Technology Dynamics (MOT1412)

GROUP's WORK including (TAKE-AWAY) EXERCISES and (Trial) Exams (2022-2023)

Dr. Claudia Werker

ASSESSMENT: exam, prerequisites and trial exams

There are two prerequisites to take your exam:

- To participate in the two trial exams preceding the exam, i.e. participation and uploading your answers (at least "I cannot answer this question" and an explanation why for every question) and
- to assess both trial exams of a fellow students according to the criteria provided on Brightspace

You have to upload both your answers to the trial exams and your assessments of another student's trial exam in time (for deadlines see MOT1412 schedule on Brightspace). If you do not do so you cannot take the exam.

Exercises for (take-away) group's work

For each week you receive

- exercises for group's work to be done directly after the lectures in the groups sessions,
- take-away group's work and
- tasks for individual follow-up.

The two group's sessions take about 1.5h each, possibly with some additional time to write-up and upload the results on Brightspace. The time taken for the individual follow-up depends on your background and your preparation style.

Please note that for a 5 ECTS course you are supposed to spend between 125-150 hours. If you divide this by the ten weeks you spend on this course this means 12.5-15 hours per week. During the eight lecturing weeks you spend about 4.5 hours on the lecture and the groups work including the take-away group's work. This leaves you with 8 to 10.5 hours per week for individual follow-up.

Please join a group for the groups' work. Thereby, you benefit from splitting up the work in the group, from the discussions with your fellow students and the supervision you receive during the group's work done directly after the lectures.

Please upload the documents as requested on Brightspace. Then you have all your results in one place. Moreover, you give us the input we need to help students who do not do well in the trial exams.

Week of September 5th, 2022

GROUP's WORK on September 5th, 2022

Organize your group (45 minutes) by using the slide show provided on Brightspace.

BREAK

Chapter 1, Exercise 1a-c

Chapter 1, Exercise 1a (15 minutes)

Please

- quick-read the webpage by European Commission 2021 individually;
- take some notes according to the quick-reading slide, in particular
 - o What information do you get from reading the abstract and skimming the headings?
 - o Read the introduction and the conclusion. What are the main concepts used?
 - What is the research problem and what is it resolution?
 - Which pages or what parts do you have to read carefully in order to understand the gist of the paper or the webpage?

Chapter 1, Exercise 1b (15 minutes)

- Compare your notes from Exercise 1a and discuss your findings in the group;
- create a joint slide referring to all points discussed;
- upload the slides in your group folder now.

Chapter 1, Exercise 1c (15 minutes)

Please quick-read the paper by Edquist et al. 2018 individually and take notes about the main concepts used, the research problem and its resolution.

TAKE-AWAY Group's Work for the week of September 5th, 2022 Chapter 1, Exercise 1d-e

Exercise 1d (25 minutes)

As a group please <u>critically assess</u> the European Innovation Scoreboard 2021 in the light of Edquist et al. 2018.

- 1. What kind of information does the European Innovation Scoreboard 2021 provide?
- 2. What kind of information does it not provide?
- 3. Is the use of the indicators and the interpretation of the data correct?

Write up the results on minimum half a page and upload them in your group folder now.

Exercise 1e (20 minutes)

Please

- as a group let everyone pick one different country from the EU Innovation Scoreboard;
- figure out the strengths and weaknesses of this country with the help of the innovation indicators used in the EU Innovation Scoreboard individually;
- prepare a presentation of three minutes using one slide and present this country to your fellow students referring to the innovation indicators that are most important for your assessment of the country.

BREAK

Chapter 1, Exercise 1f (35 minutes)

Please

- present your results from Exercise 1e to each other (15 minutes) and
- discuss which country scores best and which worst (20 minutes). In particular, critically assess the indicators used. The person taking notes writes-up your conclusions on about one page.
- Upload your slides and your conclusions on Brightspace until coming Friday the latest.

Feedback for this week's chairperson (10 minutes)

Please

- get familiar with the start, stop, continue method (https://www.sessionlab.com/methods/start-stop-continue);
- give constructive and detailed feedback to the chairperson of this week using this method.

