

Innovation and Sustainable Development 15 ECTS

Welcome to the course!

We are so happy that you have decided to spend time with us to explore what innovation for sustainable development might be. You will approach this by reading about theories and you will write a project paper where you analyze how a particular innovation of your own choice relates to sustainability. The theoretical approach and the project work are running in parallel, the idea is that you build your project by picking up theoretical perspectives piece by piece. Every second week we arrange seminars on Zoom to discuss the relation between the theories and your project.

The course is divided into modules covering two weeks each. In each module we cover a topic necessary to understand the linkages between innovation and sustainable development. To provide a theoretical background, each module includes mandatory readings of text selected to provide a common ground for all of us. In addition you get an opportunity to select at least two articles related to your own interest. You may select articles from a proposed reading list or you may do your own search at Söder scholar or your preferred database. You may test your understanding of the mandatory reading in quizzes linked to each module. Taking the quizzes is one of the ways to get in to the vocabulary and concepts, and it is useful in preparations for the home exam that you need to do by the end of the course.

To help you get into and elaborating your project work, each module provides assignments and exercises. The assignments are mandatory and necessary for the seminar discussions. The exercises provide you with tools for doing the analysis, and using them are mandatory.

Below you find an outline of the course.

- **We are now in module week 1-2.** During these two weeks you should make yourself familiar with the Canvas, the course contents and the means of communication you get access to. You need to start thinking of what innovation you would like to analyze. **There are some tasks we need you to do:**
 - Send us a presentation of yourself and your expectations
 - Choose your preferred seminar time
 - Read about the project work
 - Read the mandatory articles in the reading list and respond to the quiz
 - Send us some ideas about your project
- **In the module week 3-4 you will dive into the debate on sustainability.** We are using a pragmatic approach that takes its point of departure in the UN2030 Agenda "Transforming our World", which we encourage you get

familiar with. This document is that guides the sustainability efforts of most public, private or civic organisations. However, being a negotiated document, where various nations and organisations had a say and had to agree on the content, the 2030 Agenda might not be the optimal instrument in all regards. There are strengths, weaknesses and contradictions inherent in the document. To make it easier to understand how these flaws may be understood we have provided you with both mandatory reading and with a list of articles to select from according to the approach you want to take. You need to select at least two articles and be prepared at the seminar to contribute with thoughts on the contents.

You should also write some notes in **the assignment connected to the reading**. The notes you write should serve you in your understanding of what aspects or approaches to sustainability that are valuable for your project and the final write-up of the project paper. Further, **there are two exercises on how to deal with the multiple Sustainability goals** in the context of the innovation you selected to study.

- **In the module week 5-6 we are looking into the concept of innovation.** Again, taking an official document as a point of departure, we look into the OECD Oslo Manual. This manual is important because it provides the ways for governments to collect statistics on innovation. These statistics are then monitored by the OECD to indicate the competitiveness of nations. We then read about alternative approaches to look at innovations as a foundation to our discussions on how we could define the concept better in relation to sustainable development (The original OECD approach is mostly geared towards economic growth, and for sustainability we need something more). We will look into what theories says about how innovations are diffused, that is how the spread over societies and get attractive to more users.

Your assignment will be to pick up concepts and approaches from your reading that you think would be valuable to define the contribution your selected innovation could make to sustainability. Again, make sure the notes you make in this assignment will serve as an input to your final write up of the project paper.

- **In the module week 7-8 we are looking into the concept innovation systems.** In short, innovation systems are the setup of various actors, policies, funding opportunities, knowledge, etc that are needed to bring an idea (something possibly useful) to become an innovation (something new put into use). One useful, basic definition is that "**an innovation system is a focal device**". You will read about various types of innovation systems, such as national, sectoral, regional or technological, all dependent on what the authors are aiming to describe. You will read about ideas to make the complexity simpler with ideas such as the Triple Helix that defines the innovation system as the collaboration between a set main types of actors, academia, business and government. And to make that simplification a bit more complex you will read about the Quadruple and Quintuple helixes that first brings in media and civil society and then also add the interaction

with humans and non-human entities into the system. This means that you will have to add socio-ecological systems and socio-technological systems into your thinking about how innovations can be put into use for sustainability.

Your assignment will be to think of the innovation system that makes it possible for your selected innovation to move from idea to diffusion and use. There will be *three exercises demonstrating methods for mapping of innovation systems*.

