Aalto University

Shaping a Sustainable Future.

OSSI NAUKKARINEN
VP-RESEARCH

Aalto University

SHAPING A SUSTAINABLE FUTURE

Long-term

PURPOSE

Research
Breakthroughs in and across science, art, technology and business

Education
Sparking the game changers of tomorrow

Impact
Innovative solutions to tackle global grand challenges

Focus of development

Driving excellence
World-class clusters of excellence, bringing talent together

Future-led learning
Greater societal responsibility in degree education and continuous learning with elevated student experience

Inspiring ecosystem
Building an internationally prominent ecosystem

Solutions for sustainability
Using our strengths to address global challenges

Radical creativity
Globally leading community for new thinking

Entrepreneurial mindset
Fostering a strong entrepreneurial culture

Enabling our success
Investing in our community & people, infrastructures & campus, and services

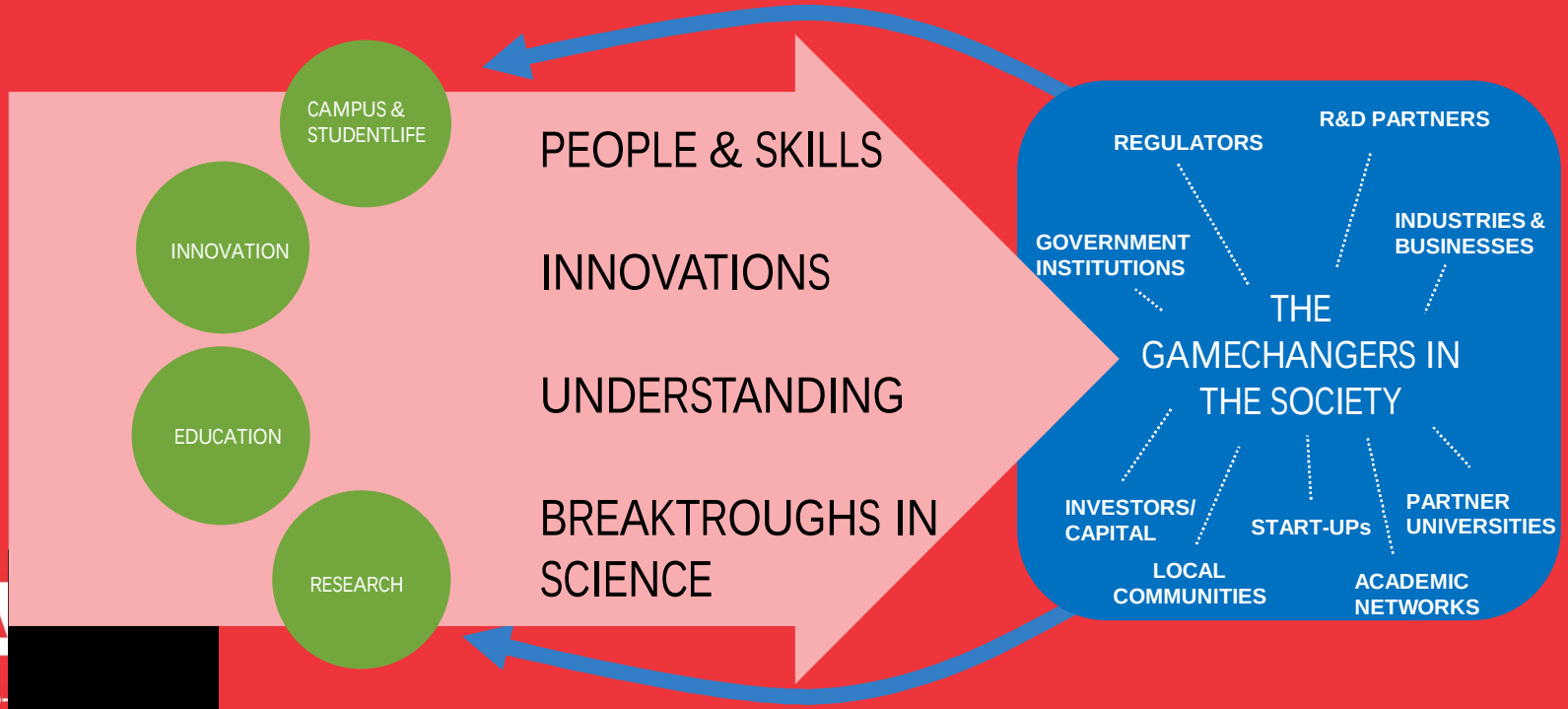
VALUES AND WAYS OF WORKING

Responsibility
We act sustainably for the wellbeing of all

Courage
Taking on challenges with agility, creativity and passion, we aim high.

