



Digital Transformation in the Service Sector – An Empirical Analysis of Employees’ Acceptance of Wearable Devices

Masterarbeit

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Contents

List of Tables.....	iv
List of Figures	iv
List of Abbreviations.....	v
List of Symbols	vi
1. Introduction	1
2. Theoretical Foundations	3
2.1 Digital Transformation in the Service Sector.....	3
2.2 Wearable Devices.....	4
2.3 Theoretical Models for Technology Acceptance	7
3. Hypotheses Formulation and Research Model.....	11
3.1 Independent Variables.....	12
3.2 Moderator Variables.....	21
4. Methodology and Data Collection	24
4.1 Development and Instrumentation	24
4.2 Survey Procedure and Sample.....	25
4.3 Data Implementation	30
5. Data Analysis and Evaluation Results.....	34
5.1 Measurement Model Assessment.....	34
5.2 Structural Model Assessment.....	36
5.3 Hypotheses Testing	39
6. Discussion and Recommendations.....	43
6.1 Review of Empirical Results.....	43
6.2 Theoretical Contributions.....	52
6.3 Practical Implications	54
7. Limitations and Future Research	58
8. Conclusions	61
References	I
A Appendix	XXIII
B Declaration of Authorship	XLVII

1. Introduction

Relevance and Motivation

The digital transformation is omnipresent and shapes public discussions like hardly before. It affects society as a whole in many respects, but in particular, it affects economies on a global scale. The rapid development of new information technologies, such as mobile devices or the Internet of Things, has a major impact on the future of the corporate world. Organizations of all industries and sizes are forced to adapt their businesses in order to meet the requirements of the digital century. Long established business models have to be questioned and completely redefined (Schallmo and Rusnjak, 2018; Oswald and Krcmar, 2018). This includes the transformation of analog products, services, and processes (Schallmo and Rusnjak, 2018). Even though in retrospect research has primarily focused on linking digital transformation to the manufacturing industry (Mariani and Borghi, 2019), digital transformation also significantly affects the service sector (Seyda, 2019). The monitoring report “Wirtschaft DIGITAL 2018” confirms that the usage of digital technologies in the service sector becomes increasingly indispensable (German Federal Ministry for Economic Affairs and Energy, 2018b).

These disruptive changes can be seen as a major challenge in many respects. Nevertheless, digital transformation also offers advantages for most companies. It enables the collection, transmitting, and analysis of data in novel ways. Information can be recorded and exchanged in an automated manner leading to an information flow as fast and efficient as it has been never before. Processes can be automated and speed up. Hence, costs can be saved, and product and service quality can be improved (Schallmo and Rusnjak, 2018). Overall, the implementation of innovative technologies enables companies to increase their performance and overall reach (Westerman et al., 2011).

A relevant case example of an innovative technology provides wearable devices. Recently, many scientists have addressed the potentials of wearable devices at the workplace (e.g., Luo and Yu, 2013; Choi et al., 2017; Oesterle et al., 2019). The best known wearable devices are smartwatches (Chuah et al., 2016). They became a trending technology in the last few years (Wu et al., 2016). Studies assume that the market of smartwatches will continue to grow. While in 2016, 100 million smartwatch deliveries were made, demand is forecasted to have more than tripled by 2020, with 373 million deliveries estimated (Dehghani et al., 2018). Although smartwatches have been mainly used for entertainment purposes so far, they simultaneously offer great potentials in an increasingly digital work environment to exchange, monitor, and track information (Kritzler et al., 2015; Khakurel et al., 2017a; Zenker and Hobert, 2019b). In this context, researchers refer in particular to the industrial sector. Nonetheless, wearable technology can be introduced by nearly all industries for business reasons (Yang et al., 2016). Some studies have already highlighted the striking potential of smartwatches in several service branches (e.g., Awan et al., 2018; Sánchez-Margallo et al., 2019). These findings suggest that smartwatches will continuously gain relevance in the near future with regards to the service sector. Consequently, service providers might aim at implementing smartwatches into existing workflows to support employees in daily activities

by exchanging, monitoring, and tracking information. Based on these promising potentials, this thesis researches the introduction of smartwatches in the service sector.

