



MEGAPROJECTS AT AALBORG UNIVERSITY

GLOBAL CHALLENGES
ARE SOLVED THROUGH
MEGAPROJECTS



AALBORG UNIVERSITY
DENMARK

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It's no secret that today's global challenges as defined in UN's 17 global goals are interdependent. Because of this, it makes sense for Aalborg University to join forces, both inside the university and with external partners. All groups work within their own discipline and gain strong collaboration skills both in working with academic peers and people from other professions.

I have great expectations for the results that will come from such ambitious goals for climate and sustainability. Innovative technological solutions will be essential – while always keeping human behaviour and needs in mind.

**JAKOB STOUSTRUP,
PRO-DEAN FOR EDUCATION,
TECHNICAL FACULTY OF IT AND DESIGN,
AALBORG UNIVERSITY**



” AT AALBORG UNIVERSITY WE LIKE PROBLEMS AND WE PARTICULARLY LIKE SOLVING THEM

And we're good at it! Therefore, we are thrilled to have started working on megaprojects that involve students, teaching staff and researchers working together on solving major global challenges across faculties, departments, programmes and disciplines. I look forward to following the various results, and I'm confident that we will end up with an array of constructive suggestions as to how we may help make the world a better place.



**INGER ASKEHAVE,
PRO-RECTOR
AALBORG UNIVERSITY**



PROBLEM BASED LEARNING – AN IMPORTANT PART OF AAU'S DNA

Aalborg University (AAU) is among the best in the world for teaching through problem-based learning (PBL). Briefly, that means that students work in groups on identifying, analysing, describing and solving problems from real life.

PBL

- ▶ A consistent and central element in all programmes
- ▶ Natural cooperation between students and external partners on authentic challenges
- ▶ Critical assessment beyond the individual discipline
- ▶ Incorporates interdisciplinarity



PROBLEM BASED LEARNING – IN A MEGA CONTEXT

Global problems are best solved in megaprojects, bringing together different people with different skills. We are therefore taking our PBL approach to a new level.

By working together on one large-scale project across disciplines, programmes and semesters, students contribute to solving one major problem. A megaproject consists of a number of semester projects each addressing various aspects of the grand challenge set in the megaproject.

MEGAPROJECTS

- ▶ Interdisciplinary projects across the university with hundreds of students participating.
- ▶ All based on the global challenges defined in the UN's 17 Sustainable Development Goals.
- ▶ Students working in disciplinary teams while coordinating with teams based in other disciplines
- ▶ Partnerships across the university and the wider society.
- ▶ Span several semesters, typically two to three years.



COLLABORATION

– ALSO WITH THE WIDER SOCIETY

Students working on megaprojects improve their interdisciplinary collaboration skills and heighten their awareness of sustainability and sustainable development worldwide.

The students work on the megaprojects in conjunction with a private company or public authority who pose a problem based in their area comprising interdisciplinary and sustainable aspects. The entity proposing the problem follows the project closely.



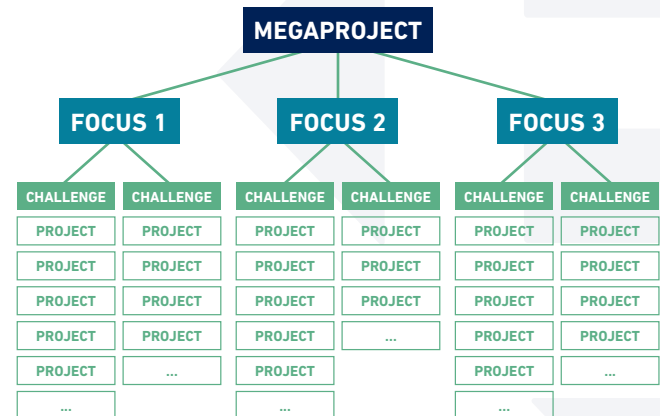
The megaprojects will most likely also involve partners from other universities. In such cases, AAU is the 'owner' of the megaproject.



STRUCTURE OF A MEGAPROJECT

A megaproject consists of an overarching problem outlined by three focus areas that each comprise two challenges.

The focus areas represent three predefined themes within the overarching problem, while the challenges are the specific problems the students work on in their respective projects.





THE FIRST
MEGA
PROJECTS

SUSTAINABLE LIVING

What will recycling look like in 2030? And how can we make it easy for ordinary people to make sustainable choices in their everyday lives? These are some of the questions students will work on in the coming years.



The focus areas of the megaproject will highlight the areas where the City of Aalborg will make sustainable living easier:

Focus: **WASTE**

Challenges:

- ▶ Minimising waste and ensuring optimal sorting behaviour among students and employees at AAU
- ▶ Waste handling in private households

Focus: **GREEN CONSUMPTION**

Challenges:

- ▶ Eat locally

Focus: **TRANSPORT AND MOBILITY**

Challenges:

- ▶ Smart public charging stations for electric buses (e-bus)
- ▶ Behaviour and motivation in relation to sustainable transportation

[Read more on megaprojects.aau.dk](https://megaprojects.aau.dk)



THE FIRST
MEGA
PROJECTS

THE CIRCULAR REGION

The North Denmark Region will be the world's first circular region! This grand ambition is what the megaproject aims to fulfil. For the region to succeed, they need an in-depth understanding of the dynamics that drive or block the circular flow in North Denmark.



The megaproject – in collaboration with the City of Aalborg – will find solutions for a circular North Denmark Region.

Focus: SYSTEMIC CHANGES

Challenges:

- ▶ Circular public procurement
- ▶ The governance of circularity

Focus:

CO-DESIGN AND CO-PRODUCTION OF KNOWLEDGE

Challenges:

- ▶ Governance of the bio-economy
- ▶ From demolition waste to circular construction through partnerships

Focus: CIRCULAR ECONOMY IN PRACTICE

Challenges:

- ▶ Second life batteries for energy system applications
- ▶ The food-water-energy nexus of circular living

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