

A!

Aalto University
Design Factory



A year at Aalto Design Factory

PUBLICATION 2015

The team

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ROLE AT ADF
DF Transformer

BACKGROUND
*Management &
International Business*

Anniina



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BACKGROUND
*Industrial &
Strategic Design*

Marie



DESIGNER

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BACKGROUND
*Industrial &
Strategic Design*

How does a year at Aalto Design Factory look like ?

You are looking at our annual publication, which gives you an overview of one year inside Aalto Design Factory (ADF). A year at ADF consists of courses, projects, workshops, informal gatherings, international collaboration, planned coincidences, random experiments, learning, tears, laughter and fun. To this publication we have collected a selection of data and information which represent the life and variety inside ADF during one year in the best possible way.

This publication shows different sides of the purpose of ADF. In each part you'll find a short introduction, one story, a few shorter project examples and a page full of data and information related to the topic.

The data and material for the publication is gathered from questionnaires sent to students participating courses arranged at ADF, ADF based researchers and ADF staff. In addition, some data was gathered from measurement devices around the building and own tracking systems by the staff members. Since measuring the impact of ADF partly differs from the traditional metrics, we have had to figure out our own metrics which depict the success and impact of ADF. Hence, lots of detective work was included to make this publication happen.

We hope you get inspired and interested when working your way through these pages!

Wishing you a delightful ride - the publication team

DATA OF THE PUBLICATION



60 STUDENTS

All data in this publication is gathered and analyzed from a student questionnaire conducted in 2013-2014. In total 60 students answered the questionnaire (n=60).



*Hugging
point*

*“At Design Factory
we embrace all
people”*

Get to know Aalto Design Factory

Aalto University Design Factory (ADF) was born in 2008 and has its roots in a research project focused on creating an ideal physical and mental working environment for product developers and researchers. Today ADF is an experimental co-creation platform for education, research and application of product design, in a sense, Aalto University in mini scale. ADF is one of the first physical manifestations of the interdisciplinary Aalto University encouraging and enabling fruitful interaction between students, teachers, researchers, and other professional practitioners.



Community

ADF is all about the people. The community consists of researchers, students and staff from different schools of Aalto University, entrepreneurs and company representatives. Being a part of the ADF family is more about the mentality than the official status!

10-15



Research

ADF is a home for individual researchers and research groups from fields such as engineering and design education, concept development, design thinking or practices in early phases of design and development.

24-31



Spaces

ADF operates in an old research laboratory which has been redesigned to support experimentation, prototyping and interaction. The multi-purpose nature of the spaces makes it possible to maintain a high rate of use and keep things flexible.

Did you know: ADF was the first official building of Aalto University!

34-39



Help!

We advise you to realize and build your ideas, and provide a platform for testing your prototypes and experimenting open-mindedly different ways of working. We support courses and projects arranged by Aalto University's students and employees, and our main priorities are the students, start-ups and project teams.

40-45



ADF as a catalyst

When asked to list ADF's greatest accomplishments the list wouldn't be very long. However, when asked which successful projects, experiments and companies would've never seen daylight without Design Factory the list grows longer. ADF is an experimental platform. Hence, it is and has been a launchpad for several new solutions, companies and collaboration, and a home-base for industry-university collaboration and young entrepreneurs.

46-51

Jungle Drum



Design Factory activities have caused interest and spread widely. We get to share our experiences to visitors from all around the world, and collaborate with currently seven institutions (altogether 10 by the end of 2015) in the Design Factory Global Network who share the same philosophy and principles. These institutions provide familiar DF-environment for their local community. The goal is to be the leader in international university collaboration beyond academic boundaries.

53-57

1997

pdp

The roots of ADF stem from the interdisciplinary Product Development Project (PDP) course.

2006



A research project Future Lab of Product Design (FLPD) was launched to support this interdisciplinary cooperation and the education of product designers.

2008



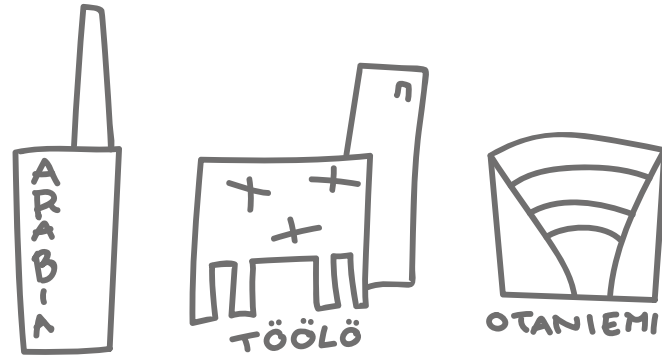
FLPD continued by scaling up the results both in terms of physical space and educational capacity – ADF was officially opened on 3rd of October.

2010



The interdisciplinary Aalto University was established bringing together students from the fields of engineering, design and business.

Meaning of (bureaucrat's) life



When you work as as Chief Development Officer, there's a chance that your life is rather stable and predictable. You meet other Officers, try to convince them of your ideas, listen to them and produce information for them. The key is that by doing this you might, hopefully, somehow make life easier for our students, teachers and researchers.

There are moments, however, when you desperately seek for confirmation for the belief that your work is important. At Aalto University you can be proud of several things, but the Design Factory has a special place in the bureaucrat's heart. Many visitors have found enthusiasm and inspiration from DF.

“...the fact that so many people come to visit DF and appreciate the enthusiasm, open-mindedness and expertise of our students and teachers, is great.”

This is proved over and over again, by our many domestic and foreign visitors. Design Factory is getting world famous. The highlights of the year have included a visit by the King of Sweden with top 45 Swedish decision-makers. We also had the honor to host the nine European Prime Ministers and enrich them with a substantial amount of the Design Factory energy. Similarly, the Finnish Government gathered to Design Factory to carry out long term planning. It seems that colleagues and students at DF are used to the visits of ministers and ambassadors as well as visits of officials. But the fact that so many people come to visit DF and appreciate the enthusiasm, open-mindedness and expertise of our students and teachers, is great.

A bureaucrat's life gets better - or less stable and predictable - every time he gets a chance to visit Design Factory with guests or just to pop in. In those moments he remembers why he loves his job.



Jari Jokinen
Chief Development Officer (2010-2015)
Aalto University

Liberty is a great prison



Is Aalto Design Factory a fully transparent and unrestrictedly accessible space? Of course it's not, there are many formal agendas, reservations and limitations – just to mention the safety as the first priority. However, I would argue that the Factory is strongly and truly committed to openness and actually follows the major principles of open space technology as well.

DF is open for the whole Aalto University community. Particularly for any member or partner of the Aalto community, who is open as well - that is, willing to communicate how their planned activity connects to better learning, research or other approaches towards preferred in Aalto.

In between of the numerous planned events and official course interactions, the magic really lies in the Factory's unconference characteristics: “whatever happens, it's the right thing, right people and right moment”. Planning and dictating the spirit, commitment, happy coincidences, friendship, productive failures, and discovering the joy and fun of brute working – obviously it would be a mission impossible.

Design Factory has its borders. It's occupied by a number of busy students and academic people, a lot of actions do take place, at any moment at any day or week. It takes a lot of effort to keep the Factory safe, clean and productive. Rules and restrictions are necessary – and you only can break the rules that exist. According to composer Magnus Lindberg, “there is no creativity without boundaries, as paradoxical it may sound”.

Liberty is the greatest prison. For extraordinary achievements both boundaries and freedom are needed.

[1] Openness is an overarching concept or philosophy that is characterized by an emphasis on transparency and free unrestricted access to knowledge and information as well as collaborative or cooperative management and decision making rather than a central authority.
[Peters, Michael. "The Idea of Openness: Open Education and Education for Openness". The Encyclopaedia of Educational Philosophy and Theory. www.eepat.net]

[2] Open Space Technology (OST) is a kind of unconference, beginning without any formal agenda, beyond the overall purpose or theme. OST just has few simple guiding principles and one law. [www.openspaceworld.org]



Kalevi “Eetu” Ekman
Janitor, Father & Chief of Aalto
Design Factory

Community

ADF community is interdisciplinary and multicultural. It is dynamic, warm and also surprising. It brings together mixture of people have dreams and want to be a part of the community. Being a part of the community is more about the mentality than the official status.

Here different backgrounds, different fields, different experiences are all working together and enriching the outcome. DF is a good platform for testing and prototyping 24/7, and it encourages the community to interact with each other - share ideas and help. If you are stuck with your ideas or have a bad day, just head to Kafis – it's by the coffee machine that ideas are hatched, partnerships are formed and spontaneous meetings occur.

- For students the Factory provides a holistic experiences characterized by real life challenges, fun, a relaxed but enthusiastic atmosphere, genuine teamwork, and daily international collaboration.
- For business practitioners and entrepreneurs the Factory is an innovative environment for finding, incubating, and realizing new ideas together with leading scholars, top future talent, and a mixture of other companies.
- For research activities Design Factory offers unique opportunities to form and participate in open-ended research initiatives challenging the industry status quo. This is due to the Factory's close relationship with industry partners, and its role as an enabler of inter- and cross-disciplinary research agenda.

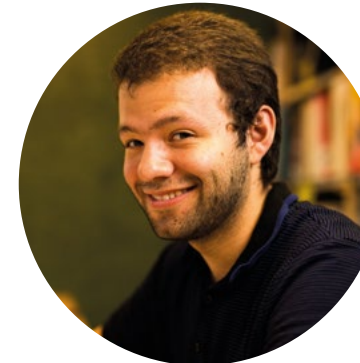
And - in the beginning and at end of each day, it's the student's that come first!

Inspired by the interdisciplinary mix



"I had no Idea how much influence DF would have to my professional as well as to my personal life when I entered the building for the first time! This kind of very practical hands-on approach in addition to top level academic education has proven to be not only effective but also efficient way to learn project work. I have been very lucky to become a member of this community from which I have gained not only very practical academic skills but also very close friends. Therefore feel proud to write my master's thesis about this entrepreneurially supportive environment."

Martti, International Trade & Entrepreneurship Research



"There are great people inside this coloured building! Being a member in DF community has been a really good experience, especially since it's so multidisciplinary and multicultural! I never stop learning from others in this game. This is something that I never imagined to happen - that it is possible to mix everything and get a really good result from the effort of everyone in this equation."

