

ICTHM 2023**International Conference in Technology, Humanities and Management****DIGITAL PAYMENT IN MITIGATING TRADITIONAL CASH
PAYMENT FRAUD RISK: A SYSTEMATIC LITERATURE
REVIEW**

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Abstract

The purpose of this research is to describe how digital payments can mitigate the risk of fraud in traditional cash payments compared to digital payments. It addressed on how digital wallet payment could reduce fraud risk in traditional cash payment comparing to digital payment. Thematic analysis of a systematic literature review was used as research methodology in the study, which was supported by interviews and focus group discussions. Thematic analysis on systematic literature review was done from 86 articles that were ready to be extracted and analyzed from total 112 related articles found. Findings of the study concluded that there is a need to switch from cash to digital payment, subject to the obstacles and requirements in the switching process. Infrastructure, user safety, acceptability and availability, and the established ecosystem environment are among the obstacles. One of the outcomes of the switching process will be a reduction in fraud risk. These findings were in line with most of prior studies.

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1. Introduction

Transactions were carried out through bartering before the creation of money. Along the process, the payment system developed, giving rise to breakthroughs like credit cards in the 1950s, automatic teller machines (ATMs) in the 1970s, and debit cards in the 1980s. Digital payment systems became the current innovation as a result of the Internet innovation in the 1990s (Scardovi, 2017). E-wallets, e-cash, and e-credit cards are just a few examples of the several types of digital payment systems available (Rainer & Prince, 2019). This innovation movement has been underway for the past ten years, and it aims to replace conventional payment methods with cashless payment system (Scardovi, 2017). Digital payment systems in the banking and non-bank sectors were made possible by the Internet's development. The first innovation started with the introduction of mobile banking (Alt et al., 2018) and advanced to the creation of smartphone-operated e-wallet payment innovations.

Since the advent of the Internet, e-wallets and other mobile payment technologies have developed into a technology that both the banking and non-banking sectors may develop (Alt et al., 2018). Lowering costs, promoting disintermediation, and boosting transparency (Zavolokina et al., 2017). Digital payment later developed into fresh technologies like QR Payment, e-wallets, and mobile wallets. According to Bagla and Sancheti (2018), an electronic wallet or digital wallet can be accessed via a mobile phone or a personal computer. It is defined as "money is loaded into the wallet from the bank account using a debit/credit card or Internet banking in order to make payments to individuals/merchants using the same wallet, thereby providing a convenient cashless method" (Bagla & Sancheti, 2018, p. 444). According to Datareportal (2021), E-wallets now outnumber other digital payment methods like debit/credit cards, bank transfers, and so on in terms of usage in global e-commerce transactions.

The evolution of the payment system led to the development of innovations like credit cards in the 1950s, debit cards in the 1980s, and e-commerce in the 1990s, which eventually led to the development of the digital payment system (Scardovi, 2017), which is considered one of financial technology's (Fintech) most recent innovations. E -credit cards, e-cash, and e-wallet are all examples of electronic payment systems (Rainer & Prince, 2019). This type of innovation aims to eliminate risks and fraud associated with traditional cash-based payment systems, such as (Meena, 2017):

1. More convenient by reducing the transaction cost of carrying and doing business by cash.
2. Proper security and risk management in the e-payment system will lower the risk of doing a transaction using physical cash.
3. Suitable for the banking sector for transparency and monitoring transactions by the government.

For merchants, the benefit will be reduced cash handling and in-store queuing (Clark, 2005). The initial driving force behind the adoption of digital payments was a desire to boost the effectiveness and efficiency of payment transactions while reducing risk and fraud (Dahlberg & Oorni, 2007; Hamdi, 2011; Hayashi & Bradford, 2014; Prasetya et al., 2021).

Despite the fact that traditional cash payments are believed to have a possibility for fraud when used, the rise in electronic payment did not fully remove them (Menaka, 2019). There was a shift from cash to electronic payment; but it did not completely replace the traditional cash payment (Yulianti et al., 2019). When using traditional cash payments, frauds can occur. Fraud such as potential crime through stealing money while it is being used (Menaka, 2019), counterfeiting cash (Arango & Taylor, 2009),

money laundering from corruption activities (Dalinghaus, 2017), and so on. other than that, keeping cash need extra cost for its storage (Chen et al., 2019). This reality had little impact on users' decision to switch to electronic payment. Cash payments were still being accepted there. According to this viewpoint, there must be a connection between the extent of digital payment usage and the ongoing traditional use of cash.

