UMEÅ UNIVERSITET

SUCCEEDING IMPLEMENTATION

The Internet of Things as a Digitally Transformative Technology

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Akademisk avhandling

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Abstract
The Internet of Things (IoT) refers to 'smart', sensor- and intelligence-imbued, interconnected systems, intended to generate and process context-aware data that can be used to improve organizational processes. Improvement of logistical-, process-, or management-efficacy allows firms and organizations to radically change and enhance the efficiency and scale of key aspects of their operations. Such change inevitably affects the actors, actor-groups, and stakeholders involved, regardless of their roles within the system.

Digital Transformation describes the ongoing process in which organizations seek to create additional value through the implementation of digital technologies. This dissertation shows how the IoT can come to affect organizations, by describing and analyzing these changes through the use of three theoretical frameworks – the Technological Frames Framework, the Organizational Culture Framework, and the Practice Lens Perspective. Three appended research papers detail effects of IoT implementation on actors and stakeholders documented in two separate case studies, and a fourth appended research paper describes a scoping study, examining the current discourse of IoT within the social science research-field, with all of the appended papers being first-authored.

The results of the case studies and their three respective papers describe how organizational practices can come to change following the introduction of an IoT system and these changes' effects on the actors involved. This is detailed through descriptions and analyses of qualitative data obtained from interviews with representatives of all involved actors, and stakeholders, regarding their thoughts, perceptions, and actions related to the IoT system and its impact. Three areas in which an IoT system may cause rapid noticeable change are addressed: 'Actors', 'Organization' and 'Value Creation'. How each of these aspects are affected and their consequent effects on one another are described, based on the data obtained in the case studies and findings presented in the first three appended research papers. In contrast, the scoping study illuminates contextual elements of the IoT discussed by social science researchers, highlighting areas that have received too little attention but are crucial for successful Digital Transformation.

In sum, this dissertation contributes to IS research by presenting and discussing results of two case studies involving IoT system implementation in two organizational settings with very similar work practices. It further contributes by examining one of these implementations in a longitudinal fashion, spanning two years, examining the changes both among different actors and within the organization itself. Lastly it contributes by identifying a major research gap in extant studies in social science-related aspects of the IoT, and addressing it based on the gathered results.

Keywords
Internet of Things, IoT, digital transformation, value creation, organization, innovation, ubiquitous system, actors, scoping study, case study, system implementation

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