2018)		
8	Nexus Design Factory Thomas Jefferson University, Philadelphia, USA (2015)	16	Ghent Design Factory Ghent University, Ghent, Belgium (2017)	25	HAMK Design Factory Häme University of Applied Sciences. Hämeenlinna, Finland (2019)		
		17	Design Factory New Zealand Wintec, Hamilton, New Zealand (2017)	26	St. John's University Design Factory St. John's University, New York City, USA (2019)		

DESIGN FACTORY BOOTCAMP PARTICIPANTS

2014	2015	2016	2017	2018	2019
RTU NHL Yonsei University Duoc UC CERN	Ghent University Frisian Design Factory Porto Design Factory PACE University Universitat Politècnica de Valencia	Middle East Technical University Pontificia Universidad Javeriana Bogota Pontificia Universidad Javeriana Cali Pontificia Universidad Peru Waikako Institute of Technology RTU Design Factory Frisian Design Factory	Escola Politécnica da Universidad de São Paulo University of Management and Technology PACE University ESADE Business School Polytechnic University of Catalonia Istituto Europeo di Design Barcelona Tokyo Institute of Technology Warsaw University of Technology University of Tartu Avantika University	Design Factory New Zealand St. John's University Tec de Monterrey	Shenkar College Hannam University Université Laval Hochschule Pforzheim HAMK Brunel University London



INTERNATIONAL DESIGN FACTORY WEEK

2012	2013	2014	2015	2016	2017	2018	2019
Place: Aalto Design Factory, Espoo, Finland	Place: Sino-Finnish Centre, Shanghai, China	Place: Design Factory Melbourne, Melbourne, Australia	Place: Duoc Design Factory, Santiago, Chile	Place: IdeaSquare@CERN, Geneva, Switzerland	Place: Design Factory Korea, Seoul, Korea	Place: Porto Design Factory, Porto, Portugal	Place: Nexus Design Factory, Philadelphia, USA



RESEARCH

Research at the Design Factory explores how we can better enable passion-based co-creation. The platform brings together researchers from different disciplines to explore design, development, and innovation from a wide variety of disciplinary perspectives. The research community combines their investigations to teaching and hands-on development to effectively translate research results into practice and ensure the relevance of our work. The goal is to offer evidence-based insights on how we can develop together!

WE ARE GROWING

This year has brought in both more people and more diversity in terms of backgrounds to the research community at the Design Factory. From sociology to design, neuroscience, and a lot in-between, the Aalto Design Factory nurtures research around design and development. You can find a vibrant community of roughly 20 researchers in the newly renovated Research Wing of ADF.

THE ACADEMIC YEAR IN NUMBERS

319

Conducted interviews

94

Hours of observation

705

Surveys responses

495

Participants in experiments

9

Journal publications submitted to review or revision

11

Conference and other publications written

27

Theses supervised, instructed or completed

37

Organizations that data was collected from

400+

Participants in events and workshops for practitioners

2000+

Webpage and blog post reads

4

Professors

2

Postdocs

8

Doctoral researchers

4

Project researchers and research assistants

THE ROLE OF DESIGN IN ORGANIZATIONS

Based on over 200 interviews with designers, managers, and developers, we have seen how organizations attempt - and struggle with - taking design from aesthetics to company-wide practices and processes. To take full benefit of reframing, design professionals, design thinkers and design scaffolds need to be invested in hand-in-hand. Design practices can help to create a shared understanding, and small wins pave the pathway for larger transformations. For professional designers, sufficient autonomy is a necessary enabler of effective work, meaningfulness is more connected to the social side and seeing the impact of work. Doing the legwork for pushing change requires the energy to “sell” design across the organization - above, below, and across different silos. When this happens, designers can act as cooperative bridges, grounding operations in customer needs, contextualising ideas, and translating complexity into a form that can be commonly understood to enable improved collaboration.

CO-CREATION ACROSS BOUNDARIES

Looking at both entrepreneurs and the Design Factories themselves, building a community around initiatives becomes key. We interviewed over 30 food and beverage entrepreneurs, finding them to develop their products together with consumers, other startups, distributors and a wide variety of stakeholders. Both internal development and experiments helped to shape the offering. Similarly, in different Design Factories, allies can be found and leveraged both within the home institution and outside of it. Having a physical space for low-threshold collaboration helps to expand the community, while external interest can be leveraged in making the case for experimentation.

