The Efficiency and Effectiveness of E-Wallet Systems in E-Commerce Platforms

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Abstract
As technological developments change over time, we can see many organizations that use information systems as the main system to ensure the smooth running of the organization. It is common knowledge that information systems are used to turn data into a useful source of information for decision making in an organization. E-wallet is one of the systems that have been created to be one of the alternatives for payment other than paying by cash or online banking. Many companies provided an e-wallet system such as Touch ‘n Go e-wallet, Boost e-wallet, GrabPay e-wallet, ShopeePay and MAE. This system provided many benefits to users to attract them using the e-wallet system. E-wallet can be one of the best alternatives for payment because it’s very practical and saves time.

Keywords: information, system, e-wallet, Touch ‘n Go e-wallet, easier, effective

I. INTRODUCTION

In the era of globalization, we all know that the information system is an inseparable system in today’s life. Generally, many of us think of information systems as systems that learn about “Excel”, “the components in computers” and “Databases” [1]. That’s right. Generation nowadays is very expert in using the systems available in computers by simply learning through platforms like YouTube. But what is the real meaning of an information system? According to Wikipedia, an information system is a formal, sociotechnical, organizational system designed to collect, process, store, and distribute information. In other words, information system involved gathering the data from specific sources, processing and changing into useful information before distributing the information for support human activities system such as information use for decision making in organization. This system also becomes a system of communication between people [2].

All program in business need to learn about information systems. This is because businesses place great emphasis on systems to store information in the form of files in computers or pen drive that are easy to store and do not require large space (meaning that it can be accessed at any time) such as customer data, monthly sales etc [3],[4]. How does the system in the computer work? In general, we need to know the important

components in a computer to make it work as programmed. Hardware, software, and data are systems under the technology category. The basic processes required in an information system are input, processing, and output. An analogy can be made such as the process of producing clothes [5]. The raw material like fabric satin, cotton is an input. From raw material to be the production of clothes must go through some process called processing. So, the resulting output is a shirt. Customer Data Management (CDM) and Customer Relationship Management (CRM) are two areas of knowledge that students and anyone interested in business management should study. Customer Data Management (CDM) is a solution method for collecting, managing, and analysing customer data, according to Techopedia [6],[7],[8]. While Customer Relationship Management (CRM) is a strategy widely used by companies and organisations to record and manage their overall data and interactions with current, past, and potential customers (including related integrated information systems and technology, often in the form of software), Customer Relationship Management (CRM) is a strategy widely used by companies and organisations to record and manage their overall data and interactions with current, past, and potential customers [9].

One of system which is found in information systems and has been used by all around the world is an electronic wallet (e-wallet) system. What is the e-wallet system? Ewallet system is the one of the electronic payment other than online banking that connected to our bank, or we can just simply top up with one-off transaction to make a payment [10]. This is easier for us because we didn't have to line up at bank to cash out the money to buy something. According to Wikipedia, a digital wallet, also known as ewallet is an electronic device, online service, or software program that allows one party to make electronic transactions with another party bartering digital currency units for goods and services [11],[12],[13]. This system is very practical for those who really like to be cashless. And as we can see, many public transportations, mall, supermarket has provided payment services using e-wallet like 'Touch n G e-wallet, Boost e-wallet and GrabPay e-wallet. This application can be installed in the smartphones so we can just bring our smartphones [14].

Of course, e-wallet can be multifunctional for us. Apart from being used to make payments in stores, e-wallet also provide online services for payment of electricity bills, telephone bills and water bills. Some of e-wallet also giving cashback to users like Touch n Go e-wallet. When using e-wallet, transfers can also be made from one user to another [15]. It's very convenient and faster rather than online banking because it can save time and can saves our money too. Our main objectives for this topic are to identify the types of e-wallet that available, advantages and disadvantages each of them and to identify the best choices among those types of e-wallets.

II. E-WALLETS IN MALAYSIA

A. Touch 'N Go E-Wallet

Touch 'n Go is at the core of Malaysia's digital revolution, paving the way for millions of Malaysians to enjoy a seamless consumer experience. Touch 'n Go has guided Malaysia's digital revolution toward a cashless society for more than two decades. What began as a convenience for commuters has evolved into a Fintech solution that is no longer limited to roads but has become ingrained in the lives of more than half of the country's population [16]. Touch 'n Go was founded with the goal of increasing Malaysian financial inclusion and has worked to rethink the role of Fintech in our lives on a national scale. With each new product launch, the company gets closer to

realizing its vision of providing a unified, seamless consumer experience [17],[18].