Research Need and Research Question

In order to ensure a successful introduction of new technology in practice, employees' acceptance is required. If employees do not sufficiently accept a technology, this can lead to a deficient technology usage behavior (Milchrahm, 2002). This also applies to the introduction of wearable devices in the workplace. Thus, lacking employees' wearable device acceptance can constitute a barrier that prevents the broad adoption of such devices at the workplace (Schall et al., 2018). From a scientific perspective, it is therefore expected to be essential to know how service employees accept the usage of smartwatches at work to exchange, monitor, and track information. Although the approval of smartwatches was investigated several times in previous research (e.g., Wu et al., 2016; Choi and Kim, 2016; Dehghani, 2018), studies refer exclusively to customer markets. The determination of smartwatch acceptance in the workplace and especially in the service sector remains open. This is consistent with Khakurel et al. (2017a). They came to the conclusion that there is a need for further research on employees' motivation and incentive to adopt wearable technologies, such as smartwatches, in the workplace. Consequently, this master thesis aims to meet this research need by examining service employees' acceptance to use smartwatches at work for monitoring, tracking, and exchanging information. Based on the results of a quantitative study, factors that positively or negatively impact the acceptance of smartwatches in the service sector shall be identified. Thus, the following research question occurs:

Which factors influence service employees' intention to use smartwatches at work?

To answer this research question, the work is structured as follows: First, the conceptual foundations that serve as a base for the development of the empirical research model of the study are defined. Based on this, the empirical research model of the study is specified. In this regard, acceptance-relevant variables are presented and the research hypotheses of the study are derived. With the help of an online survey the research model is tested. This is followed by an outline of the methodology and data collection methods. Next, the survey results are prepared for the data analysis. Then, the data analysis is carried out. This involves interpreting the results of the study and evaluating the research hypotheses. After this, study results are discussed, and both theoretical contributions and practical implications are derived. Subsequently, the limitations of the study and directions for future research are pointed out. Finally, the most important results are emphasized and briefly summarized.

8. Conclusions

Despite the promising possibilities of using wearable devices, such as smartwatches, in the corporate world, little is known about service employees' acceptance of using certain devices at the workplace yet (Zenker and Hobert, 2019a). Although some scholars have investigated factors influencing the diffusion of smartwatches in customer markets, to the best of the authors' knowledge, no previous study has been conducted to examine employees' acceptance of smartwatches in the service sector. The present study addresses this research need and identifies factors that influence service employees' BI to use smartwatches at work. For this purpose, the smartwatch acceptance model of Wu et al. (2016), including TAM and IDT constructs, was applied and extended by the constructs PPC, PT, and different job characteristics. In this regard, a total of eleven hypotheses were derived from existing literature. Based on the quantitative data from an online survey ($n = 374$), two SEMs (one basic model and one moderator model) were established to evaluate the developed research model and test the derived hypotheses.

The analysis showed that the developed research model substantially explains service employees' acceptance to adopt smartwatches at work. The results from the empirical analysis indicate that PEN, PEOU, PC, EXFREQ, PPC, and AGE are associated with service employees' BI to adopt smartwatches at work. Thereby, PEN, PEOU, PC, and EXFREQ were found to be positive influencing factors, while PPC was identified to be a negative influencing factor. Among these factors, PEN possessed the most substantial effect on BI. AGE significantly moderates this effect, such that the impact of PEN on BI is more powerful for service employees in higher AGE ranges. However, the study results do not provide significant evidence for the influence of PRD, PRA, and PT on BI. In addition, no statement can be made about the extent to which the job characteristics MOBIL, EXFREQ, and TIMC moderate the effect of PRD and PRA on BI.

These findings were discussed and explanations for path coefficients' significance and insignificance were given. Furthermore, practical implications and theoretical contributions were derived from the analysis. Overall, the study results can help employers in the service sector to find better ways to encourage employees to accept wearable technologies, especially smartwatches, and to implement such devices in existing business processes in the future. Next to the employers, the findings should be considered by smartwatch providers in order to adapt their products to better meet requirements of the business-to-business market. Further, the developed research model can be used in upcoming studies on wearable device acceptance in organizational settings. More precisely, it can help scientists to improve the understanding of service employees' acceptance to use smartwatches. Nevertheless, due to its limitations, the study leaves open some interesting opportunities for future research.