SUSTAINABILITY STRATEGY 2022–2025

Faculty of Information Technology and Electrical Engineering

NTNU

INTRODUCTION

Sustainability is the most prevalent challenge of our time which everyone must unite to solve.

The IE Faculty is leading in Norway within the fields of data science, communication technology, information security, electronics and sensors, electrification, cybernetics, mathematics and statistics, and is globally prevalent within several fields. Our disciplines represent enabling technologies and sciences which comprise prerequisites for developing a sustainable future. In particular, we play a key role in digitalization and electrification.

Sustainability is strategically anchored in the Faculty's 2018-2025 Strategy with the vision
IE will contribute to a smart, safe and sustainable future

The Sustainability Strategy will help shape our activities within education, research, innovation and dissemination so that we can contribute to making development happen within the limits of our planet, and creating good living conditions for all, in Norway and globally. We will also ensure that our operations are sustainable. The Faculty with all our seven Departments will work towards the following goals:

1. IE will educate students who create a smart, safe and sustainable development
2. IE will create opportunities for sustainability
3. IE will put sustainability on the agenda for our disciplines
4. IE will showcase sustainability in its operations

The work will be followed up in the annual plans of the Faculty and the Departments.
A short recap on sustainability follows, followed by one chapter for each of the goals, where also interim goals are listed.

RECAP ON SUSTAINABILITY

A starting point on sustainability is the 1987 United Nations Brundtland Commission "Our Common Future", in which sustainability was describe as:
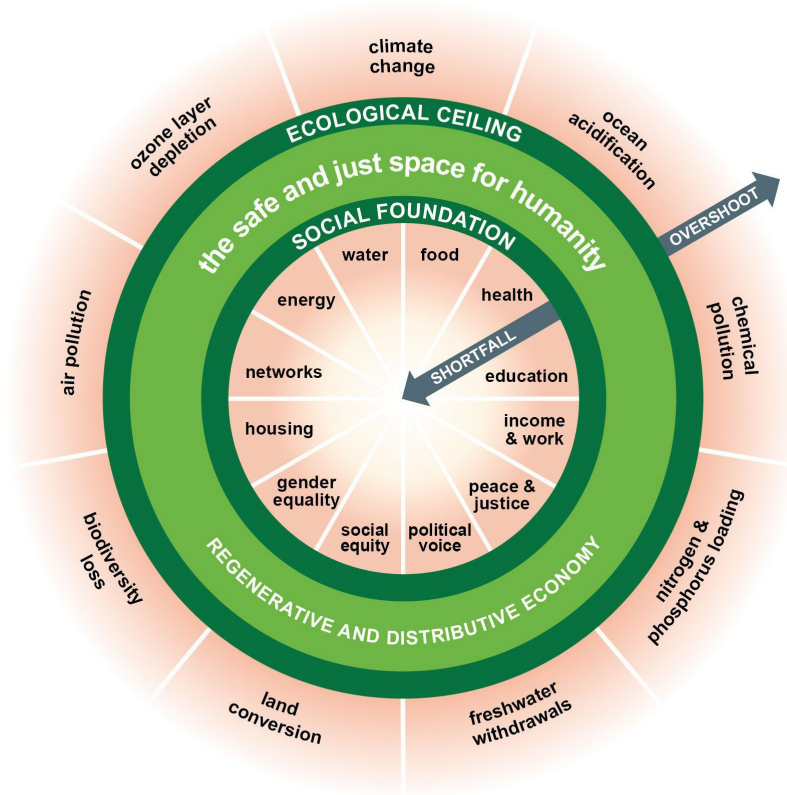Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

The report from the Brundtland Commission was adopted by the UN General Assembly December 1987, and formed the basis for the United Nation's work on sustainability. Agenda 2023 defines 17 Sustainable Development Goals and 169 more detailed interim goals. The Sustainability Development Goals (SDG) were adopted by the United Nations General Assembly 25 September 2015. The related graphic has since earned fame:

As supplementary to and – to some degree – elaborating on the Brundtland Commissions definition of sustainable development, we can also add that it:

· is an idea on intergenerational justice and long-term thinking. Herein implied that we value the human lives not yet born as highly as the ones currently living, and take into consideration the consequences of tomorrow when executing decisions today.
· centres around living within the limits and boundaries of nature (ecological roof) while all men can live good lives above a certain threshold (social fundament). This perception of sustainability has been termed "Doughnut Economics" by the economist Kate Raworth and is illustrated on the next page.