Touch 'n Go e-Wallet is a market pioneer that has aggressively expanded its reach across the country. TGV Cinemas, TeaLive, KFC, and Jaya Grocer are among the 70,000 merchant acceptance locations. The app can also be used to make payments to state water utilities such as SYABAS. Touch 'n Go e-Wallet took over a Ramadan bazaar in Kg Bharu during the recent fasting season before pandemic Covid-19, where over 400 booths accepted e-wallet payments [19]. The SS2 market is also dominated by Touch 'n Go e-Wallet.

Touch 'n Go e-Wallet also accepts dynamic QR code payments, which generate a unique code for each user transaction. Users can link their Touch 'n Go card to their e-wallet using PayDirect. Users can pay tolls by tapping their Touch 'n Go Card on the scanner or by using their existing Smart-TAG. The new RFID toll payment system is also powered by the Touch 'n Go e-Wallet. Touch 'n Go e-Wallet has made a concerted effort to integrate itself into the lives of its users rather than attempting to lock them inside its own [20],[21],[22].

The Touch 'n Go e-Wallet has, for the most part, made the most investments in cybersecurity. Touch 'n Go e-Wallet is secured using Artificial Intelligence (AI) and Machine Learning (ML) technology. In real time, the system learns a user's usage patterns and looks for odd activities [23], [24]. Behind this is a layer of human interaction, which guarantees that the AI does not mistakenly indicate anything that is outside of its predefined parameters.

When it comes to user security, Touch 'n Go e-Wallet stands out. This added layer of security against fraudulent transactions puts the Touch 'n Go e-Wallet ahead of the competition. In the event of an unauthorized transaction, Touch 'n Go e-wallet provides a Money-Back Guarantee. After filing a claim through the TNG Digital website or the Touch 'n Go e-Wallet app, the displeased customer will receive a full refund to their e-wallet within days.

Users must first validate their accounts by uploading photos of their NRIC front and back to be eligible for the Money-Back Guarantee. Users will then be prompted to send a selfie to prove ownership of the account and NRIC. Once verified, users have 60 days to report any unauthorized transactions and receive a full refund within five business days [25]. The funds will be refunded to your Touch 'n Go e-Wallet, and users can go about their business.

Because nothing is perfect, there are disadvantages among the many virtues it possesses. Touch 'N Go does not allow credit transfers from bank accounts. Users cannot transfer funds from their Touch 'N Go e-wallet balance if they do not have sufficient balance in their bank account. Users must, in fact, budget for their balance.

B. Boost E-Wallet

Boost is a self-created lifestyle e-wallet that functions similarly to other electronic wallets. Boost aims to make transactions easier, faster, and more secure for customers by fusing lifestyle demands with cutting-edge digital technology, while also providing a more rewarding overall experience [26]. Boost officially launched in January 2017 as a platform that digitised one of the telco's cores services - the process by which prepaid customers top up their mobile credit. Customers can use their cell phones to pay at participating locations, eliminating the need for cash or credit cards [27],[28].

Boost won the prize for lifestyle e-wallet, and it is one of the country's most well-known players, with partnerships with Maybank, CIMB, RHB Bank, Public Bank, Hong Leong Bank, and others [29]. The service is well-known in Malaysia, and it is available both online and in physical

locations. Users of Boost can also pay with UnionPay cards at any merchant that accepts them. Players can get up to eight times the coins, rebates, prizes, and Golden Tickets with their unique Shake Rewards programme. Samsung Pay and the Boost e-wallet were integrated in May 2020 to deliver a more seamless and secure cashless payment experience. Furthermore, the e-wallet startup has collaborated with Shell, allowing clients to pay for gasoline at 800 Shell stores nationwide [30]. Users will receive an RM5 rebate when they spend a minimum of RM40 using Boost at any participating Shell station. This app also offered Astro, Syabas, and Telekom bill payment alternatives, as well as parking payment choices at the Dewan Bandaraya Kuala Lumpur (DBKL) car parks in Kuala Lumpur. According to Boost, tiny and microbusinesses such as nasi lemak vendors, pasar malam vendors, and food truck operators account for around 60% of merchants on the platform. Its newest feature, the Boost Partner Wallet [31], allows you to earn cashback from participating partners, which you can then use on your next purchase with them.

