University of Cologne

Advanced Strategic Management:
Business Model Transformation with digital technologies
(14253.0900)

Lecturer:
Prof. Marc Oliver Bettzuege (bettzuege.marc@uni-koeln.de)

Teaching & Administrative Support:
Thilo Heyer, M.Sc. (heyer@wiso.uni-koeln.de)
Tel: +49 (0)221 – 470 – 6193

BASIC INFORMATION

Course description:

The aim of this course (lecture and seminar) is to provide a solid grounding as well as practical deep insights to students interested in managing various aspects of digital transformation within organizations and across networks of organizations. The current reality of organizations is more and more characterized by the so-called digital transformation, capturing the profound modifications of industrial and organizational activities, processes, competencies, and models to fully leverage the changes and opportunities provided by the so-called digital technologies. These include a broad range of concepts and technologies such as e.g., mobile and cloud computing, 3D printing, big data analytics, virtual and augmented reality, Internet of Things, and blockchain (Rindfleisch et al., 2017).

Yet digital transformation is fundamentally not about technology, but about strategy. The ability to respond and adapt to this new reality in fast-changing environments is essential to be able to reap potential benefits of digital transformation such as innovations in value creation, new forms of interaction with customers, extending or redefining traditional products or services, new revenue streams, and increases in profitability. Digital transformation can even reshape or disrupt entire business models. This is why this course focused on eight digital technologies and their potential to alter existing business models or create new ones.

Didactical concept:

This course is a "hands-on," participation-based course that relies on insights from management practice, group interaction, discussion and individual participation. It involves a mixture of classroom presentations, guest lectures, exercises and activities, case studies, excursions and a case competition, which will permit students to transfer the theories and analytical skills into real management situations. The course requires a rigorous self-assessment, active participation and reflection as well as heavy work and reading load.

Course components:

- *Lectures, Guest Lectures and Excursions:* Besides the introductory lectures given by Prof. Bettzüge, this course encourages the application of concepts and models on real-life cases and decision situations trough guest lectures and excursions. Therefore, it heavily engages in a critical discussion of concepts and aims on providing insights and views from practice by inviting guest speakers from varying industries, fostering excursions to organizations and organizing workshops with corporations on course related topics.

- *Case Competition:* One explicit example of these excursions is the case competition which is carried out in collaboration with a local business. From June 7th until July 5th, eight teams will work on real world questions provided by a local business from Cologne. For this effort the teams will receive bonus points for the exam at the end of the semester.

- *Student Presentations & handout:* Presentations will be prepared and held in groups of four members: The presentation topic will be based on theoretical backgrounds (journal articles, book chapters, etc.) and/or recent developments in technology. Application of theoretical concepts, creativity and interactivity (movies, comics, articles, interviews, examples, pictures…) are important for these presentations – all course participants should be incorporated by group application tasks, by e.g. role games, joint teamwork sessions, etc. The duration of the presentations (including interactions and discussion) is 90 minutes. The discussed and transferred knowledge of the presentation has to be captured in a 2-page handout.

Examination and registration:

Active participation is expected from all students in this course, in order to ensure valuable and insightful class discussion. Students are expected to stay for the duration of the whole class, and attend all classes, excursions and guest lectures. In the lecture, the seminar and all excursions students are expected to actively participate in discussions, to ask questions, challenge assumptions in the readings and lectures and demonstrate interest, curiosity and intellectual engagement with the topic.

The final grade will be determined by a 60-minutes final exam (50%) as an individual work and a student presentation (50%) as group work of four students. The final exam will include open-ended questions. The content of ALL recommended literature, articles, guest lectures, class discussions, presentations, handouts, excursions and the case competition is relevant for the exam.

Both examinations (exam and presentation) need to be passed to receive the course credit. There will be two exam dates (students can choose one of them). The first exam will take place on July 12th, 2019, 10.30am (room tba). The second exam will take place on August 9th, 2019, 10.30am (room tba).

Registration for the exam is mandatory. All students need to register via a registration form (provided during the kick-off meetings). Please be aware of the relevant deadlines. Late registrations cannot be taken into account!

Credit points:
The completion of the module "Advanced Strategic Management" will yield 12 credit points. Please be aware of the overall schedule as the course does meet irregularly due to several excursions. The full schedule of the course can be seen on page 6 of this syllabus.

Course documents:
The documents (slides, assignments etc.) required for the module are *only* available via the ILIAS learning platform at https://www.ilias.uni-koeln.de/ilias/goto_uk_crs_2414542.html .