Collaboration
A diverse and empowered community that shines by working together

IMPACT THROUGH Solutions for Sustainability



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OK… but what does all this mean in practice???

RESEARCH

Sustainable Development in Aalto´s publications 2022

All peer-reviewed Scientific publications	Peer-reviewed Scientific publications with SDGs	Peer-reviewed Scientific publications with SDGs %
3,073	788	25.6%

Peer-reviewed scientific publications with SDGs

	Articles		Proceedings papers		**Total**	
School	nbr.	%	nbr.	%	**nbr.**	**%**
ARTS	40	31.5 %	8	12.9 %	**48**	**25.4 %**
BIZ	41	25.3 %	3	18.8 %	**44**	**24.7 %**
CHEM	231	51.9 %	4	22.2 %	**235**	**50.8 %**
ELEC	76	15.0 %	23	9.8 %	**99**	**13.3 %**
ENG	203	41.2 %	40	33.3 %	**243**	**39.6 %**
SCI	172	19.1 %	6	3.4 %	**178**	**16.5 %**
Total	**708**	**28.5 %**	**80**	**13.6 %**	**788**	**25.6 %**

SDG

25,6%

All sustainability themed theses	% of sustainability themed theses out of all theses	All theses
876	25.6 %	3418

Sustainability themed theses

	Bachelor's		Doctoral		Master's		Total	
School	nbr.	%	nbr.	%	nbr.	%	**nbr.**	**%**
ARTS	35	22.3 %	4	25.0 %	70	19.8 %	**109**	**20.7 %**
BIZ	64	17.1 %	7	43.8 %	81	17.5 %	**152**	**17.8 %**
CHEM	56	46.7 %	9	34.6 %	80	58.0 %	**145**	**51.1 %**
ELEC	47	19.7 %	7	18.4 %	58	28.6 %	**112**	**23.3 %**
ENG	64	36.6 %	20	48.8 %	89	29.8 %	**173**	**33.6 %**
SCI	51	19.6 %	10	16.4 %	124	28.4 %	**185**	**24.4 %**
Total	**317**	**23.9 %**	**57**	**28.8 %**	**502**	**26.5 %**	**876**	**25.6 %**

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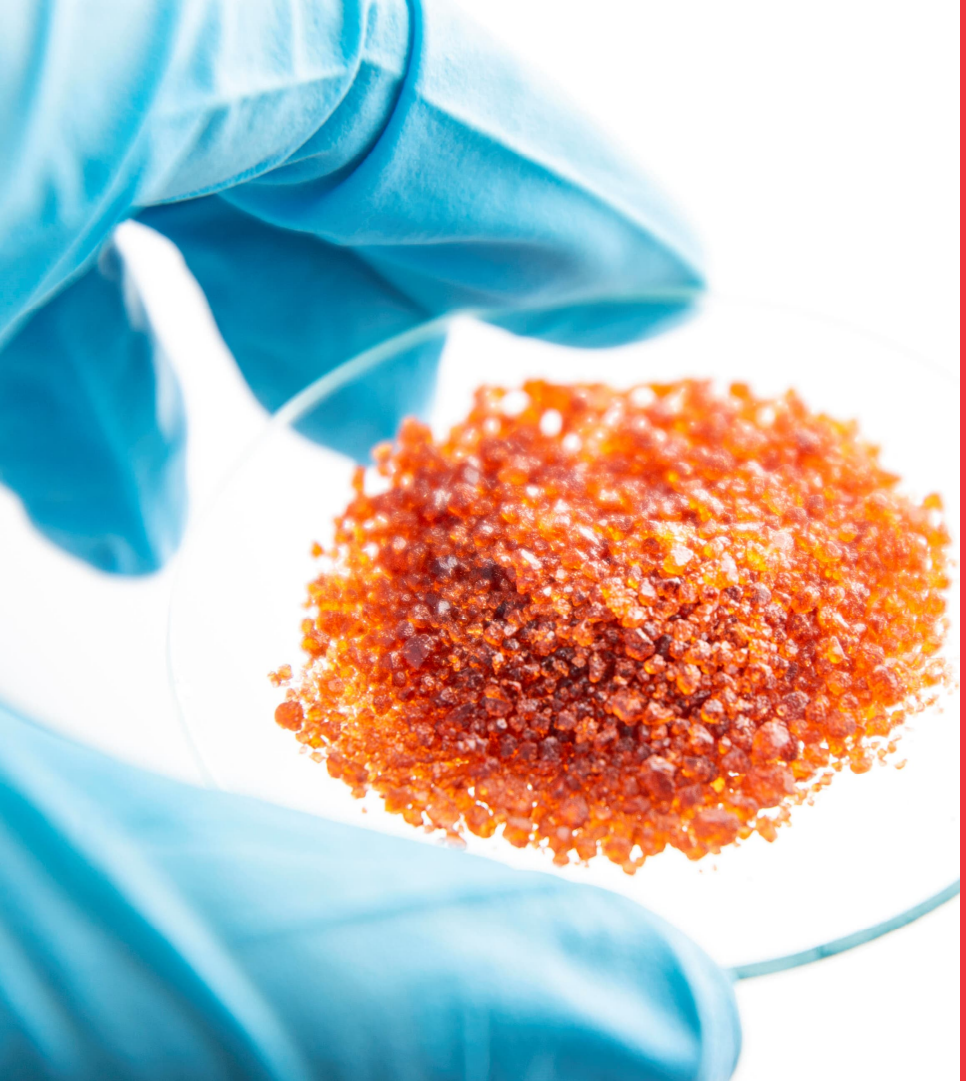


