Analysis of Wearable Technologies´ Success: Implications for Insurance Companies

Masterarbeit

zur Erlangung des akademischen Grades „Master of Science (M.Sc.)" im Masterstudiengang Wirtschaftswissenschaften der Wirtschaftswissenschaftlichen Fakultät der Leibniz Universität Hannover

vorgelegt von

Sonja Krylow

Prüfer: Prof. Dr. M. H. Breitner

Hannover, den 30.09.2016

Abstract

This study investigates critical success factors of wearable technology as a tool for preventive healthcare measures as an emerging offer from health insurance companies. The research model was developed based on a literature study and conducted interviews. It combines unified theory of acceptance and use of technology 2 (UTAUT 2), privacy calculus theory (PCT) and mobile user's concerns for information privacy (MUIPC).

By conducting an online survey with 203 participants, structural equation modeling (SEM) approach was used to test the research model. Results show that perceived value is an antecedent of usage intention which yields from insurants´ risk-benefit analysis. Further, based on this analysis implications for insurance companies as well as directions for future research is discussed.

This study is among the first to investigate the usage of wearable technology in insurance context providing an important theoretical contribution in this field.

Keywords

Table of Contents

1 Introduction

Health oriented people increasingly record their fitness and health data with wearable technology. Those devices range from activity trackers (e.g. Fitbit, Jawbone), Google Glasses to smart clothing (e.g. biometric shirts) which track steps, heart rate or physical activity. People wearing wearables generate a lot of health data without excessive sport performances but by their daily routine. The uploaded amount of data however, is seldom used effectively (Häußermann 2016, p.215).

CCS Insight (2016) predict 411 million smart wearables to be sold in 2020 which are worth $34 billion and a report from Price Waterhouse Coopers in 2015 notes that 29% of their respondents in Germany own at least own wearable device (Boxall 2015). Thus, they have huge potential for future businesses, especially for insurance companies.

In particular, life and health insurances can profit from the gathered data because both user and insurance company pursue the same aim regarding health. Insurance companies are interested in their clients to be healthy and fit to keep payments and treatments for diseases as low as possible. Further, the core business of insurance companies is to analyse and manage risk, however their traditional business model only enables a few contact interfaces with their customers (e.g. subcontract) (Häußermann 2016, pp.215-216).

Insurance companies can most notably use those emerging technologies to strengthen preventive healthcare measurements while introducing bonus programs which reward the insurant for their healthy lifestyle and physical activity (Rundshagen 2015). Additionally, they can position themselves as innovative in the market and also differentiate themselves from other companies. Rewarding health behaviour though, is not a new concept. Private insurance companies calculate risk based tariffs whereas statutory health insurances use bonus programs (Nürnberg 2015, p.246). Wearable devices can support the progressing of these products and tariffs and motivate health behaviour. The requirement however is that the insurant is convinced of the added value which results from the data exchange.

As for now, AOK Nordost presented a regional digital bonus program called "FitMitAOK" at the beginning of 2016. Generali plans to introduce "Vitality", a new tariff structure based on the data collection of wearable devices that encourage healthy behaviour with all kind of rewards (Rundshagen 2015, p.660).

Nevertheless, so far many challenges and questions have not been solved. The data collection through wearables reaches new dimensions, and also privacy concerns and data security need

to be addressed. In addition to which, the introduction of wearable devices raises concerns that statutory health insurances cannot adherence with the solidarity principle.

To date, most studies have investigated wearable technology adoption from user perspective focusing mostly on technological aspects or investigating wearables usage for healthcare purposes. However, little research has been done to examine the potential of wearable technology usage in insurance context and in particular as a tool for preventive healthcare measures in from of a bonus program in Germany.

Therefore, the purpose of this paper is to analyse wearable technologies´ success for insurance companies. From theoretical perspective this work does not only contribute valuable research to prior related wearable technology studies but gives also valuable new insight from insurance companies´ perspective. From this background, the following research question will be answered combing qualitative and quantitative data:

What are critical success factors of wearables and how can insurance companies benefit from these technologies?