TASKS FOR INDIVIDUAL FOLLOW-UP in the week of September 5th, 2022 Please **follow-up on Chapter 1** by

- (re-)reading the respective chapters and the uploads of your group;
- reading papers more detailed when necessary;
- taking notes about what and how to prepare the (trial) exams regarding this chapter;
- writing up questions you want to ask during the next lecture.

Chapter 2, Exercise 1

With this exercise you start with blended learning and prepare the flipped classroom for Chapter 2.1. Chapters 2.2 to 2.4 are taught traditionally.

Please

- read Chapter 2.1 and watch the respective video (see Reader))
- open a Word Document and take notes about new concepts, empirical findings, methods and particularly about questions you have;
- quick-read the papers in Readings of Chapter 2.1, read in detail what you need to read to answer your questions;
- note down questions that are still open afterwards
- share you Word Document in the groups folder by uploading it on Brightspace until coming Friday the latest.
- writing up questions you want to ask during the next lecture regarding Chapter 2.1 which will be in flipped classroom style.

Week of September 12th, 2022

Tasks for the chairperson before September 12th, 2022

As designated chairperson please prepare the following in advance:

- read the exercises of the week of September 12th and make yourself familiar with the time-line;
- prepare a slide with the questions and the links to the material necessary so that the group can start with working right away;
- make sure that the group members will be present and that those responsible for taking notes and uploading are aware and prepared.

If due to unforeseen circumstances you cannot be the chairperson on that day make sure that someone else takes over well in advance of the session.

GROUP's WORK on September 12th, 2022

Organize your group (5 minutes): Please take a seat, settle in and make sure that you have groups members doing the chairing, taking notes and uploading for this and the next group's session.

Chapter 2, Exercise 2a

- Every student quick-reads the paper by Werker et al., 2017 (see Chapter 3.2 in the Reader for the link) individually, taking notes in the process. (15 minutes)
- Please as a group figure out the differences between the innovation systems approach and the Triple Helix approach. (15 minutes).
- Please summarize your findings on the differences between the innovation systems approach and the Triple Helix approach on a slide and upload the document on Brightspace by the end of the day the latest (10 minutes).

BREAK

Chapter 2, Exercise 2b

- Have about half of the group focus on the Lochem case and the other one focus on Aardwarmte Den Haag as described and analysed in Werker et al., 2017. Please answer the following questions (20 minutes):
 - Who are the agents, who are the stakeholders of the cases? Are they academic, entrepreneurial, governmental or civic actors
 - What are their interests and motivations?
 - Which agents and stakeholders are close to each other and in which respect (consider the different kinds of proximity for this)?
- As a group compare the two cases. Summarize your findings on minimum one page and upload the document on Brightspace by the end of the day the latest (25 minutes).

TAKE-AWAY Groups Work for the week of September 12th, 2022 Chapter 3, Exercise 1

With this exercise you use blended learning and prepare the flipped classroom for Chapter 3.1. Chapter 3.2 is about the cases covered in Exercise 2 of Chapter 3.

Chapter 3, Exercise 1a (35 minutes)

Please individually

- read Chapter 3 and watch the respective videos (see Reader);
- quick-read Bergek et al., 2015
- determine what you need to read in detail of this paper
- discuss this with your fellow students
- decide what needs to be read and do so

Chapter 3, Exercise 1b (10 minutes)

Please as a group

- discuss open questions with your fellow students;
- note questions still open down in a document and
- upload it on Brightspace until coming Friday the latest.

BREAK

Chapter 3, Exercise 1c (40 minutes)

Please as a group

- use the framework by Bergek et al., 2015, to analyse the Lochem and the Aardwarmte Den Haag case as described and analysed in Werker et al., 2017, do not forget to define the term technological innovation system to start with;
- write up your findings on at least one page and
- upload the document on Brightspace until coming Friday the latest.

Feedback for this week's chairperson (5 minutes)

Give constructive and detailed feedback on the chairing of the group this week using the <u>start</u>, <u>stop</u>, <u>continue method</u>.