The most commonly used model for sustainable development is the three-pilar model which highlights that sustainability has three dimensions that need to be holistically viewed – the social, the ecological (the environmental) and the economic dimension. It is worth noting that this thinking has now entered the Act relating to universities and university colleges, which was amended effective from 1 August 2021. Paragraph 1-1, formerly named «Purpose of the Act», had its name amended to "The purpose of the Act – universities and university colleges", and a letter d with the following text was added:

d) [The purpose of universities and university colleges is] to contribute to environmentally, societally and economically sustainable development.

The law therefore stipulates that sustainability is part of our core operations.

Photo made by using Midjourney

Goal 1: IE will educate students who create a smart, safe and sustainable development

Goal 2: IE will create opportunities for sustainability

Goal 3: IE will put sustainability on the agenda for our disciplines

Goal 4: IE will showcase sustainability in our own operations

GOAL 1:

IE will educate students who create a smart, safe and sustainable development

INTERIM GOALS

1. All IE study programs will include sustainability in the learning outcomes at program and course level

· Sustainability will be a clear and omnipresent topic

· Students at IE will get a good understanding of what sustainability entails in general and how their own study program contributes

· Study programs should equip candidates enough in order to be agenda setters for sustainable development once they embark upon working life after their education

2. All IE study programs will have a sustainability pitch

· Prepare a short and concise presentation on how the study program contributes to sustainability

· Inspire the students to take use of the pitch

3. All IE Bachelor and Master's thesis will reflect on the thesis' contribution to sustainable development

· Student and supervisor discuss sustainability as part of the thesis work and agree its relevance and extent

· Theses contributing to sustainable development will be integrated in our knowledge base on the topic

BACKGROUND

The students we educate is our most important contribution to sustainable development. NTNU has this high on the agenda, through the work laid down in Fremtidens teknologistudier (FTS), with the vision "NTNU's technology studies educate world class creative candidates – who can and will contribute to a better world and a sustainable future".

The United Nations Educational, Scientific and Cultural Organization (UNESCO) points to SDG 4, Quality Education, is a key enabler for all the other SDGs. The UNESCO report "Knowledge-driven actions: Transforming higher education for global sustainability" is a direct challenge to universities to take a more prominent role in efforts towards sustainable development.

The interim goals contribute to a concretization of what the IE Faculty will do short term. This will however be on-going work we continually will learn and develop in dialogues with students, society around us and across NTNU.

IE will create opportunities for sustainability

INTERIM GOALS

1. **IE will prioritize and stimulate research and cooperation that contribute to solving societal challenges related to sustainable development**

- Systematically develop and stimulate new interdisciplinary projects that contribute to solving societal challenges nationally and internationally.
- Showcase sustainability perspectives in our PhD theses.
- Continue developing strategic cooperations with industry and the public sector within mathematics, electrification and digital technologies.

2. **IE will stimulate sustainable innovation**

- IEs research areas will contribute to value creation and development in industry and the public sector through electrification and digitalization.
- Maintain focus on research-based innovation and highlight its sustainability perspectives.
- Cooperate with student associations and especially support student innovations.

3. **IE will benefit from its commitment to sustainability in the recruitment of students and employees in all categories**

- Highlight sustainability in marketing, especially the marketing of our study programs.
- Involve sustainability in the introduction to the newly employed at IE.

