1. Econometric Methods in Information Systems	**Note:** For this seminar, it is strongly recommended that you have already taken CC 503 Applied Econometrics or have other prior knowledge in econometrics.	Frederic Schlackl
	Description: Information systems (IS) is a multidisciplinary field, with subcommunities influenced by computer science, management, and economics. Econometric methods, stemming from economics, are the current standard way of analyzing large amounts of data to enable causal inference. In IS, they have been used to study the impacts	

- of Craigslist on HIV transmission (Chan and Ghose 2014),
- of Uber on drunk driving deaths (Greenwood and Wattal 2017),
- of school broadband on student grades (Belo et al. 2014),
- of Google Photos on other photo apps on the PlayStore (Foerderer et al. 2018),

among others.

In your seminar, you should provide a descriptive review (Paré et al. 2015) of how econometric methods are used in Information Systems. This should include the method for establishing causal inference, the estimators used, use of theory, and the frequency across different journals.

Belo, R., Ferreira, P., and Telang, R. 2014. "Broadband in School: Impact on Student Performance," Management Science (60:2), pp. 265–282. (https://doi.org/10.1287/mnsc.2013.1770).

Chan, J., and Ghose, A. 2014. "Internet's Dirty Secret: Assessing the Impact of Online Intermediaries on HIV Transmission," MIS Quarterly (38:4), pp. 955–975. (https://doi.org/10.25300/misq/2014/38.4.01).

Foerderer, J., Kude, T., Mithas, S., and Heinzl, A. 2018. "Does Platform Owner's Entry Crowd Out Innovation? Evidence from Google Photos," Information Systems Research (29:2), pp. 444–460. (https://doi.org/10.1287/isre.2018.0787).

Greenwood, B. N., and Wattal, S. 2017. "Show Me The Way to Go Home: An Empirical Investigation of Ride-Sharing and Alcohol Related Motor Vehicle Fatalities," MIS Quarterly (41:1), pp. 163–187. (https://doi.org/10.1163/9789401209380_061).

Paré, G., Trudel, M. C., Jaana, M., and Kitsiou, S. 2015. "Synthesizing Information Systems Knowledge: A Typology of Literature Reviews," Information & Management (52:2), pp. 183–199. (https://doi.org/10.1016/j.im.2014.08.008).

2. The Human side of cyber security	Cyber security professionals are crucial for securing their employers' systems and for preventing, detecting, and responding to security incidents. Yet, literature on computer and network security has so far not been overly concerned with the people working in the field. Some examples of past research have investigates security professionals' decision making (Miller et al. 2016) and their skills and tools (Botta et al. 2007). In your seminar, you should provide an interdisciplinary literature review about the work of cybersecurity professionals. Botta, D., Werlinger, R., Gagné, A., Beznosov, K., Iverson, L., Fels, S., and Fisher, B. 2007. "Towards Understanding IT Security Professionals and Their Tools," SOUPS 2007 Proceedings (229), pp. 100–111. (https://doi.org/10.1145/1280680.1280693). Miller, S., Wagner, C., Aickelin, U., and Garibaldi, J. M. 2016. "Modelling Cyber-Security Experts' Decision Making Processes Using Aggregation Operators," Computers & Security (62), Elsevier Ltd, pp. 229–245. (https://doi.org/10.1016/j.cose.2016.08.001).	Frederic Schlackl
3. What motivates cyber criminals?	Cyber crime is an increasing problem for businesses and society. Existing research in information systems has applied theories from criminology such as the criminal opportunity theory to explain the motivations of (potential) cybercriminals (Wang et al. 2019) or studied neutralization techniques and disgruntlement to prevent insider abuse (Willison and Warkentin 2013). In your seminar, you should provide an interdisciplinary literature review on the motivation of cyber criminals. Wang, J., Shan, Z., Gupta, M., and Raghav Rao, H. 2019. "A Longitudinal Study of Unauthorized Access Attempts on Information Systems: The Role of Opportunity Contexts," MIS Quarterly (43:2), pp. 601–622. (https://doi.org/10.25300/MISQ/2019/14751). Willison, R., and Warkentin, M. 2013. "Beyond Deterrence: An Expanded View of Employee Computer Abuse," MIS Quarterly (37:1), pp. 1–20. (https://doi.org/10.25300/MISQ/2013/37.1.01).	Frederic Schlackl
4. Data Sampling Techniques in Process Mining – A Literature Review	You might have heard of sampling in the context of data mining applications (see below). The same applies to process mining datasets, but it requires a few delicate adjustments due to the specific settings within process mining datasets. In this seminar thesis we want to know the current standing point on sampling as well as possible research opportunities that could be done in this area. The literature review should cover these requirements. See also: Berti, Alessandro. "Statistical sampling in process mining discovery." The 9th international conference on information, process, and knowledge management. 2017.	Fareed Zandkarimi

