

Syllabus for
BIS6233 Digital Transformation

Is it Strategy or Technology Driving Digital Transformation?

Designing and Executing Digital Strategies

WS 2021/2022

Course: BIS6233E Digital Transformation

Weekly hours:	2 academic hours: (2 x 45 minutes)
ECTS-Credits:	3
Workload:	90 hours, 30 hours within class and 60 hours for self-study and term project
Time:	Thursday, 17:15-18:45 (W4.2.02)
Begin:	Thursday, October 6th, 2021
Level:	Advanced
Prerequisites:	Basic knowledge in Computer Science and Information Systems

Instructor Prof. Dr. Peter Weiß

Office hours: Please use the following link and service to book an appointment:
<https://www.timify.com/de-de/profile/peterweiss/>

Email: peter.weiss@hs-pforzheim.de (preferred mode of communication)

For additional information and further details, please consult the lecturer's personal website at the university.

My aim is to ensure that you succeed in your training. Therefore, I will offer support to your individual learning process and assigned study tasks. In the case of occurring problems or questions, feel free to contact me, for instance by e-mail or arranging a personal meeting with me.

Overview (catalogue description)

Digital transformation challenges many incumbent companies by technology-driven and data-driven business models which nest new rules and business models. Digital technology has been rolling markets and disrupting companies for more than two decades, but despite that lengthy history, incumbents are still struggling to enact and deliver on digital transformation (HBR, 2017). In this lecture, we will shed light on typical challenges of digital transformation and what success factors exist. Furthermore, it will be looked into how digital business models challenge physical ones. Starting point for digital transformation is rethinking the companies value propositions and finding its individual way based on existing and new resources to transform the enterprise. Digital transformation requires new

perspectives and companies have to introduce new capabilities to their organization in order to sustain in the digital age. Real and virtual worlds will be one building digital-physical mashups (Rigby, 2014).

Customers are increasingly demanding to interact with companies anytime and anywhere. Companies have to be more responsive and have to build an engagement layer above the layer "systems of record" by instantiating service platforms to enrich and redefine value creation processes by new integrated capabilities. Enterprise capability is an interesting because useful concept that will be further explored during the course. Enterprises need to evolve continuously. Capabilities needed to change are quite different from the capability needed to run its day-to-day business. Enterprise architecture (EA) has a vital role for the evolution of the enterprise towards its digital future. EA offers contributions to steering, controlling and/or guiding enterprise transformations (Proper and Lankhorst, 2014). New digital technologies are emerging rapidly and have induced noticeably changes of customer behaviour and preferences. Those developments are fuelling change in the companies' environment and require transforming their information systems and invest in new capabilities, the so-called digital transformation. A major driver of this transformation are newly emerging technologies that challenge companies with unprecedented dynamics and change: new technology-driven business models are challenged by new rules and business logics. Digitization and digital transformation affect business in many companies. Students understand change drivers in the environment of companies. Based on case studies, the course will have a specific look at how companies are confronted with fast changing markets and customer behaviour; because digital technologies affect life events of consumers and producers.

New digital technologies are emerging rapidly. Thus, for companies' investments in their existing IT infrastructure and related capabilities remain a moving target. Students will get acquainted with Service-Dominant Logic (SDL) as an inspiring source which can be an inspiring source to envision the objectives and direction of digital transformation initiatives. In this way, SDL offers clear guidance to develop compelling digital strategies making use of service innovations. SDL can be used to analyse and to anticipate future strategic moves (of the company itself but as well of the company's competitors) to drive digital transformation. This requires leadership with respect to deciding on how the organization and its IT infrastructure has to adapt to support company's future digital strategies. adding a service systems view and the concept of "service ecosystems", results in a broader view of service innovation in the context of digital transformation and service systems. During the course, students will understand how service-based strategies drive digital transformation, and how service can make the difference in the digital era. Furthermore, the conceptualization of service innovations into service ecosystem, service platform, and value cocreation is a promising avenue of research to master digital transformation. During the course students know various approaches and conceptualizations how to drive digital transformation through investing in the "right" IT infrastructure capabilities to achieve strategic agility.