As discussed before that, there was the case that the traditional cash payments still existed (Świecka, 2019) in the middle of the digitalization of payment. It could be a notion that the traditional cash payment was not really vanished. Based on all facts mentioned before, this study aimed to explore how digital payments could mitigate the fraud and risk when using traditional cash payments compared to digital payment. The study will used systematic literature review on prior studies and concluded by interview with related stakeholders in digital payments in Indonesia.

2. Literature Review

2.1. 2.1 Traditional Cash Payment and Digital Payment

The emergence of the digital payment system initially aimed to increase efficiency and effectiveness, reducing risk and fraud in payment transactions (Dahlberg & Oorni, 2007; Hamdi, 2011; Hayashi & Bradford, 2014). Those objectives at first can be met through the aid of the tools/channels from ATM, internet banking, mobile banking (Aishah Mohamad & Kassim, 2017). Kumari (2017) explained that the motivation for the digital transaction is some of the benefits of cashless transaction which are as follows:

1. Ease of conducting financial transactions: there is no need to carry the amount of cash and to present physically in the Bank.
2. Reduce risk: reduce the risk of carrying cash and reduce its cost. You can bring digital money to make a transaction digitally. This cash was referred to traditional cash payment.

The problem with traditional cash was somehow; it is still an option people choose in making payments. The reasons for these things happen because of:

1. Cash was still chosen for low-value transactions (Świecka, 2019), in addition to no alternative options other than cash payment, such as the merchant that did not provide electronic payment options (Arango et al., 2015).
2. Cash was still considered a convenient, cheaper, quicker, and safe payment option (Górka, 2012; Świecka, 2019).
3. Lack of infrastructure and electronic payment facilities such as hardware, networking, and internet facilities (Adeyemo et al., 2020)

Although traditional cash payment was still considered an option to use as payment, some drawbacks were found out when using it. The disadvantages are referred to as follows:

1. The use of traditional cash payment increased the crime event opportunities through physical cash theft and robbery (Sreenu, 2020).
2. The other crimes such as money laundering, embezzlement, terrorist financing usually use traditional cast payment (Dalinghaus, 2017).

3. The cost of using cash payment which includes storage to keep it, printing, and physical transfer of cash (Hamdi, 2011; Matthew & Mike, 2016).

These drawbacks were thought to be motivating factors for people to switch from traditional payment methods to electronic payment methods including internet banking, mobile banking, mobile payments, and other digital payment systems. By switching to digital payment methods, users can reduce or even get rid of these inconveniences. By using digital payments, you may speed up the transaction and prevent the trouble of using traditional cash payment (Świecka, 2019). Besides, it was believed to minimize the crimes (Menaka, 2019), decrease cost, and increase the effectiveness and efficiency of the payment process (Matthew & Mike, 2016).

The latest digital payment system technology is included in financial technology (fintech). Fintech creates an opportunity to increase transparency, reduce cost, and make information more accessible for all users (Ryu, 2018). Gupta and Xia (2018) also stated that financial technology allows users to have a better customer-based banking system and reduce risk and fraud to the user and increase the return to all shareholders.

However, users are still in the awareness stage when it comes to using the existing digital payment system since they are concerned about the security and privacy of their data information. Digital payment companies must make the most of their investment in securing users' data information. To reduce fraud risk, the vendor must tighten its cybersecurity framework (Stewart & Jürjens, 2018).

Despite these facts, it is anticipated that due to the factors listed above and the Covid 19 pandemic, mobile wallet usage would surpass that of cash payment globally (Berthiaume, 2021). According to the Annual Global Payment Report (Boku, 2021), it is predicted that in 2024, cash payment share will only amount to 13% globally, and half of the e-commerce payment will use a digital wallet. However, there were still practical gaps that can be explored on the explanation of user behavior in using traditional cash payment, shifting process to electronic payment up until users were settled in using electronic payment. Finally, in order to attract fintech customers, the vendor must ensure that the application has adequate privacy protection capabilities in order to mitigate and reduce risk and fraud, so that the prospective client feels comfortable when using the application (Lim et al., 2019).

2.2. The Evolution of Payment System

The earliest form of transaction mechanism recorded in history is what we know as barter. The barter system process occurs when the resources needed by some people are met by exchanging them with resources owned by some people (Swammy et al., 2019). Before the invention of what we now refer to as money, the bartering era might be viewed as the pre-currency era.

