

# Factors Influencing Adoption and Diffusion of Mobile Payment Systems – A Holistic Framework

A thesis submitted by **Agnieszka Zmijewska**

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### Certificate of Authorship/Originality

*I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree.*

*I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.*

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*Agnieszka Zmijewska*

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*"Being a PhD student is like becoming all of the Seven Dwarfs at once. In the beginning you're Dopey and Bashful. In the middle, you are usually Sneezzy, Sleepy, and Grumpy. But at the end, they call you Doc, and then you're Happy!" (Found online at <http://www.cs.unc.edu/~azuma/hitch4.html>)*

## Publications supporting this research

The following publications published in peer-reviewed journals and conferences are directly related to this research. The relevance of these papers, as well as of other publications by the author of this thesis, is described in Appendix B.

- Dahlberg, T., Mallat, N., Ondrus, J. & Zmijewska, A. (2007) 'Mobile Payments: A Review of Past, Present, and Future Research', to appear in the *ECRA (Electronic Commerce Research and Applications) Journal's Special Issue on Mobile Payments*
- Dahlberg, T., Mallat, N., Ondrus, J. & Zmijewska, A. (2006) 'Mobile Payment Services Market Research – Past, Present and Future', in *Proceedings of the Mobility Roundtable*, Helsinki, Finland, June 2006
- Zmijewska, A. & Lawrence, E. (2006) 'Implementation Models in Mobile Payments', in *Proceedings of the IASTED International Conference on Advances in Computer Science and Technology (ACST)*, Puerto Vallarta, Mexico, Jan 2006
- Zmijewska, A. & Lawrence, E. (2005) 'Reshaping the Framework for Analysing Success of Mobile Payment Solutions', in *Proceedings of the IADIS International Conference on E-Commerce*, Porto, Portugal, Dec 2005
- Zmijewska, A. (2005) 'Evaluating Wireless Technologies in Mobile Payments – A Customer-Centric Approach', in *Proceedings the 4th International Conference on Mobile Business (ICMB)*, Sydney, Australia, July 2005
- Pradhan, S., Lawrence, E. & Zmijewska, A. (2005) 'Bluetooth as an Enabling Technology in Mobile Transactions', in *Proceedings of the International Conference on Information Technology (ICIT)*, Las Vegas, NV, Nov 2005

- Lawrence, E., Zmijewska, A. & Pradhan, S. (2005) 'Mobile Payments: Partner or Perish?', in *Proceedings of The Asian Applied Computing Conference (AACC)*, Kathmandu, Nepal, Dec 2005
- Zmijewska, A., Lawrence, E. & Steele, R. (2004) 'Towards a Successful Global Payment System in Mobile Commerce', in *Proceedings of the IADIS International Conference on E-Commerce*, Lisbon, Portugal, Dec 2004
- Zmijewska, A., Lawrence, E. & Steele, R. (2004) 'Towards Understanding of Factors Influencing User Acceptance of Mobile Payment Systems', in *Proceedings of the IADIS International Conference on WWW/Internet*, Madrid, Spain, October 2004
- Zmijewska, A., Lawrence, E. & Steele, R. (2004) 'Classifying M-payments - a User-Centric Model', in *Proceedings of the 3rd International Conference on Mobile Business (ICMB)*, New York, NY, July 2004

# Abstract

Mobile devices have a potential to become ideal payment devices because they are small, light, personal, convenient, and many people carry them anytime, anywhere. Mobile devices have a number of connectivity options, and their own display and input capabilities. They are already widely used around the world.

Mobile payments, despite their potential, have not reached the expected adoption levels. While there may be many reasons for this, previous research focused on few topics only, mainly technology and consumers. The main aim of this study was to find out what is necessary to improve adoption and diffusion of mobile payments. Specific objectives that were proposed to help achieve this aim included: a) identifying all the factors that may influence adoption and diffusion of mobile payments, b) integrating such factors and relations between them in a holistic framework, and c) providing specific recommendations and guidelines in all the various perspectives.