EMPATHIC ENGINEERING

We are trying to measure and increase empathy as part of product development so that we can train engineers who truly understand the people using or affected by their designs. In order to do this, we need to identify what exactly is relevant empathy in product development since it is currently conceptualized differently in neuroscience, psychology, and design. Once we can measure empathy, we can help develop ways to increase empathy during the product development process and study if increased empathy also leads to empathic action. That is, help product developers better understand the users and where technology is used, and enable them to use this understanding in designing new technology.

CREATIVITY IN ENGINEERING EDUCATION

The goal of engineering education is to train technically competent engineers who are also able to innovate and develop solutions for a better world. This requires also non-technical skills such as creativity and critical thinking. We explore engineering relevant and scalable measures of these two skills, benchmark against other institutions globally, and test course and pedagogical interventions at Aalto University to see how they impact student creativity and critical thinking abilities.

LEARNING ACROSS THE NETWORK

Parts of our research activities link to looking at practices at different Design Factories across the the global network. Surveying and interviewing staff and students in different countries, we have seen a common emphasis on community and flexibility.

PUBLICATIONS THIS YEAR

JOURNAL PUBLICATIONS

Björklund, T.A. & van der Marel, F. (2019). Meaningful moments at work: Frames evoked by in-house and consultancy designers. The Design Journal.

Kershaw, T.C., Bhowmick, S., Seepersad C.C., & Hölttä-Otto, K. (2018) A Decision Tree Based Methodology for Evaluating Creativity in Engineering Design. Frontiers in Psychology. 10, 32.

Tan, S. Y., Hölttä-Otto, K., & Anariba, F. (2019). Development and Implementation of Design-Based Learning Opportunities for Students To Apply Electrochemical Principles in a Designette. Journal of Chemical Education, 96(2), 256-266.

Rekonen, S. (2019). Managing for knowledge creation in exploratory projects. Aalto University publication series DOCTORAL DISSERTATIONS, 129/2019

Björklund, T., Mikkonen, M., Kukko-Liedes, V., & Kuukka, A. (2019). DesignBites – Bite-size insights into Finnish food and beverage ventures. Aalto University Design Factory, Espoo.

CONFERENCE PAPERS

Chang-Arana, Á. M., Piispanen, M., Himberg, T., Surma-aho, A., Alho, J., Hölttä-Otto, K., & Sams, M. (2019). A performance-based measure for research in empathy and music. In I. Bötsch & R. von Georgi (eds.), 12thInternational Conference of Students of Systematic Musicology (SysMus19): Book of abstracts. 10th-12th September 2019, Berlin, Germany. Nominated for the best contribution award.

Kirjavainen, S., Björklund, T.A., (2019). From invention disclosures to innovation - Challenges in transforming practice. The 22nd International Conference on Engineering Design, ICED’19, 15. -20. Delft, The Netherlands, 5th-8th August 2019.

Kirjavainen, S. & Hölttä-Otto, K. (2019) To Classify or Combine: The Effects of Idea Generation Mechanisms on the Novelty and Quantity of Ideas. ASME International Design Engineering Technical Conferences, IDETC 2019, August 18-21, 2019, Anaheim CA.

Kosmala, M., van der Marel, F: & Björklund, T.A. (2019). Interpretations of design thinking across a large organization. The 22ndInternational Conference on Engineering Design, ICED’19, 15.-20. Delft, The Netherlands, 5th-8th August 2019.

Kukko-Liedes, V., Mikkonen, M. & Björklund, T.A. (2019). Experimentation throughout the product development process - lessons from food and beverage ventures. The 22ndInternational Conference on Engineering Design, ICED’19, 15.-20. Delft, The Netherlands, 5th-8th August 2019

Mattila, P., van der Marel, F. & Mikkonen, M. (2019). Perceived culture of networked knowledge hubs. The 22ndInternational Conference on Engineering Design, ICED’19, 15.-20. Delft, The Netherlands, 5th-8th August 2019.

Sheppard, S.D., Björklund, T.A., Chen, H., et al. (2019). Connecting people, process and output: Making sense of a research lab through creating a shared frame. Clive L. Dym Mudd Design Workshop XI, Claremont, California, USA.

Simon, P., Björklund, T.A. & Sheppard, S. (2019). Early-career engineers’ perceptions of support for innovation at the workplace - what seems to matter. The 22ndInternational Conference on Engineering Design, ICED’19, 15.-20. Delft, The Netherlands, 5th-8th August 2019.