Since this is an early market development, successful market penetration requires further knowledge about emerging "consumer's acceptance" and "intention to use wearables" by potential insurants. Seeing that the success of the wearable technology is depending upon if they are accepted, better understanding of why people accept or reject this development is necessary to derive recommendations for actions for insurance companies.

Based on conducted interviews with experts from different insurance companies and an extensive literature study the developed research model investigates users´ decision to use wearable technology in insurance context based on a risk-benefit analysis. The proposed model was tested by adopting the SEM method to analyse the collected data from 203 respondents. Most proposed hypotheses in this research model were confirmed.

The remainder of this work is organized as follows. The second section reviews related literature in the context of wearable technology and evaluates the conducted interviews. Based on these findings hypotheses are developed in section 3 which is followed by the research methodology in section 4. Section 5 shows the data analysis and results from this study. Hereafter, section 6 presents the discussion and recommendations of this study. Limitations are discussed in section 7. Finally, conclusion and further research are shown in section 8.

8 Conclusion and Further Research

The purpose of this present study was to investigate success factors for wearable usage as a tool for preventive healthcare measures in insurance products. By means of conducted interviews with six insurance companies, information was gathered about this emerging topic and a research model was developed and validated. The presented research model incorporates constructs from the following models: PCT, UTAUT 2 and MUIPC and is extended with the perceived value. The model was tested based on a survey (n=156) with structural equation modeling. As shown in the path analysis results (Figure 1) eight out of ten hypotheses were statistically significant. Considering the results of this research it can be adherence that the risk-benefit analysis yields a perceived value which is a significant determinant of individual's usage intention of wearable devices in insurance context. Additionally, MUIPC has been proven to determine perceived privacy risks very well. Interestingly, perceived enjoyment does not significantly affect perceived benefits which should be investigated in future studies. This research advances our understanding of wearable technology in insurance context providing a first conceptual clarity about critical success factors and benefits for insurance companies.

While in particular, activity trackers and smartwatches paved the way for wearable technology´s success those devices offer an immense opportunity for health insurance companies (PwC 2016, p.9). Using individual activity data health scores can be calculated to reward and motivate their insurants towards a healthier lifestyle.

Especially, since prior research (e.g. YouGov 2015) state that people are willing to participate in those programs as long as they perceive benefits, insurance companies do not only have to collaborate with wearable manufactures to ensure better data security but also prevent possible data theft and manipulation from third parties. In particular, statutory health insurances need to see how and if, the solidarity principle can be preserved. Furthermore, insurance companies will need to focus on the right balance of technology, data privacy, wearable functionality, usefulness and a sustainable business model to be successful.

Although wearables portray a business opportunity for insurance companies, the strongest barrier for accepting wearable supported preventive measures are privacy concerns among German insurants, which is supported by this study showing that currently privacy risk factors dominate individuals perceived value.

While wearables might not be yet sophisticated enough, benefits need to be communicated better and wearables need to be perceived as more valuable tools for preventive healthcare

measures. It remains a balancing act between offering new products that go along with technological developments and to be true to one´s own business principles.

Upcoming studies should investigate what other benefits enhance the perceived value such as adding monetary compensation (discounts, coupons, rebates) as an additional benefit factor and try to increase the variance explained. In addition to which, experts (see Appendix 8) suggested that perceived prestige of insurance companies as well as trust might also be important points to consider.

Future research should also focus on the gamification trend in wearable supported preventive healthcare context while aiming to increase the sample size. In addition, qualitative work might also be needed to rethink the items that represent perceived enjoyment. Lastly, it would be informative to investigate the proposed model with moderating variables such as prior wearable experience, insurance type as well as investigate differences between age groups because expert's opinions diverged on those factors. The interviews revealed that wearable supported bonus programs would fit better to private insurance offer. However, as for the moment statutory insurance companies come up with those products much earlier on the market. Those delicate distinctions could provide a further refined picture.