RECYCLING BATTERY MINERALS

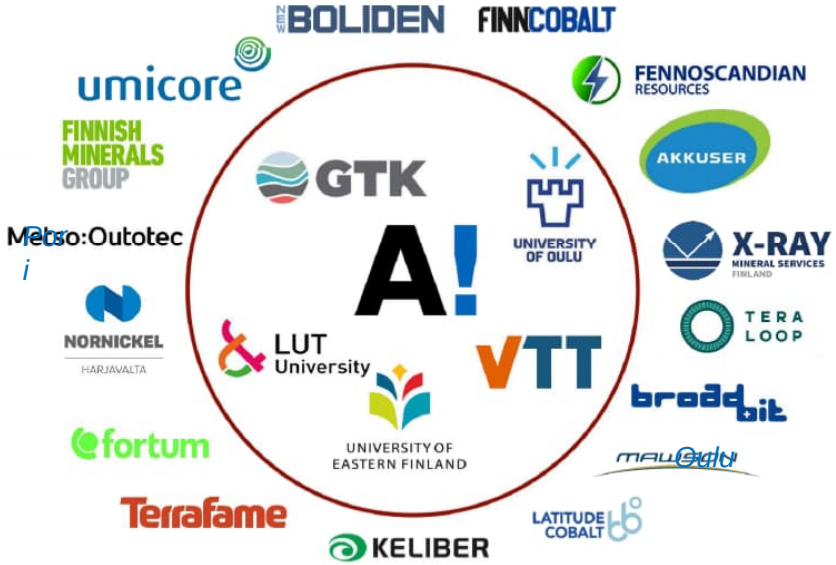
BATCircle is making batteries and battery materials more sustainable by recycling and developing materials. It aims at improving the manufacturing processes of mining industry, metals industry and battery chemicals.

The demand for rechargeable batteries globally is estimated to increase with 25% annually. Many raw materials used in the batteries, such as cobalt, may soon be in short supply.

BATCircle2.0 Consortium

Joint industry-academia project

- Coordinated by Aalto University
- 7 large companies
- 9 SMEs
- 4 universities
- 2 research centers (GTK,VTT)
- ~ 20 M€ budget



