Zürich, 31. August 2017

Master Thesis at the Chair of Strategic Management and Innovation (SMI)

Industry 4.0 and the effects of digitization on organisations

With "Industry 4.0", which refers to the fourth industrial revolution, a new challenge has emerged for all market participants. After the steam engine, the assembly line by Ford and the usage of IT systems, we now see how digital technology is making its way through all levels of industrial production. The digital transformation occurs through a combination of various developments such as faster processors, cheap storage, machine learning and the Internet of Things (IoT) to only name a few. These advancements allow production to take advantage of embedded systems or cyber-physical systems (CPS), or to completely change certain markets with new products, services, and business models. At SMI, we are interested in the timeline of these developments and the challenges that companies face while dealing with the rapidly evolving opportunities of digital transformation and rising complexity.

We offer multiple options for students who are interested in these developments and want to write a Master Thesis (MSc or MAS) at SMI. For all topics, the student will first write a proposal with support from the tutor:

- A quantitative study with data from a pre-existing source, e.g. the KOF (www.kof.ethz.ch) Innovation Survey, that assesses the innovative capability of companies in Switzerland. For this kind of research, knowledge in statistical/quantitative methods and programs (Stata, R, Matlab) is required.

- A literature review that synthesizes and reflects on current research and theories relevant to digitization, innovation or similar. This includes evaluating and critically assessing a substantial number of sources and outlining their relevance within the development of the field and their contribution, and creating a theoretical framework for future empirical research.

- A qualitative study that follows a company or industry over time and tries to connect the observed problems or phenomena with current literature and research. This can be a Case-study style of research, where an analysis and detection of a problem is made, with a suggested solution based on theory and observations.

- Content analysis that follows the evolution of certain keywords or topics in public media outlets. The goal is to draw a timeline and analysis of how content and perceptions have changed relating to the keyword within the public debate.
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Suggested literature to read before writing an application for this topic at SMI:


For further information on this topic, please contact Julian Mueller (julianmueller@ethz.ch). With your application, send CV, transcripts and a motivation letter outlining why you want to write your thesis on the chosen topic and why you want to write it at SMI.

We are looking forward to work with you.