Prerequisites

There are no special pre-requisites for the course beyond basics in management and being interested in technological matters. Do not take the course if you expect to miss more than one class because attendance and active class participation are critical. The course language is English; thus you should be able to follow lectures in English as well as to read state-of-the-art academic literature in English.

Learning Objectives

Upon completion of the course, the students are able to

- explain and define change drivers in the environment of companies that influence digital transformation
- define digital transformation and give concrete examples
- define, repeat and illustrate what digital strategies are based on concrete examples and use cases
- explain and discuss the key messages and research domains of service systems engineering and how it contributes to synthesize and evaluate solution designs
- recall and describe a systematic way how companies can transform their value creation processes
- summarize and argue the role of enterprise architecture to overcome challenges of digital transformation
- define and discuss new capabilities that companies need to execute digital strategies
- recall, name and define pivotal concepts and their impact on digital transformation
- classify digital business models based on introduced frameworks and dimensions
- analyze and discuss digital business models based on real life examples and referring to case studies of the course
- discuss and criticize existing business models and recommend how they value propositions need to be transformed to sustain in the digital age
- combine and integrate approaches and concepts to design digital strategies, digital business models
- point out and argue how S-D logic and service systems can be the basis to derive new capabilities to master digital transformation
- propose and validate independently solution designs to solve typical problems in relation to digital transformation
- analyse and formulate concrete requirements for solutions designs following an explorative and use-case based design approach.
- Describe and discuss pros and cons of service science research to master digital transformation and recall and explain main purpose and objectives of action design research as process model; including selection and comparison of alternative approaches

Course Topics

- Digitization and digital transformation
- Digital Strategies and strategic agility
- Development of a compelling digital strategy (ingredients, elements)
- Foundations and theories to back up and inspire digital strategies
- Digital business models
- Enterprise architecture and enterprise coherence
- Foundations of execution
- Service systems engineering (architecture, interaction, mobilization)
- S-D logic
- Service-led strategies
- Digitally enabled services
- Digital service innovations
- Platform-based strategies
- Enterprise capabilities
- New perspectives and new capabilities
- Case studies on digital transformation

Contribution of the course to the program goals of the study program

Program Objectives (PO)		Learning Objective / Outcome	Contribution to learning objectives
PO 1: Responsible leadership in organizational contexts	1.1	Students are acquainted with numerous relevant management principles. They are able to explain and discuss them discerningly. <i>(„Kenntnis einschlägiger Führungsprinzipien“)</i> (KMK: Wissensverbreiterung)	Discussions within class, Students' questions for voluntary tutorials, Term Project, and/or Written exam
	1.2	Students are able to apply management principles within an organizational context. <i>(„Fähigkeiten zur Anwendung einschlägiger Führungsprinzipien“)</i> (KMK: Instrumentale Kompetenz)	
	1.3	Students are able to reflect discerningly and critically on diverse management principles within an organizational context. <i>(„Kritische Reflektion einschlägiger Führungsprinzipien“)</i> (KMK: Systemische Kompetenz)	
	1.4	Students comprehend the challenges of ethics and sustainability for responsible business operations and are able to deal with them. <i>(„Kompetenz zum verantwortlichen Handeln“)</i>	
PO 2: Creative problem-solving skills in a complex business environment	2.1	Students are able to recognize and define problems as well as assess their importance. <i>(„Fähigkeit der Problemerkennung / -abgrenzung & -einordnung“)</i> (KMK: Instrumentale Kompetenz)	Discussions within class, Students' questions for voluntary tutorials, Term Project, and/or Written exam
	2.2	Students are able to analyze complex in-company and inter-company problems and challenges from different perspectives and/or within an international context. <i>(„Fähigkeit zur Problemanalyse“)</i> (KMK: Instrumentale Kompetenz)	Discussions within class, Students' questions for voluntary tutorials, Term Project, and/or Written exam

