INTERACTIVE VALUE CREATION (IVC):
OPEN INNOVATION, CUSTOMER CO-CREATION AND
COLLABORATIVE MODES OF INNOVATION

INTERAKTIVE WERTSCHÖPFUNG (IWS)

PROF. FRANK PILLER

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: IWS addresses the recent shift from closed innovation within a R&D department or a close network of partner companies towards innovation in open, informal eco-system of diverse actors. Interactive class format demanding 8-10+ hours per week (class and preparation), homework (paper) instead of an exam.
# 1 COURSE OVERVIEW

**Course Name:** Interactive Value Creation: open innovation, customer co-creation and collaborative modes of innovation

**Degree Programmes:**
1. Master BWL
2. Master Wi.Ing. alle Fachrichtungen
3. Master Wirtschaftswissenschaften
4. Erasmus / exchange students on the M.Sc. level

*Note: This is an advanced class! You need at least one basic class in innovation management to participate at the class successfully.*

**Lecturers:** Prof. Dr. Frank Piller

**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 second half of the semester, classes on Dec 22, Jan 12, 19, 26, Feb 2, 9)

**Content Description:**
The class addresses the recent shift from closed innovation within a R&D department or within a close network of partner companies towards innovation in open, informal eco-system of diverse actors.

Interactive value creation (IVC) is an umbrella term addressing recent concepts liked common-based-peer production (Benkler), Wikinomics (Tapscott), Crowdsourcing (Howe, Lakhani), User Innovation (von Hippel), Open Innovation (Chesbrough), and Customer Co-Design (Pine, Piller), but also agile supply chains and new forms of distributed problem solving in the innovation process.

The course aims at building a theoretical framework and at enabling participants to critically differentiate IVC from other concepts of organizing the innovation process.

**Qualification Objectives:**
Participants shall know basic activities and processes needed in order to establish a system of customer-centric value creation. They shall acquire specific skills and knowledge to evaluate the usefulness of different concepts in particular markets and business fields. Further, participants should know about various approaches and methods how the principles of IVC are being applied in the practice of an organization. In order to achieve the goals of this course, participants must master the following key concepts: The concept of interactive value creation 1. Principles and concepts for explaining labour division in economic activities (e.g. “sticky information”, “commons-based-peer production”) 2. Benefits of interactive value creation from a multi-dimensional stakeholder perspective 3. Organizational aspects for implementing an interactive value creation

**Literature:**
We use three different kinds of materials to achieve a good mix of theory and application: (1) academic papers, (2) managerial papers, and (3) case studies. There is no dedicated textbook for this class. However, in case you understand German, you may use "Reichwald & Piller (2009): Interaktive Wertschöpfung, GablerSpringer, 2te Auflage" as a backup.
**Course Examination:** 50% of the grade is based on your class participation, including case discussions and paper presentations. 50% of the grade is determined by a paper assignment.

For the paper assignment, you have to write a scholarly review of an academic paper assigned to you. Instructions will be given during the class.

**Participation Requirements:** Solid command of English and willingness to prepare each class session in advance (*in average, each class session demands 4-5 hours of preparation* to read one case study and 2-3 academic papers).

Note: This is an advanced class! You need at least one basic class in innovation management to register and especially to follow the class successfully.

**Group Size:** 40 participants (max)

**Workload:**
- 24 hours of lecturing
- 120 hours of individual and group preparation

**Type of Teaching:** This course is a seminar in which value is created “interactively”. This means we want to develop a common understanding of all concepts by the means of discussions which are structured and moderated by the instructors.

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

**Credits:** 5

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

We kindly ask you to send a recent photo of you to leckel@time.rwth-aachen.de by 15 Dec 2016 (please save the picture as a jpg and name the filename according to this pattern: yourfirstname_yourlastname.jpg). Without the picture, it is really hard for us to evaluate your class participation!
2 COURSE ORGANIZATION

The course comprises of six four-hour sessions, subdivided into three parts consisting of (1) an interactive lecture, (2) case study discussion and (3) discussion of journal articles. The order and duration of these elements might vary between sessions:

