



Research Area
Technology,
Innovation, Marketing,
Entrepreneurship

RWTHAACHEN
UNIVERSITY



A video introduction into this class is at
<http://www.time.rwth-aachen.de/go/id/elrm/file/TIM4/>

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

*PRINZIPIEN DES TECHNOLOGIE- UND INNOVATIONSMANAGEMENT
(PTIM)*

PROF. FRANK PILLER | PROF. VERA BLAZEVIC

COURSE OUTLINE AND READING LIST

RWTH Aachen University | School of Business and Economics
TIME Research Area | Lehrstuhl Technologie- und Innovationsmanagement
time.rwth-aachen.de | Kackertstraße 7, Aachen

Teaching assistant: Anja Leckel | leckel@time.rwth-aachen.de

WINTER TERM 2016/17

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: | <ol style="list-style-type: none">1. Master BWL *2. Master Wi.Ing. alle Fachrichtungen3. Master Wirtschaftswissenschaften4. Erasmus / exchange students on the M.Sc. level <p>* Note for Master BWL Students: In case you already took the core module "Management of Technology, Information and Innovation (Technologie-, Informations- und Innovationsmanagement)" in or before 2012, you cannot register for this class!</p> |
| Lecturers: | Prof. Frank Piller, Prof. Vera Blazevic |
| Teaching assistant: | Anja Leckel (leckel@time.rwth-aachen.de) |
| Location and time: | Kackertstraße 15, 52072 Aachen, Room 3020 03.1 (Se 1) Thursdays, 1 pm to 6 pm (blocked into the first half of the semester, classes on Oct 20, 27, Nov. 3, 10, 17, 24, Dec 1, 8) |
| 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. 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 behaviour of people and the incentives set in a firm to drive specific behaviours, 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. <i>It builds directly on the class "Managing the Innovation Process" in the summer term.</i></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 analyse 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: | 50% of the grade is based on your class participation (individual contributions and presentation of one paper in a group), 50% 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 to read one case studies and 2-3 academic papers</i>). You also have to prepare one presentation in a group of 3-4 students. |
| Group Size: | 45 participants (max) |
| 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: | English |
| Credits: | 5 |

This course will be managed via the e-learning platform L2P. All lecture slides, student presentations, and readings will be deposited here.

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

We kindly ask you to send a recent photo of you to leckel@time.rwth-aachen.de (please save the picture as a jpg and name the **filename according to this pattern: yourfirst-name_yourlastname.jpg). **Without the picture, it is really hard for us to evaluate your class participation!****

2 COURSE ORGANISATION

The course comprises of an introductory bootcamp, seven four-hour sessions, and an optional field trip ("Exkursion"). 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)

| # | Date | Time & Place | Instructor | Session Title |
|---|-----------------------|---|----------------|---|
| 0 | Before 19 Oct 2016 | Study at home | Prof. Piller | Online Video TIM Bootcamp* |
| 1 | 20 Oct 2016 | 13.00-18.00 3020 03.1 (Se 1) | Prof. Piller | Elements of a successful system for innovation <i>Case: Medtronic – Improving product development performance</i> |
| 2 | 27 Oct 2016 | 13.00-18.00 3020 03.1 (Se 1) | Prof. Piller | Creating a culture for innovation <i>Case: General Mills Canada</i> Paper: Group 1 |
| 3 | 03 Nov 2016 | 13.00-18.00 3020 03.1 (Se 1) | Prof. Piller | Restructuring the enterprise to become more innovative <i>Case: General Electric (GE)</i> Paper: Group 2 and 3 |
| 4 | 10 Nov 2016 | 13.00-18.00 3020 03.1 (Se 1) | Prof. Piller | Balancing innovation: Ambidexterity and the exploitation-exploration dilemma <i>Case: Pitney Bowes</i> Paper: Group 6 and 7 |
| 5 | 16-17 Nov 2016 | Full day | Prof. Piller | EXCURSION & COMPANY VISITS – TIM FIELD TRIP (optional) |
| 6 | 24 Nov 2016 | 13.00-18.00 | Dr. Zehetner | Ethical questions of managing intellectual property <i>Case: BAYER in India</i> Paper: Group 8 |
| 7 | 01 Dec 2016 | 13.00-18.00 ACHTUNG Raumänderung! Wird bekanntgegeben | Prof. Blazevic | Designing intra-organizational interfaces and cooperation <i>Case: Electrolux</i> Paper: Group 9 and 10 |
| 8 | 08 Dec 2016 | 13.00-18.00 3020 03.1 (Se 1) | Prof. Blazevic | Communicating for innovation <i>Game: The Knowledge Maze</i> Paper: Group 11 |