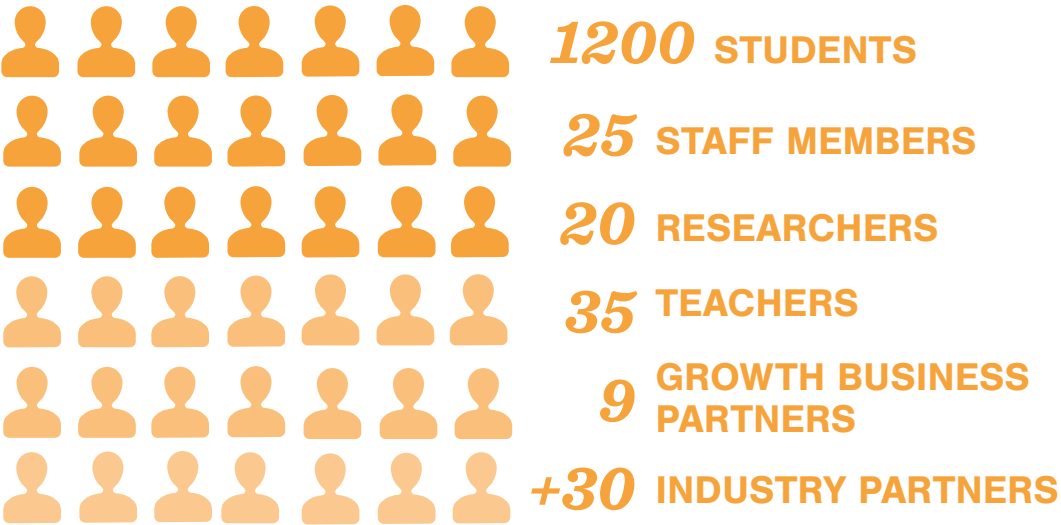
Joel, Graphic Design



"I went to Finland and got DF'd. That sentence fairly sums up my story so far. And if I have to give one reason for that, then it has to be the people. They replaced my whys with why nots, giving a reassuring confidence that you might fall but not get hurt badly. There is a refreshing simplicity in way people work here: there is a great exchange of ideas and an attitude of making things happen. Everyone is moving forward in their own paths but also carrying others with them in the process. DF is a sum of individuals enjoying the journey of self-discovery as a community."

Saurabh, Mechanical Engineering

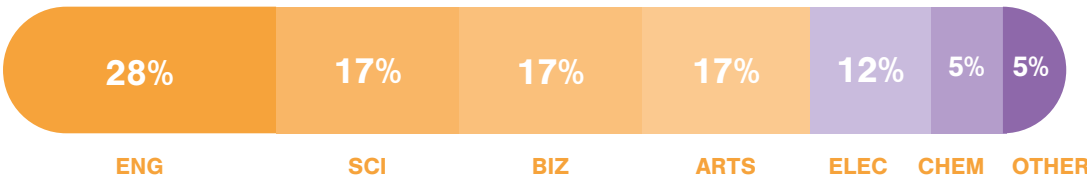
INTRODUCING ADF COMMUNITY



STUDENTS' REASONS TO COME TO ADF FOR THE FIRST TIME



BACKGROUND OF THE STUDENTS
(students mainly from product development courses)



15 COUNTRIES EMBRACING THE "TECHNOLOGY"

AUSTRALIA, AUSTRIA, CHILE, CHINA, FINLAND, INDIA, KOREA, LATVIA, NETHERLANDS, POLAND, PORTUGAL, SOUTH AFRICA, SWITZERLAND, UGANDA, USA.

"We are a Global Community"

7 Design Factories around the world
10 BY THE END OF YEAR 2015

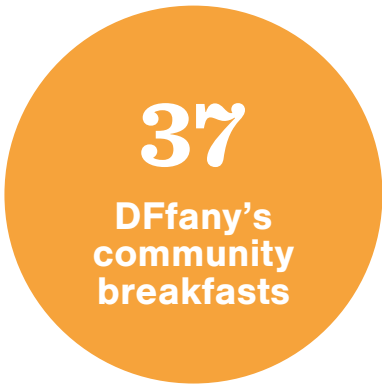


FACILITATED TEAM FEEDBACK -METHOD

I like I wish is a facilitated team feedback activity where team members of a team engaged in a creative project get to provide and receive both positive and constructive feedback in written as well as in spoken format. Sessions are processed in a safe and systematic way. The format was developed by Satu Rekonen through dozens of sessions organized since 2011 on several different interdisciplinary courses taking place mainly in Aalto Design Factory. Facilitated feedback sessions were inspired by d.school at Stanford University where Satu first encountered the possibilities of the "I Like, I Wish" -approach.

Satu received the School of Engineering's Teaching Achievement of the Year 2014 award for this method. The method is packaged onto an open website: ilikeiwish.org

IN 3 YEARS
60 SESSIONS
400 STUDENTS
6 COURSES
in 4 INSTITUTES



Coffee made by Kafis coffee machine

REASONS TO BE AT DESIGN FACTORY

it's unconventional! accessible
attending a course ADF staff
possible to work on own projects simultaneously
different disciplines peer support
good spaces people
there is a kitchen!

STUDENTS SAY: BEST MEMORY FROM MY YEAR AT ADF

"Our PDP team's 24h-hackathon, and when we got to present our project for the Finnish government."

"Long night sessions with our team's electronics experts. We got into 'the zone' during those sessions."

"All the unplanned interactions that take ideas to entirely new level! That's magic!"

"Sauli Niinistö (the president of Finland) attended our lecture."

"Work together, laugh together. I was very surprised when I found out that there is actually a shower, sauna and a pool at ADF."



QUICK MANUAL FOR UNCOVERING THE ADF SPIRIT

- 1. *Talk to strangers!*
- 2. *Join the weekly Breakfast at DFfany's in Kafis on Tuesday mornings*
- 3. *Keep your eye out for large violet circles - at the Hugging Point you get a hug in no time!*
- 4. *Utilize the kitchen to cook for team spirit or just bake something sweet for all DFers*
- 5. *Challenge anyone to a friendly game of table football!*
- 6. *Feel tired? Find your way to the Fatboy room and take a nap.*

ADF GLOSSARY

Aaltonaut
Bachelor's degree minor studies programme in interdisciplinary Product Development.

ADF
Aalto Design Factory, founded in 2008 and one of the Factory projects of Aalto University.

Aquarium
The researchers' ecosystem in the second floor of ADF.

Breakfast at DFfany's
Community breakfast organized every Tuesday morning in Kafis.

CBI
Challenge Based Innovation -course organized at IdeaSquare@CERN.

DF
Design Factory concept as a passion-based and student-centric experiential learning platform, or a shorter version of ADF.

Defa
A nickname for ADF, e.g. "I love hanging around at Defa".

DFGN
Design Factory Global Network, a network of innovation platforms that drive change in their own institutions for a better learning culture.

Eetu
Kalevi Ekman, the Janitor, father and director of ADF, the professor running PDP.

FLPD
Future Lab of Product Design is a research project that was started in 2006 aiming at understanding how to better support the learning of product development.

IDBM
International Design Business Management Master's program.

Kafis
The kitchen and the heart of ADF, a mixture of coffee and office. Kafis is the place where ideas are shared and planned coincidences happen.

ME310
Mechanical Engineering 310 -course, global team based design innovation course conducted in partnership with Stanford University.

PDP
Product Development Project is an interdisciplinary product development course.

DESIGN FACTORY TRIVIA QUIZ

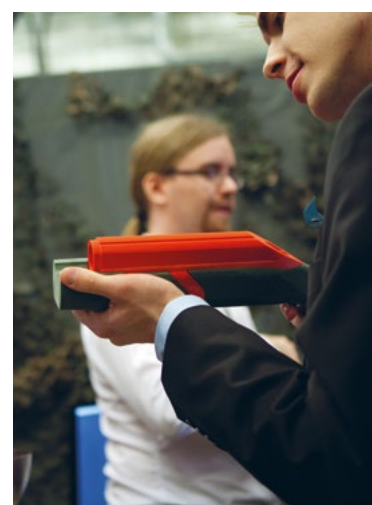
- DESIGN FACTORY IS
- a) open during office hours
 - b) open 24/7 for legal users
- DESIGN FACTORY IS A PLACE WHERE YOU CAN
- a) communicate with 12 languages
 - b) be silent in 43 languages
- DESIGN FACTORY IS
- a) for engineers because it's in Otaniemi
 - b) for designers because it's Design Factory
 - c) not for business students 'cause it's not in Töölö
- AT DESIGN FACTORY
- a) we worship authority and detailed instructions
 - b) no one has authority nor responsibility
- AT DESIGN FACTORY YOU
- a) should keep your eye on strangers
 - b) must talk to strangers
- IF YOU DON'T KNOW WHAT YOU ARE DOING
- a) don't do it
 - b) don't try it here
 - c) ask someone for help
- IN THE CORRIDORS OF DESIGN FACTORY YOU CAN
- a) bump into princes, kings or presidents
 - b) meet a doctoral student who wants to ask questions from you
- THE NAME IMPLIES THAT DESIGN FACTORY
- a) wants to focus on efficient production
 - b) wants to combine theory and practise in a way never seen before
- DESIGN FACTORY IS
- a) making Finland the nation 1# in coffee consumption
 - b) a cause for many happy coincidental interactions
- QUICK AND DIRTY IN PROTOTYPING MEANS
- a) disgusting and illegal activity
 - b) efficient approach against fuzziness and assumptions
 - c) can be both



STUDENTS' LEARNING EXPERIENCES

"The roughest-toughest-craziest super intense year with awful failures and most rewarding successes. So in other words the year here at DF has definitely been one the most teaching years of my studies."

"Freedom. Less bureaucracy barriers, good contact with teachers and assistant. For me DF has never been about designed spaces, inspiration etc. DF could be in Maari for all I care. But it's the attitude of the people who work there daily that makes everything possible."



Learning

Graduating university students are expected to utilize their disciplinary knowledge effectively in increasingly complex and interdisciplinary environments. They need to step out of their disciplinary silos to efficiently collaborate with people representing a multitude of disciplines and cultures, as well as to adopt a holistic view to confront the challenges presented by the working life.

Originating from product development and design education, Design Factory provides an environment that is suitable for experiential learning. The Design Factory approach combines disciplinary knowledge with design thinking and working life skills, such as collaborative working style, effective communication skills, and ability to implement theory to practice. Learning at DF contains elements of

- having a real-life problem as a basis for learning
- active information gathering and evaluation of various possible solutions
- visualizing, prototyping, experimenting with ideas
- reflection
- teacher as a facilitator and student as an active knowledge creator
- interdisciplinary group work

Experimenting with new ways of learning at ADF is supported with practical Teaching Partner mentoring.

Aaltonaut - learning the Aalto spirit



"I heard about Aaltonaut the first time when I had been in school for only a couple of weeks and it sounded very intriguing. Soon 30 selected students started the journey at the Aaltonaut Bootcamp - all together in one lecture room at Design Factory. We started off with a PD6 exercise (product development in six hours) and were brainstorming, teaching and learning, all the time in interdisciplinary teams. Time went by so fast that I forgot that I was attending school on a Saturday!"

Aaltonaut is for those who are looking for problem-based learning as well as interdisciplinary teamwork in hands-on projects. Aaltonaut is a program not only for students looking for their own path, but also a platform from which their biggest dreams can launch off from!"

