



Research Area
Technology,
Innovation, Marketing,
Entrepreneurship

RWTHAACHEN
UNIVERSITY



A video introduction into this class is at
<http://tinyurl.com/y8zxanvy>

PRINCIPLES OF TECHNOLOGY & INNOVATION MANAGEMENT (PTIM): PEOPLE, CULTURE, AND CHANGE

PROF. FRANK PILLER | PROF. VERA BLAZEVIC

COURSE OUTLINE AND READING LIST

RWTH Aachen University | School of Business and Economics
TIME Research Area | Institute for Technology & Innovation Management (TIM)
time.rwth-aachen.de | Kackertstraße 7, Aachen

Teaching assistant: Anja Leckel and Sophie Prauser

WINTER TERM 2020/21

This course in a nutshell: You will learn about the people and culture aspects of managing technology and innovation in large companies, using (Harvard) case studies and corresponding academic papers. Interactive class format demanding 8-10 hours per week (class and preparation), homework (paper) instead of an exam.

1 COURSE OVERVIEW

Course Name:	Principles of Technology and Innovation Management
Degree programmes:	<ul style="list-style-type: none">▪ Master of Science BWL, M.Sc. Wi.Ing., M.Sc. Wiwi.▪ Erasmus / exchange students on the M.Sc. level and RWTH Students from other disciplines: If space permits and only with some pre-knowledge of business administration, management, or organizational theory
Lecturers:	Prof. Frank Piller, Prof. Vera Blazevic
Teaching assistant:	Anja Leckel leckel@time.rwth-aachen.de und Sophie Prauser prauser@time.rwth-aachen.de
Location and time:	Mondays, 13:30 – 16:00 (incl. small breaks). Delivered live online via Zoom. Active participation and presentations from participants during the Zoom sessions are part of the grading – hence it is strongly recommended that you use real names and switch your camera on during the online sessions so that we can allocate your contributions to your participation grade. <i>More information below.</i> <u>Kick-Off info session: Oct 26, 1330h: Organ. details and info on grading</u> <u>Classes: Nov 2, 9, 16, 23, 30, Dec 7, 14, 21, Jan 11, 18, Feb 1, 8.</u> <u>Guest lecture: Jan 25</u>
Content description:	<p>Creating and managing new technological knowledge is a key success factor of most firms. The idea of the course is to provide an a deeper perspective into selected topics from both the perspective of a manager who has to make decisions about her firm's technology and innovation management processes and from the perspective of an academic researcher studying these decisions.</p> <p>We will discuss some selected questions of managing innovation in a corporate context. Our focus will be the people and culture perspective: How does the behavior of people and the incentives set in a firm to drive specific behaviors, plus its organizational structure, influence the performance of a firm's innovation system.</p> <p>The course is case-study based, but will also integrate short lecture modules, in-class exercises, and group work. In addition, each session will introduce important academic papers on the topics of the session.</p> <p>Note: While this course belongs to the "core classes" in our curriculum, you profit more from this course if you already have some basic understanding of innovation management. It builds on the course "Managing the Innovation Process" in the summer term. For students who do not have any pre-knowledge in innovation mgmt, Session 0 provides some background knowledge via a focused video training.</p>
Qualification objectives:	Upon completion of this course, you will be able to: <ul style="list-style-type: none">• Differentiate various understandings of innovation and technology• Acquire competences to analyze decisions in TIM from an organizational and culture perspective

- Know about tools and methods of innovation management
- Argue about future trends in innovation management
- Evaluate the challenge of making innovation happen within large companies

Literature: Reading material is given for each individual session. There is no dedicated textbook for this course.

Course Examination: **55% of the grade** is based on **your class participation** (individual contributions during the (online sessions) and presentation of one paper in a group), **45%** of the grade is determined **by an individual post-class paper assignment**.

Information on the digital delivery of the course:

All sessions will be online in Zoom to meet the Covid-19 requirements of RWTH Aachen.

There is **no compulsory attendance or active participation** in this module. However, your performance during the sessions counts for 55% of the final grade. Therefore, **video transmission** is recommended for the online sessions in order to enable an interactive learning atmosphere. In addition, we ask you to indicate a clearly **identifiable name** so that we can assign your oral participation accordingly.

The sessions will **not be recorded**.

If you do not approve this format with the necessary digital precautions, please choose another module.

Guidelines for the “Colloquium (class participation, 55%)”:

Grading: Group grades for the presentation + individual grades for participation in the sessions. This module is not based on lecture videos, but on a discussion format. You have to **prepare for each session** either a case study or read 1-3 academic papers.