Schedule for Interactive Value Creation Winter 2016/17

<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>Time &amp; Place</th>
<th>Instructor</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Before 14.12.2016</td>
<td>At your convenience</td>
<td>Prof Piller</td>
<td>The Open Innovation MOOC – Developing</td>
</tr>
<tr>
<td>0</td>
<td>14-16. Dez 2016</td>
<td>Barcelona, ESADE Business School</td>
<td>Chesbrough et al.</td>
<td>(Optional) Participation at the World Open Innovation Conference</td>
</tr>
<tr>
<td>1</td>
<td>22.12.2017</td>
<td>14:15-18.00 3020</td>
<td>03.1 (Se 1)</td>
<td>Prof. Piller</td>
</tr>
<tr>
<td>2</td>
<td>12.01.2017</td>
<td>13.00-18.00 3020</td>
<td>03.1 (Se 1)</td>
<td>Prof. Piller</td>
</tr>
<tr>
<td>3</td>
<td>19.01.2017</td>
<td>13.00-18.00 3020</td>
<td>03.1 (Se 1)</td>
<td>Prof. Piller</td>
</tr>
<tr>
<td>4</td>
<td>26.01.2017</td>
<td>13.00-18.00 3020</td>
<td>03.1 (Se 1)</td>
<td>Prof. Piller</td>
</tr>
<tr>
<td>5</td>
<td>02.02.2017</td>
<td>13.00-18.00 3020</td>
<td>03.1 (Se 1)</td>
<td>Dr. Zynga</td>
</tr>
<tr>
<td>6</td>
<td>09.02.2017</td>
<td>13.00-18.00 3020</td>
<td>03.1 (Se 1)</td>
<td>Prof. Piller</td>
</tr>
</tbody>
</table>

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.
3 VIDEO INTRODUCTIONS

There are three short MOOCs (video courses) that provide the background into the content of our class.

3.1 Introduction into Innovation Management (optional)

You should not be in this class if you never had an innovation class with Prof. Piller. Still, if you somehow end-up in this class without any previous experience in innovation management, please watch this Mini-MOOC: The TIM Bootcamp first and contact Prof. Piller for some dedicated reading material to bring you on track.

http://frankpiller.com/inno-class-videos (time required: about 2 hours)

3.2 The Open Innovation MOOC (MANDATORY)

We produced a special MOOC for you as an introduction into the topic -- the idea is to provide students and executives a first orientation of OI, so that we can start our classes on a higher level.

http://frankpiller.com/fhg-oi

Password: FHGOI2016

We will provide to all registered participants more information about the best way how to see this MOOC! You don’t need to see this all at once, but can split the MOOC in sections to be seen before each class.

3.3 MIT edx.edu Class on User Innovation & Entrepreneurship

MIT offers a great introduction into one of the core concepts of our class, user innovation. Developed by Eric von Hippel, five videos introduce you into the idea of lead users and the role of lead users for entrepreneurship.

You can take the entire MIT class (and also get an official MIT certificate), but for our class, just watch the five main teaching videos (episodes). There is no need to do the exercises for or read the text book chapters, however you are very welcome to also study those videos.

https://www.edx.org/course/user-innovation-path-entrepreneurship-mitx-uinov8x (time required: about 2 hours)
4 GROUP PRESENTATIONS

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 and 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 3 persons, you will have 15 min for your joint 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 in any format, highlighting the core points, content, and conclusions from the paper. This one page will be distributed to all students during the class.

Your slides and the one page summary 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 a printouts 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.
5 INDIVIDUAL SESSIONS

Please make sure to complete the pre-assignment (case study) before coming to class. In addition read the research papers for each session.

5.1 Myelin Repair Foundation (MRF) – Accelerating drug discovery through collaboration

To kick-off the class, we look on different forms of collaboration for innovation. The case study presents a rather unconventional approach for collaboration in a network of researchers.

Case Study: Myelin Repair Foundation (HBS)

This case provides an insight into drug development performed by Myelin Repair Foundation (MRF), a non-profit company. In the focus of the case is the MRF’s accelerated research collaboration model for drug discovery, seeking a treatment for multiple sclerosis (MS) based on a novel scientific approach. It highlights the challenges of building a new collaborative research model involving multiple disciplines and institutions to create breakthroughs in drug discovery.

The case provides details on how norms of academic research and intellectual property had to be updated to enable collaboration. The current dilemma facing the CEO and COO of the MRF relates to setting strategic priorities for research so that a treatment for MS can be ready in the next ten years. The strategic choices need to account for the complexities of drug discovery, the uncertainty of commercial partners’ interest in the therapeutic approach and the constrained donor-based fundraising environment.

