The Energy & Strategy Think Tank (ESTT) at WU's Institute for Strategic Management (ISM) (https://www.wu.ac.at/en/ism/energy-strategy-think-tank/) invites applications for a master thesis.

Working Title: *Potential and Business Models of Smart Manufacturing for Utilities*

Scope, Aims, Methods, and Initial Literature: We are witnessing the rise of smart manufacturing, or industry 4.0 (GTAI, 2014; Lu & Weng, 2018; Lu, Xu, & Wang, 2020; Mittal, Khan, Romero, & Wuest, 2018; Zhong, Xu, Klotz, & Newman, 2017). This thesis aims to

- map key application domains of smart manufacturing
- assess these domains from the perspective of an incumbent utility (e.g. using criteria such as strategic fit or market potential)
- develop business models (Chesbrough & Rosenbloom, 2002; Zott, Amit, & Massa, 2011) for energy providers for the most promising application domains

Insights from 1) a systematic review of the scientific literature (Denyer & Tranfield, 2009), 2) selected grey literature (Adams, Smart, & Huff, 2017), as well as 3) expert interviews (Cassell, 2009) should be combined.

Thesis Language: English or German (only if you are enrolled in a program with German as main language)

Corporate Partner: None

Expectations and Support: Constant feedback and regular meetings with faculty will facilitate a high-quality thesis with impact on management practice that is completed in a timely fashion. You will be provided with a guideline that details the supervision and writing process, expected deliverables beyond the final thesis, and grading as well as a package to kick off your thesis.

Targeted Students: Excellent and ambitious students of all MSc and MBA programs at WU Vienna University of Economics and Business are eligible and encouraged to apply. In principle, it is possible to write the thesis together with another student.

Interested? Send CV and grade certificates of all your studies to georg.reischauer@wu.ac.at

Initial References:

Adams, R. J., Smart, P., & Huff, A. S. 2017. Shades of Grey: Guidelines for Working with the Grey Literature in Systematic Reviews for Management and Organizational Studies. ***International Journal of Management Reviews***, 19(4): 432-454.

Cassell, C. 2009. Interviews in Organizational Research. In D. A. Buchanan, & A. Bryman (Eds.), ***The Sage Handbook of Organizational Research Methods***: 500-515. Thousand Oaks: Sage.

Chesbrough, H., & Rosenbloom, R. S. 2002. The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. ***Industrial and Corporate Change***, 11(3): 529-555.

Denyer, D., & Tranfield, D. 2009. Producing a systematic review. In D. A. Buchanan, & A. Bryman (Eds.), ***The Sage handbook of organizational research methods***: 671-689. Thousand Oaks, CA: Sage.

GTAI, X. 2014. Industrie 4.0: Smart Manufacturing for the Future, Vol. Accessed Aug 13th 2017.

Lu, H.-P., & Weng, C.-I. 2018. Smart manufacturing technology, market maturity analysis and technology roadmap in the computer and electronic product manufacturing industry. ***Technological Forecasting and Social Change***, 133: 85-94.

Lu, Y., Xu, X., & Wang, L. 2020. Smart manufacturing process and system automation – A critical review of the standards and envisioned scenarios. ***Journal of Manufacturing Systems***, 56: 312-325.

Mittal, S., Khan, M. A., Romero, D., & Wuest, T. 2018. A critical review of smart manufacturing & Industry 4.0 maturity models: Implications for small and medium-sized enterprises (SMEs). ***Journal of Manufacturing Systems***, 49: 194-214.

Zhong, R. Y., Xu, X., Klotz, E., & Newman, S. T. 2017. Intelligent Manufacturing in the Context of Industry 4.0: A Review. ***Engineering***, 3(5): 616-630.

Zott, C., Amit, R., & Massa, L. 2011. The Business Model: Recent Developments and Future Research. ***Journal of Management***, 37(4): 1019-1042.