Group presentation: Submit a **20 minutes screencast** (e.g. narrated and recorded Power Point or Prezi etc. presentation, no presenter video necessary, but of course possible) + **moderating a 30-minute discussion** with your peers (live in zoom).

Group allocation via self-selection in Moodle on the respective topic and date. We will explain this during the kick-off session.

Class participation during digital sessions: You can use the chat function to raise questions or comments. For answers, raise your hand via Zoom and wait to be called to speak up. The professors might use “Cold Calls” at all times during the live session, if necessary. There also may be smaller group work tasks during the live sessions to facilitate interaction (e.g. preparation of a case discussion in small randomly assigned groups, presentation of prepared content in the plenum afterwards, or joint interactive development of content in open online documents).

Participation Requirements: Solid command of English and willingness to prepare each class session in advance (**preparation at home includes to read one case study or 1-3 academic papers**).

You also have to prepare one presentation in a group of 3-5 students.

Previous knowledge of innovation management (as for example acquired in our MIP, STM, or EPIT courses) is recommended, but **not mandatory**. In case this is your first course on innovation management, get the basics via our "TIM Bootcamp" (see "Session 0" below).

The course is designed for M.Sc. level students in Industrial Engineering & Engineering Management, Business Administration, and Economics – hence for a student group that has **some knowledge on general principles, concepts, and theories in management, organization, and strategy**. Hence, **Erasmus and exchange students and RWTH Students from other disciplines ("Nebenfach")**: Only register if you have some pre-knowledge on these topics!

Group Size:	45 participants (max, including exchange students)
Workload:	28 hours of lecturing, 120 hours of individual and group preparation
Type of Teaching:	Live sessions are likely to comprise a mixture of interactive lectures, case/paper discussions, and student presentations.
Language:	Lectures, discussions, student presentations will be in English language.
Credits:	5

This course will be managed via the e-learning platform Moodle. All lecture slides, student presentations, and readings will be deposited here.

After registering to the course:

Please send a recent photo of you to leckel@time.rwth-aachen.de until October 27.

*Please save the picture as a jpg and name the **filename** according to this pattern:
yourlastname_yourfirstname.jpg*

Purpose: The list of students including their photos helps us to keep track when evaluating oral participation after class. Without the picture, it is hard for us to evaluate your class participation!

2 COURSE ORGANISATION

The course comprises of an introductory video-lecture “bootcamp”, seven five-hour sessions. Sessions are organized in three parts: (1) an interactive lecture, (2) case study discussion and (3) discussion of academic studies. The order and duration of these elements might vary between sessions.

Preliminary Schedule: Principles of Technology and Innovation Management (PTIM)

Time Slot		Lecturer	Content*
Before 2. Nov	at your own pace	Prof. Piller	Online Videos: TIM Bootcamp**
26 Oct 2020	13:30-14:30	Prof. Piller	Information session
02 Nov (case) 09 Nov (papers)	13:30-16:00 13:30-16:00	Prof. Blazevic	Elements of a successful system for innovation MedTech Case: Metronic Innovation System
16 Nov (case) 23 Nov (papers)	13:30-16:00	Prof. Blazevic	Balancing innovation: Ambidexterity and the exploitation-exploration dilemma BtoB Case: Pitney Bowes
30 Nov (case) 07 Dec (papers)	13:30-16:00 13:30-16:00	Prof. Piller	Designing intra-organizational interfaces and cooperation Pharma Case: Myelin Repair Foundation
14 Dec (case) 21 Dec (papers)	13:30-16:00 13:30-16:00	Prof. Blazevic	Creating a culture for innovation FMCG Case: General Mills
11 Jan (case) 18 Jan (papers)	13:30-16:00 13:30-16:00	Prof. Piller	Communicating for innovation: Leadership for innovation & transformation Pharma Case: Leadership at Eli Lilly
25 Jan	13:30-16:00	Guest lecture	Guest Lecture
01 Feb (case) 08 Feb (papers)	13:30-16:00 13:30-16:00	Prof. Piller	Restructuring the enterprise to become more innovative Digital Transformation Case: UCB Pharma
01 Mar 2021	15:00	Online submission	Deadline to hand-in your paper assignment via e-mail or Moodle ("letzte Prüfungsleistung")

* Case selection may be updated before the semester starts. Refer to the Moodle page for this course for exact assignments.

** Note: If not done before, watch our Mini-MOOC: The TIM Bootcamp. This series of short videos will introduce you into the topic and provides definitions and frameworks. We expect that you know the content of this video series before the first session. See “Session 0” below for more detail.