Boost, on the other hand, does not provide a moneyback guarantee like Touch 'N Go. It means that if a user makes a mistake when making a transaction, they may easily lose money. For example, if a user enters the wrong number to pay for a mobile top-up, Boost will not refund the money because it is not guaranteed. Boost is popular among Malaysians not because of its large number of merchants, but because of its extensive use of cashback promotions to entice users to spend money through it.

C. Grabpay E-Wallet

At the beginning of grab's establishment in Malaysia, grab only offered transportation services with cash payment options or online payment gateway system. With the rapid advancement of the economy and technology, they have now provided various services such as food delivery, online hotel booking, insurance payment, shops and so on. To facilitate the payment of this service, they have provided GrabPay e-wallets like other e-wallets that have special features [32].

It's obvious that Grab has designed the GrabPay wallet to be the most convenient method to pay for their other services. Grabpay's user may pay for food to be delivered to your door in addition to paying for Grab trips. This provides Grab the benefit of being able to provide a fully integrated solution to its consumers, something other mobile wallets on the market cannot. To encourage even more, they've added the option of earning additional GrabRewards points if you pay for your Grab trips using GrabPay. The most special feature of Grabpay that is not available on other e-wallets is that users can book hotels [33]. They can browse the world's best hotel booking services and find top -class hotels at affordable prices directly in the Grab app.

However, the primary purpose of GrabPay is to attract more users into the Grab ecosystem, which aims to provide everything from transportation to delivery services. It places less emphasis on physical stores in this regard. At least for the time being.

D. Shopeepay

ShopeePay is very widely known in Malaysia as it has become popular when it comes on online shopping. ShopeePay is the e-wallet for an online shopping apps called Shopee. It was formerly named as Shopee Wallet, but it has upgraded and expanded the features, so it can only be used through the Shopee apps [34]. This makes the transactions in the apps runs smoothly and efficient.

There are four main advantages or features that user will gain by using this e-wallet. Users may enjoy all the features after

verifying their identity at the setting section. The first advantage is that, same as other e-wallets, ShopeePay allows the user to top up at any time through online banking or by visits the convenience store such as 7-Eleven [35]. This makes all payment transactions flows easily as nowadays, users mostly have online banking.

Other than that, user also may transfer money among them only by connecting from the mobile number that has been saved in the phone. This is very convenient especially for those users that does not have online banking or for those users that wanted to treat their friends and families for them to online shopping.

Next feature is that ShopeePay allows user to withdraw the money and directly will be added to their bank accounts. This feature somehow is very helpful at the times where user accidentally transfer a wrong big amount of money to their e-wallet. This feature may seem unnecessary, but it is actually really helpful. Moreover, users may request money from other user that they know by scanning the QR code on their respective apps [36]. The payer just needs to scan, and put the amount of money that they wanted to transfer in.

The last advantage is about the new feature that Shopee has introduced which is ShopeePay Later. It is basically functioned like its name where user can pay their stuff by one-off payment in the next month or by instalments that will automatically deduct their bank accounts every month. This feature is amazing and convenient especially for expensive item. This feature is finally introduced because users nowadays use Shopee as their main online shopping apps and rarely goes to the store to shop. Moreover, all the items that is sell at the store is also available in the apps, thus user can shop easily using the apps.

The disadvantage of ShopeePay is that this e-wallet is only limited to use using Shopee apps. It cannot be use as the main e-wallet that can be easily pay for everything at anywhere. So, users would have multiple e-wallets to use if they wanted to go for cashless in their daily life. This makes ShopeePay is not the best one yet so far among the e-wallet systems in Malaysia.

E. MAE

Maybank has introduced a new e-wallet to Malaysian. It is named as MAE (Maybank Anytime, Anywhere). MAE is describing as e-wallet with banking features by Maybank. It is not limited only to Maybank customers; everybody can enjoy this e-wallet just by downloading the Maybank App [37].