BACKGROUND

Considerable research funds are channeled through "missions" (societal challenges) and large centres. The Research Council of Norway and Horizon Europe emphasize international research and innovation collaboration on global societal challenges across disciplines, sectors and financial sources. It is expected that cooperation and the establishments of centres contribute to sustainable innovation. Students form an integrated part of this landscape.

The goal provides guidelines for priorities and strategic leadership of our research portfolio, both at Faculty and at Departmental level. The IE Faculty will continue to incentivize efforts for leadership in bigger ventures. Basic research will simultaneously enjoy an equally strong standing at the IE Faculty. Basic research will in many cases also be able to happen through larger centre investments.

Our adamant position on sustainability makes us attractive and creates opportunities for people with an engagement in society when choosing studies and careers. Interim Goal 3 contributes to specify that this will be used in the recruitment of motivated and skilled students and employees.

GOAL 3:

IE will put sustainability on the agenda for our disciplines

INTERIM GOALS

1. IE will influence society's sustainability agenda

· Engage and cooperate with industry and public sector.
· Host summits with sustainability topics
· Contribute to central national and international strategy processes.
· Actively participate in relevant national and international network arenas where sustainability is discussed.

2. IE will showcase and disseminate its important role for sustainability in society

· Stimulate to popular-scientific dissemination and active participation in societal debates.
· Shape content on web pages and social media so that our activities' significance for sustainability is clearly presented.

3. IEs research and innovation activity will be in accordance with sustainable development

· Have a scientific, critical view on the technology we manage.
· Reflect on whether the development of specific technologies or knowledge could potentially be problematic in a sustainability perspective.

4. IE will develop a culture and understanding of sustainability

· Ensure participation and dialogue with employees.
· Cooperate with students.

BACKGROUND

Dialogue with society is essential. We will use our knowledge at the frontier of research to actively contribute to and ensure that our disciplines will be maintained in national strategies. We are at the same time responsive to the government's and financial sources' R&I agendas, as well as elsewhere in society. We will be visible and disseminate knowledge on sustainability to the public, especially concerning our important role.

The knowledge we create can come with societal dilemmas. This holds especially true for digitalization, artificial intelligence, electrification and automation. Adaptation must be done in an inclusive and just manner, within a democratic framework, without technology creating more problems for the future than it solves; the technology must have a long-term benefit for society. In Horizon Europe, this is safeguarded through "Responsible Research and Innovation" (RRI), which the IE Faculty aligns with. Such considerations might have implications for the prioritization of internal resources and strategic project portfolios.

Our investment in sustainability demands that we strengthen our competence, in cooperation and with the participation of employees and students. Continuous learning and knowledge sharing will automatically contribute to fulfilling our sustainability strategy.

IE will showcase sustainability in its operations

INTERIM GOALS

1. IE will utilize NTNUs Miljøutviklingsplan 2020-2023 as guidelines for the work on climate and the environment in its operations.

2. IE will work to develop equality and diversity among students and employees.

· Work especially towards increasing the female share of scientific employees at the Faculty.

3. IE will gather results from work on sustainability annually
· Document progress.
· Create a framework for improvements.
· To be used in internal and external reporting.

BACKGROUND

NTNU's Division for Governance and Management Systems, and the NTNU Property Division are responsible for NTNU's Miljøutviklingsplan 2020-2023, which is revised every third year. The plan's scope encompasses internal operations. The plan sets goals for travels/transport, purchases, energy, reuse and waste, campus development and biological diversity. This plan also sets the course for the IE Faculty's work within the same areas, and ensures that NTNU is aligned.

Diversity in nationality, culture and gender provides us with the opportunity to create complementary teams which make us stronger. The IE Faculty works with equality and diversity among several axes, for instance through the IA Agreement and our ombudsperson for gender equality and diversity. Yet, we are not satisfied, especially concerning the share of female scientific employees. Gender equality is UN SDG number 5.

Following up the strategy is important. Sustainability and the follow-up of the strategy will be a regular topic at leader meetings, both at Faculty and Department level, and will also be present in the annual plans. Documenting the results create a base for following-up and is of value in both realizing and adjusting the strategy.