5. Building a Standard Object-Centric Event Log (OCEL)	OCEL is a new process mining standard for multi-level processes. This is new, but trending topic in process mining that requires more research. In this seminar thesis, we would like to investigate a real-world dataset and check how applicable it is to perform OCEL tasks on it. The output is a standard OCEL dataset with a report about the components of the dataset. The task requires a sound understanding of process mining and hands-on data science techniques. A short overview of the OCEL techniques and a standardized dataset are the two main expected deliverables. See also: http://ocel-standard.org/	Fareed Zandkarimi
6. Data Interestingness for Data Science	Data interestingness is a relatively important topic, especially in the field of business intelligence (BI) and data science. When you are given a huge dataset, the first questions would be "which parts of the dataset are more important than the other parts?". Data interestingness investigates the techniques to measure qualities of data attributes that reflects their "interestingness". This way, BI systems can work more efficient, while users can easier analyze huge datasets. Good read: Liqiang Geng and Howard J. Hamilton. 2006. Interestingness measures for data mining: A survey. ACM Comput. Surv. 38, 3 (2006), 9–es. DOI: https://doi.org/10.1145/1132960.1132963	Fareed Zandkarimi
7. Reporting Behavior in the Context of Human Computer Interaction – A Literature Review	The interaction between human and information systems is an interesting research endeavor. A common case of human-computer interaction (HCI) is reporting where human errors (as an indispensable component of this interaction) may lead to severe consequences. Companies consider different policies (e.g., incentive packages, penalties) to reduce human errors. In this literature review we focus on "reporting behavior" per se. How humans report and how their behavior is influenced by different factors, e.g., making errors, task type, incentives.	Fareed Zandkarimi
8. Transition from Small- to Large-Scale Software Development Environments	Small-scale software development environments are perceived to be flexible while large-scale environments seem to require more rules and management. Respective agile methods were tailored for both software development environments and have been proven effective. However, the knowledge about the transition from small- to large-scale software development environments, for instance if firms experience rapid growth, is scattered. In your seminar, you are asked to provide a literature review about how firms manage rapid growth and especially their transition from small- to large-scale software development environments. Picken, J. 2017. "From Startup to Scalable Enterprise: Laying the Foundation," Business Horizons (60). (https://doi.org/10.1016/j.bushor.2017.05.002).	Karoline Glaser

| 9. The Evolution of Data-driven Enterprises | Data-driven enterprises draw on data and insights from analytics to make their strategic decisions. In order to derive such decision, the prerequisites are manifold. They include access to appropriate company data, the development and implementation of respective (big data) analytic tools, as well as the adoption of such tools and their results for decision-making. Not all, but many of such tools build on artificial intelligence, involving machine learning, big data, and big data analytics. Thus, data-driven enterprises touch upon many fields that are all rapidly evolving, and so is the body of knowledge about them.

In your seminar, you should conduct a literature review about research on data-driven enterprises.

Michael Haenlein, Andreas Kaplan, Chee-Wee Tan & Pengzhu Zhang (2019) Artificial intelligence (AI) and management analytics, Journal of Management Analytics, 6:4, 341-343, (https://doi.org/10.1080/23270012.2019.1699876)

Haenlein, M., & Kaplan, A. (2019). A Brief History of Artificial Intelligence: On the Past, Present, and Future of Artificial Intelligence. California Management Review, 61(4), 5–14. (https://doi.org/10.1177/0008125619864925) | Karoline Glaser |