Our class discussion will then extend the discussion of collaboration cooperation for innovation. We will cover both conventional models of cooperation, like alliances and contract research, and more open models as illustrated in the MRF case.

Before the class, read the following case and papers:

Case: “HBS Myelin Repair Foundation (2010-610074)”

1. What failures in conventional life science research is the MRF trying to address? What are the causes of these failures?
2. What explains the success factors behind MRF’s ability to identify 19 targets for MS treatment?
3. What criteria would you develop to help the CEP and COO to make their decision about the strategic innovation options facing the MRF?

Papers: In addition, please read the following papers which are an integral part of our class discussion:

5.2 SAP: Building Open Innovation Ecosystems

In this session, we will look into a very recent understanding of open innovation, the creation of industry platforms. Here, a focal firm creates an ecosystem around a core offering, which is complemented by offerings from other actors.

Case Study: SAP (HBS)

Business ecosystems require careful orchestration and strategic choices regarding make/buy/partner decisions and membership access. This case examines the strategic and technological issues related to managing SAP's thriving ecosystem of user communities, software vendors, integration partners and technology providers. It details how the ecosystem gets developed and the challenges in meeting the needs of the internal organization, large partners, and small up and coming firms. SAP executives, in this case, have to make a decision if a relatively small startup firm should be elevated to the highest strategic partnership level, normally reserved for very large firms.

This case shall introduce into the issues related to managing a complex open business ecosystem and derive decision rules for making choices about partnerships.

Assignment questions:

1. Why did SAP decide to implement an ecosystem for their software and how did they realize it? What was crucial for its success?

2. Can you describe the further value creation process of the SAP platforms in comparison to traditional ones? Do you think it can be applied to other business fields?

3. Besides new software products, which other outcomes and benefits arise for SAP by using the ecosystem?

4. Where do you think are the limits of “crowdsourcing” tasks?

Papers: In addition, please read the following papers which will an integral part of our class discussion:


5.3 Threadless: The Basics of Community-Based Crowdsourcing

This session introduces us to a new form of collaboration, which goes beyond the concepts discussed in the previous classes. We learn about crowdsourcing and how this form of organizational arrangement becomes the foundation of the understanding of open innovation.

Case Study: Threadless: The Business of Community (HBS Multimedia Case)

Threadless.com, the online, Chicago-based t-shirt company, was not your typical fashion apparel company. The company, run by Jake Nickell, Jacob DeHart, and Jeffrey Kalmikoff, turned the fashion business on its head by enabling anyone to submit designs for t-shirts and asking its community of more than 500,000 members to help select winning designs. Threadless encouraged community members to actively participate by critiquing submitted designs, blogging about their daily lives, posting songs and videos inspired by the designs, and, most important, purchasing t-shirts that have won the weekly design competitions. In 2007, Threadless was well on its way to selling more than a million and a half t-shirts. Threadless' success had garnered significant media attention, the New York Times and USA's National Public Radio highlighting its unique community-based business model, and had piqued the interest of large traditional retailers. Nickell, DeHart, and Kalmikoff were now faced with making a decision about a potentially lucrative offer from a major retailer offering to carry large volumes of select Threadless t-shirts in its retail stores. Should they accept?

NOTE: This is an online multi-media case which involves reading text and exhibits and watching video. First, read the short text in each section and look at all the supporting exhibits (this information also is given in the printout). But then watch the video for each section. Watching the community member video gallery in the community section of the case is optional.

Assignment questions:

1. What are the similarities and differences between a community-driven product development process and a traditional product development process inside a firm? What are the motivations of the stakeholder groups involved to participate?

2. How winning designs are currently selected? Figure 1 and Table 1 show sample designs and their relative scores. How would you go about selecting winning designs?

3. In what products arenas beyond t-shirts can this model work? What are the barriers to entry for this kind of a business?

4. What should Threadless do about the offer from the Big Retailer?

Papers: In addition, please read the following papers which are an integral part of our class discussion:


5.4 Nivea: Integrating users & customers into innovation

We will extend the discussion of open innovation with a focus on the role of users and customers. This session builds on concept of lead user innovation, as introduced in our class "Managing the Innovation Process (MIP)" in the summer term.