Amanda, 2nd year student in Industrial Design, ARTS



"It's such a fortune that I heard about this minor! I had a feeling that there was nothing in my studies that opened possibilities for interdisciplinary teamwork or was any different from traditional way of studying. Thus, doing things a bit differently felt good from the very beginning of my Aaltonaut studies. I could see that the teachers were enthusiastic about their topics and teaching, and were happy to receive feedback and suggestions for improvement."

I also noticed that I became more interested about studying - it was clear that sitting quietly in a huge auditorium wasn't the way for me to learn. It has been great to collaborate with students from other disciplines because it broadens your understanding and perspective among others in the field of product design."

Simo, 3rd year student in Mechanical Engineering, ENG



"Aaltonaut made me open up to other disciplines and possibilities. The most valuable aspect of Aaltonaut was the interdisciplinary students and teachers. Through Aaltonaut I met very interesting students from variety of disciplines and countries. For example, I participated Challenge Based Innovation pilot course through Aaltonaut in which 46 students from over 10 countries got together to IdeaSquare@CERN to innovate and make impact to the world."

I have attended interesting lectures and had great conversations with people from different fields. These encounters have given me new ideas and networks, which have already influenced me hugely. I can highly recommend Aaltonaut to anyone who is interested in product development from interdisciplinary point of view and wants something more than just one discipline can offer."

Karri, 4th year student in Marketing, BIZ

40

COURSES

1200

STUDENTS
PARTICIPATING
COURSES

6

PUBLICATIONS
ON PEDAGOGICAL
DEVELOPMENT WORK 2013-2014

“Acknowledging pedagogical development as an integral part of academic work would require breaking out from the homogeneous departmental silos and embracing the disciplinary diversity in an open dialogue.”

Clavert, M. 2014. Becoming a teacher against all odds – the characteristics of pedagogical development in the fields of science and technology. LSE Social Impact Blog.

MAJORS OF THE STUDENTS

(students mainly from product development courses)

Structural engineering **Product Development** Bionics
Marketing Strategic Design Industrial Engineering
Information networks Management Radio Communications
Economics **Mechanical Engineering**
Interior Architecture Electronics Wood Product Technology
Distributed Systems and Services IDBM Media Technology
Machine Design Material Science Entrepreneurship
Collaborative Design
Radio Science and Engineering **Computer Science**
Communication Networks Production Engineering
Information and Service Management Solid Mechanics
Framtidens Industrieföretag
Industrial Design Manufacturing Engineering
Biotechnology and food technology

20  n=60

TEACHING PARTNER -COURSE

Teachers developing their courses at ADF can apply for a Teaching Partner course and are entitled for 1-5 credits. The course combines pedagogical mentoring with hands on experimentations and evaluation. Pedagogical mentoring has been offered for ADF teachers since 2010, but now the process has been also acknowledged as an official part of the pedagogical offerings of Aalto. Teaching Partner was initiated by the Aaltonaut programme, and it is an elective course at the Strategic Support for Research and Education. 10 participants are taking the course during the first semester in Spring 2015.

1st SEMESTER
10 PARTICIPANTS
1-5 CREDITS

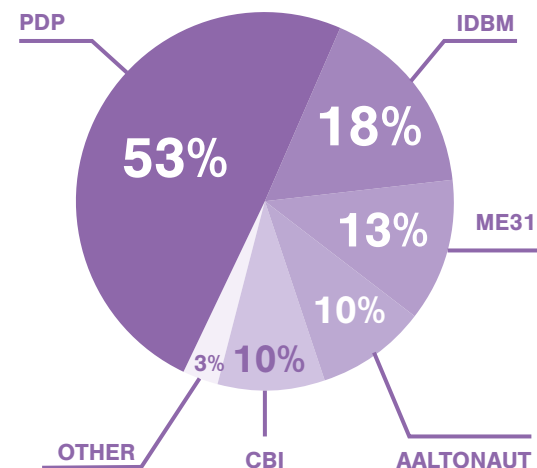
STUDENTS ARE IN THEIR...

78% MASTER'S
17% BACHELOR'S
5% GRADUATED



MOST ENGAGED AT ADF

night or day, you will most probably bump into one of these students at ADF



PDP

Product Development Project

9 months

218 STUDENTS
19 PROJECTS
11 UNIVERSITIES

“ADF in flesh and blood”

Aimed at students interested in developing new products, solutions or consumer goods. The problems are given and sponsored by both domestic and foreign industrial companies, who are searching for innovative cooperation with the next generation of product developers. Over the recent years students have also pursued their own projects and startup ideas in PDP.



programs

courses

AALTONAUT

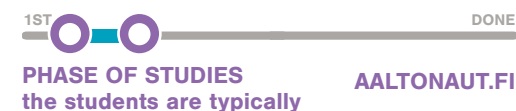
Interdisciplinary bachelor's minor programme

3 years

30 STUDENTS
7 COURSES
5 ECTS PER COURSE
7 INDUSTRY PARTNERS

“Students and teachers from all the schools of Aalto”

A new Bachelor's Degree Minor Studies Programme in Interdisciplinary Product Development. Aaltonaut courses rely on problem-based learning as well as interdisciplinary teamwork in hands-on projects. Aaltonaut aims to educate its students on different aspects of product development, reinforcing an entrepreneurial attitude, and improving working life skills.



ME310

Global Team-Based Design Innovation Course

10 months

20 STUDENTS IN AALTO
4-6 INDUSTRY PARTNERS
20 UNIVERSITIES

“The PDP on steroids”

The ME310 experience is like no other. In fact, it's more of a lifestyle. Through learning-by-doing, students are solving real-life innovation problems with corporate partners, all while surrounded and supported by a close-knit group of coursemates, teaching staff, coaches and 310 alumni. The course has been developed at Stanford University to teach the methodologies of Design Thinking.



IDBM

International Design Business Management

2 years

36 MAJOR STUDENTS
20 MINORS STUDENTS
10+ PROJECT COMPANIES

“Master & Minor Programme”

Educating global producers and leaders of innovation in new product, service and business development. The program builds on the premise that new wealth, meaningful social innovation and solutions are increasingly created in the spaces between disciplines and thus there is a need to educate interdisciplinary professionals.



CBI

Challenge Based Innovation

6 months

9 STUDENTS IN AALTO
6 PROJECTS GLOBALLY
7 UNIVERSITIES

“Particularly interesting development”

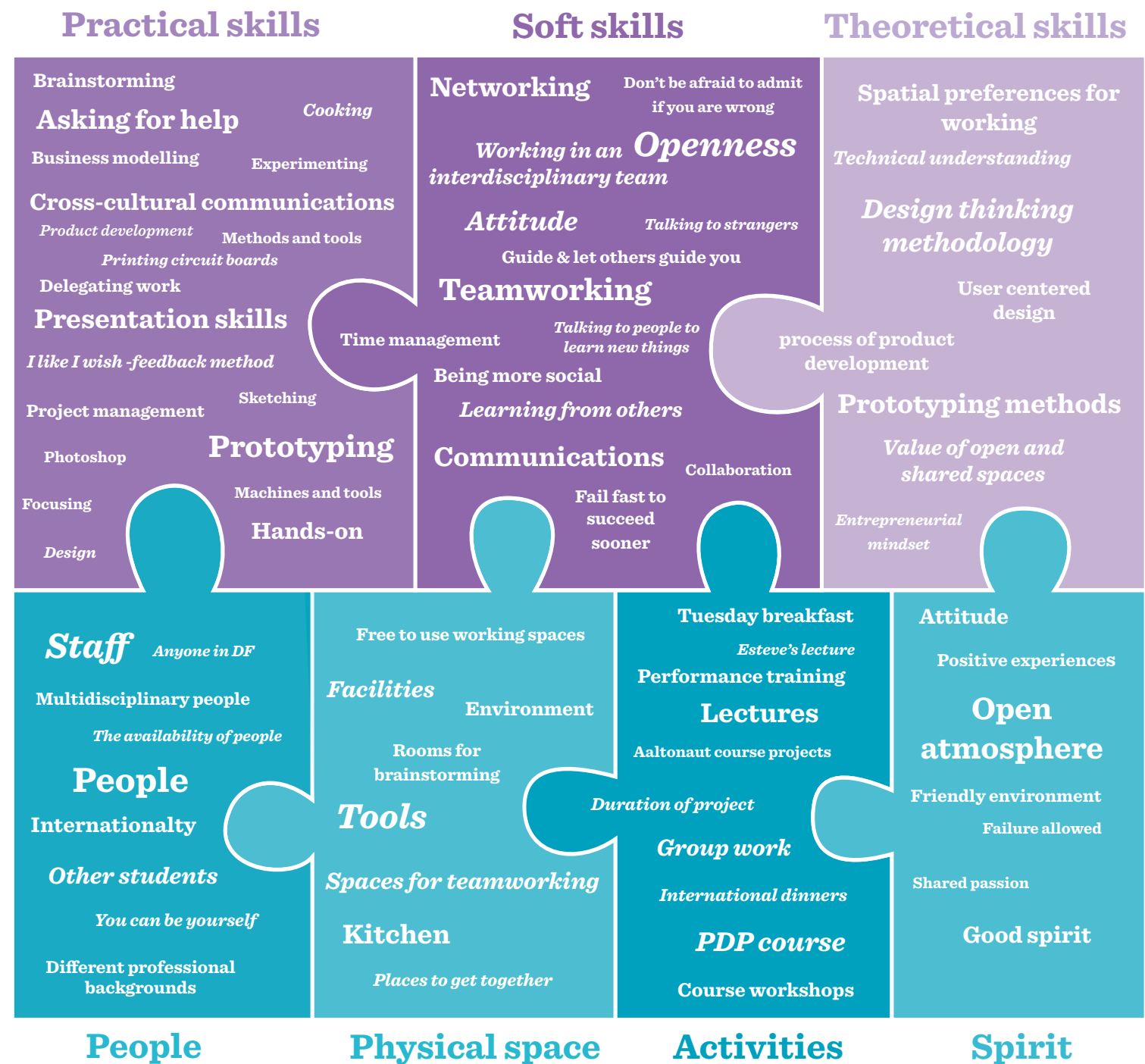
Multidisciplinary student teams and their instructors collaborate with researchers at CERN to discover novel solutions for the future of humankind. The projects are an elaborate mixture, where the technologies derived from research at CERN meet societal, human-driven needs. The students come from a mix of disciplines - we believe that the wildest combinations will produce the most delightful outcomes





1. What have you learned at ADF?

2. What has supported your learning?



Research

The roots of research at Design Factory trace back to its very beginnings. The Factory itself was born from a research project called the Future Lab of Product Design (FLPD), which explored physical and mental approaches to supporting design and development work as well as educating product developers. At present, the research at Design Factory continues in the same vein, bringing together researchers from different disciplines together to explore design, development, and innovation from a wide variety of disciplinary perspectives and with diverse methodological approaches.

