

# Educating Arctic Entrepreneurs

The next generation  
of sustainable pioneers

## EDUCATING ARCTIC ENTREPRENEURS

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### References:

Friedlander, J. (2016): *Five Steps to Strategic Sustainability and Abundance*. MIT Sloan Management Review, March 21, 2016

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# Educating arctic entrepreneurs:

## The next generation of sustainable pioneers

The ice sheets are melting faster than ever before, sea levels are rising, the permafrost is thawing, and the Arctic flora and fauna are changing. Global warming is causing fundamental changes in the Arctic. These changes create new challenges and new opportunities for the Arctic communities who are inherently dependent on their local climate and environment.

We believe that students - the future generations of entrepreneurs - can play a significant role as driving forces for sustainable development in the Arctic. Their unique combination of highly specialised skills, innovative thinking, and strong entrepreneurial spirit can make a substantial contribution to the development of the Arctic region.

Many students are intrinsically motivated towards engaging themselves in sustainable change. Promoting and building capacity for sustainable entrepreneurship among students in the Arctic can be an important driving force for regional development.

The fundamental ambition of the Educating Arctic Entrepreneurs project has been to help realise the entrepreneurial potential among students to the benefit of the sustainable development of Arctic societies.

Over the next pages we want to share activities, results, and experiences resulting from this project and will hopefully inspire others to see the potential in student entrepreneurship as a driver for sustainable development in the Arctic.

**Sune Nordentoft Lauritsen**

Educating Arctic Entrepreneurs Project Manager,  
Senior Adviser, Innovation and Entrepreneurship,  
Technical University of Denmark

# International collaboration



University of the Faroe Islands,  
"Fróðskaparsetur Føroya"



A map of the Arctic region. Greenland and the Faroe Islands are shown in dark blue. The rest of the Arctic region, including parts of Europe, Asia, and North America, is shown in light blue. Denmark is highlighted in a darker blue, and a red dot marks the location of the Technical University of Denmark (DTU) in Copenhagen.

## Partners across the Arctic

The project focused on building capacity for sustainable student entrepreneurship in institutions of higher education in the West Nordic region of the Arctic in Greenland and the Faroe Islands.

Four universities from the U.S., Greenland, the Faroe Islands, and Denmark collaborated in this project:

- Ilisimatusarfik – University of Greenland
- Fróðskaparsetur Føroya - University of the Faroe Islands
- College of the Atlantic, Maine, USA
- Technical University of Denmark (DTU)
  - which also has a campus in Sisimiut, Greenland

All of the universities contributed key knowledge and experience in the field to the benefit of the development of the programme.

The Arctic region has a population of approximately 4.5 million people. Residents live in a large number of small communities, many of whom are also relatively isolated. Greenland and the Faroe Islands have around 56,000 and 49,000 inhabitants respectively.

Denmark

Technical University  
of Denmark (DTU)

# Students as drivers for sustainable change

The Arctic region is a fragile environment, with isolated communities and limited infrastructure. It is also one of the first areas already experiencing substantial climate change effects. Creating enduring sustainable change is therefore both a pressing and challenging task for the region.

The overall purpose of the Educating Arctic Entrepreneurs project was to support the implementation of relevant Sustainable Development Goals in the Arctic by empowering students of higher education to become competent agents for entrepreneurial sustainable development. The project aimed to build capacity through the implementation of educational entrepreneurship programmes with a strong focus on economic, social and environmentally responsible ventures.

It was aimed for the project to create sustainable entrepreneurship initiatives, including non-profit social enterprises or innovation efforts in local communities and public organisations. These initiatives were expected to contribute to achieving one or more of the UN's Sustainable Development Goals (see fig. 1).

## 1. Training teachers

Teachers from the participating universities were trained in three-day workshops to cultivate entrepreneurial mindsets and competencies among students. Participants discussed sustainable entrepreneurship

### The Project's Four Phases

1.  
Training teachers
2.  
Developing new curricular courses
3.  
Conducting pilot courses and educating students
4.  
Creating awareness and disseminating knowledge



**Figure 1: The Sustainable Development Goals**

The 17 Sustainable Development Goals (SDGs) provide a shared understanding and framework for peace and prosperity for people and the planet, both now and for future generations. They recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. The Educating Arctic Entrepreneurs project used the SDGs to frame the approach towards sustainable development.

teaching methods and how these may be developed into prospective curricular courses.