Following the bartering era, the medium of exchange began to form over time, beginning with grain and other agricultural products, which were regarded essential social resources (Swammy et al., 2019). It is regarded as the forerunner of money production. Commodity money can be used in this instance. Money was originally created in history between 1000 and 2000 BC. The first type of money discovered was cowry shells (Swammy et al., 2019). After a long period of employing shell money, coinage composed of metal stuff was established around the sixth or fifth century BC. Initially

manufactured as souvenirs, the coins were later employed as a medium of exchange (Swammy et al., 2019).

Coins are perceived to have restrictions in their use along the way, particularly when used for larger transactions, which necessitate a higher number of coins and a lot more storage. The increased demand for coins as a means of exchange causes a shortage of metal supplies. Other hazards, like as currency theft and robbery, would definitely increase when the coins are moved for the transaction. These limitations then encourage the creation of paper money innovations for the medium of transactions. This paper money appeared along with the start of the invention of paper. It was believed that the first invention of paper money was in China. The first form of paper money discovered was in the form of promissory notes issued for coins that were kept as collateral. The development of paper money in Europe was invented long after its development in China, as Marco Polo reported that he used it in the thirteen century (Swammy et al., 2019). Later, the country's central bank was the sole issuer of paper money. The central bank will regulate and establish what denominations will be printed, how much will be printed, and the design of banknotes and coins that will circulate in a country. Before the development of technology in establishing electronic payment systems, paper money and coins were basically the most recent forms of traditional payment systems.

A credit card started to emerge around 1914 in the USA when merchants such as shopping centers, oil companies, and hotels issued cards for their customers to conduct payment (Kabir et al., 2015). Today's forerunner of what is called a debit card is an ATM card (Automated Teller Machine), where customers can only use it to withdraw physical money from an ATM. At that time, the need to withdraw money from ATMs was to pay bills or make payments (Swammy et al., 2019). The first ATMs in Europe are believed to have started in the 1960s and suddenly expanded worldwide (Swammy et al., 2019).

The emergence of e-commerce and mobile commerce technology has eventually created other innovations in financial technology (Fintech), especially electronic payment systems, from official financial institutions such as banks and other non-bank financial institutions. It made innovations such as internet banking, mobile banking, and other payment systems such as e-credit cards, e-cash, e-wallet (Rainer & Prince, 2019). In the beginning, the term for all these electronic payments which use a mobile phone was called mobile payment system (Rainer & Prince, 2019).

3. Research Methodology

This study used thematic analysis on systematic literature review with two stages as follows:

1. Conducting thematic analysis on systematic literature review from related articles collected
2. Validating conclusions from first phase by interviewing related stakeholders of digital payment

The first stage was conducting *thematic analysis* on *systematic literature review*. *Systematic Literature Review* is one tool that is defined as “a means of evaluating and interpreting all available research relevant to specific research question, topic area, or a phenomenon. It is used for the secondary study to analyze and interpret all available evidence in an unbiased manner” (Kitchenham & Charters, 2007, p. 6). While *Thematic Analysis* was used to complement *Systematic Literature Review* in finding the factor of how the e-digital payment system mitigates fraud risk in traditional payment system. It is defined as a “method for systematically identifying, organizing, and offering insight into a pattern of the

theme of qualitative data” (Braun & Clarke, 2012). The reason for choosing the combination of *Systematic Literature Review* and *Thematic Coding Analysis* was that this stage was conducted using content analysis of articles collected to summarize the existing evidence relating to new technology innovation (Kitchenham & Charters, 2007).

The second stage was finalization of the findings and conclusion to answer research objective using *thematic analysis* on *systematic literature review* from secondary qualitative data such as articles, journals, thesis, etc., was still debatable (Saini & Shlonsky, 2012). Although it is common to use thematic analysis using secondary qualitative data, usually called a *qualitative systematic review* (Sandelowski & Barroso, 2006; Saini & Shlonsky, 2012).

Referring to Braun and Clarke (2012), thematic analysis is used for primary qualitative data such as *interviews* and *focus group discussions (FGD)*. This study also collected primary data through *interviews* and focus group discussions with stakeholders in the digital payment industry. Interview and FGD was conducted with up to five respondents from digital payment vendors, regulator (Bank Indonesia as Indonesia Central Bank), Bankers and Information Technology Expert in business corporate. It was done by interviewing those practitioners through phone calls or focus group discussions if it can be done. This stage has one main objective it was to support the finding from *thematic analysis* of *systematic literature review* about the explanation of digital payment will mitigate fraud risk compared to the traditional payment system.

