MOBILE BANKING IMPLEMENTATION IN INDONESIA: THE PERSPECTIVE OF DIFFUSION OF INNOVATION IN ACCOUNTING

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Introduction

Mobile banking is one of the most phenomenal banking services offered today. Mobile banking allows customers to directly access via their smartphones. Mobile banking is an innovation revolution supported by the fastest development of communication technology in the world (Bharti, 2016). Mobile banking services are generally the same as internet banking and Automatic Teller Machines (ATM), such as billing, fund transfers, purchases, account information, exchange rate information, and e-wallet top-up. In addition, mobile banking charges are generally more affordable than internet banking and ATM.

In some countries, mobile banking services have been offered for quite a long time. In Saudi Arabia, mobile banking has been introduced by large and small banks (Al-Jabri & Sohail, 2012). Zhou (2011) states that mobile banking has also been implemented for quite a long in China, especially among students. Mobile banking is also developing rapidly in Iran, among teachers/lecturers and students (Toloie & Bayanati, 2012). Moreover, Ling et al. (2015) reports

that, in Malaysia, the implementation of mobile banking is very popular, especially among students.

In Indonesia, mobile banking has been implemented since 2003. However, mobile banking was initially combined with internet banking, also known as electronic banking. Over the last decade, internet banking has been widely used by banking customers in Indonesia compared to mobile banking. In recent years, the Indonesian government and several banks in Indonesia have promoted the use of mobile banking for all their customers. Thus, mobile banking has become an alternative banking service that is widely used by bank customers in Indonesia. By 2020, there are more than 22 mobile banking applications that can be downloaded for free by all banking customers in Indonesia.

In the context of student life in Indonesia, mobile banking is currently very popular, especially among accounting students. Students generally use mobile banking for online shopping transactions. The convenience and ease of payments integrated with leading online marketplaces in Indonesia such as Tokopedia, Shopee, Lazada, Bukalapak, and others have made mobile banking increasingly popular among accounting students at Universitas Sumatera Utara (Kesuma et al., 2020). The open-mindness and easy-to-accept new technology are also the reason why mobile banking is popular among students (Ling et al., 2015). Single Tuition Fee, that used to require going to the bank and standing in long queues, is now shifting to payment via mobile banking by several universities in Indonesia.

Successful adoption of mobile banking occurs when users have made the decision to adopt it (Ravichandran & Madana, 2016). According to the Diffusion of Innovation theory, five main indicators can be used to accelerate the adoption of innovations in relation to individuals, groups, or social systems. These indicators are relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003).

This article explores the adoption of mobile banking in Indonesia and the role of Diffusion of Innovation theory in the adoption of this innovation. This article consists of several sections. After this introductory section, the concept of mobile banking and its adoption in Indonesia is discussed. The next section briefly discusses the theory of diffusion of innovations. Moreover, the diffusion of innovation theory and mobile banking adoption are discussed. The last section provides a conclusion.

Mobile Banking in Indonesia

Mobile banking is an evolution of internet banking that provides direct access to banking transactions via mobile applications (Laukkanen & Kiviniemi, 2010). Zhou (2011) defines mobile banking as the interaction between customers and financial institutions via smartphones. The main mobile banking services include domestic or international fund transfers, bill payments, and top-ups (Cruz et al., 2010).

The first mobile banking application was launched in the late 1990s in Germany when the German Company Paybox began partnering with Deutsche Bank (Shaikh & Karjaluoto, 2014).

Exelcom, in partnership with several banks, first introduced mobile banking in Indonesia in 1995 (Mauluddi, 2020). Exelcom is a cellular telecommunications operator that is now known as XL Axiata. Bank Central Asia was the first bank to implement and develop mobile banking services between 2001 and 2003, followed by other Indonesian banks (Riza & Hafizi, 2020). Initially, mobile banking was combined with web-based internet banking, known as electronic banking. However, in recent years, the use of mobile banking has been promoted by banks to increase customer trust through the utilization of mobile technology (Kurniasih, 2020). Several banks in Indonesia, particularly state-owned banks, have adopted this technology. In order to enhance their online banking services, state-owned banks in Indonesia in particular have adopted and implemented cutting-edge technology (Kesuma et al., 2016). Moreover, Indonesian banks are enhancing the convenience of mobile banking services. More users are switching to this service, which allows them to complete their financial transactions without having to go directly to the bank office or ATM (Mushofa & Lindiawati, 2018).