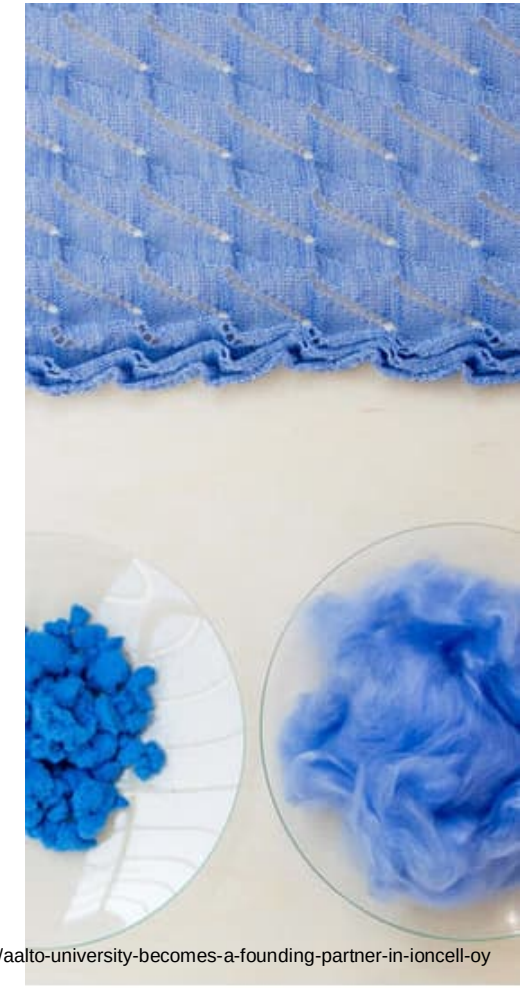
SUSTAINABLE FASHION

FINIX focuses on making textile systems more sustainable. Core research areas are new sustainable materials, digital innovations, new design strategies, circular economy management and sustainability impacts.

Current textile production produces 10% of global industrial CO2 emissions and is to blame for 35% of ocean-bound microplastics. The production also takes immense amounts of water and land causing waste, pollution, and the loss of biodiversity and fertile farmland.

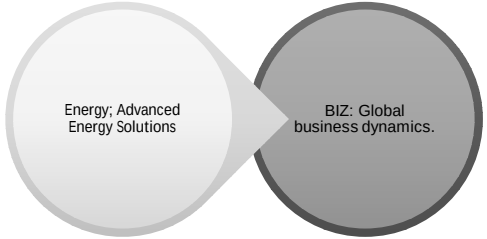
Aalto University becomes a founding partner in Ioncell Oy

- The company will commercialise and develop the Ioncell® ecological textile fibre technology developed at Aalto
  - Production of high-quality textile fibres from wood and cellulosic textile waste in an ecologically sustainable way to make clothing, household products and nonwoven fabrics
  - CEO and main shareholder M.Sc. Antti Rönkkö



https://www.aalto.fi/en/news/aalto-university-becomes-a-founding-partner-in-ioncell-oy

The Smart Energy Transition project (SET)



The Smart Energy Transition project (SET) examined the global energy transition and its impact on Finland. The starting point for the SET project was that the ongoing global energy transition will inevitably affect Finland, as the fight against climate change will require fundamental changes in the energy system.

When the project began in 2015 energy transition was a phenomenon that was not recognized by many, but in 2021 it is an inescapable part of the energy field.

The SET project, alongside many others, has affected change in the energy field by studying transition technologies, learning from experiments, and joint development, and by analyzing political action, institutions, and business models.

Funding for the multidisciplinary project came from the Strategic Research Council (SRC), which operates in connection with the Academy of Finland.

Photo: Guillherme Schneider

FinnCERES
Materials Cluster

Aalto University · VTT · Academy of Finland · Flagship Programme

National Flagship for 2018-2026

The FinnCERES Flagship is redefining bioeconomy via advanced bio-based materials. Our mission is to harness the natural properties of lignocellulose to create novel material solutions for sustainable growth.