3 GROUP ASSIGNMENTS

A key component of this course is the group assignment and the discussions. Jointly, they will count for half of your final grade.

As for the **group assignment**, each student will be assigned to a group typically consisting of three to five members. Each group will be asked to present and critically discuss one academic paper in a **recorded screencast**. Additionally, each group will pitch their paper in class and discuss it with the audience.

Each paper addresses an important phenomenon in the sphere of strategic technology management. Papers can be conceptual or empirical have been published in leading peer-reviewed journals in the field of Strategic Technology Management such as the *Strategic Management Journal*, *Management Science*, *Research Policy* or the *Journal of Product Innovation Management*.

- You should support your presentation with a **sufficient (not too many!) number of PowerPoint slides**. When preparing your slides, you **can** use a **PowerPoint template** that is available for download on Moodle (but are also free to use your own creativity).
- In addition, please **summarize the content of your paper on ONE A4 page using the template** provided on Moodle, highlighting the core points, content, and conclusions from the paper. This one pager will be distributed to all students during the class.
- The final screencast needs to be **uploaded to Moodle by 4pm the THURSDAY BEFORE your presentation**. ***Instructions on how to create and upload a screencast is available on Moodle.***
- In class, 20 minutes will be allocated to each group, of which 5 should be used to **pitch the core messages and conclusions of your paper** and the rest for a **discussion with the audience**. You *can* support your pitch with a few PowerPoint slides (*but you also can use other means of presentation*).
- Your slides and the summary page need to be sent to the respective professor of the class (piller@time.rwth.aachen.de or blazevic@time.rwth-aachen.de) by **18:00 the day BEFORE the lecture** in both pptx and pdf format. You also need to have both files digitally available.
- The language for the presentation and the discussion with the audience is English.

We would like to stress that **your screencast presentation needs to go beyond simply summarizing the content of your assigned paper**. Rather you are asked to engage with it critically by discussing its strengths and weaknesses as well as its contributions to our understanding of key aspects of the paper. **Tell us what we learn from the paper and why we need to care!**

A sample structure of your presentation might look like this – **but you are free and encouraged to come up with your own structure!**

- (1) **Introduction:** *Tell us the motivation of the ideas presented in the paper and why this is an important (and open) question. How does this link to the topic of the session? Introduce us to the authors and the journal (if not done before).*
- (2) **Paper Description:** *Share the story of the paper. You don't need to follow 1:1 the structure of the paper, but try to provide us an introduction into the theory selection and conceptual devel-*

opment, and also in the research design and methods: Why are those adequate in researching the open questions?

(3) Paper Discussion

- What are the contributions to research and practice?
- What are the strengths and weaknesses of the paper; possible refinements and extensions?
- What are implications for practice

(4) Conclusion and discussion questions

Always **include questions for the other students**, think about how you can facilitate a discussion about the content of your paper.

4 INDIVIDUAL ASSIGNMENTS

A key component of this course are the **case discussions**. Together with the discussion of the **research papers**, they will count for **55 percent of your final grade**. It is essential for all course participants **to carefully study the case and the corresponding assignment questions at home** to be ready to contribute to the live discussions.

In addition, we will reflect the content of a number of **academic papers**. Also these **papers need to be read before the session**, and often reading the paper is also helpful in better understanding the case. **Core papers are being presented by student groups**.

So please make sure to complete the pre-assignment (case study) before each session. In addition, you have to read the research papers for each session.

Note: *Apart from Session 0, there are no video lectures to watch for PTIM.*

“Session 0”: Video Bootcamp and MIP Basics for all participants who had no course on innovation management before

While this course belongs to the "core classes" in our curriculum, you will be able to participate with larger success if you already have some basic understanding of innovation management. **PTIM builds directly on the course "Managing the Innovation Process (MIP)"** in the summer term. **However, we know that it is not possible for some of you to attend the MIP course first. In this case, there are two easy ways to catch up:**

(1) In any case, if not done before, watch our Mini-MOOC: The TIM Bootcamp. This series of short videos will introduce you into the topic and explains important definitions and concepts. We expect that you know the content of this video series before the first session – **the content is mandatory knowledge for the live discussions and paper presentations**. You can **access this Bootcamp** by following the links in Moodle.