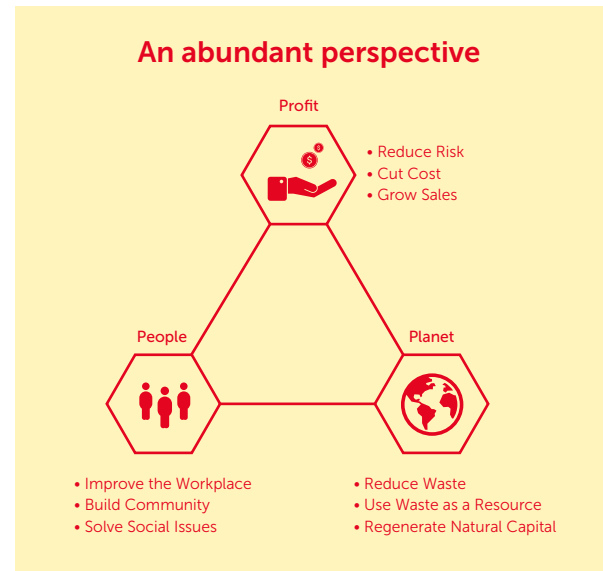
## 2. Developing new curricular courses

Following the training sessions, the participating faculties co-developed courses and activities to educate students in sustainable entrepreneurship. Two courses in sustainable development were created for the national universities in Greenland and the Faroe Islands.

Sustainability was built into the core of the courses. Besides classical entrepreneurship theory, the key sustainability frameworks were the SDGs (fig. 1) and the Abundance Cycle framework (fig. 2).

## 3. Conducting pilot courses and educating students

The courses that were developed during the initial workshops were put to the test at the universities of Greenland and the Faroe Islands. A fundamental aspect of these courses, available to both bachelor's



**Figure 2: The Abundance Cycle framework**

Although most people feel that supporting sustainable development is important, entrepreneurs may encounter difficulties translating sustainability into business strategies and tactics for new ventures. The Abundance Cycle framework attempts to bridge this gap between sustainability and business implementation. By incorporating social, environmental, as well as financial aspects – also commonly called the three Ps: People, Planet and Profit – the framework provides an operational approach for working with sustainable entrepreneurship. It is also a toolkit for incorporating sustainability thinking into teaching and entrepreneurial projects.

and master's students, was the inclusion of hands-on work. Students were encouraged to go out into local communities and identify a challenge, before developing and testing a practical solution. By taking part in the courses, students learned to plan, analyse, and maximise sustainable development in Arctic entrepreneurship. How to build for-profit and not-for-profit enterprises which support the implementation of the relevant SDGs was a core part of the student curriculum.

## 4. Creating awareness and disseminating knowledge

The tested model for sustainable entrepreneurship teaching and training is now being disseminated among a number of Arctic institutions, along with the associated experiences and learnings from the project.

This publication shows how a strong network and collaborative efforts between academic institutions can develop student entrepreneurs as a first step towards sustainable societal transformation, especially in challenging regions such as the Arctic.







# Educating arctic entrepreneurs: Putting theory into action

The Arctic may be one of the most challenging regions in the world to develop solutions addressing the Sustainable Development Goals, but the Educating Arctic Entrepreneurs project allowed students to roll up their sleeves and get practical after learning the theory.

These three cases show how the Sustainable Entrepreneurship courses were put into practice, how students experimented with their own sustainable projects in a Faroese house, and a summer school that takes students on a journey of Arctic entrepreneurship.

Although Arctic communities are united by being part of the same geographical region, there are also substantial differences across communities. Therefore, the curricular courses for building capacity for sustainable entrepreneurship among students were adapted to the specific challenges and opportunities in the different Arctic communities.

## **Case study one:**

Sustainable Entrepreneurship courses in action - p. 10-11

## **Case study two:**

A Faroese living lab for sustainable entrepreneurs - p. 12-13

## **Case study three:**

An Arctic entrepreneurShip journey - p. 14-15

# Sustainable Entrepreneurship courses in action

Translating global goals into local business. That was the challenge facing students in Greenland and the Faroe Islands, who embarked on the first ever Sustainable Entrepreneurship courses.

The courses were the first of their kind, and were divided into theoretical and practical components, following initial co-development workshops in Greenland and Denmark.