*** Note: If not done before, please 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! <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 50 percent 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 *Strategic Management Journal*, *Management Science*, *Research Policy* or the *Journal of Product Innovation Management*.

In class, 5 minutes will be allocated per member of a group, so *if your group consists of 4 persons, you will have 20 mins. for your presentation.*

You should support your presentation with a **sufficient (not too many!) number of PowerPoint slides**. When preparing your slides, please use the **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 **9am on the day of 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:

- (1) **Introduction:** *Tell us the motivation of the ideas presented in the paper and why this is an important (and open) question. Introduce us to the authors and the journal.*
- (2) **Paper Description:** *Share with us 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?
- (4) **Conclusion and Discussion Questions**

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

4 INDIVIDUAL SESSIONS

A key component of this course is the **case discussions** in class. Together with the presentation and discussion of the **research papers**, they will count for **50 percent of your final grade**.

It is essential for all course participants **to carefully study the case and the corresponding assignment questions** at home in order to be ready to discuss the questions listed in each session description below.

In addition, we will reflect the content of the case studies by a number of **academic papers**. 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*.

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 participating 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 this class.

Session 1: Elements of a successful system for innovation

Case: MEDTRONIC – Improving product development performance

This "classic" case describes the principles, processes, and structures Medtronic, a maker of Cardiac Pacemakers, used to dramatically improve its product development performance. The case discussion will give us an opportunity to explore in-depth the elements of a comprehensive strategy for improving innovation within the context of an established firm. It covers important and fundamental management concepts that some of the best organizations are implementing and using today.

In other words, the case could be a "roadmap" for addressing common innovation challenges that you may face - as a manager, consultant or entrepreneur. We will use this case to discuss some of the core elements as outlined in the Medtronic case. In particular, we will look into managing project schedules and designing team structures for innovation.

Before the class, read the following case and papers:

Case: HBS "We've Got Rhythm! Medtronic Corp.'s Cardiac Pacemaker" (9-698-004)

- Review the history of Medtronic's competitive situation. Why did Medtronic lose market share in the early 1970s and 1980s?
- Which of the improvements in Medtronic's new product development process strike you as having been crucial to turning the company around?
- What do the concepts of product line architecture and train schedule mean in the pacemaker business? How has application of these concepts benefited Medtronic?
- Evaluate the nature of senior management involvement in Medtronic's implementation of its product development system. Which elements of the system require the most senior management attention?

Papers:

- Wheelwright, S. C. and Clark K. B. (1992). 'Creating project plans to focus product development'. *Harvard Business Review*, **70**, 2, 70-82.
- Clark, K. B. and Wheelwright, S. C. (1992). 'Organizing and leading 'Heavyweight' development teams'. *California Management Review*, **34**, 3, 9-28.

Note: If this is your first innovation class, please watch BEFORE this session 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! <http://frankpiller.com/inno-class-videos>

Session 2: Creating a culture for innovation

Case: GENERAL MILLS CANADA

The president of General Mills Canada wants to build a culture of innovation in his firm. Prior to a senior management meeting in 2010 to review the company's plans for 2011 and beyond, he met with the vice-president of Human Resources and asked him to provide feedback and suggestions about what the organization could do to change its corporate culture.

A conservative organization with a collegial atmosphere where consensus and support were essential to moving projects ahead, General Mills Canada had developed an analysis-based, detail-oriented culture that was not necessarily conducive to innovation.

This case provides us an opportunity to engage in a discussion about the uncertainty faced by senior management in terms of specifically how to build a culture of innovation. While the senior leaders know they want to build a culture of innovation, the real question is how they should go about doing this.

