Mobile payment systems

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Mobile payments

- Mobile payments (or m-payments) are payments in which at least one part of the transaction is conducted using a mobile device (such as a mobile phone, smartphone, or Personal Digital Assistant) through a mobile telecommunications network, or via various wireless technologies.
- The mobile device must be highly portable (preferably handheld), and available to use anytime, anywhere.
Significance

- > 1.5 billion mobile phone users in the world
- A mobile phone is what many people never leave home without – take a ubiquitous device and add new functionality to it
- Small, personal, familiar
- To improve quality of life – make payments faster, more convenient, more secure, add value (new benefits)
- A mobile phone has: display, input capabilities, connection – what other payment methods are missing
- Numerous reports confirm the trend, e.g. Artur D Little’s report predicts the volume of m-payment transactions to be worth $37.1 billion in 2008
Focus of my research

• Despite the expectations, few successful systems, slow take up, customers not interested
• How to make mobile payment systems that the user will want to use
• Find out why the users have not accepted new m-payment systems, what would make them use new procedures – and then research how such systems can be created
Main problems

• Hardly any m-payment systems in Australia – 2 non-significant Telstra’s initiatives + new m-park system + Card Access Services for mobile merchants
• Can’t ask users about their experience using existing systems
• Finland, Spain, Japan, South Korea have a number of such systems
Advantages

• Very little research so far
• One research group in Finland, one in Germany, and one in Switzerland
• Plenty of potential users
• Because Australia so much behind – more need for research
Lit review

• Main topics in the literature so far: user acceptance, how to increase adoption, success factors, business models, standards bodies

• The theme is that technologies are there, but not used in a proper way
1st paper

• Classifying m-payments
• (e.g. m-commerce/ e-commerce/physical POS; e-cash/credit cards/debit from bank account; limited to one network/roaming/across countries etc)
• Useful because shows dimensions and perspectives for further research, organizes current knowledge
2\textsuperscript{nd} paper

- Case study, Simpay, first system that is supposed to be interoperable across European countries and networks
- Used dimensions from the 1\textsuperscript{st} paper to analyse it
3rd paper

- Theoretical model for increasing adoption, looking for necessary acceptance criteria in an m-payment system
- Based on some existing empirical findings, and extensions of Davis’s Technology Acceptance Model in mobile fields
- Perceived ease of use, usefulness, trust, mobility, cost, expressiveness were the main factors proposed
4th paper

• Analysing suitability of wireless connection technologies for mobile payments
• 2G, 2.5G, 3G mobile networks, infrared, Near Field Communication, Bluetooth
• WiFi, ZigBee not used in m-payments
• Analysed through the acceptance factors from the 3rd paper
• Not how good each wireless technology is, but how good a mobile payment system based on it can be – how (and if) to make the best use of each of these technologies in mobile payments
4th paper – 2 examples

• **2G – SMS or voice-based m-payment systems**
  – Often not convenient, many steps required
  – Takes longer than paying with cash, and often with cards, only whole dollars can be used in m-park, user has to have prior intention to use the system
  – User pays for a phone call or at least the cost of SMSs
  – Often not truly mobile – usually limited to one operator + when the battery or network down, no way to pay
  – Secure – no credit card details sent over the network

• **NFC (by Sony and Philips) – Motorola’s PayPass, and FeliCa transport cards added to a mobile phone + Nokia’s shell**
  – Easiest to use, just wave in front of the reader, can even stay in a handbag
  – All the functionality of a smartcard + input, output, and connection
  – Secure because such a small distance + user can call and block the functions if stolen + authorization of payment with PIN/fingerprint sensor
  – Truly mobile in countries with high smartcard penetration since thousands of compatible readers already there + can be used when the battery is down
  – Not cheap yet – only several high-end models
Present research

- Find out more about what the user wants, how such systems should be designed and implemented
- Now: exploratory surveys, in what situations the users would like to use it, how, what specifically they would need to start using such a system - qualitative
- Also talking to companies – Card Access so far
- Test hypotheses in the second stage of surveys (methodology chapter done, content validity, reliability, construct validity etc)
- Then try to match what the user wants with available technologies, devices – how to give it to them, design and prototype
Thank you

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