TASKS FOR INDIVIDUAL FOLLOW-UP in the week of September 12th, 2022

Please follow-up on Chapter 2 by

- re-reading the chapter;
- reading the literature in the Readings of the chapter in more detail when necessary;
- taking notes about what and how to prepare the (trial) exams for this chapter;
- write up questions you want to ask during the next lecture regarding the chapter 3 which will be in flipped classroom style.

Week of September 19th, 2022

Tasks for the chairperson before September 19th, 2022

As designated chairperson please prepare the following in advance:

- read the exercises of the week of September 19th and make yourself familiar with the time-line;
- prepare a slide with the questions and the links to the material necessary so that the group can start with working right away;
- make sure that the group members will be present and that those responsible for taking notes and uploading are aware and prepared.

If due to unforeseen circumstances you cannot be the chairperson on that day make sure that someone else takes over well in advance of the session.

GROUP's WORK on September 19th, 2022

Organize your group (5 minutes): Please take a seat, settle in and make sure that you have groups members doing the chairing, taking notes and uploading for this and the next group's session.

Chapter 3, Exercise 2 (45 minutes)

Please

- quick-read the paper by Nevzorova, 2022, individually;
- determine as a group which parts to read in detail to answer the following questions:
 - What is the focal TIS of the Russian biogas industry?
 - What is the sectoral context?
- do the reading in individually;
- answer the questions jointly on half a page and
- upload the document on Brightspace at the end of the day the latest.

BREAK

Chapter 4, Exercise 1 (40 minutes)

With this exercise you use blended learning and prepare the flipped classroom for Chapter 4.1 and 4.2. Chapter 4.3 is about the cases covered in Exercise 3 of Chapter 4.

Please

- read Chapter 4 and watch the respective videos (see Reader) individually;
- quick-read the Readings of Chapter 4 individually;
- determine as a group which (parts of) of the papers you need to read in detail to fully understand Chapter 4.

TAKE-AWAY Group's Work for the week of September 19th, 2022

Chapter 4, Exercise 2a (45 minutes)

Please

- as a group determine which parts of the paper by Nevzorova, 2022, you have to read to answer the following questions:
 - What is the research question and its resolution?
 - o Which method and which indictors were used?
 - What is the focal geographical dimension of the Russian biogas case?
 - O Discuss the functional factors of the Russian biogas case.;
 - o Do you agree with the findings of the paper? Please particularly discuss the reliability of the indicators used? Go back to chapter 1 to assess the indicators.
- do the reading accordingly.

BREAK

Chapter 4, Exercise 2b (40 minutes)

- answer the questions posed in Exercise 2a and;
- put these answers together with the answers to Exercise 2 of Chapter 3 in one document;
- upload them on Brightspace not later than coming Friday.

Feedback for this week's chairperson (5 minutes)

Give constructive and detailed feedback on the chairing of the group this week using the <u>start</u>, <u>stop</u>, <u>continue method</u>.

TASKS FOR INDIVIDUAL FOLLOW-UP in the week of September 19th, 2022

Please follow-up on Chapter 3 by

- re-reading the respective chapter,
- reading the papers in the Readings of Chapter 3 in more detailed when necessary
- taking notes about what and how to prepare the (trial) exams
- write up questions you want to ask during the next lecture regarding Chapter 4. which will be in flipped classroom style.

Week of September 26th, 2022

Tasks for the chairperson before September 26th, 2022

As designated chairperson please prepare the following in advance:

- read the exercises of the week of September 26th and make yourself familiar with the time-line;
- prepare a slide with the questions and the links to the material necessary so that the group can start with working right away;
- make sure that the group members will be present and that those responsible for taking notes and uploading are aware and prepared.

If due to unforeseen circumstances you cannot be the chairperson on that day make sure that someone else takes over well in advance of the session.

GROUP's WORK on September 26th, 2022

Organize your group (5 minutes): Please take a seat, settle in and make sure that you have groups members doing the chairing, taking notes and uploading for this and the next group's session.

Chapter 4, Exercise 3a (80 minutes)

Please split up the two cases, i.e.

