

Mobile User's Acceptance of NFC-based M-payment Methods: A Cross-Cultural Analysis

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vorgelegt von

Name: Kisker

Vorname: Anton

■

■

■

■

Name: Kisker

Vorname: Fridolin

■

■

■

■

Prüfer: Prof. Dr. Michael H. Breitner

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1 Introduction

„I pay by card.“ This is more or less the sentence you will hear people saying at a cash out in Germany when they chose not to scrabble in their wallet on the search for coins and notes or even do not carry around any cash at all. Customers who go shopping in Germany and completely trust in debit cards, will from time to time experience a revealing reality check, when they stand in front of the cashier, waving their card and receive nothing but a shake of the head.

How is it even possible that people in an industrialised country like Germany that is world-renowned for its avant-garde technology in plenty of fields still and in a large part draw on a payment system that has been in use for several thousands of years. A payment system that is not practical since one has to withdraw its medium from a cash point, carry it with you all the time or deposit it somewhere, risking to lose it or that someone will steal it and causing queues over and over again. Moreover, it causes massive costs for shop owners, banks and other participants in terms of security, transportation, and storage. People in Germany are increasingly using smartphones across all age-groups. Corresponding to surveys (cf. Bitkom, n.d.), the proportion amounted to 76% of the German population older than 14 years in 2016. People are downloading applications for every sort of purpose to make their lives easier and more convenient. Certainly, the technology to conduct payments with the help of a mobile phone is available. NFC-based m-payment is the most prominent representative of it. But whilst countries such as China or the US herald a new era of paying, this sound of technology is muffled in Germany and people prefer to remain faithful to cash and cards, driving faith in progress to desperation.

Change of scene within Europe: According to a survey performed in the UK by payments processor Worldpay in 2016, 6 out of 10 young adults state that they would highly prefer to use their smartphone for any kind of payments and leave their wallet at home. Besides, this is not only a theoretical remark. Practically, Worldpay reports a 250% surge in NFC m-payments in UK shops, including supermarkets, pubs, bars, and restaurants. In 2016 £288 million have been spent using mobile devices. On top of that, transactions via proximity payment cards ("tap-and-pay") reportedly amounted to £1.5bn a month in the same year. Experts consider the success of contactless cards as a groundbreaker for m-payment and state that it will only be a matter of time until it will outpace the former. Tap-and-pay using cards is being introduced in more and more stores in Germany. However, it gains traction slowly. Further measures increased the momentum of the

development in the UK. For instance, cash has been banned on buses in London in 2014. (cf. Clark, 2017; Collinson, 2016).

It does not take a lot of acumen, to realise the tremendous differences between the two countries described: The UK is on the fast track towards becoming a cashless society, while Germany clings to good old cash. This discrepancy certainly raises questions.

1.1 Motivation and Research Question

This thesis wants to contribute to research in two ways:

First, we aim to specifically extend the relatively new body of NFC m-payment acceptance literature that tries to explain what urges customers to form a positive or a negative intention to use this new technology. We are convinced that this is of particular importance because there are many reasons to believe that this technology will be the forthcoming future method to conduct payment transactions globally. Second, there is still a lack of research that takes the cultural influence on customers' adoption decision in the field of m-payment into consideration (cf. Lu et al., 2017). To our best knowledge, there is no literature available that takes cultural influences within the context of NFC-based m-payment into account. Precisely, by integrating a cultural dimension into our model and subsequently comparing two different cultures taking the example of the UK and Germany, we contribute to filling this gap. What leads us to the choice of these two countries? In a high-class analysis, American scientists Gupta, Hanges and Dorfman (2002) used data on cultural values and beliefs from 61 countries to present ten cultural clusters. These clusters were empirically tested and strongly supported. UK was attributed to the Anglo cultures next to the USA, Ireland, Australia and others. These cultures show little expression of uncertainty avoidance (UA), so that fewer rules and less structure are needed (cf. Im, Hong & Kang, 2011). Germany was assigned to the Germanic European cultures aside from Austria, Switzerland and the Netherlands. These cultures are highly supportive of UA. Thus, both countries are representatives of two different European cultures. In addition, Germany constitutes a country of pan-European outstanding cash preference, low prevalence of m-payment in general and NFC m-payment in particular (cf. Gupta, Hanges & Dorfman, 2002). On the contrary, in the UK, it was announced in 2015 for the first time that the number of non-cash payments was higher than the number of cash payments (cf. Collinson, 2016). In 2006, cash was used in 62% of all payment transaction in the UK. This figure dropped heavily to 40% in 2016 according to UK Finance, a major British organisation in the banking and finance sector (cf. Lyons, Jones &

Collinson, 2018). Also, major providers of NFC m-payment services are represented in the UK and people are actually using the technology, as will be outlined in the second chapter. All these facts, together with few cross-cultural comparisons in Europe in the literature, make both countries interesting research objects for a cross-cultural comparison in the field of mobile users' acceptance of NFC m-payment. Finally, the results could help managers of national and multinational providers who are active in at least one of the two markets to understand and know the factors that influence customers in their usage intentions and consequently optimise the strategic approaches in both markets.

Nevertheless, we do not want to conceal that a cross-cultural comparison between two countries such as the UK and Germany, as opposed to culturally more divergent countries as for instance Sweden and China (cf. Viberg & Grönlund, 2013), entails the potential to fall short of expectations regarding cultural differences that will be found by means of our surveys. This hinges on various factors among which are sample size, types of respondents, the effectiveness of the items and so forth. Taken together, we formulate the following research question which will guide us through the forthcoming considerations and investigations:

“Which factors act as key drivers for mobile users' acceptance of NFC-based m-payment methods in the UK and Germany taking cultural differences into consideration?”