Grounded theory was the methodology employed to fulfil these objectives. Qualitative approach was found to be most suitable to this study, and open-ended Web surveys, as well as various kinds of interviews, including email, face-

to-face, phone, and focus groups managed to obtain detailed, in-depth information from industry and user participants.

The main contribution of this study is the holistic theoretical framework that explains the specific factors that influence adoption and diffusion of mobile payments, provides interesting findings on each of the identified factors, and at the same time integrates such investigations together as one coherent whole that forms a roadmap of success factors for mobile payments.

Some of the discovered factors have not been proposed before at all. Some others have been proposed in fragmented explanations that focused on several influences only. Other factors have been proposed before but this study offered more accurate or understandable interpretations or names for them. In addition, this project integrated all the factors together in a holistic framework, pointing out all the important contexts and conditions that providers need to understand and fulfil. Another contribution is a multitude of specific guidelines and recommendations that have been discovered in the participants' data. This study, unlike some other mobile payment projects, additionally devoted much attention to studying mobile payments in relation to other payment methods. The proposed theory with its well explained success factors can be used by providers to improve their current systems or better design new mobile payment initiatives.

# Table of Contents

Thesis Structure.....	1
1. Introduction.....	6
1.1 Mobile Payments Defined.....	6
1.2 Mobile Devices as Possible Payment Instruments .....	7
1.3 Mobile Payment Research Overview.....	9
1.4 Research Questions .....	15
1.5 Aims and Objectives .....	16
1.6 Mobile Payment Research Overview Update.....	17
1.7 Impact and Significance .....	19
1.8 Personal Motivation .....	20
1.9 Scope of the Study.....	21
1.10 Overview of Existing Mobile Payments .....	24
1.11 Chapter Review.....	27
2. Theoretical Background and Methodology.....	29
2.1 Research Framework.....	29
2.2 Constructionism as the Epistemology .....	30
2.3 Interpretivist Symbolic Interactionism as the Theoretical Perspective.....	32
2.4 Grounded Theory as the Research Methodology.....	34
2.5 Qualitative Research Methods .....	40
2.6 Chapter Review.....	43
3. Rigour and Quality of Research .....	46
3.1 Review of Quality Criteria in Qualitative Research.....	46
<i>Burns's (1997) reliability, internal validity and external validity.....</i>	<i>47</i>
<i>Stenbacka's (2001) objection against reliability criterion .....</i>	<i>48</i>
<i>Lincoln and Guba's (1985) essential criteria for quality.....</i>	<i>48</i>
<i>Beck's (1993) components of rigour.....</i>	<i>48</i>
3.2 Procedures Used to Improve Research Quality.....	51
<i>Triangulation.....</i>	<i>51</i>
<i>Participants guiding the data collection process.....</i>	<i>52</i>
<i>Constant comparison method.....</i>	<i>53</i>
<i>Member checking .....</i>	<i>53</i>
<i>Participants' terminology used to generate the theory.....</i>	<i>54</i>
<i>Transparency of research design reporting .....</i>	<i>54</i>
<i>Multiple coding.....</i>	<i>55</i>
<i>Verbatims in describing emerging theory.....</i>	<i>56</i>



<i>The theory that "works, fits, and is relevant"</i> .....	57
3.3 Chapter Review.....	57
4. Data Collection Principles and Procedures .....	59
4.1 Surveys and Interviews as the Main Strategy for Data Collection .....	60
4.2 Basics of Theoretical Sampling.....	62
4.3 Initial Broad Sampling .....	64
4.4 Subsequent Selective Sampling .....	71
4.5 Theoretical Saturation.....	74
4.6 Data Storage and Organization .....	79
4.7 Ethical Considerations .....	81
4.8 Chapter Review.....	84
5. Data Analysis Principles and Procedures .....	86
5.1 Coding Process Basics .....	87
5.2 Substantive Coding.....	89
<i>Open coding</i> .....	90
<i>Selective coding</i> .....	92
<i>Computerization issue</i> .....	93
5.3 Theoretical Coding .....	98
5.4 Chapter Review.....	100
6. Emerging Theory .....	102
6.1 The Concept of Theory .....	102
6.2 Basics of the Emerging Theory.....	103
6.3 Providers .....	106
<i>Devising suitable revenue models</i> .....	106
<i>Cooperation between players</i> .....	108
<i>Understanding players' strengths and capabilities</i> .....	113
6.4 Consumers .....	119
<i>Consumers' adoption factors</i> .....	119
<i>Education about the benefits</i> .....	146
6.5 Merchants .....	148
<i>Merchants' adoption factors</i> .....	149
<i>Education about the benefits</i> .....	150
6.6 Technology .....	151
<i>Available features of devices</i> .....	151
<i>Available technologies</i> .....	152
<i>Solving specific technical problems</i> .....	153
6.7 Society .....	154
<i>Cultural influences</i> .....	155
<i>Number of mobile phone users</i> .....	155
6.8 Authorities .....	157