	2.3	Students are independently able to develop creative solutions to complex in-company and inter-company problems and challenges. <i>(“Fähigkeit zur kreativen Problemlösung“)</i> (KMK: <i>Systemische Kompetenz</i>)	Implications of new management paradigms such as service orientation (mainly S-D logic) and related strategic imperatives to design creative solutions and synthesize concepts to appropriate strategies to (re)position the company in the context of digitalization and digital transformation.
	2.4	Students are successfully able to clarify complex problems and solutions to both experts and laymen. <i>(“Fähigkeit zur Problemerkklärung“)</i> (KMK: <i>Kommunikative Kompetenz</i>)	Discussions within class, Students’ questions for voluntary tutorials, Term Project, and/or Written exam
PO 3: Research skills and their practical application	3.1	Students are acquainted with research methods relevant to engineering and management as well as their advantages and disadvantages. <i>(„Methodenkenntnis“)</i> (KMK: <i>Wissensverbreiterung</i>)	Discussions within class, Students’ questions for voluntary tutorials, Term project, and/or Written exam
	3.2	Students are successfully able to apply research methods relevant to engineering and management. <i>(“Kompetenz bei der Anwendung von einschlägigen Forschungsmethoden“)</i> (KMK: <i>Instrumentale Kompetenz</i>)	By following a research-based teaching approach students get acquainted with research methods and approaches. Design Science Research methods are of interest and will be introduced.
	3.3	Students are able to implement relevant research methods in such a way as to deliver reliable and innovative results. <i>(„Fähigkeit zur Gewinnung innovativer Ergebnisse mit einschlägigen Forschungsmethoden“)</i> (KMK: <i>Systemische Kompetenz</i>)	Results and outcomes of research papers will provide insights and understanding how knowledge and innovative results are produced and/or published.
PO 4: Design skills for specific IT management solutions or IT	4.1	Expert Knowledge in IT <i>(„IT-spezifische Fachkenntnisse“)</i> – KMK: <i>Wissensvertiefung</i>)	

technology management architectures within complex process structures („Gestaltung spezifischer IT-Management- oder IT-Technologie-Lösungen in komplexen Prozess-Strukturen“)	4.2	Application Transfer of Problem Solving Methods for IT-specific Problems <i>(„Fähigkeit zur Anwendung geeigneter Problemlösungsmethoden für IT-spezifische Aufgabenstellungen“)</i> <i>(KMK: Instrumental Kompetenz)</i>	Students will get equipped with new thinking and concepts which can be used and applied to develop solutions for given problems in an industrial context.
	4.3	Critical Analysis and Problem Solving for IT-specific Problems <i>(„Fähigkeit zum Erkennen ursächlicher Probleme für IT-spezifische Aufgabenstellungen und zu deren Lösung“)</i> <i>(KMK: Systemische Kompetenz)</i>	To analyze requirements and to arrive at practical solutions, students learn new concepts and will be acquainted with conceptualizations of solutions designs, to understand that a systems perspective (“purposed systems”) are fundamental for research and practice, respectively.

Didactic Concept and Learning Approach

The course is organized as a lecture in form of seminar, thus throughout the course special emphasis is met on discussion and interaction with the students. Based upon profound knowledge of theory and its implications during the lecture critical discussions are in focus. This covers discussions concerning current challenges of digital transformation. New paradigms and strategic implications will be discussed. The course introduces approaches, concepts and contributions informing about the challenges and potential ways to arrive at solutions to master digital transformation. In the course, we follow a research-based teaching approach, which is interactive and requires your participation and engagement. You will get assigned a topic (scientific paper) that you will prepare to present in class. Together we will learn and explore about the relevant concepts and how they can be applied in real life settings. Based on cases and use cases you will learn about applicability and relevance of presented theoretical concepts to solve some of the problems ahead.