The research community is an ever-changing and developing group of enthusiasts from different fields who have a passion for design and innovation. The expanding network of Design Factories provides a community with increasingly exciting opportunities for interdisciplinary and international investigations, as the research-focused interaction within the network is being developed and strengthened. A common denominator for all of the research at the Design Factory is its practice-oriented nature. Researchers within the community work in close collaboration with students, teachers, industry and the public sector, often adopting action research oriented approaches that generate impact already during the research process.

In addition to the in-house research supporting the development of the ADF platform, the Design Factory hosts both visiting and permanent individual researchers, and the research group MIND.



DF as source of academic inspiration

From the research point-of-view, the most valuable asset of Design Factory truly is its people. The ever-changing platform has attracted a wide array of development-minded people. As a result, we have gained a multidisciplinary community of researchers studying development-related phenomena from many different perspectives, using various methods. Having to spell out one's own thoughts early on to people from different backgrounds has helped us to clarify our own thoughts, whether occurring in the context of short "what's your research topic" discussions with visiting researchers or in regular peer-support lunches with our colleagues. And while we each have our unique background and perspective, our shared love towards understanding development work and how to support it provides enough of a common ground to enable giving and gaining insightful comments and new ideas to our research, as well as quick pointers in several different academic fields.

"The Design Factory platform itself has also proven to be a useful tool in our research projects..."

On the other hand, the wider community of development-minded people at the Design Factory has been an invaluable source of willing participants to help us study development work. Over the years, we have interviewed and observed student groups creating prototypes, teachers acting as change agents, entrepreneurs developing their companies and offering, and much more. We are deeply thankful for all of the people who have welcomed us in their projects, sharing their time and thoughts so freely with us. The Design Factory platform itself has also proven to be a useful tool in our research projects, making it easy to arrange various data collection sessions and sharing findings with a variety of stakeholders. We get to integrate our findings into the Aalto community practices, by for example mentoring students and teachers, developing new methods, facilitating development work and teaching, and thus have the chance to see the impact of our work and gain further ideas to study.



ADF Aquarium
Aalto Design Factory's research community

ACADEMIC OUTCOMES

selected journal publications



The Preference Effect in Design Concept Evaluation

Jan Nikander, Lassi Liikkanen & Miko Laakso

Concept selection is among the most important activities in new product development, as the consequences of a poor choice may be disastrous at worst. This study set out to extend the tradition of experimental decision-making research into the field of design, investigating whether designers systematically prefer their own ideas in concept evaluation and discussing the implications of this preference effect on design practice.

Nikander, J., Liikkanen, L. & Laakso, M. (2014). The Preference Effect in Design Concept Evaluation. Design Studies, 35(5), 473-499.

Promover la creatividad y las habilidades del pensamiento de diseño entre los estudiantes universitarios

Miko Laakso & Maria Clavert

How to support creativity and design thinking skills among university students? Professionals in all fields are facing increasingly complex problems, with seamless collaboration required from various disciplines. Graduating University students across disciplines need to acquire thinking and working skills necessary to tackle these wicked challenges, but are at present often left under equipped to do so by their education. This paper discusses some of the aspects of how Design Factory as a platform supports the development of these essential skills.

Laakso, M. & Clavert, M. (2014). Promover la creatividad y las habilidades del pensamiento de diseño entre los estudiantes universitarios. Revista de Estudios de Juventud, 104, 215-228. (English version also available)

Better User–Developer Communication in Service Development by Collaborative Physical Modelling

Pia Helminen, Samuli Mäkinen & Mari Holopainen

Making the service use experience visible and facilitating the communication between the users and the provider organisation are persistent challenges. We present a physical modelling approach called collaborative physical modelling (CPM) to reveal the different stakeholder interpretations of a service and to extract these interpretations in a format that can be easily shared and compared, thus facilitating user-developer communication.

Helminen, P., Mäkinen, S., & Holopainen, M. (forthcoming) Better User–Developer Communication in Service Development by Collaborative Physical Modelling. International Journal of Services and Operations Management.

Intermediate Search Elements and Method Combination in Lead-User Searches

Sampsa Hyysalo, Pia Helminen, Samuli Mäkinen, Mikael Johnson, Jouni K. Juntunen & Stephanie Freeman

Users play an increasingly important role in product and service innovation, but finding the right users can require substantial search effort. We present a proof of concept for purposefully combining multiple search methods to overcome search method requirement constraints, by elaborating an approach that uses multiple methods both in parallel and sequentially, and its application in four real world cases.

Hyysalo, S., Helminen, P., Mäkinen, S., Johnson, M., Juntunen, J. K., & Freeman, S. (2015) Intermediate search elements and method combination in lead-user searches. International Journal of Innovation Management, 19(1).

A Sino-Finnish Initiative for Experimental Teaching Practices Using the Design Factory Pedagogical Platform

Tua Björklund, Katrina Nordström & Maria Clavert

The paper discusses Design Factory as an experimental, experiential pedagogical platform, presenting a series of ADF-organized pedagogical workshops at ATDF in detail. Although the teacher participants were able to adapt the pedagogical principles into experimentation plans, further needs for support were revealed for implementation. Implications for grass-root level pedagogical initiatives are discussed.

Björklund, T.A., Nordström, K.M. & Clavert, M. (2013). A Sino-Finnish initiative for experimental teaching practices using the Design Factory pedagogical platform, European Journal of Engineering Education, 38(5), 567-577.

Understanding Idea Advancement Efforts in Innovation through Proactive Behavior

Tua Björklund, Dhruv Bhatli & Miko Laakso.

Based on interviews of product development professionals, the paper identifies idea advancement, or actions targeted at gaining and sustaining resources for developing and implementing generated innovative ideas, as critical for development success. Such efforts can be sustained by contextual interpersonal and organizational antecedents, such as others' communicating value and being able to advance ideas in spurts. Advancement behaviors are centered around communication and inclusion tactics.

Björklund, T.A., Bhatli, D. & Laakso, M. (2013). Understanding Idea Advancement Efforts in Innovation through Proactive Behavior. Journal of Research in Marketing and Entrepreneurship, 15(2), 124-142.

Developing as a teacher in the fields of science and technology

Maria Clavert, Tua Björklund & Anne Nevgi

Previous studies have investigated pedagogical development merely as a result of pedagogical training and ignored the fact that developing as a teacher may be contradicted with developing as a researcher. This study takes into account the dual teacher-researcher identity and reveals the influence of the working environment and experiences on pedagogical development in the fields of science and technology. The findings imply that pedagogical development in these fields can be better understood in terms of becoming a teacher, rather than as a continual, conscious process.

Clavert, M., Björklund, T. & Nevgi, A. 2014. Developing as a teacher in the fields of science and technology. Teaching in Higher Education, 19 (6), 685-696.

MASTER'S THESES INSPIRED BY ADF

combining passion and studies

SELECTED THESIS TOPICS FROM ADF COMMUNITY STARTED/FINISHED IN 2013-2015

Tiina Tuulos - Management and International Business, Communications

Keep calm and don't close the door - How to introduce untraditional and collaborative ways of working to support interdisciplinary product development course in TU Graz?

The thesis depicts how external facilitator from ADF introduces new and untraditional ways of working to support the development of the interdisciplinary Product Innovation Project course in TU Graz during the academic year 2013-2014. The study concentrates on the early-phase change process, incremental interventions, and on supporting the establishment of a community whose members make the change happen with their collaborative power when starting to act differently.

Martti Jerkku - International Trade, Entrepreneurship Research

What makes the passion blossom? Key factors that make Design Factory entrepreneurially supportive environment

DF has had a huge impact on my professional aims. Additionally, I have had quite a few critical experiences that have relieved my true passions for work life. Since I believe many of my fellow students have experienced the same, I want now carry out my thesis to discuss this topic and share this experience further in form of research.

Irena Bakic - Wood product engineering, Environmental engineering

How the use of Design-based learning and design thinking methods can contribute to adolescents' skills and ability to respond to the challenges they face in their own reality?

Young people have the key role in their communities, and they are fully capable building their own lives and society. They only have to be given the opportunity and the right tools for that. Adolescent toolkit is designed for anyone working with youth. It is a backpack that contains hard elements and soft skills that facilitate a design-based-learning process for adolescents. The toolkit is actualized in workshops where the adolescent teams identify challenges and work as groups to create solutions to challenges in their own reality. By engaging adolescent in these activities they gain problem solving, team working and communications skills, and helps them to work as a group towards common goals.

Maria Solovjew - Industrial & Strategic Design, International Design Business Management

Structured chaos – Introducing methods to support collaborative distributed design projects. A study in the context of a global product development course

The primary objective of thesis is to develop structured means to support global virtual collaboration in the context of ME310. To reach this target it is important to learn what are the biggest and most critical challenges students are facing during their projects. The aim is also to discover best practices; what kind of methods lead to successful collaboration and how to support the distributed design process.

Justus Reinikainen - Product Development and International Design Business Management

Visitor experience of a collaborative product design environment (in Aalto Design Factory and IdeaSquare at CERN)

What makes a tour at DF successful? visitors interacting with students and staff showing prototypes produced in the building, preparing the visitors better for the tour.

Erika Rautavaara - Printing Technology, Product Development, Mechanical Engineering and Applied Design

Educating the future product designers - Exploring the anatomy of the Product Development Project course

PDP students learn about collaboration, project management, practicalities and approaches for product development and mindset. These are part of the working life skills that graduates need in the real world. The course provides nice platform to try out new things and to see what is important in a product development project context. Students are keen to learn new things and they want to be able to see how things work out in a real context.

Andrea Heredia - Engineering, design and production

Rapid prototyping needs in ADF

Respond to the current needs of the students that are taking different courses in the DF and offer them a room where create and develop their projects concerned with rapid prototyping.

Heidi Tulensalo - Knowledge Intensive Business

The potential of process facilitation in supporting global new product development teamwork - A study in the context of university education

In new product development process, the short-term intervention driven facilitation model is not sufficient to meet the needs of a team. Identifying team needs and transferring intervention results are the key challenges, which hinder the process facilitators from supporting the teams.

The requirements for the role of facilitator changes, when engaged in a long-term facilitation process. The study suggests a framework, which emphasizes the setting up of collaboration (team and facilitators), integration of the facilitators to the team and the importance of agile learning process through the transfer phase.

Helene Koole - Graphic Design and Business & Design Sami Huhtala - Illustration, Graphic Design, Arts Management and Business & Design

The Role of Space in Facilitating Innovation : The Case of Aalto Design Factory.

1. Artifacts help idea exchange (e.g. whiteboards and screens) Communal spaces like Kafis and Lobby are important for informal meetings
2. Several practices, like the weekly breakfast, gather community members together and encourages informal discussions
3. Prototyping is an integral part of the education at Design Factory - it helps creative work by providing tangible feedback.

Heikki Sjöman - Mechanical Engineer, Product Development, Mechatronic

Learning Outcomes Through Global Product Innovation Course in Aalto University / Interviewed ME310:ers from all the 10 years of its existence in Aalto in order to learn what they have carried with them from the course throughout the years.