According to Sukma (2018), mobile banking provides accessible, anywhere and anytime services, allows users to access their most recent balance following the online transaction, saves time, and is free to use. The functions of mobile banking are also more comprehensive and easier to use through a smartphone application. Compared to internet banking services, mobile banking offers cost savings, faster service speed, and competitive strategies (Toloie & Bayanati, 2012).

In contrast, mobile banking has several weaknesses, for instance, some mobile banking applications are only compatible with certain providers, and data or network speeds vary by location, and daily transaction limits (Hussain et al., 2014). Mobile banking services typically consist of bill payments (electricity, water, internet, credit card, and insurance), fund transfers, purchases, digital wallet top-ups, printing bank statements, paying taxes, making investment deposits, and others.

Diffusion of Innovation Theory

The diffusion of innovation theory was developed in 1930 by a French scientist, Gabriel Tarde. In his book "The Law of Imitation," Tarde (1930) revealed that an innovation implemented by an individual or group is viewed from the perspective of time (Rogers, 2003). Tarde's idea was further developed by Everett M. Rogers in 1983 in a book entitled "Diffusion of Innovation". Rogers (1983) explains that the length of time it takes for an to be adopted by individuals or social groups depends on the decisions made during the innovation process, as does the innovation itself. Rogers (2003) further developed his theory and published the fifth edition of the book "Diffusion of Innovation Fifth Edition" in 2003.

Rogers (2003) defines diffusion as the process of spreading information among individuals or social groups over a period of time. On the other hand, an innovation is an idea, concept, process, and product or object discovery that is perceived as new. The wider society will adopt, implement, and accept this innovation (Rogers, 2003). The diffusion of innovation theory, thus describes how the innovation process is communicated to individuals or social systems. The

process of communicating innovation involves five stages (see *Figure 1*), knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2003).

1. Knowledge is the capability or understanding of how an innovation works when exposed to something new.
2. Persuasion is when individuals exhibit positive or negative attitudes toward innovation.
3. Decision is when an individual decides whether to reject or adopt the innovation.
4. Implementation is when an individual decides to adopt and incorporate innovation into daily activities.
5. Confirmation is when individuals begin to investigate the confirmation of their innovation decisions.

Before the decision-making stage, there are five main characteristics or indicators that can influence the decision-making to accept or reject an innovation. Apart from this, this characteristic is able to minimize the level of innovation uncertainty, influence the speed of a community in adopting new innovations, and increase the success of adopting an innovation (Indriyati & Aisyah, 2019).

According to Rogers (2003), the first indicator is relative advantage, which is a new innovation that is perceived to be better than previous innovations. The second indicator is compatibility, a new innovation that is perceived as being in accordance with existing values, and past experience, as well as accordance with individual or group needs. The next indicator is complexity, a new innovation that is perceived as difficult to understand or use. Trialability is the next most important indicator. Trialability is an innovation that can be tested first in a limited scope. The final indicator is observability, which means that the results of a new innovation can be clearly seen for an individual or group. According to Rogers (2003), the five main indicators of innovation play a very important role in persuasion in innovation decisions.

Previous research states that Rogers' diffusion of innovation theory is the most well-known and widely respected by researchers (Bradford & Florin, 2003; Forman, 2005; Grantham & Tsekouras, 2005). Initially, the diffusion of innovation theory was widely applied in anthropology, sociology, education, communication, marketing, geography, economics and management. Currently, diffusion of innovation theory has been used as the main reference for research, especially in information systems and accounting. In the past decade, diffusion of innovation theory was applied in research on the internet and mobile technology (Al-Jabri & Sohail, 2012; Chen et al., 2004; Forman, 2005; Nor et al., 2010; Park & Yoon, 2005). In Indonesia, several previous studies have also used diffusion of innovation theory in mobile and internet technology, including, Intani and Rikumahu (2020), Kurniasih (2020), Wiratno (2020).

Several studies agree that the diffusion of innovation theory is appropriate to be applied to information systems because of its ease of application and simplicity (Al-Jabri & Sohail, 2012; Nor et al., 2010; Park & Yoon, 2005). The diffusion of innovation theory is also an appropriate theory for predicting the level of use or adoption of new technology. In addition, the diffusion

of innovation theory can be modified by adding several constructs to increase its predictive power (Grantham & Tsekouras, 2005; Intani & Rikumahu, 2020; Moore & Benbasat, 1991).