1.2 Structure of the Thesis

The thesis is organised as follows: Chapter two gives an overview of relevant theoretical backgrounds. This includes an expedition through the development of payment systems, followed by an investigation of digital payment services with a focus on Near Field Communication. Additionally, in preparation of the research framework, a brief description of acceptance research, as well as some selected technology acceptance models and an insight into cross-cultural analysis, are given. Chapter three first shows the current state of research in the fields of mobile payment and culture in technology acceptance literature and second describes the development of own hypotheses and the consequent research model. Then, chapter four illustrates both the structure of the questionnaire and the choice of the empirical method. On this basis, the research model is analysed, and empirical findings are presented in chapter five in order to examine the underlying research hypotheses. Finally, the discussion of findings is subject to chapter

six, in which, furthermore, the research question is answered and implications, limitations as well as future research possibilities are outlined.

2 NFC-based Mobile Payment - Theoretical Background

In this section, the basis of this work – the theoretical foundation – is set up. Starting with a short overview on the history of money and traditional payment means, we will then turn to digital payment services, comprising both electronic and mobile payment with the focus being on NFC technology and its prevalence in the countries of our investigation. The second half of this chapter deals with relevant models and theories, namely acceptance research, technology acceptance research and finally gives an overview of cultural models, concluding with the model that this work will employ – Hofstede’s cultural dimensions model.

2.1 Evolution of Payment Systems – from Traditional to Digital Payments

Dahlberg and Öörni (2007: 2) define payment “as the transaction and the related process through which funds are transferred from the payer (buyer, transmitter of funds) to the payee (seller, receiver of funds) directly or via an intermediary.” Funds can be exchanged by conducting cash transactions (coins, banknotes) or non-cash transactions (bank deposit money, electronic money) (cf. Kahn & Roberds, 2009; Schierz, 2008). A payment system “consists of the set of rules, institutions, and technical mechanisms for the transfer of money” (Summers, 1994: 1). From the earliest form of exchange, which is bartering, to different kinds of commodities and later on governmentally supervised payment systems, with coins and banknotes being used as payment instruments, we will have a look at the development from traditional payment methods towards digital payment accompanied by the claim for a cashless society (cf. Orrell & Chlupaty, 2016).

2.1.1 Traditional Payment Methods

Money can be considered as one of the earliest and most successful inventions of mankind. Its history is closely linked to and probably as old as that of writing. In the course of history, we discover various goods that were used as means of payment among societies. These range from shells used in ancient China, whale teeth on the Fiji Islands

6.7 Conclusion and Outlook

In this thesis, we identified the key drivers of mobile user's acceptance of near field communication in a mobile payment context with a particular focus on cultural differences between the UK and Germany. As a matter of fact, these countries differ in their mobile payment behaviour. Germany, to a large extent, sticks to traditional cash payments whereas, in the UK, the use of proximity payment solutions is already advanced. Therefore, we employed the well-established TAM approach and, based on previous literature, extended the basic model by adding further relevant constructs as well as moderating variables. The study relied on a quantitative approach and collected data by means of an online survey, which was subsequently analysed using SPSS Statistics 25 and SmartPLS 3.0. The findings have shown that the intended use of NFC-based m-payment is determined by "Perceived Compatibility" as a key driver for both countries. Concerning country-specific drivers, "Perceived Usefulness", "Perceived Trust in Technology" and, to a certain extent, "Perceived Ease of Use" impact UK mobile user's usage intention while for Germany, "Perceived Security" represents another key driver and partly also "Subjective Norm". In contrast, the majority of hypothesised moderating effects did not prove to be significant. Notably, the moderator "Espoused Uncertainty Avoidance" did not provide any usable, not to mention significant results. Yet, this study evidenced significant cultural differences in usage intention regarding NFC-based m-payment.

Even though this thesis already undertook a comparison of cultures, future research might include other countries of the European Union to provide a better comparability. With regard to the Hofstede country comparison, it would be particularly interesting to include either France or Belgium into the study since they score higher on uncertainty avoidance than Germany (cf. Hofstede, 2001a). However, this would, first of all, require solving the conceptual issues relating to the construct of Espoused Uncertainty Avoidance by either reconsidering its items or even go so far as to employ another cultural model approach. Moreover, research should try to consider experience as a moderator. Possibly, remote m-payment usage or card payments based on NFC technology might serve as suitable proxies to display experience with already existing m-payment technologies. Also, simultaneously analysing experience and age could allow identifying respondents who can be considered early adopters regardless of their age and who might consequently show a high willingness to adopt emerging technologies. However, perceptions may change over time which indicates that longitudinal studies are highly recommended (cf. Davis et al., 1989), particularly when factors influencing the technology use intention are sensitive

to experience and time (cf. Abbasi et al., 2015; Venkatesh & Morris, 2000). Venkatesh and Davis (2000), for instance, found the effect of “Subjective Norm” on “Behavioural Intention to Use” to decrease over time and with increasing experience. In the course of an increasing prevalence of NFC-based m-payment use in the future, it would also be interesting to study actual usage behaviour of consumers. In fact, the construct “Actual System Use” is part of the original TAM.

In conclusion, the strong empirical support for our extended TAM approach provides an appropriate theoretical basis for further research on NFC-based m-payment acceptance in a cross-cultural context.