- **In module week 9-10 we are extending our view from the theories on innovation system to socio-ecological and socio-technological systems.** This gives us various opportunities. We get a basic understanding of how evolutionary economists think of technology more as evolving than being developed and we get acquainted with the concept of path dependency. We can look closer at the quintuple helix through ideas presented in theories on socio-ecological systems. And we get closer to the enigma of how social and technological innovations are connected by looking at the theories on socio-technological development. All in all this gives us a chance to understand innovations as part of innovation systems that are part of larger systems.
Your assignment will be to put the innovation you are studying into the context of socio-technological and socio-ecological systems - what kind of dependencies can you see? What kind of opportunities or "cracks in the wall"?
- **In module week 11-12 we are looking closer at how knowledges for innovation develop,** using the perspectives of situated knowledge on the triple and quadruple helix actors (academia, business, government and civil society). As points of departure we combine the perspectives from Bengt Åke Lundvall on Learning and Donna Haraway on situated knowledge. We look at debates on how academic traditions might have to change, and the role of learning in firms and in civil society organizations. The TIS function "Knowledge development" is open to who, when and where knowledge is developed and from the module we hope you would gain an understanding on how knowledges contribute to the innovation you are studying.
- **In module 13-14 we are looking into ideas of democratizing innovation.** Taking Eric von Hippels writings on user driven innovation as one point of departure we look into ideas about social entrepreneurship and grassroot innovation, as well as other ways of involving citizens in the innovation processes. We look deeper into the concept of innovation diffusion and on how to get public acceptance and increasing uptake of innovations.
- **In module week 15-16 we are connecting the dots between sustainability, knowledges, innovation, innovation systems and the wider system context.** We will dig deeper into the challenges that are previous reading and the current situation are confronting us with. In our seminar discussions we address issues that have emerged during the course and prepare for the final write up.

Literature for week 1-2 module

The readings for the week 1-2 Introduction module are the following:

- [A bright future for sustainable development ushered in by innovation.pdf](#)

[Actions](#)

This article is a statement by a Chinese Minister arguing for the importance of innovations for Sustainable Development. Provides thought on how policy makers in an industrialized/ing nation look at the issue.

- [Innovations for sustainable development: Moving toward a sustainable future.pdf](#)

[Actions](#)

This article provides an overview of the theme for the course and points out issues that require further research. Read to get a general understanding of how (some) researchers may look at the issues.

- [2030 Agenda.pdf](#)

[Actions](#)

The main document for Sustainable development up to 2030. Good to be familiar with, whether you are a sceptic or a true believer. Read the first 14 pages to get an understanding of the ambitions of the document and the undertakings by its signatories. You can skip over the goals for now, you will look at them in the next module. Read from page 28 to get an understanding of how the implementation of Agenda 2030 was thought to be handled.

- [Oslo Manual 2018-en.pdf](#)

[Actions](#)

The Oslo Manual is important to know if you are studying innovation. The manual guides how to define innovation and how to measure innovation and innovation capabilities. You will note the focus on Business Innovation, and you may ponder how this goes along with the ambitions of the 2030 Agenda? Read the Executive Summary to start familiarizing with concepts used in Innovation Studies. Read Chapter 2 where you get explanations to the concepts. Read Chapter 3 extensively, but make sure you read section 3.2 and 3.3

carefully as this is where you get definitions of innovation. Have a look at Table 8.1 to get examples of what type of outcomes the OECD has in mind. You may ponder how you would prioritize these different outcomes in your forthcoming project?

- [Haraldsson 2004 Introduction to system thinking and causal loop diagrams.pdf](#)
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- As you note in the 2030 Agenda, the Oslo Manual and in the Introductory article, much of the thinking on Innovation and Sustainable Development refers to interrelations between elements and issues. A substantial part of the course will engage with innovation systems which also is about relations between differing entities. We will further look into socio-ecological and socio-technological systems. This paper provides a good introduction to systems thinking that will make it easier to follow articles in upcoming course modules. Read the first 22 pages that provides a history of systems thinking and some relevant examples. You may want to return to the method of making Causal Loop Diagrams later, but that would be your own choice.

We copied an image from an bibliography on research covering innovation and sustainable development. Have a look to see what kind of themes that occur in the debates. Maybe it is helpful to narrow down your own search for a project?