Presentations topics:

1. Cloud Computing (04.06)
2. Robotics and 3D Printing (04.06)
3. 5G – cellular mobile communication (04.06)
4. Big Data Analytics (04.06)
5. Artificial Intelligence (06.06)
6. Virtual Reality and Augmented Reality (06.06)
7. The Blockchain (07.06)
8. The Internet of Things (07.06)

LITERATURE

The readings list only serves as an introductory literature. With regard to your upcoming presentation, you will need to find additional literature.

General reading on business models:
- Johnson, M. W., Christensen, C. M. & Kagermann, H. (2008): Re-inventing Your Business Model. *Harvard Business Review*, 86; 50-60.
- Osterwalder, A.; Pigneur, Y. & Tucci, C. L. (2005): Clarifying Business Models: Origins, Present, and Future of the Concept. *Communications of the Association for Information Systems*. 16; 1-25.
- Gassmann, O.; Frankenberger, K. & Sauer, R. (2016): Exploring the Field of Business Model Innovation. Palgrave Macmillan. Cham; Switzerland.

Specific topic related introductory reading:

1. **Cloud Computing (06.06)**

   Jaekel, F. (2019): Cloud logistics: reference architecture design. Spinger Gabler, Wiesbaden.

   Pethuru, R. & Anupama, R. (2018): Handbook of Research on Cloud and Fog Computing Infrastructures for Data Science. *Advances in Computer and Electrical Engineering.*

   No author (2018): Cloud Computing - Dossier. Statista; Hamburg.

2. **Robotics and 3D Printing (06.06)**

   D'Aveni, R. (2015): The 3-d printing revolution. *Harvard Business Review*, 93; 40-48.

   Idea Watch (2015): Smarter, Smaller, Safer robots. *Harvard Business Review*.

   Adidas speedfactory:

   > https://qz.com/se/perfect-company-2/1145012/a-german-company-built-a-speedfactory-to-produce-sneakers-in-the-most-efficient-way/
   > https://qz.com/1081511/adidas-can-now-make-specialized-shoes-for-runners-in-different-cities-thanks-to-robots/

3. **5G – cellular mobile communication (06.06)**

   Marsch, P.; Bulakci, Ö.; Queseth, O.; Boldi, M. (Eds.) (2018): 5G System Design: Architectural and Functional Considerations and Long Term Research. Wiley & Sons; Hoboken (USA).

   No author (2018): 5G*: Statista dossier about* 5G *- 5th generation mobile networks.* Statista; Hamburg.

   Bearing Point (2017): Bridging the gap to 5G revenue streams.

4. **Big Data Analytics (06.06)**

   Andrew McAfee and Erik Brynjolfsson (2012): Big Data: The Management Revolution, *Harvard Business Review*; 59-68.

   Horst, P. and Duboff, R. (2015): Don't let big data bury your brand. *Harvard Business Review;* 1-9.

   Bean, R. (2018): How Big Data and AI Are Driving Business Innovation in 2018. URL: https://sloanreview.mit.edu/article/how-big-data-and-ai-are-driving-business-innovation-in-2018/

   Agrawal, A.; Gans, Joshua; Goldfarb, A. (2018): Is Your Company's Data Actually Valuable in the AI Era? HBR online: https://hbr.org/2018/01/is-your-companys-data-actually-valuable-in-the-ai-era

5. **Artificial Intelligence (07.06)**

   Davenport, T. H. and Ronanki, R. 2018. Artificial Intelligence for the Real World. *Harvard Business Review*, 96; 108-116.

   Kiron, D (2017): What Managers need to know about Artificial Intelligence, MIT Sloan Management Review.

   URL: https://sloanreview.mit.edu/article/what-managers-need-to-know-about-artificial-intelligence/

Burgess, A. (2018): The Executive Guide to Artificial Intelligence. *How to Identify and Implement Applications for AI in Your Organization*. Palgrave Macmillan. Cham; Switzerland.

Agrawal, A.; Gans, Joshua; Goldfarb, A. (2017): How AI Could Change Amazon: A Thought Experiment. HBR online: https://hbr.org/2017/10/how-ai-could-change-amazon-a-thought-experiment

Agrawal, A.; Gans, Joshua; Goldfarb, A. (2017): The Trade-off every AI company will face. HBR online: https://hbr.org/2017/03/the-trade-off-every-ai-company-will-face

6. Virtual Reality and Augmented Reality (07.06)

Porter, M. E. and Heppelmann, J. E (2017):

    Why every organization needs an augmented reality strategy. *Harvard Business Review*, 95; 46-57.

    How Does Augmented Reality work? The key is the digital twin. *Harvard Business Review*, 95; 58.

    Augmented Reality in the Real World. Companies are investing and testing, *Harvard Business Review*, 95; 59.

    One's Company Experiences with Augmented Reality, Harvard Business Review; 60-62.

