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Mobile taxi booking application service's continuance usage intention by users

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ABSTRACT

The long-term development of a mobile booking taxi application service depends on the continued use of its passengers. The aim of this study is to investigate the determinants of the mobile taxi booking application service's continuance intention, using the technology continuance theory by including the perceived risk and subjective norms. The data were collected by surveying 387 users of the mobile taxi application service. The data were analysed by applying the partial least squares technique. The analysis showed that the technology continuance theory has extensive power to explain the continuance intention to use the mobile booking taxi application. Subjective norms also have a significant effect on the attitude of mobile booking taxi application users which represents an important contribution to technology continuance theory extension. The theoretical and practical significances of the study have been discussed.

1. Introduction

A taxi carries out an important task of offering personalised service in the urban transportation system. The disparity between the taxi supply and passenger demand is one of the challenges of running an effective taxi service these days (Shen et al., 2015). This makes it difficult for travellers to be picked up on time, and available taxis must waste lots of time to get customers, which worsens the existing traffic congestion and the air pollution problem. Mobile taxi booking (MTB) Apps have been developed in cities as a bridge to connect passengers and taxis (Shen et al., 2015), and this is to deal with the above dilemma. The passengers use the MTB App to request a ride. With an MTB App, passengers can search for available taxis around them and make an order. They fix their locations by GPS or typing the target location, by which drivers can easily reach them (Chan et al., 2016). The app sends the request to the nearest available driver who then either accepts or declines the trip. The MTB Apps, such as Uber and GrabCar, are varying the method in which passengers book taxis.

With the fast outburst of the release of the new MTB Apps offering lower fares and a variety of payment methods, some top MTB Apps, such as GrabCar have revealed a drop in use (Pultan, 2016). Alternative MTB Apps, such as Uber, have been gradually gaining in popularity. As developers release more MTB Apps, users are now left with many opportunities to access them. It is very essential for the MTB App's service providers to know how to keep their present users. It is also very beneficial for the MTB's service providers to know how the users develop their continuance intent so that they can provide them with new MTB applications to satisfy their needs.

There are many benefits of the MTB Apps for taxi drivers. MTB Apps may add to taxi drivers' incomes if they are able to allow

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more bookings with less empty cruising and reduce operating costs and, at the same time, it may boost the supply of taxis. There will be a more relaxed working atmosphere with noiseless data. Fewer misunderstandings will result between the dispatcher and the driver on booking messages compared with the conventional radio wave booking system. And more significantly, it will offer customers a great experience and, as a result, enhance their satisfaction and loyalty (Keong, 2015).

In terms of the environment, MTB Apps may have a positive impact. This is because people may use public transportation more often if they are certain that they can later use a ride service. For example, someone might use a train to get to work rather than drive because they know that they can get home even if they miss the last train. Some people also use MTB Apps to get home or from public transportation, especially when the weather is rainy. Furthermore, most of the MTB companies require cars to be relatively new, which may be less polluting than the vehicles owned by the general population. In addition, most of the MTB companies provide incentives for fuel-efficiency.

Given the benefits of the MTB Apps for passengers, taxi drivers and environment, the expansion of their number, and the fierce competition amongst their providers, academics and experts strive to explore the factors that affect their use (Keong, 2015). The early acceptance of the MTB Apps does not guarantee continuation afterwards since passengers might re-evaluate their initial decision or experience emotional motivation shifts after their initial acceptance (Bhattacherjee, 2001; Bhattacherjee and Premkumar, 2004). Nevertheless, despite some researchers having surveyed the MTB pre-adoption behaviour of potential passengers (Keong, 2015), studies on continuance intention are still lacking. Without a clear understanding of the adoption behaviour of MTB's users over time, decision makers and MTB's service providers will not be able to improve the usage of MTB. So, the current study has carried out a research framework of the MTB App's continuance intent which is based on the theory of technology continuance by Liao et al. (2009). In addition, there is growing empirical evidence that perceived risk is a critical determinant of attitude towards technology usage (Im et al., 2008) and the subjective norm is an important factor amongst Asian consumers (Weng and de Run, 2013). These studies have identified the importance of the variables in explaining the attitude and continuance intent to use. Thus, the current study attempts to enrich the Technology Continuance Theory (TCT) by including perceived risk and subjective norms as predictor variables to improve our ability to understand the MTB App's continuance intention to use formation. In addition, this study changes the attention from the initial adoption to the continued use of the MTB App.

