



STRATEGIC TECHNOLOGY MANAGEMENT

Course Outline and Reading List

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WINTER TERM 2020/2021

COURSE OVERVIEW

Course Name:	Strategic Technology Management
Degree Programmes:	(1) Master BWL (Innovation, Entrepreneurship and Marketing – core course) (2) Master Wirtschaftsingenieurwesen (Management des Innovationsprozesses) (3) Master Wirtschaftswissenschaften (Wahl B)
Lecturer:	Prof. Dr. Frank Piller and Prof. Dr. David Antons
Contact:	Ekaterina Korneeva (korneeva@time.rwth-aachen.de , +49 241 80 99182)
Location and Time:	Online Session via Zoom. Fridays, 10:30am to 4:30pm on 30 October, 13 November, 20 November, 27 November, 4 December, 11 December, 18 December.
Content Description:	This course provides an introduction to strategic technology management (STM) based on the analysis of cases studies from practice and results from academic research. The class will revisit some of the foundational concepts and debates in strategic management to examine key strategic decisions at the heart of technology and innovation management. These pertain for instance to the selection of technology fields, the composition of innovation portfolios, the timing of technology development initiatives, the setting of industry standards, the implementation of modular designs, the protection of intellectual property, or the adaptation to rapid technological change.
Qualification Objectives:	After participating in this course students should be in a position to: (1) understand and critically reflect upon key concepts and theories in STM, (2) understand and critically discuss conceptual and empirical research papers on STM, (3) analyse and develop adequate solutions to some of the practical challenges of STM, and (4) apply important tools in STM intelligently based on a thorough understanding of their respective strengths and weaknesses.
Literature:	See below in the session descriptions. All papers will be made available on Moodle before a session.
Course Examination:	The final grade can be composed as follows: - Option A : Colloquium & presentation (weight: 55%) and student paper (weight: 45%) - Option B : Colloquium & presentation (weight: 55%) and written exam (75 minutes in total; 60 minutes writing and 15 minutes case reading time, weight: 45%) - Option C : Written exam (75 minutes in total; 60 minutes writing and 15 minutes case reading time, weight: 100%) In the winter term 2020/2021, Option B will be applied for the grading of this class. A maximum of 60 points can be obtained for each of the elements. The final points and grade is the weighted average of the elements, and you need 50 percent of all points to pass. Note for Master W-Ing students: In addition to the aspects above, all industrial engineers have to pass each of the examination elements individually (according to ÜPO §10 (8) and the program-specific regulations (fachspezifische PO for M.Sc. W.Ing.) §9 (2)). IMPORTANT: Please, also be aware of the special rules for examination registration and cancelation.
Participation Requirements:	Solid command of English and willingness to prepare each class session in advance (in average, each class session demands 3-4 hours of preparation to read one or two case studies and academic papers). Information on the digital realization of the course in winter semester 20/21: There is no compulsory attendance in this module. However, the class participation grade is 55% of the total grade. We would therefore like to point out to all participants that

	<p>video transmission is desired and 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. This module is not based on lecture videos, but on a discussion format. The sessions are not recorded. If you do not approve of this format with the necessary digital precautions, please choose another module.</p> <p>Getting an idea of class participation in online sessions: You can use the chat function to raise questions or comments. Raise your hand via zoom and wait to speak up. The professors might use “Cold Calls” at all times during the live session, if necessary. There are 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).</p>
Group Size:	45 participants (max)
Workload:	30 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:	English
Credits:	5

1 COURSE ORGANISATION

The course comprises seven four-hour sessions, five of which will be subdivided into three parts consisting of (1) an interactive lecture, (2) case study discussion and (3) up to two student presentations of journal articles. The order and duration of these elements might vary between sessions. The table below depicts the preliminary schedule.

Preliminary Schedule for Strategic Technology Management

#	Date	Time & Place	Teacher	Session Title
ONLINE SESSIONS				
1	30 Oct 2020	10.30-12.30 online	Prof. Antons	Kick-Off and Organization
2	13 Nov 2020	10.30-16.00 online	Prof. Antons	Introduction & Technological Change
3	20 Nov 2020	10.30-16.00 online	Prof. Antons	Scoping the Playing Field
4	27 Nov 2020	10.30-16.00 online	Prof. Antons	Orchestrating the Ecosystem
5	4 Dec 2020	12.30-16.30 online	Prof. Piller	Developing Modular Designs
6	11 Dec 2020	12.30-16.30 online	Prof. Piller	Managing Intellectual Property
7	18 Dec 2020	12.30-16.30 online	Prof. Piller	Setting Industry Standards

This course will be managed via the e-learning platform Moodle. All lecture slides, student presentation slides and readings will be deposited here. In addition, we will communicate all important pieces of information (e.g. pptx-Template, group allocation, room changes, course and exam preparation) only via Moodle. It is hence essential for you to **sign up for our Moodle course by 20 October 2020** at the very latest. If you register after that date, we cannot guarantee that we will be able to assign you to a group.