There are plenty of features and function offered by MAE, and unlike other e-wallet, MAE allows user to transfer out money easily. MAE now can be used widely at the retailers that accept Maybank QRPay. Maybank stated that there is over than 200,000 merchants that has register and accept Maybank QRPay [38].

Other than that, an interesting feature that only can be found in MAE is the Split Bill, which is very useful for those who wanted to split the bills among friends or families. MAE will help to calculate each bill, and the Maybank app notify them via the app. This feature is really amazing and helpful especially for those who loves to eat with their friends. Furthermore, MAE allow users to transfer and request money easily among them.

Next, this e-wallet also helps in managing your expenses and finance. It is because it has the feature of Tabung which conveniently act as your saving plan. User can set a target or amount of money that they wanted to save in a period, so MAE will help to manage it by recommending and reminding user to contribute to it. It is also really helpful for users that wanted to set a travelling plan, user can add another user to save up together [39]. This makes the trips expenses transparent and

easy to track any deduction while travelling. It also acts as user expenses tracker as it has the expense pie chart that divides the expenses by category, makes user clearly track the amount of money that they have spent.

MAE also can help user to buy movie tickets, flight tickets and other entertainment tickets. It makes them go for cashless and can avoid direct contact transaction in today's situation. Other than that, users also can reload their mobile number using this app. All these feature and advantages of course different in every e-wallets, but it is surely will makes the transactions easier and faster.

The disadvantage of MAE by Maybank is that there are limitations because in the end, it is still just an e-wallet. Thus, is cannot be use as the only e-wallet that one may have. Users cannot withdraw money from the ATM machines [40]. All withdrawal transactions still have to use the card. There are other certain transaction or payments that cannot be made using MAE such as paying big amount of money or making payment for car and mortgage loans.

MAE is very interesting app but of course everyone has its own preference when making cashless and online transaction.

III. DISCUSSION

After a thorough discussion, we concluded that Touch 'n Go as the main choice out of 5 eWallet systems. Touch 'n Go have been providing various type of payment from toll and now becoming a smartphone app where user can use it to shop their needs online, and making payments and at the shop. Touch 'n Go e-Wallet is one of three Malaysian e-wallet services (the others being Boost and GrabPay) that were qualified for an RM30 stimulus plan as part of the E-Tunai Rakyat programme, which encourages Malaysians to use cashless and mobile payment [41]. Unlike its competitors, GrabPay and Boost, which disabled P2P transfer functionality until users used up their RM30 stimulus plan balance, Touch 'n Go e-Wallet did not deduct an additional RM30 from users' user balance when they attempted to make a P2P transfer, allowing users to use P2P transfer functionality even if the stimulus plan balance remained in their account.

Since many users rely on these services to make takeout payments and zakat donations, Touch 'n Go e-Wallet and other rival e-wallet services have seen an increase in popularity since early 2020, amid the COVID-19 pandemic and the execution of the movement control order. If cashless payment is widely embraced, small and medium-sized firms should be able to develop and survive during the epidemic phase [42].

The Touch 'n Go e-Wallet app can be used on smartphones to access the Touch 'n Go e-Wallet. QR code technology is utilised for local in-store payments. The Touch 'n Go e-Wallet app can be used on smartphones to access the Touch 'n Go e-Wallet. QR code technology is utilised for local in-store payments. The Touch 'n Go e-Wallet app includes utility bill payment from telecommunications companies such as Unifi, Maxis, and Digi, loan repayments for courts, MBSJ payments, and PTPTN, car parking payment, P2P transfer, mobile prepaid top-up, airline ticket bookings, and movie tickets from TGV Cinemas. Customers with low credit balances can use the auto-reload tool to have their accounts automatically reloaded with gaming credits and prepaid phone credits using credit or debit cards stored in their e-Wallet [43]. Touch 'n Go e-Wallet also allows users to check the remaining balance on their physical Touch 'n Go cards, albeit they will not be able to reload them via the app.

Users can add their physical Touch 'n Go cards to their e-Wallet and use them at toll booths, with toll fares deducted from the e-Wallet balance rather than the physical Touch 'n Go cards. 2020 (Wong) The Touch

'n Go RFID Tag, which permits cars to pass through toll gates at RFID toll booths, can be used to pay for tolls [44]. The toll fares reduce the e-Wallet balance.