<i>Legal issues</i> .....	157
<i>Taxation issues</i> .....	158
6.9 Chapter Review.....	159
7. Literature Review: Refining the Theory .....	162
7.1 The Role of a Literature Review in Grounded Theory .....	163
7.2 Theories Explaining Technology Adoption and Diffusion.....	165
<i>Diffusion of Innovations (DoI)</i> .....	166
<i>Perceived Characteristics of Innovating (PCI)</i> .....	169
<i>Theory of Reasoned Action (TRA)</i> .....	170
<i>Theory of Planned Behaviour (TPB)</i> .....	172
<i>Technology Acceptance Model (TAM)</i> .....	173
<i>Decomposed Theory of Planned Behaviour (DTPB)</i> .....	174
<i>Unified Theory of Acceptance and Use of Technology (UTAUT)</i> .....	176
<i>Task-Technology Fit (TTF)</i> .....	178
<i>Theory of Network Externalities</i> .....	180
7.3 Theories Explaining Adoption and Diffusion	
of Mobile Payments or Related Services.....	182
<i>TAM extensions</i> .....	182
<i>Factors driving u-commerce</i> .....	187
<i>Innovation versus infrastructure factors</i> .....	188
<i>Competitive and contingency factors</i> .....	190
<i>Moderating factors</i> .....	191
<i>Technology versus user-oriented factors</i> .....	193
<i>Multi-criteria approach</i> .....	194
<i>Additional success factors</i> .....	195
<i>Players' strengths and capabilities</i> .....	207
<i>Mobile payment consortia objectives</i> .....	213
7.4 Chapter Review.....	219
8. Final Discussion.....	221
8.1 Against Forcing of Data .....	222
8.2 Factors Confirmed in Data and Literature.....	223
8.3 Factors Emerged from Data but not Confirmed in Literature.....	224
<i>Factors summary</i> .....	224
<i>Discussion</i> .....	225
<i>Conclusion</i> .....	227
8.4 Factors Proposed in Literature but not Confirmed in Data .....	228
<i>Factors summary</i> .....	228
<i>Discussion</i> .....	232
<i>Conclusion</i> .....	244
8.5 Chapter Review.....	246

9. Conclusions .....	248
9.1 Main Contributions of this Study.....	248
9.2 Implications of Findings.....	251
<i>Implications of the proposed theory.....</i>	251
<i>Implications in the providers perspective .....</i>	253
<i>Implications in the consumers perspective.....</i>	251
<i>Implications in the merchants perspective.....</i>	256
<i>Implications in the technology perspective.....</i>	256
<i>Implications in the society perspective .....</i>	257
<i>Implications in the authorities perspective .....</i>	258
9.3 Research Limitations and Future Directions.....	261
9.4 Strengths of this Research .....	262
<i>Significance .....</i>	262
<i>Sound and relevant theoretical background.....</i>	262
<i>The theory grounded in empirical reality.....</i>	263
<i>Rigour and quality of the research .....</i>	263
<i>Other payments' perspective.....</i>	264
<i>Direct implications for providers .....</i>	265
<i>Impact value of this study.....</i>	265
<i>Holistic and multi-perspective research and theory.....</i>	266
References.....	268
Appendix A .....	283
Appendix B.....	289