Mobile Banking Adoption and Diffusion of Innovation

According to the diffusion of innovation theory, relative advantage is the perception that a new innovation is better than the previous innovation. A better level of relative advantage accelerates the implementation of the new innovation (Rogers, 2003). An individual who perceives that mobile banking has more value compared to previous banking services will quickly integrate mobile banking into their daily activities. Previous studies such as Mandatra and Sutarso (2019) and Kaur et al. (2020) find that relative advantage has a positive and significant effect on mobile banking adoption.

Diffusion of innovation theory views compatibility as a perception that new innovations are by existing values, past experiences, and individual or group needs. A high level of compatibility with an innovation accelerates the implementation of the innovation (Rogers, 2003). Nor et al (2010) suggest that online banking services need to adapt to current lifestyles or needs of the time. This is supported by previous researchers such as Al-Jabri and Sohail (2012), Ravichandran and Madana (2016) and Sukma (2018) who argue that compatibility has a significant influence in accelerating the adoption of mobile banking.

In the context of complexity, the diffusion of innovation theory assumes that an innovation is perceived as difficult to use and understand. Rogers (2003) believes that low complexity in terms of using new innovations will accelerate the implementation of the innovation. In general, mobile banking services were created to provide more convenience to customers in direct transactions (Lin, 2011). Features were modified to make all services simpler and easier to use (Latip et al., 2017). Thus, if mobile banking has a high level of complexity, it will slow down customer adoption (Akmalia & Rikumahu, 2020). Indriyati and Aisyah (2019), Entele

(2019), and Kurniasih (2020) agree that complexity needs to be minimized to accelerate mobile banking adoption.

According to the diffusion of innovation theory, trialability is a new innovation that can first be tested in a limited scope. Thus, if the innovation can be tested, it accelerates the adoption of an innovation (Rogers, 2003). The use of mobile payment methods by developers has a significant influence on the use of mobile banking, this will minimize user concerns and motivate other users to adopt mobile banking (Intani & Rikumahu, 2020). New users of mobile banking will tend to try it out first before deciding to implement it. Therefore, if mobile banking can be tested, it will further accelerate the adoption of mobile banking (Mushofa & Lindiawati, 2018). Kurniasih (2020), and Nor et al (2010) state that trialability has a positive effect on mobile banking. They also emphasize that trialability makes it easier and faster to adopt mobile banking.

Finally, Diffusion of innovation theory explains that observability is a new innovation that can provide benefits for an individual or community. An optimal level of observability will therefore accelerate the adoption of the innovation itself (Rogers, 2003). Observability in the context of mobile banking is the personal perception of the use of mobile banking will provide clear benefits (Cruz et al., 2010). An individual will get direct benefits from using mobile banking if these benefits can be seen so that it will speed up the adoption of mobile banking (Al-Jabri & Sohail, 2012). Kaur et al. (2020), and Entele (2019) agree that observability has a positive effect on mobile banking adoption and recommending the service.

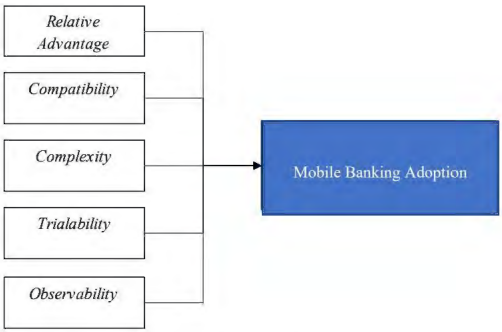

Figure 1. Mobile Banking Adoption and Diffusion of Innovation

Conclusion

Currently, mobile banking is one of the most popular banking services. Mobile banking is an evolution of internet banking which provides primary access to banking transactions through mobile application. In Indonesia, the government together with several leading banks in Indonesia have promoted the use of mobile banking to all their customers. Currently, mobile banking is widely used by bank customers in Indonesia. Mobile banking is widely popular among students in Indonesia, particularly accounting students. Students generally use mobile banking for online shopping transactions. The convenience and integration with the leading online marketplace in Indonesia are some of the drivers of increasing mobile banking adoption.

According to the Diffusion of Innovation theory, to accelerate the adoption of innovation either in terms of individuals, groups or social systems. The Diffusion of Innovation Theory can be used to accelerate the adoption of innovations, both in terms of individuals, groups or social systems. Moreover, the diffusion of innovation theory is an appropriate theory for predicting the level of use or adoption of new technology, including Mobile Banking. The diffusion of innovation theory proposes five key indicators to accelerate mobile banking adoption. These indicators are relative advantage, compatibility, complexity, trialability, and observability. Several previous researchers agree that the five indicators suggested by the Diffusion of Innovation theory are able to accelerate the adoption of an innovation.

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