Case Study: Nivea (HBS)

The case describes the efforts of Beiersdorf, a worldwide leader in the cosmetics and skin care industries, to generate and commercialize new R&D through open innovation using external crowds and "netnographic" analysis. Beiersdorf, best known for its consumer brand Nivea, has a rigorous R&D process that has led to many successful product launches, but are there areas of customer need that are undervalued by the traditional process? A novel online customer analysis approach suggests untapped opportunities for innovation, but can the company justify a launch based on this new model of research?

Assignment questions:

1. Compare the approach conducted by Biel and his team with the way IDEO (and other companies using a customer-centric innovation approach) to develop new products. Where are similarities, what is different?

2. What are lead users in general (use also the literature provided below), and who are lead users in the Nivea case?

3. What would you recommend Stefan Biel?

Papers: In addition, please read the following papers which will be an integral part of our class discussion:


tba [Group 7]


5.5 InnoCentive: Broadcast Search and Distributed Problem Solving of Technical Challenges

Case Study: InnoCentive (A) (HBS)

The case describes InnoCentive.com, a so-called innovation marketplace founded in 2000 that connected “Seeker” firms posing scientific problems (“Challenges”) with external “Solvers” who submitted solutions. Seekers that judged solutions acceptable rewarded the Solvers with cash prizes and assumed the associated intellectual property (IP) rights. The case introduces into this novel way of broadcasting innovation tasks to a large community of registered solvers with a very diversified variety of knowledge. It also will provide us the background to discuss the idea of IVC for technical problems. The decision point in the case raises the issue if a community can be shifted to collaboration when competition was the basis of prior interaction.

Assignment questions:
1. Why would firms use InnoCentive’s service to solve scientific and technical problems?
2. What is the motivation for Solvers to participate in InnoCentive?
3. What kinds of problems are appropriate for Broadcast Search?
4. What are the trade-offs?

Papers: In addition, please read the following papers which are an integral part of our class discussion:


5.6 Siemens: Challenges of Implementation and Change

Case Study: Open Innovation at Siemens (HBS)

The final case of our class describes Siemens, a worldwide innovator in the Energy, Healthcare, Industry, and Infrastructure & Cities sectors, and its efforts to develop and commercialize new R&D through open innovation, including internal and external crowdsourcing contests.

Emphasis is placed on exploring actual open innovation initiatives within Siemens and their outcomes. These include creating internal social- and knowledge-sharing networks and utilizing third party platforms to host internal and external contests. We will use the case to discuss the opportunities and challenges of implementing the principles of interactive value creation in an established firm.

Assignment questions:

1. How would you evaluate the status-quo of open innovation at Siemens?

3. How would you characterize the open innovation culture at Siemens?

4. What are your recommendations for Thomas Lackner how to proceed?

Papers: In addition, please read the following papers which will an integral part of our class discussion:


6 REVIEW PAPER (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, 2016, 16:00h.

Instructions

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

   *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** (but you can write less --- this is the maximum). References are not included in the word limit.

   **Add a title page** with your name, degree 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](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 by using the special form (-> L2P) until **seven working days before the date listed before**. Hand in the form to our office (opening hours: 7-14h). 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 – however you also can follow your own ideas. In all sections of your exam paper, refer the research presented in the journal paper to any relevant discussion, cases, slides, and papers we covered in 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 relevant papers in the reading list of this year's class (you can also refer to further literature, if you find this useful). Remember, these papers have already been accepted in very good journals, so they probably are not too bad. We are more interested in an academic discourse, not a harsh critique.

Specific areas to consider:

The following points are some suggested 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!

Theory
- Why is the theoretical framework selected for the paper appropriate? What could have been alternatives theories to investigate the research question?
- Are the core concepts of the paper clearly defined?
- Is the logic behind the hypotheses persuasive? Are those surprising (if they are too obvious and intuitive, one could argue why we need to research them at all)?

Method and results
- Are the sample and variables appropriate for the hypotheses? What could have been another context to study the research question?
- Does the study have internal and external validity?
- Are the analytical techniques appropriate for the theory and research questions and were they applied appropriately?
- What could have been alternative methodological approaches to answer the research question?
- 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?
- Do the results confirm or challenge other research discussed in our class?

Discussion, conclusions and outlook
- How does the submission make a value-added contribution to existing research?
- Where will the submission stimulate thought or debate? (tip: Check Google Scholar for papers that cite this paper)?
- 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 open innovation or co-creation? 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?