Surma-aho, A., Chen, C. Hölttä-Otto, K. & Yang. M. (2019) Antecedents and outcomes of designer empathy – a retrospective interview study. ASME International Design Engineering Technical Conferences, IDETC2019, August 18-21, 2019, Anaheim CA.

Raviselvam, S., Karuppasamy, S., Wood, K. & Hölttä-Otto, K. (2019) An extreme user approach to identify latent needs: adaptation and application in medical device design. ASME International Design Engineering Technical Conferences, IDETC2019, August 18-21, 2019, Anaheim CA.

SCHOOL OF ENGINEERING 2018 BEST PAPER AWARD:

Clavert, M., Löfström, E. & Nevgi, A. (2018). Change agency as a way of promoting pedagogical development in academic communities: a longitudinal study. Teaching in Higher Education, 1–18. DOI: 10.1080/13562517.2018.1451321.



SATU REKONEN

DISSERTATION: MANAGING FOR KNOWLEDGE CREATION IN EXPLORATORY PROJECTS

By Satu Rekonen

In her doctoral dissertation, Satu explored how practitioners with little to no experience in creative problem-solving practices approach ambiguous problems and how this type of work should be supported. Her insights draw from 81 interviews and 7.5 hours of video data collected from PDP, ME310 as well as from a financial organization in the MIND research project. She found that project teams will most likely encounter the following challenges in exploratory projects: ambiguities related to one's role in and contribution to the project, integrating the knowledge of the diverse team, moving from generating solutions to selecting those to continue working with, and going deeper in experimenting with ideas to move beyond information to create knowledge. The findings also highlight the necessity of creating circumstances where frequent communication and respectful interaction can take place within a team engaged in exploratory project. These observations were the initial spark for Satu to start developing the “I like, I wish” team feedback method.