Students will go through significant learning process and adopt some life-long lasting lessons and mind-sets from the year of ME310. The areas of learning are:

1. communications: team dynamics, cross-cultural, and multiple disciplines.
2. self-discovery: personal growth, working methods, project management, development of group work.
3. design process (user-centric design): prototyping, testing, decision making.

Meri Vainio - Information Networks, Human and Interaction

May I have this Dance? - Sino-Finnish Centre as Collaboration Platform in Aalto-Tongji Partnership

Aalto-Tongji Design Factory (ATDF) in Shanghai, China is the first Design Factory built outside Aalto University, and works as the physical and spiritual platform for Tongji University Sino-Finnish Centre (SFC). How everything started between Aalto and Tongji, what are ATDF and SFC, what are the models for cooperation, and how the collaboration could be improved? This thesis is a result of two years studying and working at ATDF. The thesis suggests a general model for international collaboration transferring the DF principles and practices. We shall meet on the dance floor!



“Great to be surrounded by other PhD candidates with whom you can try to find answers to questions that we all at some point need to overcome.”

- reaseacher at ADF



ACADEMIC ACTIVITIES

**NORDDESIGN
27. - 29.8.2014
10TH BIANNIAL
CONFERENCE**



Academic conferece

117 PARTICIPANTS

20 COUNTRIES

4 KEYNOTES

86 PAPERS PRESENTED

60% TOTAL APPROVAL RATE

880 PAGES IN PUBLICATION

ADF RESEARCHERS' ACTIVITIES:

- work on their PhDs
- write and submit collaborative conference and journal papers
- mentor teachers on developing their courses
- instruct Bachelor's and Master's thesis workers
- plan and organize various workshops
- teach in different courses and lectures
- provide “soft skill tools” for the students (e.g. facilitated feedback sessions)

WORKING AT ADF MEANS:

- Community, peer support and peer learning
- Great spaces for meetings and workshops
- Getting informal support
- Possibility to do fast experiments on concepts

ADF RESERACHERS:

**+20 DIFFERENT
CONFERENCES
ATTENDED**

FROM THE BACKGROUNDS OF



ENGINEERING



DESIGN



PEDAGOGY



BUSINESS

RESEARCH TOPICS

Engineering and design education

Psychological antecedents
of proactive development

Design thinking

Practices in early phases of design
and development

New value creation

Managerial and team dynamics in explorative projects

User involvement Experimentation driven
development

Physical premises with ideology crossing cultural boundaries

Innovation psychology of development

Contract Visualization

Concept Development



STUDENTS' LEARNING EXPERIENCES n=60

"ADF offers a completely different kind of atmosphere for learning than normal university buildings, working there almost doesn't feel like studying. Learning together with a mixed group of people and reflecting your learnings with others gave me a glimpse of how working life in general can be."

"Unique, it's not only about academic skills but what in generic terms can be called life skills. Help you in learning the biggest thing a school can teach - learn who you are and what you can do."



Spaces

The building at Betonimiehenkuja 5 C, also known as Aalto Design Factory, is the first building of Aalto University. ADF was transformed and developed over the years to its current state from state research centre which served as a research laboratory for over 50 years. Hence, the building was never designed for an university and to host education activities. The janitor of ADF, Eetu, found the empty factory with the help of Raija Valtiala when he was looking for a suitable spot for the Product Development Project -course's final gala. Turns out, Eetu never returned the keys and so ADF was born in October 2008.

Our 3200m2 is roughly divided into three different functions: one third of the facilities support lectures, workshops and events, one third is meant for teamwork, team meetings and individual working, and rest of the spaces are designed for prototyping, building and hands-on activities. Overall the spaces are meant for multiple activities, i.e. none of the rooms are designed just for a single purpose. The multi-purpose nature of the spaces makes it possible to maintain a higher rate of use and it keeps things flexible.

ADF facilities are developed all the time to meet the users' needs and serve the community in the best possible way. We support flexibility and encourage everyone to choose their workstation depending on the task at hand. There are seldom two similar days at ADF. You never know when you encounter a telepresence strolling around at ADF, smell a delicious fresh baked cake in Kafis or get in the middle of a dance battle via video window to Australia.

Come and see it for yourself!



Learning Hubs: Inspired by ADF

A couple of weeks ago I overheard a group of students discussing possible locations to do their group work. The Learning Hub Greenhouse popped up, and most seemed to be happy with suggestion saying the space was nice, functional and accessible. Still, one of them asked what a learning hub was. A funny thing happened then: while nobody seemed to know the exact answer, everyone had some kind of story to tell. Turned out, there used to be a quiet library in that space, and then the local students started bringing in sofas and easy chairs to make it cosier, and before they knew it the learning

hub was ready. They called the space Greenhouse, and opened it for everyone to use. "Fair enough", I thought. I've been involved with the Learning Hub project for the past 4 years, and this description was surprisingly accurate for an urban legend.

"We believed that the learning environments could be built by the students themselves as long as they were given enough guidance."

Today, the Learning Hub network has spread around all the six Schools of Aalto University. It is a natural part of the everyday life on campus. But this was not always the case! The thing is, the concept itself was created during the study year 2010-2011 by a team of International Design Business Management students as a result of an industry project commissioned by Aalto University. Naturally, the Design

Factory became the project home-base, the first benchmark and a great source of inspiration. Its spirit, ways of working and the principles of openness and sharing were the things we wanted to bring to the rest of Aalto. We believed that the learning environments could be built by the students themselves as long as they were given enough guidance. Luckily, the Design Factory people were there for us and offered their knowledge when the learning hubs were built, and supported the movement ever since.

Valeria Gryada

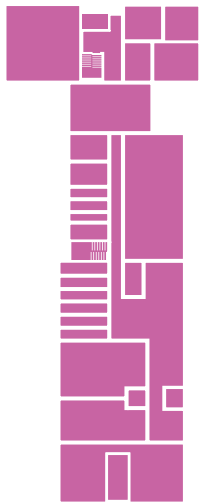
Designer, Learning Space Development Specialist

Some great leaning hubs: Sundek (ENG), Greenhouse (SCI), Living Room (CHEM), Rooftop (BIZ), Aerea Forum (CHEM), and the Lighthouse (ELEC).

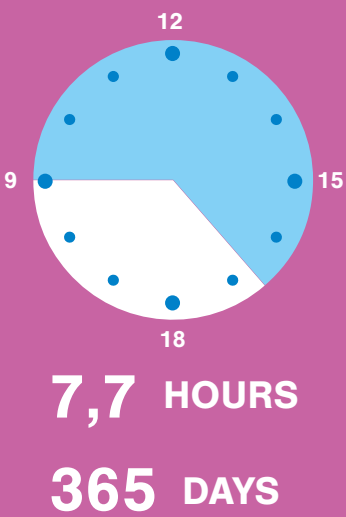
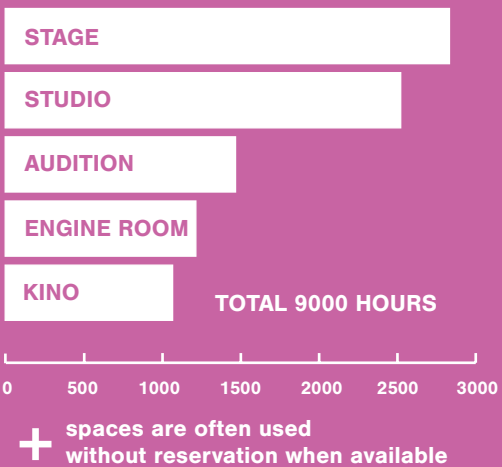
USING ADF SPACES

AALTO DESIGN FACTORY FACILITIES (~3200M2) CONSIST OF

- 1/3 PROTOTYPING FACILITIES
- 1/3 OPEN SPACES FOR WORKING AND AD HOC MEETINGS
- 1/3 RESERVABLE SPACES FOR LECTURES, WORKSHOPS & MEETINGS



SPACE RESERVATIONS IN HOURS



VISITORS SAY: WHAT WAS COOL AT ADF?

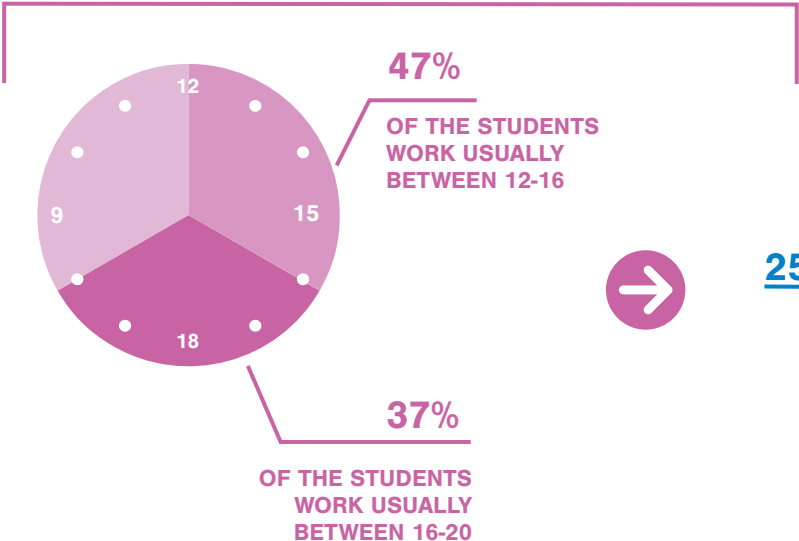
- “To see physical spaces, it made this very concrete!”
- “To see the modelling and prototyping activities, how students can really build something and test.”
- “Hugging point. You cannot argue with the wall.”
- “Space for group work - comfortable, student-style.”
- “Pictures of the people at the Kafis wall. It was a very practical idea to help people getting to know each other. It created a very casual and friendly environment for the staff.”