(2) Get an understanding of some core content from our core M.Sc. innovation course "Managing the Innovation Process (MIP)" to be on the same level as your peers who took this course in a previous semester:

- Structuring the innovation process: The Big Picture <https://youtu.be/V400eggrDXk>
- The Fronted of Innovation https://www.youtube.com/watch?v=-kTK_njnRx0
- Concept Generation <https://youtu.be/kXP0zTUK4Ik>
- Creativity theory and techniques: Different Schools <https://www.youtube.com/watch?v=47Ba4Os90To>
- Development Stage: Technical Problem Solving <https://youtu.be/ZSAyscmIXAw>
- Evaluating and Screening: Innovation is Experimentation <https://www.youtube.com/watch?v=8aqXUI01zSY>
- Launch and Nurture Stage: Introduction <https://www.youtube.com/watch?v=2XH6xXin0KU>
- Launch and Nurture Stage: Diffusion and Adoption <https://www.youtube.com/watch?v=bVq5axhen0M>
- Project Review: Project controlling and KPIs for Innovation https://www.youtube.com/watch?v=SyR10_oBpQI

All other Sessions: Please refer to Moodle for Cases and Assignments

5 Review Paper (Post-Class Assignment)

45% of the grade is your individual review paper. Please follow the instructions below. The deadline to digitally hand-in your paper assignment is **01 March 2021, 15:00h**. ***This is an individual assignment, no group work is allowed.***

Instructions

(1) **Select one of the two alternative papers** for your review – you only have to write a review about one of these papers.

#1 TBD

or

#2 TBD

(2) **Read the paper carefully** and try to find relations to other papers in our class.

(3) Start writing your review paper, **using the structure indicated below**. The **word limit** for your review is **4500 words** (you can write less --- this is the maximum). References are **not** included in the word limit.

Add a title page with your name, program/field of study ("Studienfach") and the title of the paper you selected.

Write your paper in regular academic style, using citations and references etc. For the formatting and citation style, **follow Sections 4&5 of the TIME guidelines** for student papers and theses, <http://tinyurl.com/kv96gum> (also on Moodle).

(4) Hand-in your paper at or before the deadlines stated above as PDF or Word file including the signed standard affirmation (see Section 7 of the TIME Guidelines for term papers). **Submission only via Moodle.**

(5) If you want to **withdraw your registration to this course and the exam**, you must do so **until seven working days** before the final examination date. Please read the material on Moodle regarding exam registration and withdrawal. We strongly recommend that you do this as early as possible to avoid unfair group works.

Structure of your paper

You may structure your paper according to the following template. In all sections of your paper, **refer to any relevant discussion, cases, slides, and papers we covered in class. Remember:** These papers have been accepted to top journals already, so they are probably not bad. **However, your task is to discuss whether they are original, counterintuitive, and contributing to the topics covered in our course.**

(1) Introduction. Start with a short introduction: What is the paper's main idea, and how does the paper fit into a discussion/topic we had in our course? Summarize the main (academic) contributions of the paper: What is the overall value-add of the research documented in the paper? Why does it enhance our knowledge in innovation management?

(2) Review and Critique

Now, comment more in depth on the contributions of the paper, contrasting it with issues we discussed in one or more of the case studies and papers in the reading list of this year's class (you can also refer to further literature, if you find this useful).

The following points are some criteria that might help you structure your evaluation. Don't use the following points as a checklist, this are just ideas what to cover in your review! You can answer also other questions, and don't have to answer all of them!

Theory

- Why is the theoretical framework of the paper appropriate? Would there be any alternative framework?
- Are the core concepts of the paper clearly defined?
- Is the logic behind the hypotheses persuasive? Are those surprising or very intuitive? Why is it important to investigate these questions?
- Do the hypotheses or propositions logically flow from the theory?

Method and results

- Why did the authors pick this method? What could have been an alternative approach to study this question?
- Does the study have internal and external validity?
- Are the results reported in an understandable way?
- Are there alternative explanations for the results, and if so, are these adequately controlled for in the analyses? What else could the authors have studied?

Discussion, conclusions and outlook

- Why does the submission make a value-added contribution to existing research?
- Why would submission stimulate thought or debate?
- Do the authors discuss the implications of the work for the scientific community? What do you think about these conclusions? How do they enhance our knowledge in the field?
- Further research: What are the most interesting areas for further research? Are there any further areas not listed in the paper?

(3) Managerial insights

Consider whether the paper has any practical value, and comment on its implications for the practice community: what do we learn for the management of innovation? **Would one of the managers in the case studies have made a different decision, given that she/he would have been aware of the research in the paper?**

Remember: The word limit for your review is **4500 words** (but you can write less --- this is the maximum). References are not included in the word limit.