3.1. Literature Search using Systematic Literature Review

According to (Karsen et al., 2019), there were three steps in conducting a *systematic literature review*. The first step was searching for related articles to be collected and analyzed further. The second step was performing data extraction. The last step was analyzing the articles collected to answer the research question. In looking for articles that needed to be analyzed, the search was done using database resources such as *Google Scholar*, *Emerald*, *Scopus*, *IEEE Explore*, *ProQuest*, and *Science Direct*. The search use combined keyword such as:

- 1.(traditional payment) AND (risk OR fraud)
- 2.(traditional payment) AND (e-payment OR mobile payment)
- 3.(cash payment) AND (risk OR fraud)
- 4.(payment) AND (risk OR fraud)

112 related articles were collected from database resources, and after further reading, 26 articles were removed since they were not directly related to the search objectives. Ultimately, leaving 86 articles that were ready to be extracted and analyzed.

In terms of year distribution, the paper collected was from 1994 to 2020. The reason for including the article from 1990-2000 was because, from those papers in that particular era, non-cash transactions had started to emerge in the form of debit cards, credit cards, and internet banking. The distribution of paper based on the year published can be seen in Table 1.

Table 1. Distribution of Articles Based on Year Published

Years	Quantity
1991-1995	1
1996-2000	3
2001-2005	8
2006-2010	6
2011-2015	28
2016-2020	40
Total	86

All articles which were already collected came from many types of articles. Not all the articles were journal articles. After the identification, articles collected comprised *journal*, *book section*, *newspaper article*, *conference proceeding*, *company report* and *Ph.D. Thesis*. The distribution was presented in Table 2

Table 2. Type of Articles Distribution

Types of Articles	Quantity
Journal	59
Proceeding	11
Report	8
Working Paper	4
Book Section	2
Newspaper Article	1
Thesis	1

3.2. Thematic Analysis

After extracting all of the article characteristics, the next stage was coding possible information formed to a specific unique pattern. A way of identifying the pattern was by looking at common shared meaning or information (Braun & Clarke, 2012). Using Atlas.ti, for general purpose, it can generate most words used in all of those 85 articles,. This information can be used as an initial analysis. It found out that the topmost used words were *payment* and *Cash*. They were highly related to the research question to be answered. The other words that were generated most were *card*, *transaction*, and *money*. The stage of thematic coding using Atlas.ti revealed some themes, namely:

1. Why cash was still a King.
 2. The Need to Switch from Cash Payment to Digital Payment System.
 3. Obstacles in Switching from Cash Payment to Digital Payment System
 4. Things to be prepared for switching to Digital Payment
 5. Impact of switching from traditional cash payment to Digital Payment
- All particular themes will be described further in detail in discussion part.

4. Discussion

Based on a systematic literature review and thematic analysis that has already been done to find out the phenomenon of traditional cash payment versus digital payment, in addition to interviews and

FGD, which were also conducted to support the findings. There was a link between cause and effect to illustrate how adopting digital payment instead of traditional cash payment reduced the chance of fraud.

4.1. Why Cash was still a King

The first thing that emerged from the analysis was why cash was still used worldwide. This behavior explained that cash was used for low value of the payment, Cash was considered easier, safer in a low transaction value (O'Brien, 2014; Świecka, 2019). Cash can be considered to be able to control transaction spending (Runnemark et al., 2015). Another reason was when payment could be made by card or other digital payment, and the only alternative was cash payment (Arango et al., 2015; O'Brien, 2014).

Next reason of convenience, One of the reasons about the were still many cash payments was convenience. Cash payment was still considered easy, safe, and quick in doing transactions (O'Brien, 2014; Świecka, 2019).

Another reason of acceptable almost everywhere, payment activity was forced to do with a traditional cash payment if there were no alternative such as card or mobile payment (Arango et al., 2015; Rusu & Stix, 2017). Moreover, cash payment is specialized in sectors such as food and beverage, tobacco, newspaper, and street outlets (O'Brien, 2014). Digital payment has not yet reached all over kind of place when doing transactions.