The lecture materials such as slides, case studies and study texts are accessible for students via the e-learning platform (Moodle).

An important part of the learning process is presenting, discussing, and getting feedback. Your competence to conceptualize solutions and to research independently for concepts and solution designs will be strengthened. Often solution designs are derived from eclectic research approaches. An interesting research field is design science research and in particular design action research (Böhm et al., 2014).

You will work in groups, interact with the lecturer and your fellow colleagues. Each group is invited to come to my office during my office hours or based on an individual appointment to get my feedback concerning assigned tasks and produced results, e.g. term papers and presentation slides.

Course Material

- Normann, R. (2001). Reframing Business: When the Map Changes the Landscape. Chichester: Wiley.
- Kagermann, H.; Oesterle, H.; Jordan, J. (2011): IT-Driven Business Models: Global Case Studies in Transformation. John Wiley & Sons.
- Parker, G.P.; Alstynne, Van, M.W; Choudary, S.P. (2016): Platform Revolution. Norton & Company, New York London.
- Evans, E.: Domain-Driven Design: Tackling Complexity in the Heart of Software. Addison-Wesley, Boston, 2004
- Ross, J.W.; Weill, P.; Robertson, D.C. (2006): Enterprise architecture as strategy. Creating a foundation for business execution. Harvard Business School Press, Boston, Massachusetts.
- Chesbrough (2011): Open Service Innovation: Rethinking Your Business to Grow and Compete in a New Era. Jossey-Bass.
- Weiß, P.; Warg, M.; Zolnowski, A. (2019): Building Systems of Engagement to overcome the challenges of digital transformation. Naples Service Forum 2019, 04-07 June 2019.
- Warg, M.; Zolnowski, A.; Frosch, M.; Weiß, P. (2019): From Product Organization to Platform Organization: Observations of Organizational Development in the Insurance Industry. Naples Service Forum 2019, 04-07 June, 2019.

Complementary/ Additional Reading/ Case Material (tentative to be completed / updated):

- J.W. Ross, I.M. Sebastian, C.M. Beath, "How to Develop a Great Digital Strategy", In: MIT Sloan Management Review, Vol. 58, No. 2, Winter 2017 Issue, pp. 6-10.
- Böhmman, T., Leimeister, J.M., Möslin, K.: Service Systems Engineering. Business & Information Systems Engineering 6, 73-79 (2014)
- Moore, G.: Systems of engagement and the future of enterprise IT: A sea change in enterprise IT. AIIM (2011)
- Akaka, M.A., Vargo, S.L.: Technology as an operant resource in service (eco)systems. Information Systems and e-Business Management 12, 367-384 (2014)
- Galliers, R.D.: Strategizing for Agility: Confronting Information Systems Inflexibility in Dynamic Environments. In: Desouza, K.C. (ed.) IFIP International Working Conference on the Transfer and Diffusion of Information Technology for Organizational Resilience, pp. 361-362. Elsevier (2006)
- D.K. Rigby, "Digital-Physical Mashups". In: Harvard Business Review, September 2014.
- M.A. Akaka, S.L. Vargo, "Technology as an operant resource in service (eco)systems", Information Systems and e-Business Management, 12 (3), 2014, pp 367–384.
- M. Warg, P. Weiß, A. Zolnowski, R. Engel, "Service Dominant Architecture based on S-D logic for Mastering Digital Transformation: The Case of an Insurance Company", RESER Conference Proceedings, Naples, Italy, 2016.
- Weiß, P.; Zolnowski, A.; Warg, M.; Schuster. T.: Service Dominant Architecture: Conceptualizing the Foundation for Execution of Digital Strategies based on S-D logic. In: Proceedings HICSS 2018, 03-06 January 2018, Hawaii.
- Kane, G.C., Palmer, D., Phillips, A.N., Kiron, D., Buckley, N.: Coming of Age Digitally. MIT Sloan Management Review and Deloitte Insights June, (2018)
- Ross, J.W., Sebastian, I., Beath, C., Mocker, M., Moloney, K., Fonstad, N.: Designing and Executing Digital Strategies. Thirty Seventh Int. Conf. on IS, Dublin (2016)
- G.C. Kane, D. Palmer, A.N. Philips, D. Kiron, N. Buckley, "Strategy, not Technology Drives Digital Transformation", MIT Sloan Management Review. Deloitte University Press. Summer, 2015, pp.3-24.
- Arthur, W.B., The Nature of Technology: What it is and how it evolves. Free Press, New York, 2009.