In the first of two courses, students formed interdisciplinary teams following an introduction to the core theories, concepts, and methodologies. They then conducted ethnographic research (interviews, observations, etc.) in a local context to identify challenges facing members of the community. The groups analysed their research and embarked on a creative process including divergent and convergent thinking to identify possible solutions, using the Abundance Cycle framework for inspiration and guidance. Following this process, the second and complementary course allowed students to test their ideas under teacher supervision and seek feedback from relevant local stakeholders.

Greenlandic students from the university in Nuuk flew to visit a more isolated community in the town of Maniitsoq to test their project ideas against the community's specific challenges, and had to adjust their projects based on their experiences. Two examples of student-led

projects included urban farming in shipping containers (see below) and a project looking at sustainable fashion for Greenlandic communities. These not only led to bachelor theses, but these students have also continued exploring these ideas as their own ventures.

## Student project: vertical farming in shipping containers

The harsh Arctic climate means that traditional agriculture is infeasible for many of the small and relatively isolated settlements. This creates a reliance on imported produce by air or freight, with negative health consequences for local populations. In an international collaboration, students worked together to address this challenge. They worked with new methods for crop production without soil, powered by renewable energy. This is an ongoing project where students continue to experiment with new ideas and techniques to promote a greater degree of local self-sufficiency in Arctic settlements.



**“One of the best things for me was our trip to Maniitsoq, to see how much of an impact it had on the students and the local community, to connect university students and local communities.”**

Anne Lise Kappel, Head of Economics Department, University of Greenland





# A Faroese living lab for sustainable entrepreneurs

Growing herbs throughout the winter, experimenting with a hand-made aquaponics system, and growing potatoes in the harsh Faroese climate. These were just some of the projects that students were able to test in the Green Student House in the Faroe Islands capital, Tórshavn.

'Lindbergs Hús', as the house is known locally, was donated to the University of the Faroe Islands in 2000. Since then, the building has been used as a dormitory for students and visiting researchers, but was more recently developed into a living lab for sustainable entrepreneurs.

Similarly to the courses offered at the University of Greenland, students at the University of the Faroe Islands had the chance to enrol in a Sustainable Entrepreneurship course, to firstly learn, then test concepts of sustainable development in a local Faroese context. Those enrolled in the course were able to live in the Green Student House which was dedicated to testing new ways of improving sustainable living choices.

To encourage an entrepreneurial spirit, the students living in the Green Student House were given the freedom to research and execute their own projects addressing sustainable development. These related to aspects of modern living, housing, and communal cooperation to benefit the house or neighbourhood. This resulted in a plethora of

innovative test projects, ranging from growing potatoes in the garden using sheep droppings, the construction of two aquaponics systems in the basement, indoor mushroom growing, and a composting system in the garden.

## Student project: an aquaponics adventure

One group of students embarked on an ambitious project to build an aquaponics system in the basement of the student house, where fish are fed and their waste fertilises the soil for plants to grow. Despite not having a budget from the university, the enterprising students were able to obtain all of the materials they needed from local businesses and organisations, and get the project up and running. A power outage on Christmas Eve even led the students dashing to the basement in order to manually hydrate the water that the fish needed to survive! One student who engaged in the Faroese aquaponics experiment went on to set up a similar project in a public school, where it has been used as a teaching tool for biology students successfully for three years.



**"The ripple effects that we have seen from this project are enormous. The rings in the water have spread really far, and we are doing a lot that was not in the original project description."**

Martin Mohr Olsen,  
Project Manager at the Innovation Unit,  
University of the Faroe Islands



PHOTO: ANNIE SPRATT / UNSPLASH

# An Arctic entrepreneurShip journey

How could melt water be utilised for energy production in isolated settlements? How can glacial sand be seen as a sustainable alternative to artificial fertiliser? These are the types of questions that students will seek to ask - and answer - on the Arctic entrepreneurShip summer course.

The Arctic entrepreneurShip summer course will engage a group of 30 talented students from Greenland, the Faroe Islands, and Denmark in sustainable entrepreneurship down Greenland's stunning west coast. The three-week course entails one week on land and two weeks on a maritime journey along the west coast, developing group-based entrepreneurial activities. Seed funding awaits the three most promising ideas at the end.