We kindly ask you to **send a recent photo** of you (filename: yourfirstname_ yourlastname.jpg) in an eMail with the Subject "STM Picture" to korneeva@time.rwth-aachen.de by **20 October 2020**. Without your picture, you will have a disadvantage in the grading process of your class contributions.

All lectures, discussions and student presentations will be in English language.

2 GROUP ASSIGNMENT AND CASE DISCUSSION

A key component of this course is the group assignment and the case discussions in class. Jointly, they will count for 50 percent of your final grade. Hence attendance is highly recommended. As for the **case discussions**, it is essential for all course participants to carefully read the case at home being ready to discuss the questions listed in the session description below. Further we provide lecture videos, which help to understand the contents discussed in class.

As for the **group assignment**, each student will be assigned to a group typically consisting of three to four 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. It is therefore **recommended for all participants to watch the screencast** before each in-class session. 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*.

The **screencast** needs to be supported with **up to 20 PowerPoint slides** and should **not exceed 20 minutes**. The final screencast needs to be **uploaded to Moodle by 4 pm the WEDNESDAY BEFORE your presentation**. Instructions how to create and upload a screencast is available on Moodle.

In class, 15 minutes will be allocated to each group, of which 5 should be used to **pitch the core messages and conclusions of your paper** and 10 for **questions and answers with the audience**. You *can* support your pitch with up to 5 PowerPoint slides using the template available on Moodle (*but you also can use other means of presentation*). Additionally, you *can* provide a handout to the audience. If you decide to include slides and a handout for your pitch, both files (pitch slides and handout) need to be uploaded to Moodle by **4 pm the WEDNESDAY BEFORE your presentation in ppt and pdf format**. You will also need to save both files on a memory stick and bring it with you to class. The language for the screencast and the pitch along with the discussion with the audience is English.

You can select your preferred group via Moodle. You can only select one group. Group size is limited to a maximum of 4 members per group. Groups will have to have at least 2 members to be formed. The group allocation starts after the first session on **30 October, 8 pm**. Please apply for your preferred group **until 6 November, 8 am**. If you do not select a preferred group, you will be assigned to a group by the lecturer. Final group compositions will be announced **via Moodle by 6 November (10:00 pm), provided they have signed up** for the Moodle course by **20 October**. To offer some support during the preparation of your paper presentation, each group is entitled to an optional 45-minute coaching session with Ekaterina Korneeva, which will take place in the premises of the Technology and Innovation Management Institute (TIM).

We would like to stress that your paper discussion 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 strategic technology management.

A sample structure of your screencast might look like this – but you are open to find another structure to differentiate your presentation from the others! Be creative!

- (1) Introduction: Tell us why the paper's research question matters for research & practice
- (2) Paper Description
 - Research Question
 - Conceptual Framework and Research Design
- (3) Paper Discussion
 - Strengths and Weaknesses
 - Possible Refinements and Extensions
- (4) Conclusions and contributions to strategic technology management

There will be (up to) two paper discussions during each session. The precise schedule for the paper discussions will be announced by the beginning of the semester.

3 INDIVIDUAL SESSIONS

At the beginning of the semester, you will find a description of each session in the detailed syllabus. Please make sure to complete the pre-assignment (case study) before coming to class. In addition, we strongly recommend to read the suggested readings, or at least to skim these papers. This will help you to prepare the case studies for the class discussions.

4 COURSE EXAMINATION

The final grade can be composed as follows:

- Option A: Colloquium & student presentation (weight: 55%) and student paper (weight: 45%)
- **Option B:** Colloquium & student presentation (weight: 55%) and written exam (75 minutes in total; 60 minutes writing and 15 minutes case reading time, weight: 45%)
- Option C: Written exam (75 minutes in total; 60 minutes writing and 15 minutes case reading time, weight: 100%)

In the **winterterm 2020/2021, Option B will be applied for the grading of this class.** A **maximum of 60 points** can be obtained for **each of the two elements**. The final points and grade is the weighted average of the elements (and you need **50 percent of all points** to pass). Please, consider of the special rules for examination registration and cancelation of your study program.

The written exam is likely to be structured as follows (obviously, only the structure announced on the exam day will apply):

Part 1: STM RESEARCH

- Max. 30 points - probably two questions with up to three sub-questions each
- Explanation, illustration and/or application of key concepts, theories and tools in the field of STM.

Part 2: STM PRACTICE

- Max. 30 points – short case study with probably three sub-questions
- Application of theoretical knowledge to particular case scenario (Need to analyse scenario using the knowledge acquired during the course in an attempt to propose thoughtful recommendations for managerial action)

A maximum of 60 points can hence be obtained. The individual written exam will be in English language. The exam is currently scheduled to take 75 minutes, of which 15 minutes are dedicated solely to reading the case and 60 minutes to solve the exam.

We hope you will enjoy the course and look forward to working with you!