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Literature Review

Factors impacting the acceptance of mobile data services – A systematic literature review

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ABSTRACT

This research aims to explore the field of mobile data services and discover factors that influence their adoption. It constitutes a systematic literature review of 80 primary studies, with the goal of researching the field of acceptance of mobile data services. The review focuses on a broad field of mobile services to ensure the most valid results. In addition, it also focuses on the main mobile service categories to discover which of the acceptance models and factors are most suited for the analysis of each services category. It provides an aggregation of the most used factors, with their definitions and the extent of their usage. Furthermore, it tries to establish a basis for future works by aggregating the relations between factors and providing the rate of their significance. Additionally, it analyses the relation behaviour between different mobile service categories and tries to extract factors, that could be limited to certain mobile services. Finally, based on the data retrieved from the literature, the review tries to propose a generic model for each of the mobile service categories in order to help researchers in future mobile services research.

Contents

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1. Introduction

Mobile technologies and services are creating a wide area of business opportunities. They are enabled via the widespread use of different communication technologies and mobile devices. The main strength of mobile devices are mobile applications, which deliver various mobile services to their users, enhancing their flexibility, mobility and efficiency within business and everyday life domains. The field of mobile data services is rapidly developing and expanding, especially in the last decade, via the introduction of new technologies and mobile devices, i.e. smartphones and tablets (Boakye, 2015; NetLab, 2012). This extensive usage of mobile technology and Wi-Fi-enabled portable devices has convinced businesses and governments to prepare for transition from electronic to mobile services (Shaikh & Karjaluoto, 2015).

Many definitions for mobile data services or mobile services exist. Hong, Thong, Moon, and Tam (2008) defines mobile data services as an assortment of data communication services that can be accessed using a mobile phone over a wide geographic area via mobile telephone networks. On the other hand, Lu, Liu, Yu, and Wang (2008) refer to mobile services as all types of digital services via wireless networks accessible through any type of mobile device. They provide wireless access to the digitalized contents of the internet via mobile device (Kim, Choi, & Han, 2009). Therefore, by using mobile terminal equipment, consumers may conduct a vast area of activity comprised of transactions of services, goods and information with a monetary value via wireless network (Quan, Hao, Jianxin, & Per, 2010).

As noted in literature, mobile services can be divided into various subcategories: (1) Communication Services (e.g. e-mail, SMS, MMS, etc.), (2) Information Services (e.g. weather information, headlines, maps, traffic information, etc.), (3) Entertainment Services (e.g. mobile games, music, TV, ringtones, etc.) and (4) Transactional Services (e.g. making purchases, reservations, banking transactions, etc.) (Al-Debei & Al-Lozi, 2014; Cheng & Sun, 2012; Hong et al., 2008; Kuo & Chen, 2006; Nikou, 2013; Zarmpou, Saprikis, Markos, & Vlachopoulou, 2012). In this article, we focused on the above mentioned four mobile service categories, which are broad enough to encompass all the literature included in this review.

With the advancement of mobile technologies, mobile services are becoming more accessible to a broad range of users. They are particularly designed and intended for individuals, satisfying their diverse needs and expectations (Boakye, 2015). Therefore, the use of mobile services is primarily voluntary, which is why ensuring the conditions that impact their use is of vital importance. The acceptance of technology innovations is important for purchasing and using new products and the same goes for mobile services. Many studies have set out to explore the factors that can influence the acceptance of mobile services and in order to achieve this, they have relied on established acceptance models. Our preliminary review in the latter field provided us with the following acceptance models (Ovčjak, Polančič, & Heričko, 2013): (1) Technology Acceptance Model (TAM), (2) Theory of Planned Behaviour (TPB), (3) Theory of Reasoned Action (TRA), (4) Unified Theory of Acceptance and Use of Technology (UTAUT), (4) Diffusion of Innovation Theory (DOI, IDT), (5) Task Technology Fit (TTF), and other similar models, that are briefly explained below.

The Technology Acceptance Model (TAM), presented by Davis (1989) is an information systems theory that models how users come to accept and use technology. It indicates that Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) are the two main beliefs that determine one's intention to use technology. The model was extended to TAM2 by Venkatesh et al. in 2000 (Venkatesh, Davis, & College, 2000). In addition there is also a manuscript in preparation by the same author to extend the model to TAM3. As an alternative to the TAM model, Venkatesh et al. in 2003 proposed the Unified Theory of Acceptance and Use of Technology. It aims to explain the user intentions for using an information system and subsequent usage behaviour. Their theory holds that the following factors (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) are the direct determinants of usage intention and behaviour (Venkatesh, Morris, Davis, & Davis, 2003).

The Theory of Planned Behaviour (TPB) posits that individual behaviour is driven by behavioural intentions, where behavioural intentions are a function of an individual's attitude towards the behaviour, the subjective norms surrounding the performance of the behaviour, and the individual's perception of the ease with which the behaviour can be performed (behavioural control) (Ajzen, 1991). Meanwhile, the Theory of Reasoned Actions (TRA) similarly posits that individual behaviour is driven by behavioural intentions where behavioural intentions are a function of an individual's attitude towards the behaviour and subjective norms surrounding the performance of the behaviour (Fishbein & Ajzen, 1975). Diffusion of Innovations/Innovation Diffusion Theory (DOI/IDT) sees innovations as being communicated through certain channels over time and within a particular social system. Individuals are seen as possessing different degrees of willingness to adopt innovations and this is generally observed as that the portion of the population adopting an innovation is approximately normally distributed over time. Breaking this normal distribution into segments leads to the segregation of individuals into the following five categories of individual innovativeness (from earliest to latest adopters): innovators, early adopters, early majority, late majority, and laggards (Rogers, 1995). The task-technology fit (TTF) theory holds that information technology (IT) is more likely to have a positive impact on individual performance and be used if the capabilities of the IT match the tasks that the user must perform (Goodhue & Thompson, 1995).

The research in the field is already extensive. It ranges from the research of individual mobile services (Lee, Cheung, & Chen, 2007), specific mobile service categories (Leong, Ooi, Chong, & Lin, 2013), to the investigation of mobile services as a whole (Kim et al., 2009). Mobile services are investigated in respect to different viewpoints, e.g. mobile services' client platforms (Gerpott, Thomas, & Weichert, 2013), mobile services evolution (Jørstad, Dustdar, & van Thanh, 2005) and economics (Au & Kauffman, 2008), where the field of acceptance is the most prevalent. In the field of mobile service acceptance researchers analyse different aspects of behaviour, e.g.: the intention to adopt mobile services (Kim, Mirusmonov, & Lee, 2010; Kim et al., 2009; Quan et al., 2010), continued use intention (Boakye, 2015; Kim, 2010; Zhou, 2013c), future use intention (Bouwman, Carlsson, Walden, & Molina-Castillo, 2008), post-adoption behaviour (Kim, Lee, & Kim,