

## Topics BWL Bachelor Thesis 2022

### 1. Investments in Information Security

To counteract threats by cyber attackers, organizations invest into information security. In recent years, cybersecurity budgets have continually increased in response to ever more successful cyber attacks on firms. Research has theorized about an optimal amount of cybersecurity budget that should be invested to counteract attacks, starting with the seminal Gordon-Loeb model (Gordon & Loeb 2002), but also offering alternative approaches (Wang et al. 2008).

In your bachelor's thesis, you should provide a review of the scientific literature on investments in information security.

Gordon, L. A., & Loeb, M. P. (2002). The Economics of Information Security Investment. *ACM Transactions on Information and System Security*, 5(4), 438–457. <https://doi.org/10.1145/581271.581274>

Wang, J., Chaudhury, A., & Rao, H. R. (2008). A Value-at-Risk Approach to Information Security Investment. *Information Systems Research*, 19(1), 106–120. <https://doi.org/10.1287/isre.1070.0143>

*Frederic Schlackl*

### 2. Ransomware Attacks

Ransomware is a type of malware that encrypts files on a device, blocking all access to it, unless a certain ransom is paid. In recent years, ransomware has become a more prevalent threat, as multiple high-profile strains such as NotPetya or WannaCry have wreaked havoc across computer networks.

In your bachelor's thesis, you should provide a review of the scientific literature on ransomware attacks, with a focus on organizational and management perspectives.

*Frederic Schlackl*

### 3. Culture in Security and Privacy

Online services such as Instagram, YouTube or even enterprise software are offered around the world. Usage of these services often is accompanied by user and professional concerns about security and privacy. Past research has found that culture plays a role in how users perceive and form these concerns, and how they react to them (Chen & Zahedi 2016).

In your bachelor's thesis, you should provide a review of the scientific literature on the role of culture in security and privacy.

Chen, Y., & Zahedi, F. M. (2016). Individuals' Internet Security Perceptions and Behaviors: Polycontextual Contrasts between the United States and China. *MIS Quarterly*, 40(1), 205–222.

*Frederic Schlackl*

#### 4. What are the downsides of gamification?

Gamification describes the use of game design elements and principles such as leaderboards or streaks in everyday tasks. They are increasingly used in our daily life and many information systems, e.g., in job trainings to increase employee engagement or in social media to increase the number of contributions. Nonetheless, gamification can lead to negative outcomes for the users as well as for the gamified information systems. These downsides could be user addiction, user perceptions of being monitored, or misleading incentive systems that stimulate user behavior that does not comply with the gamified information system's goals.

In your bachelor's thesis, you are asked to provide a literature review that identifies downsides of gamification as well as underlying mechanisms on the individual level.

Koivisto, J., and Hamari, J. 2019. "The Rise of Motivational Information Systems: A Review of Gamification Research," *International Journal of Information Management* (45), pp. 191–210. (<https://doi.org/10.1016/J.IJINFOMGT.2018.10.013>).

Liu, D., Santhanam, R., and Webster, J. 2017. "Toward Meaningful Engagement: A Framework for Design and Research of Gamified Information Systems," *Management Information Systems Quarterly* (41:4), pp. 1011–1034. (<https://doi.org/10.25300/MISQ/2017/41.4.01>).

Jan Schilpp

#### 5. How does data analytics change managerial decision-making?

Data analytics refers to the extraction of meaningful insights from all sorts of data to enable better decision-making. It is already a major source of competitive advantage and facing the ever-increasing availability of (big) data, data analytics is expected to be one of the most important firm capabilities in the future. However, to allow for value creation through data analytics, it is indispensable that managers consider data analytics insights in their decision-making. Some even argue that it is necessary to entirely change managerial decision-making. Against this backdrop, it is of outmost importance to investigate how managers use analytics insights in their decision-making, e.g., what type of managers consider analytics insights or how are the latter weighted compared to other influences on managerial decision-making such as gut feelings or discussions with experts.

In your bachelor's thesis, you are asked to provide a literature review that reveals how data analytics influences and changes managerial decision-making.

Abbasi, A., Sarker, S., and Chiang, R. 2016. "Big Data Research in Information Systems: Toward an Inclusive Research Agenda," *Journal of the Association for Information Systems* (17:2), pp. 1–32. (<https://doi.org/10.17705/1jais.00423>).

Sharma, R., Mithas, S., and Kankanhalli, A. 2014. "Transforming Decision-Making Processes: A Research Agenda for Understanding the Impact of Business Analytics on Organisations," *European Journal of Information Systems* (23:4), pp. 433–441. (<https://doi.org/10.1057/ejis.2014.17>).

Jan Schilpp

## 6. How can organizations stimulate boundary spanning?

Most organizations are characterized by a high degree of functional specialization and hierarchical structures. Furthermore, many enterprises maintain multiple sites (in different countries). This leads to feelings of belongingness among groups of employees along multiple dimensions such as functional expertise, hierarchical position, or location. At the intersection of two or more groups, boundaries between people emerge. For organizational success it is indispensable that a firm can effectively span intra-firm boundaries, e.g., to allow for knowledge sharing. In academia, information systems and management literature has extensively dealt with the topic investigating multiple ways how boundaries can be spanned, for example with the help of boundary spanning employees that “translate” between groups.

In your bachelor’s thesis, you are asked to provide an interdisciplinary theory-focused literature review that reveals how organizations can stimulate intra-firm boundary spanning.

