

Open topics for theses - Prof. Dr. Matthias Lederer

Status: The list is updated continuously.

All topics are possible (with minor adjustments, if necessary) both as Bachelor's and Master's theses. Likewise, all topics can be written on in German or in English. All courses of study at Weiden Business School are possible. I will be happy to discuss prior knowledge/adaptations of the topic according to the student's background at the first appointment. Topics can also be reserved for a semester later.

The topics are structured according to my research interests (in the following pages):

- Process Management
- Agile Transition
- IT Management
- Design Science

If you are interested, please contact me via my website (matthias-lederer.de) to arrange an appointment (self-service, there are several appointments every week).

The topics were automatically translated. I apologise for any errors.

Topics on “Process management”

Topic: Relevance of modern BPM trends in business practice

Motivation: In a previous study, OTH investigated which BPM trends are particularly important in academia (e.g., process mining, new modeling alternatives, platforms, etc.). This work aims to test whether the academic discourse matches the needs of practitioners.

Method: Survey/survey of process practitioners on the relevance of the given topics.

Outcome: Qualitative/quantitative assessment of the relevance of academic findings; corporate BPM roadmap for the future.

Reference: S-B

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Topic: Diversity as an innovative force in process management

Motivation: The understanding as well as the conviction for diversity management in companies has grown. At many points in the BPM lifecycle, people from different backgrounds come together to model or implement innovations in business processes. This paper aims to look at both directions: How can the BPM lifecycle benefit from diversity and what adjustments to standard BPM practices are needed?

Method: alternative 1 - survey/survey of process practitioners or alternative 2 - derivation/adaptation of BPM practices based on studies/theories or alternative 3 - proposal for other method by students.

Outcome: practices for leveraging diversity in process activities; requirements for BPM workflows in a diverse environment.

Reference: S-B

Topics on “Agile Transition”

Topic: Agile Purchasing - Approaches and Best Practice OR Agile Production - Approaches and Best Practice OR Agility in Sales - Approaches and Best Practice

Motivation: The introduction of agile process models (e.g. SCRUM) reaches its limits in many cases. Due to specifics of the industry or the business function, the models are adapted in a small or even fundamental way (so-called tailoring). This thesis has the task to compile recognized tailoring models, to compare them and to derive principles. The student is asked to choose a suitable business function (e.g. production, sales) or an industry.

Methodology: collection, comparison, derivation of patterns/categories.

Outcome: compilation of adapted models for agile development; comparison and opportunities/risks; generalized approaches to tailoring.

Ref: 7/21-22

Topic: Agile Transition - Challenges and Practical Solutions

Motivation: The transition from hierarchical companies to agile/self-organized forms presents companies with many challenges. The path must be supported in stages and with appropriate methods/tools. This work collects/categorizes (depending on the focus of the editor) approaches for the successful transition.

Methodology: case studies or literature study or practical work

Outcome: Good practices of agile transition, classification of solution approaches.

Ref: D

Topic: Further development of managers in agile teams

Motivation: Traditional managers are sometimes no longer necessary in agile teams, as their position/function transitions to the roles of SCRUM Master, Product Owner or Development Team. This work aims to gather good practices (i) according to which criteria and (ii) with which methods this transition of the traditional manager can succeed.

Methodology: Collection of case studies and evaluation of the use of "traditional managers"; if necessary also possible as theoretical work (e.g. literature study). The focus can be on IT companies or gladly on other domains/industries.

Result: Rule definition (e.g. if-then pattern) and hints for a good transition

Ref: D

Topic: Expectations of self-organized teams on a functioning leadership structure

Motivation: In modern/digital companies, organizations are increasingly turning away from rigid directive structures and large hierarchies. Ideas such as Self Organization, Lean/Lateral Leadership or Holacracy are becoming more popular. However, it is also apparent that employees in such flexible organizational forms have certain expectations that run counter to the core of self-organization (e.g., desire for decision makers, desire for formal rules for promotions, etc.). This paper aims to collect and process these requirements.

Methodology: Qualitative collection of factors based on cases or literature study.

Result: Systematization of requirements (e.g., by extent of self-organization or by types of employees).

Ref: D

Topic: Organizational parameters for agile management

Motivation: New Work concepts or agile working (e.g., according to SCRUM) is not possible in every company. Rather, certain parameters must be right in advance (e.g., compensation system, team size, task definition) or changed (e.g., new types of recruitment, corporate culture).