PURPOSES FOR USING THE SPACES



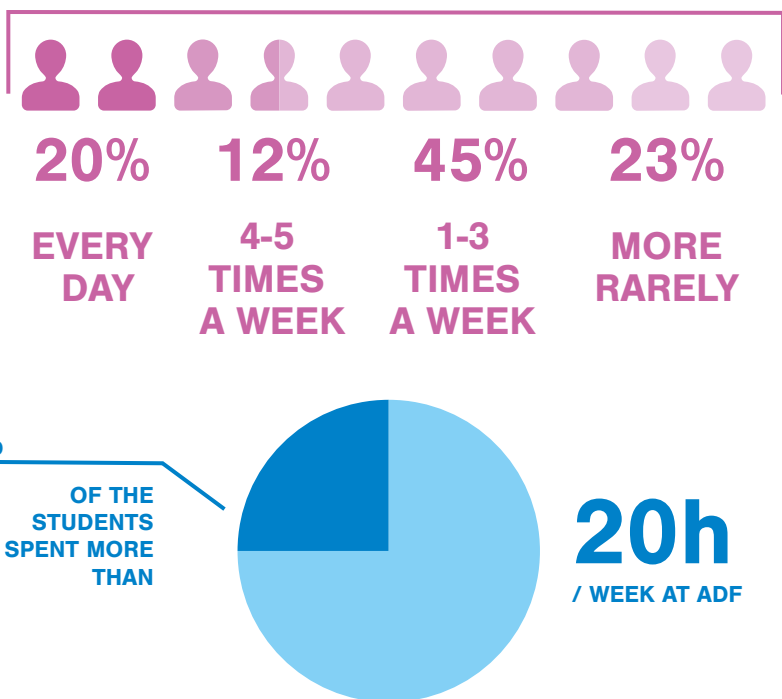
PEAK HOURS AT ADF



STUDENTS' FAVOURITE PLACES TO WORK

1. KAFIS
“In Kafis you will always get comments on your project and can easily ask for others opinions & try explaining what your doing.”
2. BIRCH
“Brainstorm is the best team work room, with a chilled out atmosphere for bringing out our creative energies. Coffee machine is close to all the rooms, so that’s not a “problem.”
3. BRAINSTORM
4. LOBBY
“In Lobby I get to see all the international people and the activity going on in ADF. It kind of keeps me motivated to work. “
5. PUUHAMAA
“At ADF ou can work on your own but still be with all the people, not be isolated. Doesn’t feel like you are the only one working and the world is having fun.”
6. PUUHABUNKKERI

STUDENTS SPENDING TIME AT DF





What is ADF Lobbycam?

Inspired by the visitor engagement thesis research by Justus Reinikainen, we installed a camera to the ADF Lobby so that anyone, anytime, could take a photo. This is a great way for for us to remember our visitors and for people to leave their moments behind for others to see.

Help!

All the things we can, with and for you

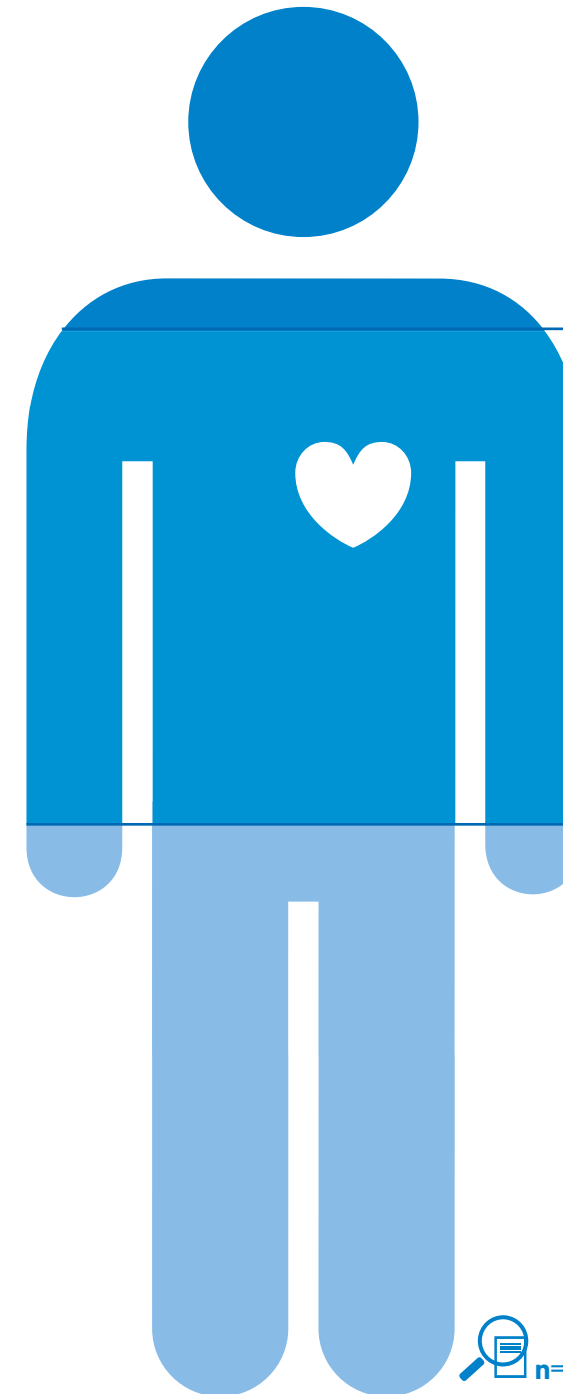
The ADF help is as broad as the expertise of the people at Design Factory. It includes everything from prototyping, to research and from developing your teaching to supporting teamwork.

The tools, materials, spaces and marvelous experts at Design Factory support all stages of product development, from idea to final product. The Design Factory help means everything from support for choosing the right materials, to building your prototype, to helping to solve communications problems in your team, and to connecting you with the right people.

All in all, the support arises from the whole community, from anyone working and spending time at ADF. Design Factory is also much about the mental support and ways of working. We believe that soft skills are vital in order to meet the high requirements and challenges in our work. We emphasize communications, passion, love, hunger for learning and curiosity, and try to support our DF community to stay inspired and have all necessary skills to be able to work hard and go forward.

Learn to realize your ideas, test your prototypes and experiment open-mindedly different ways of working. Try it out, fail fast, iterate and learn – it's not black magic!

SUPPORT FROM ADF



Inspiring

Teamwork facilitation

doing things efficiently

ideation & brainstorming innovative thinking
Tips on approach

Staff & Students

Warm

presentation

Smiling attitude *Team support*

Mental support

Coaching Everything
project management

Advices from others

connections

practicalities

discussions

Action

video making

Prototyping

woodwork modelmaking

coding & software

electronics

vinyl cutting

Material selection

using tools



LeeLuu Nightlights is a start-up specialized in interactive textiles. Their soft interactive nightlights help kids fight their fear of darkness. What has been the value of DF to their team?

1. DF is the perfect place to try new things and develop new skills. As an Industrial designer I have no education in electronics but the environment in DF first taught me the basics and now allows me to experiment and try new things. I work independently in the labs and if I need advice or help verifying my prototypes there is always somebody of the staff around to help me out (and make sure I don't fry my prototypes).

2. Originally taking part in ME310 in 2013/14 we are now part of the DF family and always welcome. That does not only come with being able to use all facilities but also with a lot of help and support in more stressful times. Very often I get approached by people in DF that had an idea for our product or and interesting contact to share. Everybody thinks of everybody and always keeps in mind how they could help.

3. We are a very early stage startup with, obviously, no money. DF has great prototyping and teamwork facilities that we can use on a daily basis. Not having to worry about this helps us to focus on our product and our business.

4. The secret chocolate stash has helped me more than once.

Lisa Gerken
Co-founder
LeeLuu
Nightlights



HELP & SUPPORT FOR EVERY STEP OF PROTOTYPING

Puuhabunkkeri



& supply cave

Open working space for students to build their prototypes. The different tools and recycled materials at the supply cave make it possible to build mockups and more sophisticated prototypes. Prototyping makes students fully explore concepts, try things, fail and iterate.

Toolboxes



We provide toolkits to help facilitate, engage and promote interaction within the learning context. The kits are designed to help users in interacting, prototyping, ideating, presenting and getting feedback. The tools within the toolkits range from Post-it notes to ladies pantyhose and everything in between. Engage your creative side and feed your tactile skills by grabbing a toolkit for your next learning experience!

Electroshop



& AC/DC V1

An increasing number of prototypes made in Design Factory contain some kind of embedded system. That's why 24/7 open workspace dedicated to electronic prototyping is very much needed. It provides tools for basic soldering tasks such as wiring, and it also contains necessary equipment for in-house PCB manufacturing. The Electroshop crew guides students to design and manufacture small scale electronic prototypes. The extended Electroshop-workspace called AC/DC, is located in Puuhabunkkeri.

Woodshop



The place for woodwork, from cutting to sanding. Here you can do anything from building prototypes in the early phase to even making final prototypes from wood.

Machine Shop



Helping students, start-ups and companies to manufacture different kinds of prototypes and to make their ideas tangible. If something can't be made in Design Factory, another solutions will be found from other Aalto facilities or industry. Whether there is a need for help in using simple hand tools or high precision NC-machining, Machine Shop staff is there for you. Machine Shop crew also takes care of basic maintenance of the Design Factory. They keep coffee machines brewing and facilities in order.

PrintShop



Whenever you need to make a sticker for your prototype, decorate a space or print your project poster PrintShop is the place to do it. Since the fall 2014 we have also had an in-house rapid prototyping machine (3D printer), which was built in DF style, meaning built by ourselves through collaboration of different area experts.

Paintshop



The only place at DF for paintwork and surface coating. Want to give the last finishing touch to your prototype? Just choose the color and head to Paintshop.

Sewing studio



A small space for sewing from light fabrics to leather. Sewing studio is the place to be if your prototype needs canvas or if your shirt's button accidentally falls off during the day.

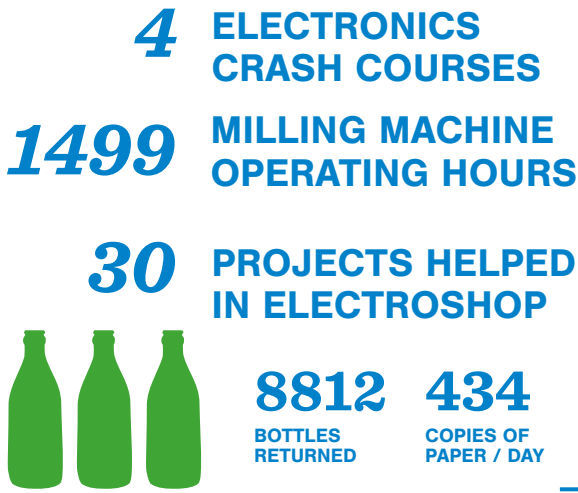




“Model making is like a common language within product development. When I organize model making workshops for the students the main point isn’t that everyone learns how to mill or mold. The most important thing is that they learn how model making is a tool for communication and a great way to learn about ergonomics in product design. The final outcome is just a catalyst, not the final product.”

Kari Kääriäinen, Model Maker Master Craftsman at ADF

HELP AROUND THE HOUSE



PROTOTYPE & MODEL MAKING

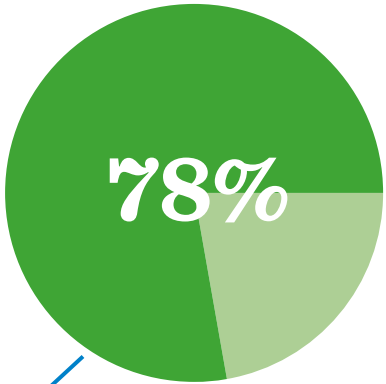
RAPID MODEL MAKING

The 3D printer in the ADF Print Shop was built in a DF spirit with bare hands by Ville Kukko-Liedes, a student from School of Engineering. The printer enables us to support the students better: to prototype more efficiently and to go through more iterative rounds of prototyping. During the two first months the printer (friends call him NuNu) has been running for over 100 hours and printed over 50 objects.