Levina, and Vaast. 2005. “The Emergence of Boundary Spanning Competence in Practice: Implications for Implementation and Use of Information Systems,” *MIS Quarterly* (29:2), pp. 335–363. (<https://doi.org/10.2307/25148682>).

Majchrzak, A., More, P. H. B., and Faraj, S. 2012. “Transcending Knowledge Differences in Cross-Functional Teams,” *Organization Science* (23:4), pp. 951–970. (<https://doi.org/10.1287/orsc.1110.0677>).

Jan Schilpp

## 7. Structured Data Anonymization Techniques and their Application in HR Research

Data protection laws, meant to protect people’s privacy, identity, reputation, and autonomy, have been on the rise for many years (e.g., European Parliament 2016). This triggered enhanced efforts to render data sets usable through improved data anonymization techniques. Leveraging concepts such as k-anonymity and differential privacy for both structured and unstructured data, techniques for the reliable anonymization of data have emerged and been applied in different domains (Kessler et al. 2019, Majeed et al. 2021).

In your thesis, you shall provide an overview of how anonymization techniques for structured data are used in different research domains, with a special focus on data sets containing personally identifiable information in workforce management / HR.

Kessler, S., Hoff, J., Freytag, J. 2019. “SAP HANA goes private – From Privacy Research to Privacy Aware Enterprise Analytics,” *Proceedings of the VLDB Endowment* (12), pp. 1998-2009. (<https://doi.org/10.14778/3352063.3352119>).

Majeed, A., Lee, S. 2021. “Anonymization Techniques for Privacy Preserving Data Publishing: A Comprehensive Survey,” *IEEE Access* (9), pp. 8512-8545. (<https://doi.org/10.1109/ACCESS.2020.3045700>).

Hannah Sperling

## 8. Data-driven Enterprises

Given the rising volume of available data, more and more organizations are striving to leverage data and associated insights from analytics to improve their decision-making, innovation and value creation. Such organizations are described as data-driven enterprises. Data-driven enterprises rely on data as a key input variable and an organizational culture that embraces data-based decisions and the usage of data in general. Due to the broad range and the dynamic nature of the field, available research tackles data-driven enterprises from many different perspectives.

In your bachelor’s thesis, you should provide a review of the literature concerning data-driven enterprises.

Karoline Glaser

### **9. Management Analytics**

The term *management analytics* broadly describes the use of insights from data analytics for managerial decisions to generate value. However, the term lacks a general definition. Therefore, research investigates many different aspects in the context of management analytics.

In your bachelor's thesis, you should provide a literature review on the topic of management analytics.

Karoline Glaser

### **10. Data Analytics Tools and Technologies**

It is no longer seen as a possibility but rather a necessity for firms to leverage available data for their operation. Therefore, organizations apply different analytics tools and technologies to obtain relevant insights from available data. For instance, organizations use *descriptive analytics* to summarize and describe patterns within the data by using simple statistical tools. Overall, a variety of tools and technologies are used for specific purposes in the data analytics context.

In your bachelor's thesis, you are asked to provide a literature review of the different data analytics tools and technologies that are researched.

Karoline Glaser

### **11. Studying organizational routines with process mining**

Management studies and the organizational science literature advocate organizational routines as a concept to investigate "behavioral regularities, which denote recurring analytic processes embedded in firms and performed by groups of individuals." Process mining strives to "discover, monitor, and improve real processes by extracting knowledge from event logs." It is also perceived as an effective tool to assist researchers in studying organizational routines. Both fields have in common their emphasis on event sequences as a valuable source of empirical evidence when studying behavior.

In this literature review, your task is to collect the existing literature on using process mining techniques in studying organizational routines.

Fareed Zandkarimi

### **12. Explainable AI for Process Mining**

Current information systems collect activities generated via executing the underlying business processes. Process mining provides various tools to analyze such fine-granular process data and generate valuable business insights. However, process mining techniques had become complicated when they got combined with AI techniques. More complexity had followed by less explainability, though. Recently, scholars called for more research on explainable AI in many fields, including process mining.

This literature review focuses on the studies on explainable AI in process mining, i.e., what has been done, what are the possible future directions and potentials.

Fareed Zandkarimi

### **13. Event Log Sampling Techniques in Process Mining**

All process mining techniques require a dataset (event log) consisting of all events collected from the organization's underlying information systems. Processing large event logs can cost significant resources due to the structural differences between event logs and common database structures, e.g., relational databases. Researchers introduced data sampling to address this issue. Different approaches and techniques have been introduced in the literature to collect a meaningful event log sample that represents the behavior of the original event log.

This literature review requires you to investigate the existing process mining sampling techniques and approaches and identify future research possibilities.

*Fareed Zandkarimi*

### **14. Experiments on Online Ratings**

Prior research has shown that the distribution of online ratings is biased, i.e., has a disproportional number of extreme ratings.

In your thesis, you should give an overview of experiments from the literature that analyze how online ratings can be influenced.

*Dr. Florian Pethig*

### **15. Monetary Incentives and User Behavior.**

Prior research has shown that monetary incentives can lead users on online platforms to contribute more (economic incentive) or less (crowding out).

In your thesis, you should give an overview of the literature that studies how monetary incentives influence user behavior on online platforms.

*Dr. Florian Pethig*

### **16. Information Systems Research on Twitter**

Social media is increasingly important for science communication and to discuss research findings.

In your thesis, you should collect and analyze data from information systems researchers on Twitter to understand the content that researchers share and how they interact with each other.

*Dr. Florian Pethig*