Before the class, read the following case and papers:

Case: *General Mills Canada: Building a Culture of Innovation (Ivey Case W14003, May 1, 2015)*

- How would you consider the current culture of General Mills (at the time of the case)? How is this driven by the nature of this company (being in the FMCG (fast moving consumer goods) industry)?
- What should David Homer and Brad Taylor do to make innovation part of General Mills Canada's culture?
- What would the innovation framework* you have been assigned to suggest to create this culture?

Note: With the case, you also find an **extra document** summarizing **innovation frameworks** taken from ten business bestsellers or popular papers about innovation & change. **"Your" innovation model is the one corresponding to your group number** (Example: if you are in Group 3, you should cover Framework 3). Try to incorporate these ideas into your answer.

Papers:

- Büschgens, T., Bausch, A., and Balkin, D. B. (2013). Organizational Culture and Innovation: A Meta-Analytic Review. *Journal of Product Innovation Management*, 30(4), 763-781. **(Group 1)**
- Rao, J., & Weintraub, J. (2013). How Innovative Is Your Company's Culture? *MIT Sloan Management Review*, 54(3), 29-35. *(optional, but helpful for the case)*
- Zien, K.A. and Buckler, S.A. (1997). From Experience - Dreams to market: Crafting a Culture of Innovation. *Journal of Product Innovation Management*, 14(2), 274-287. *(optional)*

Session 3: Restructuring the enterprise to become more innovative Case: GE and the Industrial Internet ("Industrie 4.0")

The case covers the technology management decision around one of the "hottest" trends in industrial markets today: the industrial internet, also called "industry 4.0" in Europe.

In the case we follow the CEO of General Electric, Jeff Immelt, considering whether GE is moving fast enough on its new Industrial Internet initiative. The undertaking includes building out an Industrial Internet, connecting machines and devices, collecting their data and operations, and providing services to clients based on analytics of this data and information.

The case considers the implications of such an initiative across all six of GE's business units, and how best and how quickly to execute the strategy. The firm has committed \$1b in investment, building out a new software center in California, and a commercial sales function at headquarters to deploy the new products and services.

We will use this case to see how an established organization changes to adapt to disruptive technological change.

Before the class, read the following case and papers:

Case 3: GE and the Industrial Internet (HBS 2014- 614032)

When reading the case, reflect on the following questions:

- How would you assess GE's Industrial Internet Initiative?
- Where do you see the largest opportunities internally, i.e. applying Industrial Internet technologies in GE's own processes.
- What are the next steps? What would you write in the action plan of Beth Comstock and William Ruh to work together to accelerate GE'S Industrial Internet efforts over the next five years?
- Who will be GE's most feared competitor in five years? Why?

Papers:

- Bailey, Diane E., Paul M. Leonardi, and Stephen R. Barley (2012). "The lure of the virtual." *Organization Science* 23(5): 1485-1504. **(Group 2)**
- Lee, Jaegul, and Nicholas Berente (2012). "Digital innovation and the division of innovative labor: Digital controls in the automotive industry." *Organization Science* 23(5): 1428-1447. **(Group 3)**
- Yoo, Y., Boland Jr, R. J., Lyytinen, K., & Majchrzak, A. (2012). Organizing for innovation in the digitized world. *Organization Science* 23(5): 1398-1408. *(optional)*

Session 4: Balancing innovation: Ambidexterity and the exploitation-exploration dilemma

Case: PITNEY BOWES – Business growth in an established organization

Why is creating new growth products so difficult for established firms? Most companies do not fail in generating ideas with high potential, but in implementing these ideas. This module shall help you to understand what types of changes established organizations are capable and incapable in handling.

For this theme, we will use the case of Pitney Bowes, the world's dominant maker of equipment used in generating and handling mail. The company is facing flattening growth in its core businesses and needs to create new growth products and businesses. The case describes how a group of employees use state-of-the-art techniques for understanding customers' needs to conceive and develop a postage meter for small businesses. We will then discuss the challenges the team faced in forging an appropriate disruptive channel to this market.

We will then extend the discussion of disruptive innovation by looking in research that can explain the challenges of established companies to manage this kind of discontinuous change.