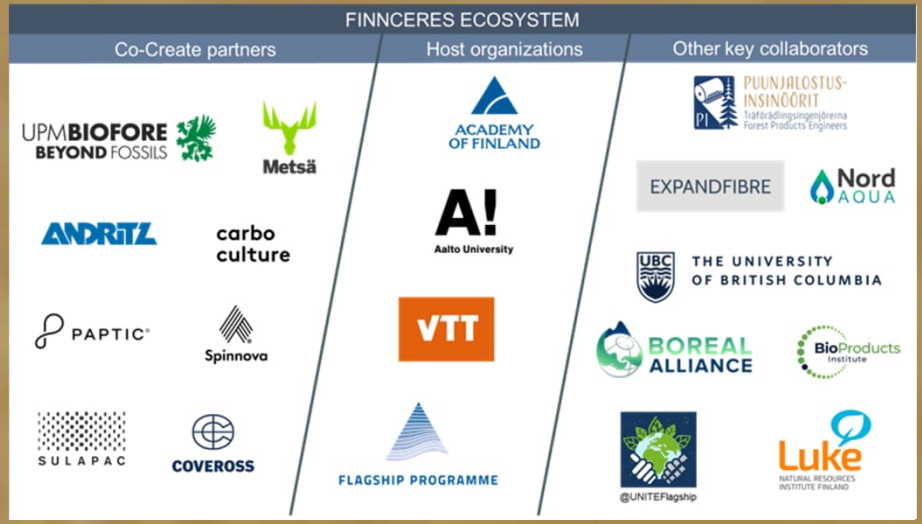
Researchers: >300

Professors: >30

Publications: >150/year

FIRI Infrastructure: Bioeconomyinfra, OtaNano, Raw materials research infrastructure

Linked EU-projects: ~20 (April 2021)



finnceres.fi

SUSTAINABLE FERTILIZERS

Putretti is a local and sustainable eco fertilizer that uses compost as ingredient. The carbon footprint of Putretti is about 88% smaller than that of artificial fertilizers.

The production process consumes fewer natural resources and less energy, while the amount of landfill waste is reduced. Putretti is produced from local materials, therefore reducing imports of fertilizers from abroad, ultimately improving Finland's self-sufficiency in fertilizers.

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Development projects

Sustainability Science Days

Sustainability Science Days conference's themes and co-organization, 2017-2022

2017: Pathways To Sustainability Transformations

- University of Helsinki event.
- SSD 2017

2018: Sustainability Science Days

Day 1: Partnerships for sustainable solutions (HY)
Day 2: Sustainability Science – Discipline or something else? (HY)
Day 3: MAYDAY! MAYDAY! Aalto Sustainability Day (Aalto)

Programme 2018

2019: Making Use Of Sustainability Science

- On-site, Helsinki and Espoo.
- Arranged together - first day at Aalto University Otaniemi campus, and the second day at University of Helsinki, City Centre campus.

Programme 2019

2021: Destruction and creativity

- Online only (due to COVID19), arranged together.
- Over 1000 registrants and 800 participants from 48 countries.
- 25% of the participants international

Programme 2021

MAY 2022: Systemic Transformation to Sustainable Futures

Hybrid event: online and in Otaniemi, Espoo


Sustainability Science Days
PATHWAYS OF HOPE –
Knowledge, Actions, Solutions
May 23-26, 2023
4 days
8 Keynotes
40+ Sessions
150+ individual presenters
Aalto University
UNIVERSITY OF HELSINKI
HELSUS
HELSINKI INSTITUTE OF SUSTAINABILITY SCIENCE

EDUCATION

SUSTAINABILITY EDUCATION

- Sustainability competence and course development for educators through pedagogical training
- Ensuring our graduates can identify, analyze and tackle systemic sustainability problems
- Supporting students and staff in finding connections between their field and the sustainability goals
- Currently from the 3000 courses at Aalto 48% includes sustainability themes

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+2000 courses at Aalto are SDG relevant

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Development projects

Co-educator

Co-Educators ways of working

Training for teachers on cross-cutting themes: pedagogical course, intensive course, sessions, exercises, workshops, individual sparring

Collaboration with pedagogical specialists in co-development and co-teaching of peda-courses, in co-design and co-execution of school and programme level teaching development activities

Integrating cross-cutting themes in courses: session, lecture, panel discussion, reflection, debate, video, exercise

Co-development with academic community: new cross-Aalto minor development

Development projects

Sustainability Action Booster

New fund opening soon!

SUSTAINABILITY ACTION BOOSTER

Sustainability Action Booster is a new fund created to boost opportunities for Aalto University students to initiate and participate in student-owned sustainability activities on campus and beyond!

Initiated by students, for the students:

- The grant is aimed at a wide array of actions addressing sustainability, and it is open for Aalto University students
- Individuals and teams can apply for 500–5,000 € per action idea. The proposals must:
    1. Promote sustainability culture at Aalto University
    2. Enhance multidisciplinary and cross-departmental collaboration, and/or work in diverse teams
    3. Increase the inclusivity and wellbeing of the Aalto community

MORE INFO COMING SOON !!