Selected students will meet each other for an intensive boot camp in Sisimiut at DTU's Greenlandic campus. There, students will spend the first 48 hours in the wilderness around Sisimiut, engaging in learning and team-building exercises which provide hands-on training of key entrepreneurial skills. In this remote location, participants will gain first-hand understanding of the Arctic and be challenged on their mindsets and collaboration skills - all under the guidance and supervision of professional Arctic instructors.

This will be followed by three days in the classroom at the campus in Sisimiut, where project teams will form with students from diverse geographic and academic backgrounds. Students will immerse themselves in the theory of entrepreneurship and sustainability. Combining lectures with game-based exercises, teams will begin to formulate entrepreneurial ideas addressing one or more of the Sustainable Development Goals in Arctic communities. Students will also learn about pitching techniques and how to integrate sustainability in their business plans.

After this first week of building teamwork skills and a theoretical foundation, students will embark on a two-week journey from Sisimiut down to Narsaq in southern Greenland. Along the journey, groups will be expected to refine and develop their entrepreneurial ideas based on first-hand observations and dialogue with local communities that they will visit along the way. Groups will have multiple opportunities to present their ideas in workshops and receive feedback from local educational institutions.

The journey culminates in Narsaq where the students pitch their business models to a panel of judges. The three best proposals are awarded a share of DKK 100,000 in seed money to help make their project a reality.

**"The combination of high professionalism, innovative thinking, and strong entrepreneurial spirit in students can decisively contribute to the development of the Arctic region."**

Sune Nordentoft Lauritsen  
Senior Adviser, Innovation and Entrepreneurship, Technical University of Denmark





SARFAQ ITTUK





# Key takeaways

The Educating Arctic Entrepreneurs project was designed to empower students to become change-makers in their local communities and drive a sustainable transformation at the societal level in the Arctic. In collaboration with the Technical University of Denmark (DTU) and the College of the Atlantic, the universities of Greenland, and the Faroe Islands have implemented their own sustainable entrepreneurship courses, produced concrete student-led projects in sustainable development, and hopefully empowered students to continue in their own sustainability-driven business ventures.

This project can hopefully inspire similar initiatives for building capacity for sustainable student entrepreneurship in institutions of higher education elsewhere in the Arctic.

There are three key takeaways, which anyone aspiring to implement a project like this should pay heed to.

## 1. Building networks

This project was built by a collaboration between universities from the Nordic region, who had existing cultural and socio-economic connections. This facilitated the initial phase of bringing teachers together and co-developing student courses for the universities in Greenland and the Faroe Islands.

The relatively small universities of Greenland and the Faroe Islands have previously not had the resources to independently create their own sustainable entrepreneurship courses. Working with larger institutions such as DTU and the College of the Atlantic aided with building knowledge and institutional capacity.

The project also encouraged students to form their own networks with others from different faculties, universities, and countries. In addition, interactions with local communities were also important for the students' learning experiences.

## 2. Practical learning

Many entrepreneurship courses taught in universities focus on the theoretical elements of innovation,

markets, business models, etc. But in the unique Arctic environment, getting first-hand experience and interacting with local communities helped to create a rich and rewarding experience for the students. Only then is it truly possible to understand the challenges experienced at the local level, and it is crucial for an entrepreneurial perspective to understand the challenge before proposing innovative solutions.

Local interactions can also help with iteration, another important aspect of entrepreneurship. Testing ideas and receiving feedback from those who would potentially be using or benefiting from the project can be a great way to highlight areas of weakness in student projects.

### Example


**Learning how aquaponics works in a classroom is one thing, but suggesting it could be a solution for isolated communities to maintain a supply of fresh greens is another. Implementing it in your own house is a feasible way to experiment and learn from practice. Having the chance to explore ideas and get hands-on experience for entrepreneurial projects were both essential parts of the Educating Arctic Entrepreneurs project.**

## 3. Ripple effects

The early and collaborative workshops, the implemented sustainable entrepreneur student courses, and the student-led projects have all led to unexpected results from the Educating Arctic Entrepreneurs project. It is these ripple effects that will help the Educating Arctic Entrepreneurs project's effects move beyond the classroom and extend to create a society-wide sustainable transformation.

### Examples

**As a result of the collaboration, the University of the Faroe Islands decided to establish an innovation unit which supports students and staff who wish to pursue innovative endeavours in an academic setting. It also functions as a link between university education, research, industry, and incubators. In addition, the university is currently considering mainstreaming the SDGs throughout the whole of the curriculum.**



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