for more info visit:
www.ilikeiwish.org

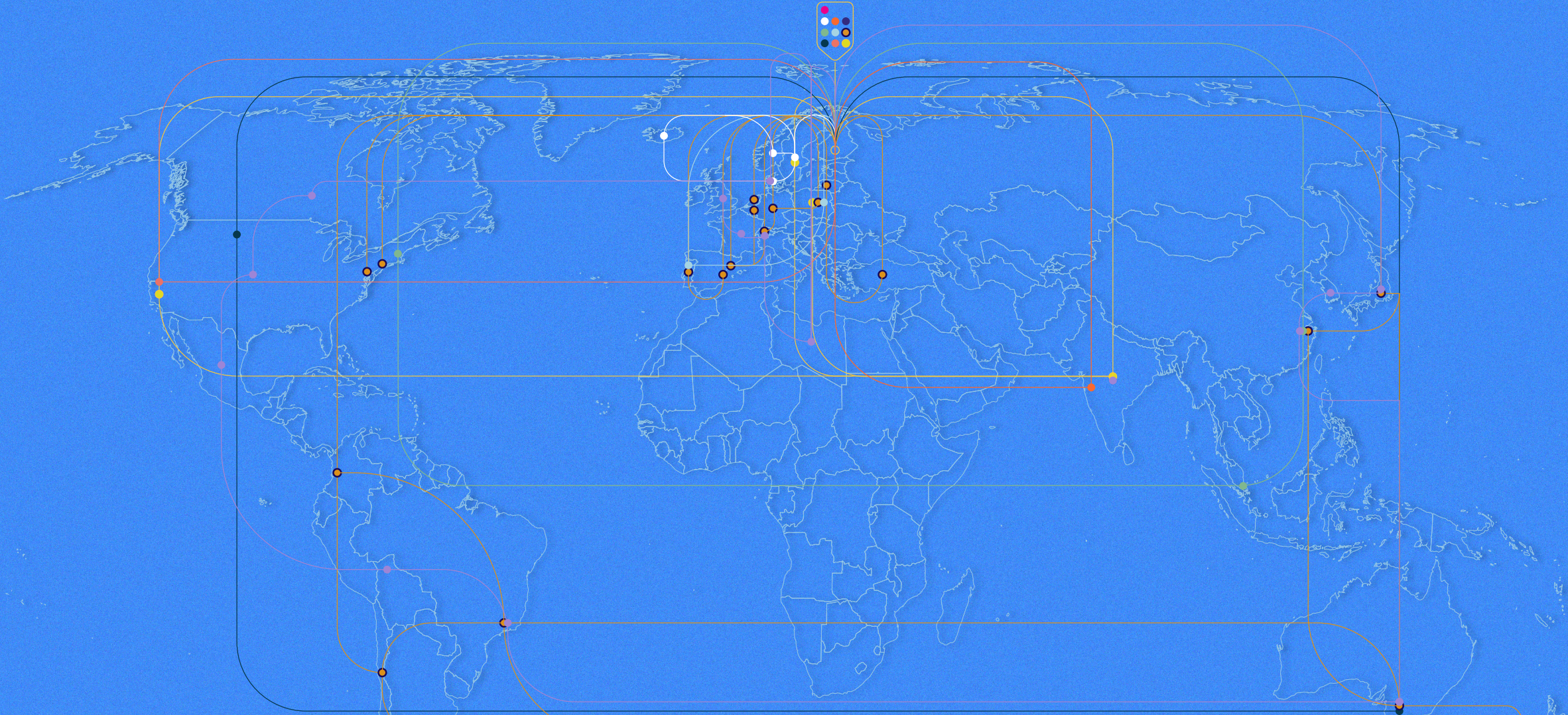
RESEARCH PROJECT CONNECTIONS ACROSS THE GLOBE

Research is not done in isolation. Not only do we connect different disciplines together, research projects at the Design Factory collaborate with partners across the globe, both in collecting data as well as planning data collection and publishing results.



Aalto Design Factory - Design Factory Melbourne double doctoral degree launched

The academic year kicked off the double degree agreement between Aalto University and Swinburne University of Technology, with our first joint doctoral candidate starting his studies. Floris van der Marel is already an international veteran, having worked in the Frisian Design Factory in the Netherlands prior to joining Aalto. After investigating change agency and meaningful work experiences for designers with us this year, Floris is heading down under to join the Melbourne team for the next academic year.



● **Advancing design in organizations**
Finland, US, Poland, Sweden, India

● **Development activities in food and drink entrepreneurship**
Finland, Australia, United States

● **Innovation efforts of early-career engineers**
Finland, US

● **Co-creation hubs as change agents**
Finland, US, Colombia, Brazil, Latvia, Netherlands, Belgium, Spain, Poland, Germany, Switzerland, Turkey, Japan, Australia, New Zealand; Chile; China; Portugal

● **Higher education for Industry 4.0**
Finland, Poland, Portugal

● **Engineering education for Industry 4.0**
Finland, Sweden, Denmark, Norway, Island

● **Empathy in product design**
Finland, US, Singapore, China

● **Creativity & Critical Thinking in Engineering Education**
India, Canada, Australia, China, Denmark, Japan, Italy, Korea, Mexico, Brazil, US, United Kingdom, France

● **User-centered design**
Finland

● **Effective ideation**
Finland, India

● **Technology education**
Finland

CO-CREATING A DECADE OF INTERDISCIPLINARY RESEARCH

Research at Design Factories has grown and expanded, welcoming in new people, topics and projects over the years. In addition to in-house researchers, we have hosted a number of Aalto research groups and visiting researchers - with wonderfully revealing acronyms such as PDR, MIND, LUTUS, PKII, 4D Space, D-ROI and Inuse (go ahead, Google them). However, the common denominator internal and external activities has remained steady: we are all striving to better understand how to enable development activities, whether this is through how we teach it, practice it, or the tools we support work with. We think the most important component in research is the people -researchers, project partners, and people using the results. Here we want to shine a light behind the scenes, who have been making all of this happen during the past decade.

**BRINGING IN NEW PERSPECTIVES:
FIRSTS IN DISCIPLINES
IN THE HOUSE**

MILESTONES

RESEARCHERS



HUGE THANKS TO ALL

That's all folks!

You have just read the ADF annual publication 2018-2019 that was put together with joint effort of Design Factory community. The past ten years have been an unforgettable journey filled with action! Needless to say, ADF has been (and is) a home base for ideas, ventures and first of all the students who strive to pursue their dreams. You never know what you might encounter when you step in to ADF and that is what makes it the place that it is today.

The world changes but Aalto Design Factory remains. We are confident that the next ten years will be just as obscure as the previous ones but of course in a marvellous way. Let's stay tuned about what the future brings.

Tons of hugs and love to all of you who have been part of this amazing voyage

Annual publication 2018-2019

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Serpil Oğuz, Joel Meneses

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ADF Community

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