

## Technology on E-Payment Systems

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**Abstract.** The purpose of this study is to examine the importance of technology in business, especially in terms of transactions. The method used in this study was a descriptive method by reading from various international and domestic journals. The results of this study were identification of how simple and important technology was in influencing payment systems that were slowly changing from conventional to electronic payments (e-payment). We also discussed what information related to e-payment, such as safety, functions, and available features from using this e-payment system.

### 1. Introduction

A payment system is an interaction or fund transfer activity consisting of two or more actors who have the goal to meet the needs and obligations in the present or the future [1]. One business expert stated that the scope of the technology, namely manufacturing products and services and technology in the business field are human knowledge, equipment, work methods, processing systems, electronic equipment, communication equipment, hardware, and software used [2]. Another research explains that electronic payments were already have been invented. The use of electronic payments for transactions began in the early 1970s in the financial sector. Many applications involve Electronic Funds Transfer (EFT) as the movement of money from financial institutions through telecommunications networks. Even the Automated Teller Machine (ATM), which began in the 1980s, is an electronic form of payment. Every time people use an ATM, it means they involve transactions made through a computer network [3]. With the increasing number of users on the internet and market shifts to the internet, the role of electronic payment systems is very important. In this study, we consider electronic payment systems where the payment instrument is e-cash. These systems are divided into two types, namely online and bidding. The online electronic payment system is a system wherein money transfers between the payer and the recipient of the payment are made in the presence of a third party, usually a bank or an ATM, and guarantee on the authenticity of the money transferred [4].

Electronic payments in e-commerce refer to online transactions made through the internet, although there are many other forms of electronic payments. Electronic payments can also be interpreted as a payment process that is carried out without using paper money. The electronic

payment system consists of credit card transactions, electronic wallet (e-wallet) and electronic cash (e-cash) [5]. The new type of e-money scheme has been introduced. The dominant form of the e-money system is server-based. Top-up funds will be saved on a central server. They guarantee users will get greater convenience and lower regulatory costs than the first generation of e-money. E-money is divided into two sub-categories: first, it consists of a new type of e-money account with email address or phone number, and second, it offers prepaid funds specified amount by providing access numbers to funds that can be entered for expenses [6]. Other research explains the most important ingredient for strong growth in conducting electronic commerce, in the long run, is e-payment [7]. The revolution caused by information and communication technology (ICT) has resulted in many e-commerce that has also created new finance, which in many cases is difficult to fulfill by traditional payment systems. In this case, almost all e-commerce explores various types of electronic payment systems as well as issues around electronic payment systems and digital currencies [8].

Nonetheless, payment systems with poor security practices can disrupt the developing economic stability. Security failures can result in the use of financial resources being inefficient [9]. An efficient electronic payment system is essential in business today. Nevertheless, payment systems in this manner can cause many security issues. However, it can also maintain public security such as preventing fraud because protecting customer privacy is important. [10]. Many researchers focus on the system and security in e-payment while we are focusing on the functions, effects, and usefulness of it. The purpose of this study is to identify technologies that can change payments more easily. The research used a descriptive method.

## **2. Method**

This research used a descriptive method. In collecting the data, we collected them from various sources of international and domestic articles. Through this method, we discovered the modern payment system and also used previous research on related matters with technology as a payment system. This research used DANA as case study.

## **3. Results and Discussion**

An expert said that the field of the technology for products (manufacturing) and services in the business field are human knowledge, equipment, work methods, processing systems, electronic equipment, communication equipment, hardware, and software [2]. To facilitate the payment, a lot of e-payment companies offered different types of products so that the customers were more comfortable. Moreover, they offered promo to attract new potential customers.

E-payment allowed its users to make transaction without using paper money. However, they still needed to have enough balance on it. They simply had to bring their cellphone and installed the application. Many features were available on the main menu. On DANA application, some features such as Games, Digital Vouchers, Cashout, Electricity, Water, BPJS, and many more might greatly facilitate customers (see Figure 1).