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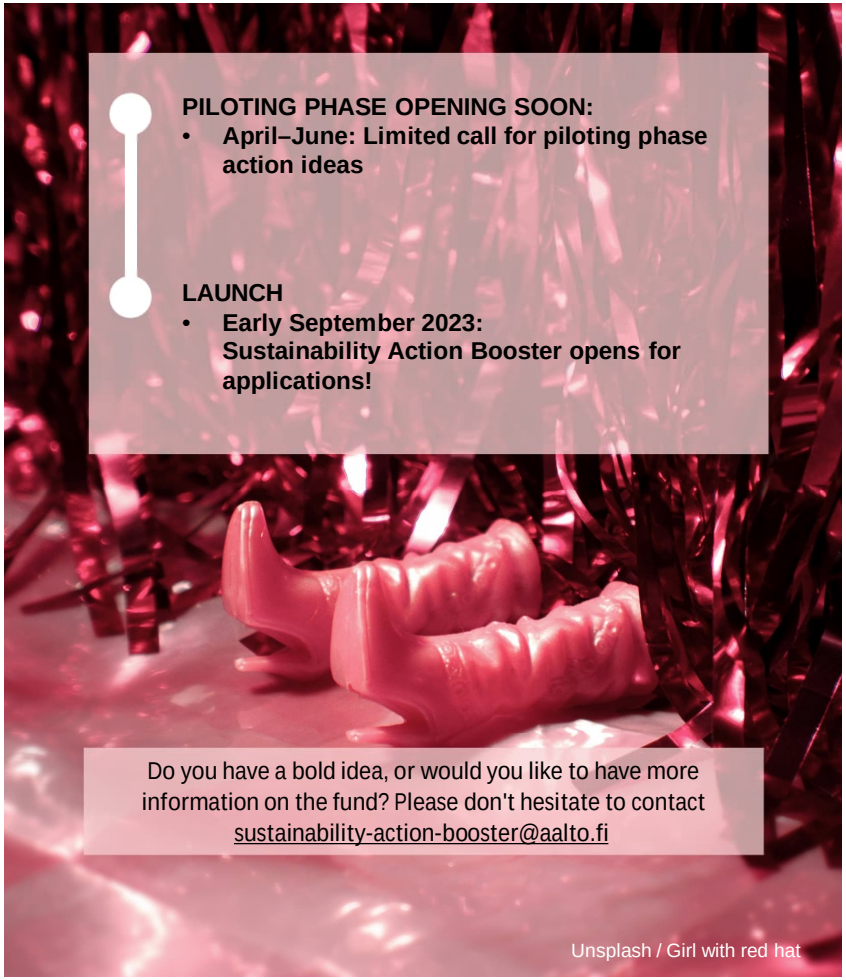
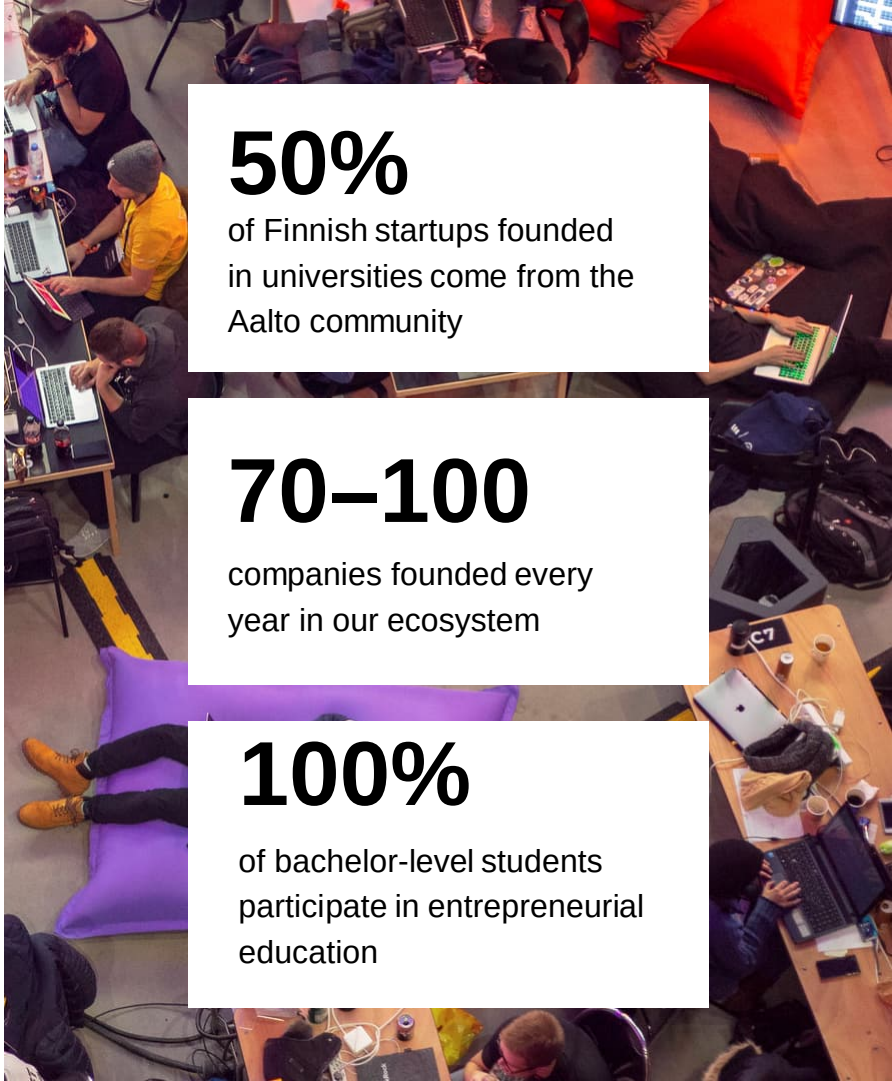