Hachach-Haram (2017): How augmented reality could change the future of surgery: TED-Talk.
URL:https://www.ted.com/talks/nadine_hachach_haram_how_augmented_reality_could_change_the_future_of_surgery

Jung, T. and tom Dieck, M.C. (2017): Augmented Reality and Virtual Reality. Empowering Human, Place and Business. Springer International Publishing. Cham; Switzerland.

7. The Blockchain (07.06)

Iansiti, M. and Lakhani, K. R. (2017): The truth about Blockchain. *Harvard Business Review.* 118-127.

Van Rijmenam, M. and Ryan, P. (2018): Blockchain. Transforming Your Business and Our World. Routledge.

Abbatemarco, N.; Rossi, L. M.; Salviotti, G. (2018): The Blockchain Journey. A Guide to Practical Business Applications. Bocconi University Press.

8. The Internet of Things (07.06)

Iansiti, M. and Lakhani, K. R. (2014): Digital Ubiquity: How connections, sensors, and data are revolutionizing business. *Harvard Business Review.* 92; 90-99.

Gandhi, G. (2016): Now That Your Products Can Talk, What Will They Tell You? *MIT Sloan*.

McEwen, A.; Cassimally, H. (2014): Designing the Internet of things. Chichester : Wiley

COURSE SCHEDULE

Date	Day	Time	Room	Type	Content
March 28	Thu	18.00 - 20.00	EWI - KFR 1*	Lecture	Organizational Issues & Lecture 1
Apr 04	Thu	from 6.30 am	meeting point to tba	Excursion	excursion by bus and one night stay-over to HANNOVER MESSE (2-day visit, including student research)
Apr 05	Fri	until 7pm			
Apr 11	Thu	17.00 - 18.00	EWI - KFR 1	Lecture	Lecture 2
	Thu	18.00 - 19.30		Guest Lecture	Guest lecture - Mr. Peterka
Apr 18	Thu	16.15 - 17.45	EWI - KFR 1	Lecture	Lecture 3
	Thu	18.00 - 19.30		Guest Lecture	Guest lecture - Wuppertaler Stadtwerke (Mr. Högel)
Apr 25	Thu	16.00 - 19.30	TimeRide Cologne	Excursion	excursion to TimeRide Cologe, following a discussion with Mr. Rothe (https://timeride.de/en/koeln/)
May 9	Thu	14.00 - 18.00	Aachener Straße 382, Cologne, 4. floor	Excursion	company visit (Dr. Schönheit & Partner) https://www.dr-schoenheit.de/en/home.html
May 16	Thu	8.00 - 18.00	Aachen	Excursion	excursion to 5P Capital and other companies (detailed plan tba)
May 23	Thu	7.00 - 19.00	meeting point to tba	Excursion	excursion by bus to TechQuartier and the Experience Center of PwC (detailed plan tba)
May 27	Mo	14.00 - 20.00	Nexum	case study & get-together	case study and get-together with Nexum
June 4	Tue	8.00 - 9.30	EWI - KFR 1	Stud. Presentation	Student Presentation - Topic 1
	Tue	9.45 - 11.15		Stud. Presentation	Student Presentation - Topic 2
	Tue	11.30 - 13.00		Stud. Presentation	Student Presentation - Topic 3
June 6	Thu	14.30 - 16.00	EWI - KFR 1	Stud. Presentation	Student Presentation - Topic 4
	Thu	16.15 - 17.45		Stud. Presentation	Student Presentation - Topic 5
	Thu	18.00 - 19.30		Stud. Presentation	Student Presentation - Topic 6
June 7	Fri	09.00 - 10.30	EWI - KFR 1	Stud. Presentation	Student Presentation - Topic 7
	Fri	11.00 - 12.30		Stud. Presentation	Student Presentation - Topic 8
	Fri	12.30 - 14.00	tbd	lunch	tbd
	Fri	14.00 - 20.00	Vogelsanger Str. 78	Case-Competition & get-together	Kick-off for the case competition with Fond of
June 27	Thu	16.00 - 17.00	tbd	Lecture	mock exam + Q&A
		17.00 - 18.30		Guest Lecture	guest lecture - ArtInvest (Mr. Nußbaum)
		18.30 - 21.00		tbd	course dinner
July 5	Fri	9.00 - 17.30	Fondof (see above)	Case-Competition	Case-Presentations by students
July 12	Fr	10.30 – 11.30	tba	Exam	1st Exam date
Aug 09	Fr	10.30 – 11.30	tba	Exam	2nd Exam date

*the room EWI - KFR 1 is at the following address: Energiewirtschaftliches Institut, Vogelsanger Str. 321a, 50827 Köln

[last updated: February 21st, 2019]