Before the class, read the following case and papers:

Case 5: "HBS Pitney Bowes" (607034)

- What latent needs and preferences of their customers did the Pitney Bowes' researchers identify that certain small businesses and individuals have and that became the insight for their innovation?
- Visit briefly the web site www.stamps.com to review a competing offering by a start-up company. Did the founders of Stamps.com identify the same needs?
- What caused Pitney Bowes to lose the original focus of the project, and instead end up with a new postage meter?
- What would you recommend Euchner, Critelli, or Martin to do to enhance their company's ability to create new growth business?

Papers:

- **Everyone:** Do a quick literature research to get some ideas about the recent discussion of the term "disruptive innovation". While being one of the most popular terms in innovation management, its definition and understanding has been subject to quite some critique. Scan some recent papers, blogs, articles etc. to get your own idea what disruptive innovation is and how it can be managed.
- Marx, M., Gans, J. S., & Hsu, D. H. (2014). Dynamic commercialization strategies for disruptive technologies: evidence from the speech recognition industry. *Management Science*, 60(12), 3103-3123. **(Group 4)**
- Taylor, A. and C. E. Helfat. (2009). 'Organizational linkages for surviving technological change: Complementary assets, middle management, and ambidexterity'. *Organization Science*, 20(4), 718–739. **(Group 5)**

Session 5: No Class – TIM Exkursion (field trip)

See separate announcement for this optional two-day field trip to visit innovative organizations in the Netherlands.

Session 6: Ethical Aspects of Managing Intellectual Property Case: Bayer in India

This session provides an introduction into managing intellectual property (IP). The objective is that you understand the principles, functions and shortcomings of IP, that you gain insights into IP regimes in different markets, and to get an understanding of strategies to protect IP from being expropriated. Your instructor will be **Dr. Andrea Zehetner**, an experienced IP lawyer with a background in corporate IP strategy.

The case study covers the case of BAYER Pharmaceuticals that needs to re-asses its IP after a critical incident in India. The Indian government had ruled against Bayer by granting a compulsory license to a local generic drug manufacturer that allowed them to distribute a copy of Bayer's blockbuster cancer drug at a fraction of the original price. This ruling demonstrated that pharmaceutical innovation could not be effectively protected by conventional IP rights in emerging markets. As a result, the core of the pharmaceutical industry's business model was called into question: If ideas and inventions could not be protected, was there any incentive for firms to innovate? Would this victory for generic drug manufacturers trigger similar rulings elsewhere? Would the prevailing patent-centric IP strategies need to be adapted to emerging markets? Or would innovator companies finally have to withdraw from markets with weak IP protection? The session offers the opportunity to discuss IP from an ethical perspective.

We will use the session also to discuss a framework for Responsible Innovation. i.e. an European initiative to consider the ethical, sustainability, and social consequences and opportunities of innovation.

Before the class, read the following case and papers:

Video: To get a background of the patent system, **watch this video before reading the case** (it is focused on the US patent system but provides a general good introduction):
[youtube.com/watch?v=vZ1SBP8u1s](https://www.youtube.com/watch?v=vZ1SBP8u1s).

Case 6: Bayer in India: Intellectual Property Expropriation? (Ivey Case W13651)

- What is intellectual property? Differentiate the various types of IP and their importance for the pharmaceutical industry.
- Pharmaceutical corporations are often accused of charging exorbitant prices for their drugs. How the concept of "fair pricing" differ from the perspective of a drug manufacturer versus a social welfare perspective? How would a socially responsible pricing framework look alike?
- How does the court's ruling on Nexavar affect Bayer's overall business strategy in India?
- Could Bayer have avoided the compulsory license? Identify and analyze strategies to avoid potential future compulsory licenses.

Papers:

Kim, Y. K., Lee, K., Park, W. G., & Choo, K. (2012). Appropriate intellectual property protection and economic growth in countries at different levels of development. *Research Policy*, 41(2), 358-375.
(Group 6)

Reitzig, M. (2004). Strategic management of intellectual property. *MIT Sloan Management Review*, 45(3), 35-40. *(optional, but helpful for case)*

Conley, J. G., Bican, P. M., & Ernst, H. (2013). Value Articulation - A Framework for the Strategic Management of Intellectual Property. *California Management Review*, 55 (4).102-120. *(optional)*

Session 7: Designing intra-organizational interfaces and cooperation

Case: Electrolux AB – Managing innovation

Abstract: Focusing on intra-organizational interfaces and mutual cooperation is an important aspect of managing innovation within organizations. In developing new strategies and ideas as well as changing organizations, many businesses do realize that this cannot be left over to specialists only. Cross-functional project teams consisting of employees from various disciplines or even different firms are the organizational structure to work with. This broadens the scope of team members and encourages the implementation.