- the case of the Bangalore software industry as analysed in Chamiade and Vang, 2018, and
- the case of the Swiss national innovation system as analysed in Marxt and Brunner, 2013,

between the group members.

Please

- individually quick-read the paper of the case you are assigned to;
- as a group figure out what the major concepts used, the research questions and resolutions of the papers are;
- as a group discuss how you can analyse the two cases using the knowledge you obtained in chapter 0 to 4;
- individually solve the case you are assigned to accordingly;
- as a group discuss the findings and compare the two cases

Please make sure to agree upon a BREAK after 45 minutes into the session if necessary.

TAKE-AWAY Group's Work for the week of September 26th, 2022

Chapter 4, Exercise 3b (85 minutes)

Please as a group

Create an exam of 1.5 hours assigning 90 points (for about each minute spent one point to indicate the time and the effort) for either the two cases you analysed. Put both questions and model answers in a document and upload it on Brightspace no later than coming Friday.

Feedback for this week's chairperson (5 minutes)

Give constructive and detailed feedback on the chairing of the group this week using the <u>start</u>, stop, continue method.

TASKS FOR INDIVIDUAL FOLLOW-UP in the week of September 26th, 2022

Please follow-up on Chapter 4 by

- re-reading the respective chapter,
- reading the papers in the Readings of Chapter 3 in more detailed when necessary taking notes about what and how to prepare the (trial) exams
- take all the notes of what and how to prepare chapters 0 to 4 for the (trial) exams and prepare accordingly

Chapter 4, Exercise 3c

Please repeat Exercise 3b for the case you did not do in the group.

Week of October 3rd, 2022

TRIAL EXAM

The trial exam and the assessment of another student's exam are compulsory.

<u>Please start answering the questions at 13.45h and submit your answer no later than 15.20h today on Brightspace.</u>

<u>Please upload your assessment of another student's trial exam no later than 17.45h</u> today on Brightspace.

If you are not providing both documents on time today you are not able to take the exam.

Tasks for the chairperson before October 3rd, 2022

As designated chairperson please prepare the following in advance:

- make sure that the assessment criteria are available to the groups' members;
- make sure that the group members will be present and that those responsible for taking notes and uploading are aware and prepared.

If due to unforeseen circumstances you cannot be the chairperson on that day make sure that someone else takes over well in advance of the session.

GROUP's Work on October 3rd, 2022

Please within 90 minutes

- assess the exam of the indicated fellow student uploaded on Brightspace with the help of the assessment criteria provided on Brightspace
- discuss with your fellow students
 - o which parts you found difficult to assess,
 - o in which parts you found inspiration for answering similar questions better in the future and
 - o what you learned for preparing an exam.
- Summarize your findings on one page and upload them on Brightspace today.

TAKE-AWAY Group's Work for the week of October 3rd, 2022

Please as a group discuss in 85 minutes

- your experience during the exam: how did you do regarding timing, being calm or not etc.;
- the parts of the exam that went smoothly and the ones that did not;

- do advice and help each other on parts that did not go so well
- write up a plan for each group member about the parts that did not go smoothly and upload the document no later than coming Friday.

Feedback for this week's chairperson (5 minutes)

Give constructive and detailed feedback on the chairing of the group this week using the <u>start</u>, <u>stop</u>, <u>continue method</u>.

TASKS FOR INDIVIDUAL FOLLOW-UP in the week of October 3rd, 2022 Please look carefully at the assessment of your trial exam I. Follow the plan as discussed with the group to catch up.

Week of October 10th, 2022

PLEASE NOTE: THERE WILL BE NO LECTURE ON OCTOBER 10th BECAUSE YOU USE THE MATERIAL OF A MOOC INSTEAD. The lecturing hall is still reserved. So, you can watch and Exercise 5, Exercise 5 there or somewhere else.

Chapter 5, Exercise 1

Please in about 45 minutes watch the following videos individually and take notes.

- Section 1: all three videos: https://youtu.be/pSkRSs0eQUs; https://youtu.be/a3OIB9Ot5RQ
- Section 2: https://youtu.be/ztg3FDbcLcY

Please in about 45 minutes quick-read the papers in the Reading section and take notes.