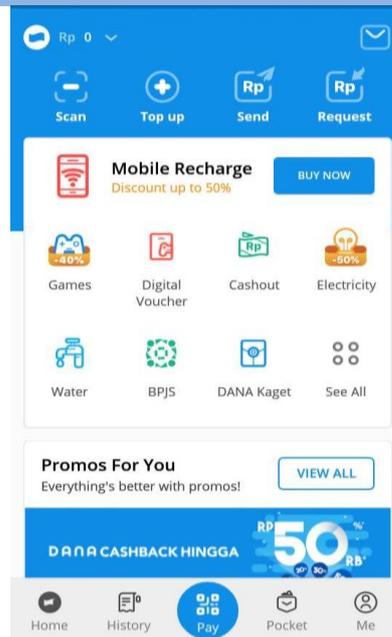


Figure 1. Main Menu.

On the Top Up display, customers would top up the balance directly through its application by clicking Top Up and selecting the available payment methods. These features accepted payments via debit card, bank transfer, agent, and others (see Figure 2).

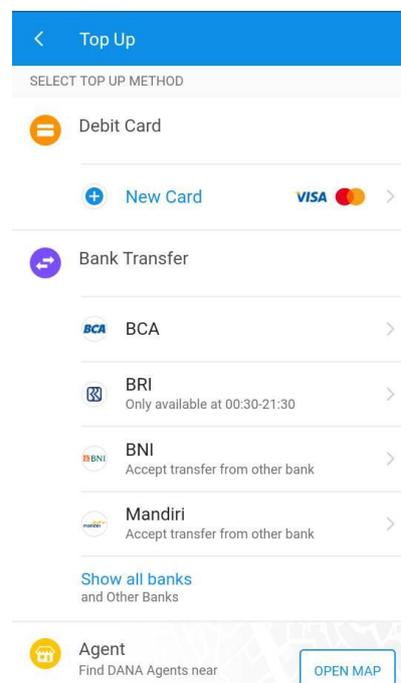
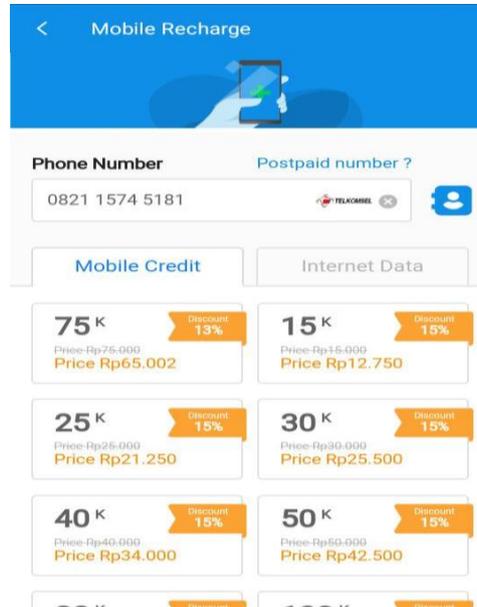


Figure 2. Menu Top Up Balance

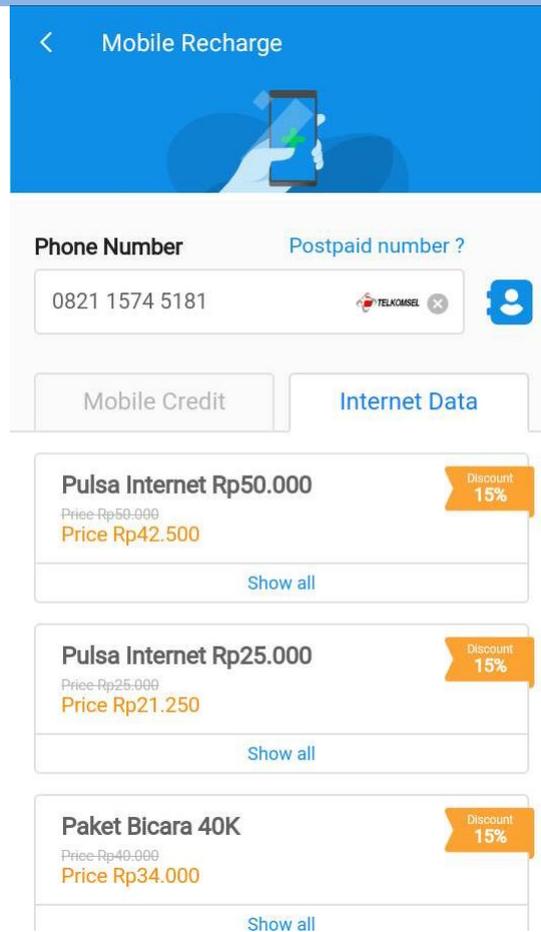
On the DANA application menu, there is Mobile Recharge feature for purchasing mobile credit and internet data. If you wanted to purchase the mobile credit, you could click on the