The remainder of this paper is organised as follows. The second section conceptualises the framework of the study by using the TCT and thereby derives the hypotheses. It is followed by the third section which outlines the methodology. The fourth section analyses the data and presents the outcomes. Finally, the fifth section talks about the findings, gives the theoretical and practical implications, as well as the limits of the current study and the recommendations for future ones.

2. Model conceptualisation and hypothesis development

This study aims to examine the continuance intent of the MTB App's users. Three models have been used as the general theories in earlier studies and they include: the Technology Acceptance Model (TAM), Expectation Confirmation Model (ECM), and Cognitive Model (COGM). The TAM was developed by Davis (1989) on the basis of the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975). Davis (1989) claimed that the two external factors that can motivate individuals' behavioural intent to use an information system (IS) are the perceived usefulness and perceived ease of use. The TAM has been applied to investigate the continuance intention to use (Karahanna and Straub, 1999; Taylor and Todd, 1995). The TAM, with its focal point on the initial approval of an IS, propounds that system use is in a straight line decided by the behavioural intent to use, and it is in turn aggravated by the user's approach as regards to the system's use (Liao et al., 2009). The inability to see the influence of external variables and barriers to technology acceptance is again an additional limitation of the TAM (Yarbrough and Smith, 2007). Therefore, several earlier studies have established that the TAM can have an improved illustrative power when used with extra external factors (Hu et al., 1999; Lee et al., 2003; Lin et al., 2012).

The ECM (Bhattacherjee, 2001) has recently been employed to explicate the users' behaviour to continually use an IS. The ECM was introduced to explain users' continuance intention to use a system. This shows that meeting users' needs is an influential parameter impacting on their constant use. The ECM has emerged from the literature of users' behaviour and has been mixed with empirical and theoretical outcomes of studies on the IS usage in order to form the IS continuance model (Bhattacherjee, 2001). According to the model, it is suggested that customers' continuance intent is rooted in their satisfaction with using the IS and the perceived usefulness of the continued IS use. However, confirmation of the expectation from prior use of the IS and the perceived usefulness affect the users' satisfaction. Unlike the TAM, the ECM pays attention to the factors that influence continuance and retention because an IS's viability and achievement are affected by the continuous use rather than the first-time usage (Bhattacherjee, 2001; Liao et al., 2009). COGM was developed by Oliver (1980) who proposed both attitude and satisfaction as determinants of behavioural intention.

The TCT has been used to describe the continuance usage intent of the MTB App amongst users in this study. The TCT was recommended as an improved model for the IS continuance that is appropriate for the total life cycle of acceptance (Liao et al., 2009). Three models, TAM, ECM, and COGM, with their six constructs, which are: confirmations, satisfaction, perceived usefulness, perceived ease of use, and attitude, have been synthesised to create a condensed model. The major strong point of the TCT is that satisfaction and attitude are merged into one single continuance model whilst keeping the well-determined variables of perceived ease of use and usefulness as the first level of antecedent (Liao et al., 2009). Compared with the ECM, TAM, and COGM, the TCT was favoured for this research because of its explaining power for the adoption of the whole life cycle. According to Liao et al. (2009), unlike the ECM, TAM, and COGM models, the TCT qualitatively and quantitatively provides a considerable improvement in order to explain the consumers' attitudes at different stages of confirmation. The TCT quantitatively represents a powerful explanation both

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