# List of Figures and Tables

## Figures

Figure 1: Thesis structure.....	5
Figure 2: Mobile payment publications up to 2003, both in total, and as they appeared in conferences and journals .....	11
Figure 3: Topics of mobile payment publications up to 2003 .....	12
Figure 4: Topics of mobile payment publications over the years.....	13
Figure 5: Topics of mobile payment publications up to 2006 (Dahlberg et al, 2007).....	18
Figure 6: A research framework.....	30
Figure 7: Advantages of using qualitative research methods in this study .....	43
Figure 8: The research framework employed in this study.....	44
Figure 9: Screenshot of an open-ended Web survey for industry participants.....	68
Figure 10: Screenshot of the users' Web survey with the focus shift to other payment methods .....	70
Figure 11: Screenshot of an email interview with an industry participant on an emerging category of Understanding players' strengths and capabilities .....	71
Figure 12: Screenshot of a summary of various occupations and ages of the participants .....	78
Figure 13: Screenshot of the first page of the users' Web surveys .....	83
Figure 14: Coding a piece of survey data into a category using the drag-and-drop technique.....	94
Figure 15: A memo example in NVivo.....	96

Figure 16: An example of a category code with the relevant text that has been coded into it displayed on the right-hand side.....	97
Figure 17: Examples of attempts to integrate codes and properties into a theory .....	99
Figure 18: Proposed model that has emerged from data analysis .....	105
Figure 19: The Providers perspective in the emerging theory .....	118
Figure 20: The Consumers perspective in the emerging theory .....	148
Figure 21: The Merchants perspective in the emerging theory.....	151
Figure 22: The Technology perspective in the emerging theory.....	154
Figure 23: The Society perspective in the emerging theory.....	157
Figure 24: The Authorities perspective in the emerging theory .....	159
Figure 25: Highlighted codes that have been confirmed in literature.....	223
Figure 26: Final refined theoretical model .....	245

## Tables

Table 1: Authors of mobile payment publications up to 2003.....	14
Table 2: Examples of mobile payments based on voice calls, messaging sessions, and mobile Internet over mobile telecommunications networks .....	25
Table 3: Examples of mobile payments based on short-range wireless technologies, including NFC, Infrared, and Bluetooth.....	26
Table 4: Data collection methods and information about the participants .....	76
Table 5: Constructs of the Dol theory compared to factors of the theory emerging in this study .....	168
Table 6: Constructs of the PCI theory compared to factors of the theory emerging in this study.....	170
Table 7: Constructs of the TRA compared to factors of the theory emerging in this study .....	171
Table 8: Constructs of the TPB compared to factors of the theory emerging in this study .....	173
Table 9: Constructs of the TAM theory compared to factors of the theory emerging in this study .....	174
Table 10: Constructs of the DTPB compared to factors of the theory emerging in this study .....	176
Table 11: Constructs of the UTAUT theory compared to factors of the theory emerging in this study .....	178

Table 12: Constructs of the TTF theory compared to factors of the theory emerging in this study .....	180
Table 13: Constructs of the TNE compared to factors of the theory emerging in this study .....	181
Table 14: Constructs proposed in the TAM extension studies compared to factors of the theory emerging in this study .....	186
Table 15: Constructs proposed as the drivers of u-commerce compared to factors of the theory emerging in this study .....	188
Table 16: Constructs of the infrastructure traits theory compared to factors of the theory emerging in this study .....	189
Table 17: Competitive and contingency constructs compared to factors of the theory emerging in this study .....	191
Table 18: Proposed constructs compared to factors of the theory emerging in this study .....	192
Table 19: User-oriented constructs compared to factors of the theory emerging in this study .....	193
Table 20: Constructs of the multi-criteria theory compared to factors of the theory emerging in this study .....	195
Table 21: Success factors found in the literature compared to factors of the theory emerging in this study .....	206
Table 22: Players' capabilities from the literature compared to factors of the theory emerging in this study .....	213
Table 23: Information about various mobile payment consortia compiled from their official websites .....	218
Table 24: M-payment consortia factors compared to factors of the theory emerging in this study .....	218
Table 25: Summary of the factors discovered in literature but not in the emerging theory .....	232