Methodology: Collection and systematization of relevant parameters in the organization through literature research or case collection or interviews.

Result: List/model of enabling or hindering factors of an organization for agile concepts.

Ref: D

Topic: Challenges of the temporary-agile organization

Motivation: In practice, projects or departments are often organized or managed in an agile manner. However, these structures (even though many books present them as a sustainable/ irreversible trend) are also reversed after some time. Hierarchies or rigid models are sometimes reintroduced. This presents managers with two transitions and thus with major challenges.

Methodology: Definition of temporary-agile organizations; transfer of concepts for temporary organizations (e.g. from project organization) to agility.

Result: Good practice list/model

Ref: D

Topic: Reversal of New Work Approaches

Motivation: Some approaches and ideas of the New Work movement as well as of agile structures are hype and overrated - especially if they do not actually fit the setting of the company. This paper aims to show how companies can return inappropriate structures to traditional forms. This may also be necessary, for example, if companies use modern agile methods temporarily (e.g., for a single project) and then return to traditional structures.

Methodology: Qualitative analysis of successful/failed cases; classification by type of transformation, if applicable.

Result: A concept (e.g. phase concept) with which a reversal can succeed

Ref: D

Topics on “IT Management”

Topic: Realistic Perception of Sustainability in IT - An Empirical Analysis

Motivation: Private users and companies often misjudge their efforts and effects in the field of GreenIT. For example, virtualization, regional power procurement or the right network cabling often have a major impact, while investments elsewhere are expensive but have no effect. Similarly, managers are often unaware that technology deployment (e.g. AI) also has CO2 effects. This thesis aims to match the "perceived" effects with the realistic importance of GreenIT initiatives.

Method: research on fields of action for sustainable IT (e.g. cloud, cycles of end devices, switching off devices, appropriate disposal, etc.), quantification of importance, survey among IT users on perceived

Result: comparison of perceived importance and real importance

Ref internal: 7/21-16

Topic: Democratic Software Engineering - Requirements for Citizen Development Processes

Motivation: So-called low-code platforms have the potential for business users to become developers of information systems. Many companies already empower managers to create simple applications (e.g., macros in Excel), applications in specialist departments (e.g., Sharepoint apps), enterprise-wide applications (e.g., cloud services), or highly critical infrastructure applications without professional software developers.

M: Agile principles and practices will be explored as they enable the integration of low-code solutions into enterprise structures.

Security, compliance issues

Topics on “Design Science”

Topic: Virtual X - Development of criteria for the successful virtualization of products and services

Motivation: Many well-known products and services are already often virtualized today (e.g. virtual product design, virtual house inspection) and also accompanying entities are simulated in a virtual environment (e.g. virtual passengers, virtual samples). However, virtualization is used in more and more fields (e.g. virtual idols for children), which raises the question when a virtual entity is really useful.

Method: literature and case analysis; construction of patterns

Result: Research of virtualization examples; classification of suitable cases with patterns; prognosis of fields for further virtualizations of the future.

Reference: WW

Topic: Analysis of the use of theses at technical universities

Motivation: Many theses (bachelor and master) are written and not used further after assessment despite exciting results or good preparation. Often they could be published (and contribute to science), findings could be followed up in further studies or graduates could use the plans for a startup. This paper aims to investigate (among other things, by topic and grade) how theses are exploited in Germany.

Method: survey, evaluation

Outcome: distribution of how what types of final papers are used; recommendations for design of practical papers.

Reference: None.

Development of the digital expiry date for smart products

Motivation: Digital components are playing an important role in more and more products (e.g. autonomous vacuum cleaners, e-scooters, etc.) or can no longer be operated in a meaningful way without software (e.g. digital assistants such as Echo, cameras, etc.). At the same time, a trend can be observed that in many product categories, updates are no longer provided very quickly. This makes it difficult, unsafe or impossible to use the products. This paper aims to comprehensively evaluate the phenomenon of digital expiry.

Method: Product categorization, field search, preparation

Result: Overview of digital expiration dates by product, over time, and by company.

Ref: WE

Topic: Your own topic - for example in the company?

Motivation: Topics in the areas of process management/modeling, IT management, digital business and business-IT alignment are welcome. Please make an appointment during office hours.