Learning from each other's domain is important to avoid the pitfalls and implementation problems commonly associated with intra-organizational cooperation. Knowing more about interfaces and interfunctional cooperation will thus increase organizational effectiveness and efficiency towards innovation. The case will provide an illustration for the advantages and problems of implementing crossfunctional interfaces for innovation.

Before the class, read the following case and papers:

Case: Electrolux AB – Managing innovation (Ivey 9B14M119)

- How attractive is the appliance industry for growth and profitability?
- What is the significance of innovation at Electrolux?
- How would you rate Electrolux in regard to innovation (on a scale of 1-10)? How is it doing? What challenges is it facing?
- What does it take to be successful in a collaborative environment?
- How are Lundberg and Rask doing? Are they on the right track? What should they do next? What should be their goals? What areas do they need to focus on to arrive at results? What do you think of their current options? How should they execute them?

Papers:

- De Clercq, D., Thongpapanl, N. and Dimov, D. (2011). 'A Closer Look at Cross-Functional Collaboration and Product Innovativeness: Contingency Effects of Structural and Relational Context'. *Journal of Product Innovation Management*, **28**: 680–697.
(Group 7)
- Song, X. M., Montoya-Weiss, M. M. and Schmidt, J. B. (1997). 'Antecedents and Consequences of Cross-Functional Cooperation: A Comparison of R&D, Manufacturing, and Marketing Perspectives'. *Journal of Product Innovation Management*, **14**: 35–47.
(Group 8)

Session 8: Communicating for innovation

Case: The Knowledge Maze

Abstract: During this session, we will look into the importance of knowledge for innovation, how knowledge can be managed during the innovation process, and how it links to specific innovation activities.

Before the class, read the following case and papers:

Case: We will play the maze game. Thereafter, we will discuss your experiences throughout the game and relate it to the required literature. The information given on this session is limited on purpose.

The maze game challenge

You have been invited to join a team responsible for leading a new strategic initiative for the organization. The team will carry out a task that has never been done before by anyone in the organization, so there is no easy way to find out in advance how to do this job. Working together, the team must devise a process that enables all of its team members to safely complete the job.

Next steps

Please arrive in time for your group meeting. Dress casually and wear comfortable shoes.

Papers:

- Taylor, Alva and Henrich R. Greve (2006), "Superman or the Fantastic Four? Knowledge combination and experience in Innovative Teams", *Academy of Management Journal*, 49(4), 723-740. **(Group 9)**
- Moorman, Christine and Anne Miner (1998), "The Convergence of Planning and Execution: Improvisation in New Product Development," *Journal of Marketing*, 62, 1-20. **(Group 10)**

5 Review Paper (Post-Class Assignment)

As indicated at the beginning of the class, 50% of the grade is a review paper. Please follow the instructions below. The deadline to hand-in your paper assignment is **March 14, 2017, 16:00h.**

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 Beverland, Michael B., Micheli, Pietro and Francis J. Farrelly (2016), **Resourceful Sensemaking: Overcoming Barriers between Marketing and Design**. Journal of Product Innovation Management, 33(5): 628-648. <http://onlinelibrary.wiley.com/doi/10.1111/jpim.12313>

#2 Roy, Raja and MB Sarkar (2016), **Knowledge, Firm Boundaries, and Innovation: Mitigating the Incumbent's Curse during Radical Change**. Strategic Management Journal, 37(5): 835-854.

(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, 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).

This is an individual assignment, no group work is allowed.

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

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

AND

(b) in printed form (1 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 before. Hand in the form to Anja Leckel. We strongly recommend that you do this as early as possible, but only if you want to cancel your registration to the class and exam.

Structure of your paper

You may structure your paper according to the following template. In all sections of your exam 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. **But your task is to discuss why they are good and whether they are original, counterintuitive, and helpful in relation 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.