Tasks for the chairperson before October 10th, 2022

As designated chairperson please prepare the following in advance:

- read the exercises of the week of October 10th and make yourself familiar with the time-line;
- prepare a slide with the questions and the links to the material necessary so that the group can start with working right away;
- make sure that the group members will be present and that those responsible for taking notes and uploading are aware and prepared.

If due to unforeseen circumstances you cannot be the chairperson on that day make sure that someone else takes over well in advance of the session.

GROUP's WORK on October 10th, 2022

Organize your group (5 minutes): Please take a seat, settle in and make sure that you have groups members doing the chairing, taking notes and uploading for this and the next group's session.

Chapter 5, Exercise 2a (40 minutes)

Please

- distribute the two following cases amongst the group members
- watch the related videos individually and take notes:
 - o SSR Mainports Rotterdam: https://youtu.be/CG73Z2zxx4U
 - o Smart City The Hague: https://youtu.be/lJnLQse3ZoE

On the open <u>courseware platform of TU Delft</u> you more videos on the cases. The ones here are the most relevant.

- Answer the following questions individually
 - o Who are the stakeholders (and innovative agents) and are their goals?
 - o Do their goals align or contradict each other?
 - Are the innovations discussed radical or incremental?
 - o How does this change the situation for the stakeholders and innovative agents?

BREAK

Chapter 5, Exercise 2b (45 minutes)

Please

- discuss the individual answers to the questions in Exercise 2 within the group,
- write-up your joint answers for each case in a document
- compare the two cases, write up your findings in the document as well;
- upload the document until coming Friday the latest.

TAKE-AWAY Groups Work for the week of October 10th, 2022 Chapter 5, Exercise 3 (15 minutes)

Please write-up all questions regarding Chapter 5 including Exercises 1 and 2 as well as the papers in the Reading section in a document and upload it until coming Friday the latest.

Chapter 6, Exercise 1a (30 minutes)

Please

- read Chapter 6 individually;
- quick-read the paper in the Readings Section individually;
- determine as a group which (parts of) of the papers you need to read in detail to fully understand Chapter 6.

BREAK

Chapter 7, Exercise 1a (40 minutes)

Please

- read Chapter 7 and watch the respective videos (see Reader) individually;
- quick-read the paper in the Readings Section individually;
- determine as a group which (parts of) of the papers you need to read in detail to fully understand Chapter 7.

Feedback for this week's chairperson (5 minutes)

Give constructive and detailed feedback on the chairing of the group this week using the <u>start</u>, stop, continue method.

TASKS FOR INDIVIDUAL FOLLOW-UP in the week of October 10th, 2022

Please look carefully at the assessment of your trial exam I. Follow the plan as discussed with the group to catch up.

Chapter 6, Exercise 1b

Please do the reading as agreed upon during Exercise 1a.

Chapter 7, Exercise 1b

Please do the reading as agreed upon during Exercise 1a.

Week of October 17th, 2022

Tasks for the chairperson before October 17th, 2022

As designated chairperson please prepare the following in advance:

- read the exercises of the week of October 17th and make yourself familiar with the time-line;
- prepare a slide with the questions and the links to the material necessary so that the group can start with working right away;
- make sure that the group members will be present and that those responsible for taking notes and uploading are aware and prepared.

If due to unforeseen circumstances you cannot be the chairperson on that day make sure that someone else takes over well in advance of the session.

GROUP's WORK on October 17th, 2022

Organize your group (5 minutes): Please take a seat, settle in and make sure that you have groups members doing the chairing, taking notes and uploading for this and the next group's session.

Chapter 6, Exercise 2 (20 minutes)

Please

- have a look at the cases you analysed for Chapter 5 and identify the values that play a role for the stakeholders in these cases;
- put your results in a document, preferably using a table
- compare the two cases
- put your findings on the comparison in a document;
- upload it until coming Friday the latest.