IMPACT THROUGH BUSINESS

Advancing entrepreneurship

- We foster an entrepreneurial mindset across the university.
- We want to inspire our students to think and learn like an entrepreneur by integrating entrepreneurial courses into all fields of study.
- Support student-driven activities by providing spaces and funding.



50%

of Finnish startups founded in universities come from the Aalto community

70–100

companies founded every year in our ecosystem

100%

of bachelor-level students participate in entrepreneurial education

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Top 10 Institutions in Europe for deep tech funding for spinouts (2021)

• University of Oxford	1.8 bn €
• Mainz Universität	1.3 bn €
• Technische Universität München	1.3 bn €
• University of Dundee	610 M€
• University of Cambridge	449 M€
• **Aalto University**	**283 M€**
• Commissariat a l'energie Atomique, CEA	237 M€
• ETH Zürich	228 M€
• Zürich Universität	160 M€
• VTT	151 M€

Source: NewCo Helsinki, helsinki.dealroom.co/lists

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WITH COMPANIES

Research & Insight
Develop your research knowledge

Participate in research
- Project consortiums
- Research & knowledge ecosystems
- Doctoral theses
- Master's theses

Scout research-born innovations

Utilise university's research infrastructure

Support research with donations

Talent & Skills
Meet new talents, team up & learn

Network & recruit students
- Recruitment events and fairs
- Aalto Jobteaser job portal
- Direct marketing to students

Interact & share with students
- Case exercises
- Study project and Capstone courses
- Mentoring programs

Educate employees
- Executive education
- Lifewide learning

Campus & Ecosystems
Network with inventors & entrepreneurs

Utilise campus facilities, services and shared spaces

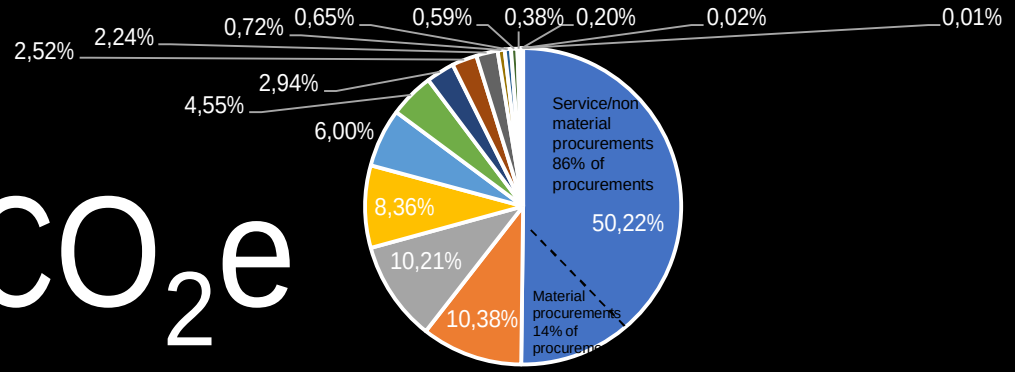
Participate in events organized by Aalto networks and platforms

