



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 | leckel@time.rwth-aachen.de

WINTER TERM 2019/20

This class 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▪ RWTH Students from other disciplines (if space permits) only with pre-knowledge of management, strategy, and organizational theory
Lecturers:	Prof. Frank Piller, Prof. Vera Blazevic
Teaching assistant:	Anja Leckel leckel@time.rwth-aachen.de
Location and time:	Thursdays, 10:30 - 15:30 (incl. lunch break). Room: R 220 (1080 220) Classes: 24.10, 31.10., 7.11., 21.11., 5.12., 19.12. (1 st half of semester) Additional reserved dates for company visits: 28.11. and/or 12.12.
Content description:	<p>Creating and managing new technological knowledge is a key success factor of most firms. The idea of the class 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 class 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 class belongs to the "core classes" in our curriculum, you profit more from this class if you already have some basic understanding of innovation management. It builds on the class "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:	<p>Upon completion of this course, you will be able to:</p> <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 class.

Course Examination:	55% of the grade is based on your class participation (individual contributions and presentation of one paper in a group), 45% of the grade is determined by an individual post-class paper assignment .
Participation Requirements:	Solid command of English and willingness to prepare each class session in advance (<i>in average, each class session demands 4-5 hours of preparation at home to read one case study and 2-3 academic papers</i>). You also have to prepare one presentation in a group of 3-5 students.
Group Size:	45 participants (max, including exchange students)
Workload:	28 hours of lecturing, 120 hours of individual and group preparation
Type of Teaching:	Classroom 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.

Please send a recent photo of you to leckel@time.rwth-aachen.de until October 17.

*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 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.

Only in WS 2019-2020: There will most likely be an optional student field trip (2-3 days excursion) to Paris in Mid-December or Mid-January to visit organizations and deepen the knowledge on the topics of this course in hands-on discussions.

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

0	Before 24.10.*	Study at home*	Prof. Piller	Online Videos: TIM Bootcamp*
1	24.10.2019	10:30-15:30 R220 (1080 220)	Prof. Blazevic	Elements of a successful system for innovation
2	31.10.2019	10:30-15:30 R220 (1080 220)	Prof. Blazevic	Balancing innovation: Ambidexterity and the exploitation-exploration dilemma
3	07.11.2019	10:30-15:30 R220 (1080 220)	Prof. Blazevic	Creating a culture for innovation
4	21.11.2019	10:30-15:30 R220 (1080 220)	Prof. Piller	Designing intra-organizational interfaces and cooperation Pharma Case: Myelin Repair Foundation
5	28.11.2019 / 12.12.2019	10:30-15:30 <i>TBD</i>	<i>Prof. Piller</i>	<i>Reserved dates for visiting Pharma company or guest lecture by Pharma-Manager</i>
6	05.12.2019	10:30-15:30 R220 (1080 220)	Prof. Piller	Communicating for innovation Leadership for innovation & transformation Pharma Case: Leadership at Eli Lilly
7	19.12.2019	10:30-15:30 R220 (1080 220)	Prof. Piller	Restructuring the enterprise to become more innovative Pharma Case: Digital Pharma / Transformation
8	30.01.2020	15:00	Email submission	Deadline to hand-in your paper assignment via e-mail ("letzte Prüfungsleistung")
	31.01.2020	12:00, TIM Office	Print submission	Deadline to hand-in your paper assignment as hard copy with your signature

* **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. <http://frankpiller.com/inno-class-videos>

3 GROUP ASSIGNMENTS

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

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 class. Papers can be conceptual or empirical have been published in leading peer-reviewed journals such as the *Organization Science*, *Research Policy* or *Journal of Product Innovation Management*.

In class, your group will have 20 minutes for your joint presentation.

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 L2P. The language for the presentation and the discussion with the audience is English. In addition, please **summarize the content of your paper on ONE A4 page using the template** provided in the L2P, highlighting the core points, content, and conclusions from the paper. This one pager will be distributed to all students during the class.

Your slides and the summary page need to be sent to piller@time.rwth.aachen.de by **20:00h on the day BEFORE the lecture** in both pptx and pdf format. You will also need to save both files on a memory stick and bring it with you to class along with one printout of your slides.

We would like to stress that **your 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!**

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 development, 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 is the **case discussions** in class. 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 class 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**. **Paper presentations** (20 min presentation + 10 min discussion) are part of the participation grade.

So: Please make sure to complete the pre-assignment (case study) before coming to every class. 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 class in innovation management before

While this class 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 class "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 class 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 class discussions and paper presentations**. You can either access this Bootcamp via the **website <https://frankpiller.com/inno-class-videos>** or just **follow the links in the Bootcamp syllabus** (accessible via L2P).

(2) Get an understanding of some core content from our core M.Sc. innovation class "Managing the Innovation Process (MIP)" to be on the same level as your peers who took this class 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=8agXUI01zSY>
- Launch and Nurture Stage: Introduction <https://www.youtube.com/watch?v=2XH6xXjn0KU>
- 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

5 Review Paper (Post-Class Assignment)

As indicated at the beginning of the class, 45% of the grade is your individual review paper. Please follow the instructions below. The deadline to digitally hand-in your paper assignment is **30.01.2020, 15:00h, via e-mail** (see table above). ***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 in the L2P).

(4) Hand-in your paper at or before **the deadlines stated above**,

(a) via e-mail (PDF or Word file) to Anja Leckel (leckel@time.rwth-aachen.de)

AND

(b) in printed form (1 hard copy), including the signed standard affirmation (see Section 7 of the TIME Guidelines for term papers).

(5) If you want to **withdraw your registration to this class and the exam**, **you have to do so until seven working days before the date listed above**. 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 class.**

(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 class? 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.