Touch 'n Go e-Wallet is the world's first and only e-Wallet with a money-back guarantee. Touch 'n Go e-Wallet has a security feature that, in the uncommon event that an unlawful transaction is made on the user's e-Wallet account, Touch 'n Go e-Wallet will return the disputed amount, providing the Money-back Guarantee Terms & Conditions are met.

Users can add their physical Touch 'n Go cards to their e-Wallet and use them at toll booths, with toll fares deducted from the e-Wallet balance rather than the actual Touch 'n Go cards. (2020, Wong) The Touch 'n Go RFID Tag, which enables cars to pass through toll gates at RFID toll booths, can be used to pay for tolls. Toll fees reduce the balance in the e-Wallet. Touch 'n Go e-Wallet is the world's first and only e-Wallet with a money-back guarantee [45]. Touch 'n Go e-Wallet has a security feature that, in the uncommon event that an unlawful transaction is made on the user's e-Wallet account, Touch 'n Go e-Wallet will return the disputed amount if the Money-back Guarantee Terms & Conditions are met.

Furthermore, Touch 'n Go and Visa have forged a strategic partnership in which the Touch 'n Go e-Wallet will be accepted into Visa's Fintech Fast Track Program, allowing Touch 'n Go direct access to Visa's global network of partners and affiliates. Touch 'n Go e-Wallet customers will soon be able to use a Visa prepaid card linked to the app, similar to BigPay and Maybank's MAE card, starting in 2022 [46]. According to Touch 'n Go, the new card would give users of the Touch 'n Go e-Wallet greater cash-out options by permitting last-mile withdrawals from Visa-enabled ATMs in Malaysia and abroad. Users of Touch 'n Go e-Wallet who want simplicity will soon be able to tap one source of funds with just one card and one app.

All the features mentioned have shown that Touch ‘n Go e-Wallet system is very useful for everyone because it will allow users to make payments and shopping easier. Out of the 5 e-Wallet systems, Touch ‘n Go e-Wallet provides better features and advantages despite some of the disadvantages.

IV. CONCLUSION

In a conclusion, e-wallets recently played a part in public transaction activities because of the efficacy and efficiency of transaction and security services controlled by E-wallet service providers. e-wallet is a payment system that provides a network service and programme that allows users to manage information linked to the purchase process, loyalty and membership programmes, and banking information. The usage of e-wallet is becoming increasingly popular in society, with users ranging from teens to adults, owing to its ability to meet people's demands through the convenience of transaction through the e-wallet.

E-wallet system give an importance role to the small-scale organization (SSO). A small-scale organisation (SSO) is a company that employs a small number of people and does not make a lot of money. These are often privately owned and run single proprietorships, corporations, or partnerships. As a result, developing an independent e-wallet application technique for a small-scale organisation (SSO) to exchange currency is essential. In this manner, the customer's money should be preserved virtually. A possible solution would be to replace the physical wallet with an online wallet incorporated with an existing mobile device or any communication device such as a smartphone, iPad, or small computer.

However, until now, Malaysia still lacks of promotion and exposer about the

effectiveness e-wallet in transaction because they believe that cash in hand is more secure than an e-wallet. This is the perspective of the older generation in comparison to the younger generation. In addition, the populace in rural areas is illiterate and unable to use computers. They are uninterested in online payments because they are uninformed of technical advancements. As a result, locals cannot use internet payment methods.

Besides, the recommendation to increase consumption of e-wallet the government and affiliated organisations must provide people with sufficient guidance and education so that they can make better use of this new technology, particularly in terms of the necessary payment option to assure success in the e-wallet application. Moreover, the community should be introduced and educated on variety of communication techniques such as GrabPay, Boost, Touch n Go e-wallet, MaybankQRpay, or Favepay, in order to prepare them to go advance with technology.

Next, in order to increase e-wallet acceptance the retailer and e- wallet service provider by providing customers with training on how to use payment systems and assuring users that their personal information will be secured, the chance of transferring money to the wrong wallet due to human and technological errors is reduced. Then, the government might potentially give retailers a one-time incentive if they start using e-wallet system. As a result, we will see a significant growth in the usage of e-wallets, and more shops will participate in the e-wallet payment system.

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