Follow Aalto entrepreneurial ecosystem, including enterprises and start-ups

CAMPUS
Carbon Neutral
Aalto

Total emission distribution 2022

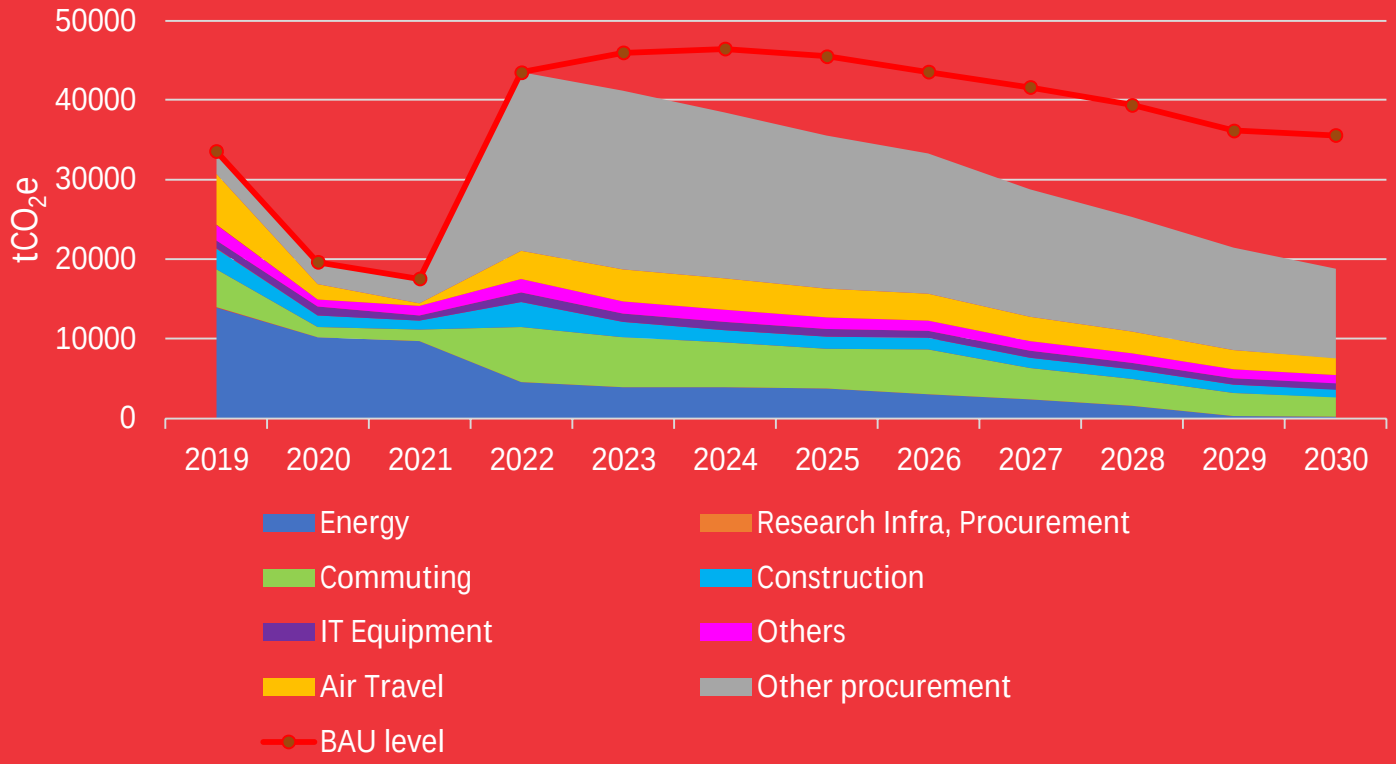
42.234 tCO_2e



- Procurements
- Energy procurement (Market-based method)
- Commuting, staff
- IT
- Food (staff and student restaurants)
- Refrigerants
- Maintenance projects
- Owned and leased vehicles
- Commuting, students
- Business travel (flights and other travel)
- Construction projects
- Renovation and space development projects
- Municipal waste
- Energy life cycle emissions (electricity and renewable energ
- Water
- Energy production

Ambitious carbon reduction roadmap

for all opertions: scopes 1-3



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