- STUDENTS SAY: WE GOT THE MOST HELP FROM...
1. TEACHING STAFF
 2. MY OWN TEAM
 3. OTHER STUDENT TEAMS
 4. SERVICE TEAM
 5. RANDOM PEOPLE AT ADF
 6. RESEARCHERS
 7. MENTORS & COURSE ALUMNI
 8. COMPANY REPRESENTATIVES

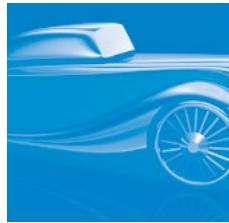
STUDENTS SAY: THE MOST IMPORTANT THING WHEN ASKING FOR HELP IS...



Friendly attitude

- and
- Easy access to people
 - Always helping or finding the right person who can help
 - Familiar faces
 - People listen what you actually need
 - People with specific knowledge
 - New ideas and input
 - People don’t judge
 - You can ask anything
-  n=60

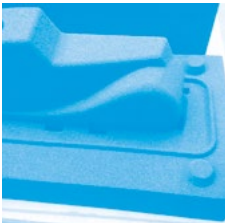
PROCESS OF ADVANCED MODEL MAKING by MachineShop



CONCEPT
VISUALIZATION



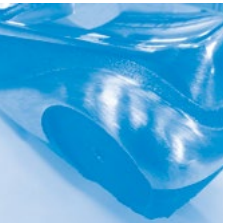
MOLD MODEL
SIMULATION



3D PRINTED
CASTING
MOLD



CASTING



UNFINALIZED
OBJECT



FINAL
PRODUCT

Design Factory realized the VEHO 75 Pro Auto statue.

ADF as a Catalyst

- a platform for possibilities

Experimentation is the art of trying things out in real life and what could be a better place to experiment than ADF, which gives both smaller and bigger projects training wheels and a safe playground. In addition to hosting Aalto University's courses and educating product designers, ADF is like a greenhouse where big things are developed and grown from small seeds. We like to be in the business of making things happen and enabling action. ADF is a home for everything from academic to nonacademic, student driven and ambitious projects to growth businesses.

One of the fundamentals of Design Factory is co-creation with industry. Design Factory is a platform where we support companies in embracing the potential of cooperation with Aalto University. We have in-house partner companies who are enriching the ecosystem diversity and participating to daily activities. We support companies in their early stage to become the new success stories under our loving care and attention.

However, the most intensive users of Design Factory are the various product design courses working with several companies doing projects ranging from tiny to huge in size. Most of these courses are working globally having partner universities and sponsoring companies from all over the world. During one academic year we host over 30 industry sponsored learning projects. Altogether these course projects collect annually 0.6 - 1 million euros external funding to cover the realisation of the projects and prototyping.



"Seos has been at ADF since 2008 - we were one of the first partners to move in here. A lot of our concept and a way of working has been built around this ecosystem that exists here. ADF has enabled Seos to be a certain type of an experimental platform, and to work in a variety of different types of projects from products with embedded electronics to spatial design projects, to research projects, and to co-creative and collaborative projects. DesignROI, one of the research projects, was a very successful where we developed methodology and tools to measure the financial impact of design."

ADF has helped us to build collaboration networks with other companies. We've also been able to do international collaboration and we have actively used the Design Factory platform for creating projects such as the Phone Liberation workshop done for Nokia, that happened both in Finland and in China, at Aalto-Tongji Design Factory.

ADF and its flexibility has allowed us to be small when we need to be small and big when we need to be big. I think that's very important. On kind of personal level, as an entrepreneur I have very little time to attend trainings so it also allows me to learn new stuff from others."

Antti Pitkänen, Managing Director, Seos Design



"We are a production company for workplaces, producing Workplace Strategy, -Design, -Products & services. Agile Work was founded in 2015 by original members of ADF Esa Santamäki, Pekka Kumpula and Antti Pitkänen. Even though the company itself is young the founding members of Agile Work have been collaborating for almost 10 years and our combined work experience exceed 40 years. Our experts define, design and deliver workplaces and help companies to make most out of change. Our clients include both large corporations and small start-ups. All of which are looking ways to benefit from change."

Agile Work is the latest Aalto Design Factory spinoff and located virtually at the Design Factory, and using the spaces like office nomads. We express the "tottakai" mentality!"

Esa Santamäki, Co-Founder & CEO, Agile Work



"As a young company all your resources are sparse. DF provides us the tools, spaces, friends and inspiring environment. In addition, as we're surrounded by highly talented individuals we'll always get (and give) the help if needed. That's what I call sharing economy."

Frank Russi, Co-Founder, Consair Oy

ENABLING EXPERIMENTS & PROJECTS



9 GROWTH BUSINESS PARTNERS
+30 INDUSTRY PARTNERS
5% OF GROWTH BUSINESS PARTNERS' TIME IS GIVEN TO ADF COMMUNITY
HELPING BY PARTICIPATING



GROWTH BUSINESS PARTNERS



INDUSTRY PARTNERS



SEOS DESIGN
ZETA DESIGN
CONSAIR OY
LEELUU NIGHTLIGHTS
CATCHBOX
AIDONE
ARTWAVE SURF
UPLOADAUDIO
AGILE WORK

SEVERAL INDUSTRY PARTNERS ON COURSES

KONE
ABB MARINE

STUDENTS SAY: INFLUENCE THAT WORKING ATW ADF HAS HAD ON MY FUTURE



n=60

"It gave me the courage and tools to think about starting a company, let's see what happens."

"Maybe becoming a sponsor for PDP."

"I already have plans for my career but DF made me think if I want to do something else on top of that."

"I already have plans for my career but DF made me think if I want to do something else on top of that."

"Maybe I will join a startup in the near future."



NETMEDI - NEWS FROM OUR PDP ALUMNI

NetMedi has chosen to join the Young Innovative Companies programme of TEKES. YIC is a programme for the most promising and innovative young companies to boost up their growth and international expansion. As our first step we have just opened an office in Germany.

PDP-course supported the development process of the company. As said by the professor Eetu: "We keep on looking for interesting and challenging subjects for course projects. In the case of Netmedi it is unique that the company is not only sponsoring, but also the team members are completing the course."

ADF RUNNING WORKSHOPS WITH HIGH SCHOOL STUDENTS

Design Factory has been running workshops and courses through the years with our regional High Schools with great success. With our passionate collaborative teachers and students, we have been able to learn and test our teaching methods and techniques on a completely new target audience, resulting in wonderful new insights and discoveries into our own educational approach and perspectives.

PRODUCT DEVELOPMENT APPRENTICE

35 STUDENTS
8 MONTHS
7 HIGH SCHOOL TEACHERS
15 WORKSHOPS
12 GUEST LECTURES

The course was derived through the customisation and synthesis of the Product Development Project to cater to 16 year old students and their teachers. During the course the student teams created conceptual prototypes for their industry partners, utilising a small budget and many hours of group sessions the teams successfully presented their outcomes. These results have now been taken into development by the companies.

WE LEARN-DESIGN

60 STUDENTS
3 WEEKS
8 HIGH SCHOOL TEACHERS
3 WORKSHOPS
3 SCHOOLS INVOLVED

The success of the Product Development Apprentice course led to a second iteration, to an intensive 3 week course. As a result of this course, one student team started to implement their concept to create a Design Factory inspired High School room. Currently the students are building their space with the collaboration of their student and teaching bodies, this concept is additionally being documented for future continuation and scaling to other high schools by the same core student team.





Photo: Pekka Ijäs



Artwave Surf

- waves anywhere, anytime

“With clever technology we can fully appreciate the nature and surf like never before.”

Artwave Surf™ is a project for creating technology to generate surfable waves for everyone, anywhere in the world. We combine inventiveness with mechanics and fluid dynamics to create constant waves for surfing in natural waters. If you have an urban shoreline, a river or a lake — we can deliver you the surf. Or if you dream of a bigger surf center

with many simultaneous waves — just dare to ask. Our solution enables fixed and entirely mobile alternatives with no additional construction required. Once we leave there will be no permanent trace in the nature. Seriously. We see this project comparable to the birth of ski resorts and golf courses. Over decades and centuries those sites have evolved into spaces between wilderness and urban society, allowing safe connection to the nature. With clever technology we can fully appreciate the nature and surf like never before.

Artwave project started in Atlantic ocean and took form of a master thesis project in Design Factory Kafis in late 2011. In February 2012 the first Artwave master thesis project started. It led to pre-seed funding project and a patent application. That led to number of results: unfinished master thesis, small-scale prototypes, fluid-simulation models, a 1,5 year tech-transfer project (TUTL) funded by a Finnish innovation agency (TEKES). In 2014 the project delivered a surf able wave in an urban dock, first of its kind in the world.

For the project Design Factory as a facility and with its people has been superb environment for our work. We have got so many precious advice and unbelievable contacts without mentioning workshops and tools even trailer which we have been allowed to use. Design Factory is irreplaceable for Artwave team!

Atso Andersen
Co-founder of Artwave Surf

Jungle drum

Throughout the year, ADF attracts visitors on a daily basis from all around the world. Visitors and events are something that can be seen in our physical venue but our societal impact goes also beyond the activities in the building – many projects are also done in co-operation with our partners in the Design Factory Global Network, which is a network of ten Design Factories around the globe by the end of 2015.

In addition to the partners in the Design Factory Global Network, the international collaboration with Aalto Design Factory can vary from merely gaining inspiration from ADF in some way, to co-creation and co-development of joint activities, projects and courses.

DF ways of working, culture and activities has been widely spread in press, social media, and in the experiences and stories of people. Jungle Drum is about spreading the love and word about ADF.

“Aalto Design Factory is a flagship initiative of the transformation of Aalto University into a pioneer of student centered, challenge-driven learning-by-doing and entrepreneurship. The new ways of learning developed at the Design Factory are now spreading internationally and implemented gradually to the curriculum offered by Aalto University. I am convinced that this is the way to educate future leaders and game changers that are able to meet grand challenges in a global context.”

Tuula Teeri, the President of Aalto University



Design Factory Global Network ***- Sharing the passion for doing***

The past year has been a year consolidation and growth for the Design Factory Global Network. The 3rd International Design Factory Week in Melbourne brought together 37 people from 12 different universities from around the world. The first Design Factory Bootcamp attracted representatives from five institutions interested in learning the basics of the Design Factory-concept to kick-start similar activities in their own institutions. As an outcome of the Bootcamp, 2015 will see the launches of new Design Factories in Korea, Latvia, Portugal and the Netherlands.