BREAK

Chapter 7, Exercise 2

Please as a group

- have a look at the indicators introduced in Werker et al., 2020;
- discuss their advantages and disadvantages;
- figure out in what way do they differ or are similar to the indicators introduced in Chapter 1;
- summarize your findings in a file and upload it until coming Friday the latest.

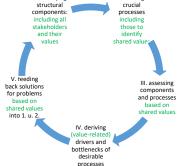
Chapter 7, Exercise 3 (45 minutes)

As a group, please take any of the cases you analysed so far. Make sure that you can answer the following questions based on the material you have or find additional material on https://scholar.google.com.

Please use the scheme from Werker, 2020, Figure 11.2: Write up your findings in a document, indicate your sources and upload it no later than coming Friday.

I. identify the structural components including all innovative agents and/or stakeholders

"I. identifying structural and their values (use results from Ex. 1 of Chapter 6)



into I. and II.

- II. find crucial processes including those to identify shared values
- III. assess components and processes based on shared values (if you can detect them, else provide some insights how they could look like)
- IV. derive (value-related) drivers and bottlenecks ofdesirable processes
- V. propose solutions for problems based on shared values

TAKE-AWAY Groups Work for the week of October 17th, 2022 Exercise to prepare trial exam II

Chapter 7, Exercise 3

Please take a case you did not choose for Chapter 7, Exercise 2, and repeat the analysis of Exercise 2 for this case.

Feedback for this week's chairperson (5 minutes)

Give constructive and detailed feedback on the chairing of the group this week using the <u>start</u>, <u>stop</u>, <u>continue method</u>.

TASKS FOR INDIVIDUAL FOLLOW-UP in the week of October 17th, 2022

Please follow-up on Chapters 6 and 7 by

- re-reading the respective chapter,
- reading the papers in the Readings of Chapter 6 and 7 in more detailed when necessary taking notes about what and how to prepare the (trial) exams
- take all the notes of what and how to prepare chapters 0 to 4 for the (trial) exams and prepare accordingly

Week of October 24th, 2022

TRIAL EXAM

The trial exam and the assessment of another student's exam are compulsory.

<u>Please start answering the questions at 13.45h and submit your answer no later than 15.20h today on Brightspace.</u>

<u>Please upload your assessment of another student's trial exam no later than 17.45h today on Brightspace.</u>

If you are not providing both documents on time today you are not able to take the exam.

Tasks for the chairperson before October 24th, 2022

As designated chairperson please prepare the following in advance:

- make sure that the assessment criteria are available to the groups' members;
- make sure that the group members will be present and that those responsible for taking notes and uploading are aware and prepared.

If due to unforeseen circumstances you cannot be the chairperson on that day make sure that someone else takes over well in advance of the session.

GROUP's Work on October 24th, 2022

Please within 90 minutes

- assess the exam of the indicated fellow student uploaded on Brightspace with the help of the assessment criteria provided on Brightspace
- discuss with your fellow students
 - o which parts you found difficult to assess,
 - o in which parts you found inspiration for answering similar questions better in the future and
 - o what you learned for preparing an exam.
- Summarize your findings on one page.

TAKE-AWAY Group's Work for the week of October 24th, 2022

Please as a group discuss in 60 minutes

- your experience during the exam: how did you do regarding timing, being calm or not etc.;
- the parts of the exam that went smoothly and the ones that did not;
- do advice and help each other on parts that did not go so well

• write up a plan for each group member about the parts that did not go smoothly and upload the document no later than coming Friday.

Please as a group come up with a plan of how and when to support each other in the coming weeks before the exam. (25 minutes)

Please upload your plan including time schedule of meetings and content on Brightspace on coming Friday the latest.

Feedback for this week's chairperson (5 minutes)

Give constructive and detailed feedback on the chairing of the group this week using the <u>start</u>, <u>stop</u>, <u>continue method</u>.

TASKS FOR INDIVIDUAL FOLLOW-UP in the week of October 24th, 2022

Please

- go through the whole course material;
- repeat the exercises that you found difficult and only the check the answers after you did them:
- follow-up on the plan you made with your group.

Success with your preparation!