In this course, we use scientific papers, case studies published in MIT Sloan Management Review and Harvard Business School Publishing. Some of this papers are only accessible by fees or membership (e.g. AIS conferences and journals). For those papers, we have to pay a license fee and the papers are only issued for strict personal use within the course. You are not allowed and permitted to use the material for other purposes outside this course and the assigned tasks.

Feedback

An important part of the learning process is getting feedback. Each group is invited to come to my office during my office hours or based on an individual appointment to get my feedback about the paper and the presentation.

Course assessment

The students will prepare and realize a presentation (term projects and use cases on digital transformation). The results will be discussed in class. Details are outlined during the first sessions in the class room, as well as the applied assessment criteria. Important criteria are presented and will be clarified during the first lectures.

Grading

The grading approach will be discussed during the first lecture.

To get credits for the course it is necessary that the student has to complete all the team assignments and foreseen tasks.

Communication

In support of this course, an e-learning platform (Moodle) will be used which offers several advantages. Firstly, teaching material will be made available via this platform. Secondly, questions that might arise can be discussed among the students through the use of this platform. Finally, general questions can be answered transparently by the lecturer, i.e. all students will be able to see the answers. For specific questions, you may always contact the lecturer in person or via email.

Student responsibilities and class behavior

- **Read the course syllabus**
- Respect each other
- Take responsibility for your action
- Demonstrate professional attitude and professionalism
- Be open and fair
- Act with honesty
- Trust each other
- Demonstrate civility
- Arrive to class on time and do not leave early
- Please let me know in advance if you miss a class
- Demonstrate and respect divergent opinions

Preliminary Schedule/assignments for BIS6233E in WiSe 2019/20

The topics will be the base for your scientific work and successful learning process. The case studies and learning material will be carefully selected to reflect current state of play, existing vantage points and current as well as future developments in information technology with the aim to show existing links and influences on digital transformation endeavours and in consequence on IT strategy management. The list of topics is still tentative, changes can happen. The complete list will be presented at the first class session.

	Date	Term Paper or Class Topic	Case Study
1	Week 1	Introduction/Preliminaries/Organization/Assignments	
2	Week 2	Challenges of Digital Transformation Introductory case studies and examples	
3	Week 3	Success factors for Digital Transformation Introductory case studies and examples	
4	Week 4	Examples of Digital Transformation Introductory case studies and examples	
5	Week 5	Design and Execution of Digital Strategies Ingredients and foundations to design and execute digital strategies	
6	Week 6	Design and Execution of Digital Strategies Framework and Design Principles	
7	Week 7	Design and Execution of Digital Strategies Framework and Design Principles	
8	Week 8	Design and Execution of Digital Strategies Framework and Design Principles	
9	Week 9	Foundations of Execution Case Studies and Solution Designs	
10	Week 10	Foundations of Execution Case Studies and Solution Designs	
11	Week 11	Foundations of Execution Case Studies and Solution Designs	
12	Week 12	Foundations of Execution Case Studies and Solution Designs	
13	Week 13	Digital Business Models Towards a Taxonomy of Digital Business Models Case Studies	
14	Week 14	Digital Business Models Towards a Taxonomy of Digital Business Models Case Studies	
15	Week 15	Digital Business Models Towards a Taxonomy of Digital Business Models Case Studies	
16	Week 16	Digital Business Models Towards a Taxonomy of Digital Business Models Case Studies	
17	Week 17	Capstone Session	