The network and especially its expansion, has been providing, and will continue to provide interesting opportunities for ADF. Since the conception of the network, ADF has had an active role in facilitating its operations. For many of ADF staff and alumni (a total of 22 persons as of today), this has meant international work experiences through short and long-term stays and workshops in the partner institutions coaching them in their daily operations. A total of five master's theses have been written related to the internationalization of the DF-concept only. Majority of the students doing Product Development-courses in ADF are learning about international collaboration as their teams are split between different countries and time zones.

“Design Factories in their essence try to enable change towards where existing structures and ways of working might not suffice.”

Regardless of all the numbers and statistics, at the end of the day collaboration is done mainly and mostly between individual people. Design Factories in their essence try to enable change towards where existing structures and ways of working might not suffice. As we continue our work towards better outcomes in learning and research, let us remember that we are not alone. The Design Factory Global Network is an excellent source for inspiration, validation and support in the change towards preferred, also for us at ADF.

The Design Factory Global Network consists of Design Factories that operate based on the same philosophy and principles and also provide similar familiar environments to operate in. Every partnership is formed in a way that best supports and fulfills the needs and aims of both parties.

IMPACT

LIFE AFTER ADF n=60

68 % of students say that working at ADF has had an influence on their career choices

1. Wider spectrum of potential career paths
2. Change of attitude: courage, leaving your comfort zone, importance of thoughts and feelings
3. Ways of working: hands-on, managing the pressure, interdisciplinary, capability to making decisions
4. How cool and challenging it is to work with new innovations together with committed people

STUDENTS SAY: TAKE AWAYS FOR FUTURE

"Experience gained from the course has reassured that I have selected a good career path."

"Working with people from different backgrounds on a project outside of my field-of-study in an environment that encourages co-operation gave me confidence to start looking for future job-opportunities on a wider spectrum than prior to PDP."

"I now have a more get-out-of-the-building way of working when it comes to design."

"I have become aware of job opportunities, alternative methods of doing things, and that attitude is everything."

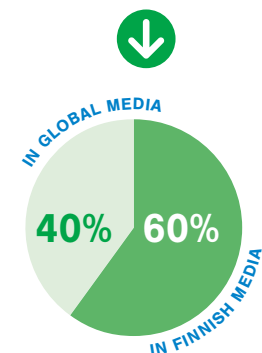
"I would probably like to work on projects with people from different backgrounds as it makes it more interesting, open-minded learning."

"After using DF, Otaniemi didn't seem so far away to me (being a business student)."

ADF IN MEDIA

MENTIONS IN MEDIA

85 According to Aalto University's media monitoring



Yrteille ja orkideoille

(Kirsi Turunen, 25.9.2013, Unelmien Talo & Koti)

Biolanin ja Aalto-yliopiston Design Factoryn yhteistyöstä alkunsa saanut Ilo-kasvatussarja mahdollistaa kasvien ripustamisen seinälle tai katosta. Orkidearukussa on hana, jonka avulla ylimääräisen veden saa pois. Ilo-sarjan on suunnitellut Katie Bednarz.

Näin toimii kenkänavigaattori

(Janne Tervola, 12.5.2014, Tekniikka & Talous)

Aalto-yliopiston tuotekehityskurssilla kehitettiin navigaattorin käyttöliittymä, joka toimii ilman näyttöön katsomista. Kenkään asennettu vibraattori kertoo käyttäjälle, mihin suuntaan tulee kääntyä. Nwwoki-alle tehdyn projektin tilauksena oli tuoda lisää älyä vaatteisiin.

SOCIAL MEDIA PRESENCE

WEB SITE: designfactory.aalto.fi

Facebook: Aalto Design Factory

Twitter: @AaltoDF #AaltoDF

Flickr: www.flickr.com/photos/aaltodesignfactory

PEOPLE FLOW AT ADF IN 12 MONTHS

10 000
people coming to ADF annually

50%
FOR A GUIDED TOUR

50%
OTHER REASONS

→ **220** visitor groups are hosted

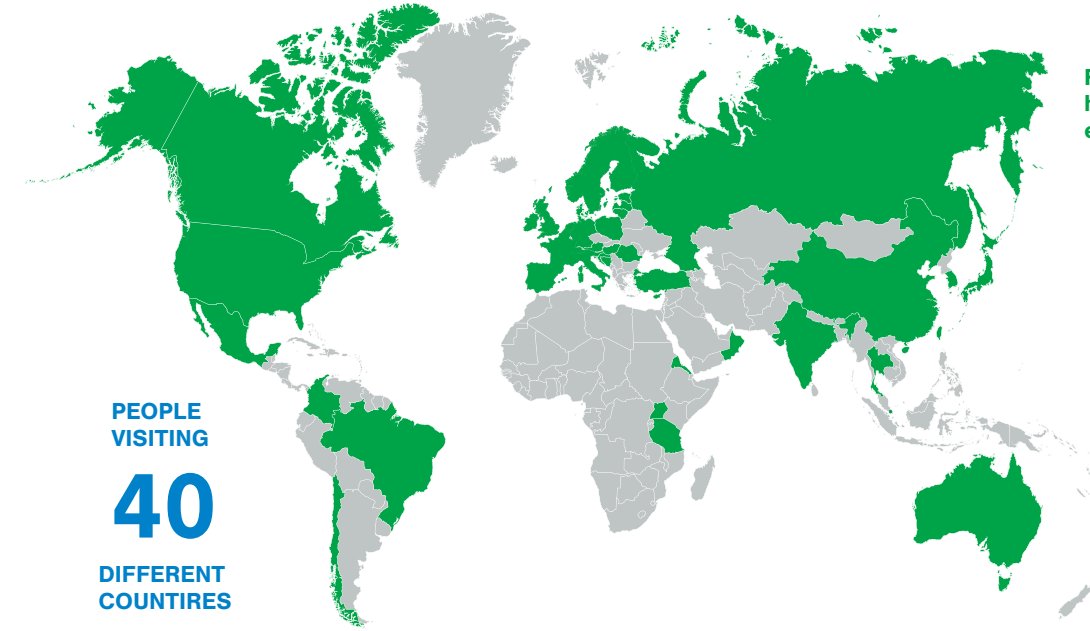
"I don't know exactly what they do, but I know I can always go to them for anything out of the box"

- anonymous professor commenting RTU Design Factory at Riga Technical University

AMONG MANY OTHER WONDERFUL PEOPLE, DURING 2013-2014 ADF WAS VISITED BY...

- American Chamber of Commerce to the European Union
- British Ambassador to Finland
- Crown Prince of Norway Haakon Magnus
- European Commissioner
- King of Sweden, Carl XVI Gustaf
- Mayor of Hamburg
- Mayor of Shanghai
- Minister for Economics and Minister for Culture in Latvia
- Minister of Education, Science and Sport in Slovenia
- Ministry of Education South Korea
- Ministry of Manpower Singapore
- President of the Swiss Confederation
- The Ambassador of Finland in Turkey
- The Ambassador of Finland in Sweden
- The Government of Finland
- The President of Latvia
- The President of the Republic of Finland, Sauli Niinistö
- The Prime Minister of Finland
- Eight Prime Ministers from the Nordic Countries, the Baltic States and the United Kingdom (for the Northern Future Forum).
- The Prime Minister of Romania

COUNTRIES FROM WHERE CAME TO ADF VISITORS



VISITORS SAY: WHAT WAS COOL AT ADF?

From the surveys conducted by Justus Reinikainen for his diploma thesis on ADF what makes the visitors' experience good and what makes it bad.

"Real stories and cases inspired me and brought new ideas."

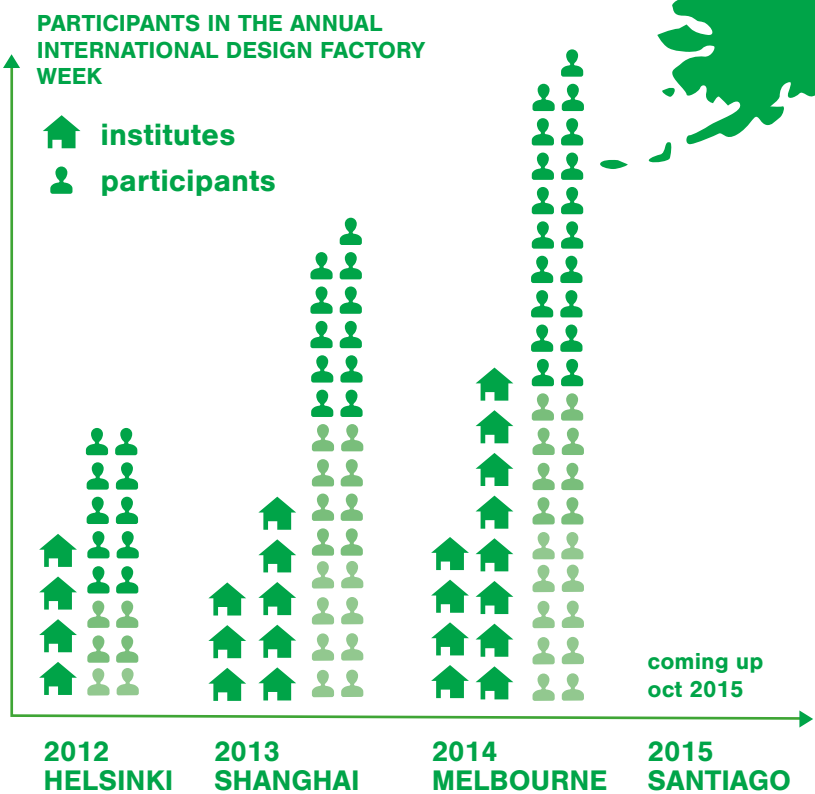
"Like many people that I've spoken to, I'll probably take a completely different road into professional life after having experienced many of its practical sides."

"The atmosphere everywhere. Best atmosphere for creativity."

"Sharing live video calls with Australia's & China's DF all the time - It somehow feels that these offices are not that far away... you feel more connected!"

"To learn about the project tasks from companies - the real-life problems to solve."

DESIGN FACTORY GLOBAL NETWORK



7

INSTITUTES

3

NEW DF'S LAUNCHED BY THE END OF 2015

22

DF STAFFERS/ALUMNI WORKED AT OTHER DF'S

5

FINAL THESIS RELATED TO INTERNATIONALISATION OF DF

- Existing DFs
- Upcoming DFs
- ▲ Collaboration with

PNDF, Philadelphia University, Philadelphia, USA (2015)

Seidenberg School of Computer Science, Pace University, New York, USA

DDF, Duoc UC, Santiago, Chile (2012)

DESIGN FACTORIES AROUND THE WORLD

- ADF = Aalto Design Factory
ATDF = Aalto-Tongji Design Factory
DDF = Duoc Design Factory
DFK = Design Factory Korea
FDF = Frisian Design Factory
- PDF = Porto Design Factory
PNDF = Philadelphia University Nexus Design Factory
RTU DF = Riga Technical University Design Factory
SDF = Swinburne Design Factory