mobile credit menu, enter the phone number, and if the number was correct then there would be the list of providers. Afterward, you had to click the nominal amount (see Figure 3).



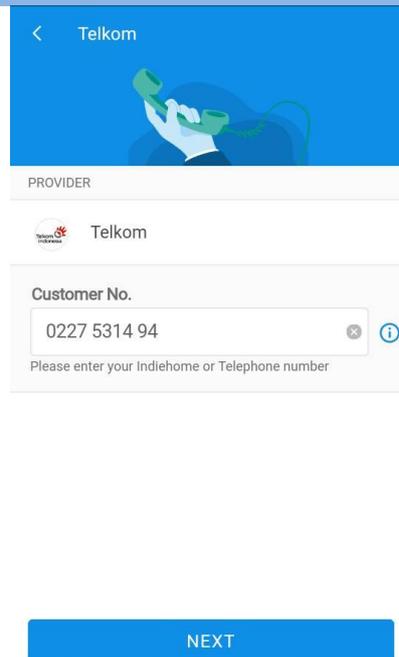
**Figure 3.** Mobile Credit Menu

Besides mobile credit, DANA also offered internet data. We had to enter the phone number, then selected the desired package (see Figure 4).



**Figure 4.** Menu Internet data

Then, there was Telkom payment menu for paying the Indiehome internet bill. We had to click on the Telkom menu, then entered the telephone number (see Figure 5).



**Figure 5.** Menu Feature Telkom

After that, we had to click the Next button. If the number was correct, detailed information about payment such as the total price, then the due date, the name of the customer, customer ID would be displayed on the screen (see Figure 6).



**Figure 6.** Payment Detail

On the other hand, if the balance was insufficient, we could immediately top up the balance in the menu (see Figure 7).

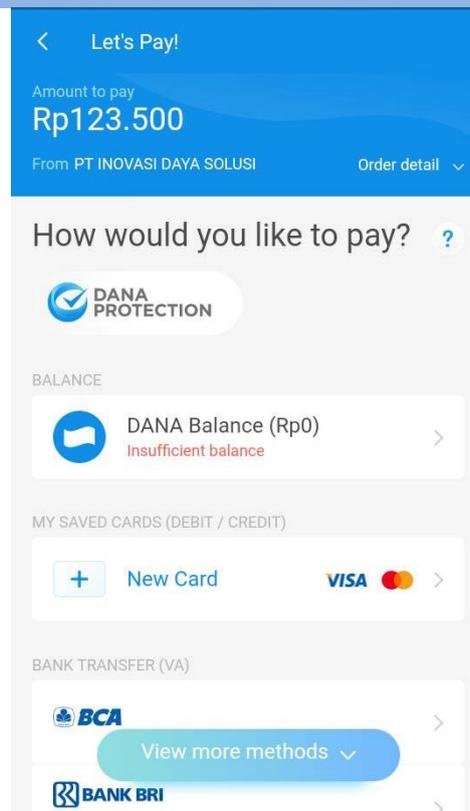


Figure 7. Payment Transaction

The payment of insufficient balance could be done with debit or credit cards, bank transfers, and others.

#### 4. Conclusion

In conclusion, with the development of technology, it was able to shift the payment method. The existence of e-payment can facilitate the payment process. The use of e-payment is also easy, effective, and efficient to save time because it does not require a lot of time to make transaction.

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