The last was free of cost. It found out that people still used traditional cash payment because it was free of the cost compared to digital payment, either on the merchant side or consumer side (Hayashi & Bradford, 2014). Processing cost in merchant, and administrative cost in consumer.

In addition, the ecosystems of digital payment that were already settled caused the creation of the need to use e-wallet payment technology. If the e-wallet payment ecosystem is not settled yet, there is no urgent need to utilize digital payment, especially e-wallet payment. It found out that digital payment was widely used in big cities since the ecosystems were already settled there. In fact, Indonesia does not only consist of big cities, but villages, and progress in development and technology are unfortunately only focused on the island of Java.

Furthermore, all financial technology innovation utilization must be through the banking channel, and this requires one to have a bank account first. From the financial inclusion index, Indonesia was still in 9th position among the world's most countries with unbankable people (up to 51%) above Vietnam and Philippines in Southeast Asia. These findings further strengthen why the use of traditional cash payments is still a lot and shifting toward e-wallet payments is still low.

4.2. The need to switch from traditional cash payment to Digital Payment

Over time, there was a need to switch from traditional cash payment to digital payment because there was the cost of holding traditional cash payment. Production of cash payment tools (notes and coin) needed costs such as production, printing, trucking, safekeeping, vending, collecting, guarding the cash (Gleick, 1996; Lundberg et al., 2014). Even though, when the e-payment system is used, there is still the cost of at least printing, safekeeping, and guarding. Cash is expensive and needs something to carry if you use it (Birch, 1999). It can be concluded that the cost of cash is expensive and high, plus added with cost of handling and holding it (Bergman et al., 2008; Hamdi, 2011). If you have to carry notes or a coin, of

course, you need something to bring (Chen et al., 2019). The cost of cash was high and more than electronic payment (Kumari, 2017; Véber & Brosch, 2013). Finally, using cash will face the risk of theft, security, and loss issues (Hamdi, 2011; Lundberg et al., 2014; Pritchard et al., 2015).

The next was about the increase in crime from holding traditional cash and transaction using traditional cash. The biggest crime that could ever happen when having cash at the macro level was all the crimes in the shadow economy, such as cash-related corruption, money laundering, and terrorist funding (Dalinghaus, 2017; Sienkiewicz, 2011; Schneider, 2017). Another crime is tax avoidance/evasion and such (Karoubi et al., 2016). Money Laundering happened when the illegal fund was placed in the financial system (Sienkiewicz, 2011). Shadow Economy is a transaction that was not recorded, and most of the shadow economy was done in cash transactions (Schneider, 2017). On the micro-level, potential crime could be in the form of risk of theft, counterfeiting and loss of physical cash at the individual level or merchant level (Arango & Taylor, 2009; Lundberg et al., 2014). If a country is restricted on cash payment, it is expected to reduce potential crime from shadow economy (Schneider, 2017).

4.3. Obstacle in Switching from Traditional Cash to Digital Payment

Nevertheless, this switching process was not as simple as expected. There were obstacles found out. This obstacle hindered the cashless movement policy of a nation. They were just like infrastructure problems, including internet, electricity, and other supporting ones. technology innovation that needed supporting infrastructures such as the internet, networking, electricity, computers, and others (Kumari, 2017; Yulianti et al., 2019). In addition, another challenge was the geographical condition that prepared infrastructure was getting complicated (Gupta & Xia, 2018). The technology of e-payment was one of the infrastructures. Over time, technology is updating, while users also have to catch up with the implication of technology and its updating (Menaka, 2019; Sreenu, 2020).

Acceptability and availability of digital payment services that digital payment has not yet accepted and available all over the places. acceptability and availability can be one of the obstacles in using e-payment. It will complement the explanation in the previous part. E-payment such as debit/credit cards, moreover mobile/electronic money were not widely accepted (Arango et al., 2015). Not all people can use e-payment. Mostly, the user of e-payment was people with middle to high-income level (Menaka, 2019). Even when the user was ready to pay with non-cash, the supporting devices were broken, therefore forcing them to pay in cash (Segendorf & Jansson, 2012).

It could be explained from digital payment systems' ecosystem point of view as discussed before. If all the facilities and support were still for traditional cash payment in some areas, there has not been a need to utilize digital payment, especially e-wallet payment.

Others were the possibility of fraud risk from using digital payment. Users were concerned about trust, security, and the risk of losing their money when using digital payment. Initially, the objective of switching from traditional cash to digital payment was to reduce the fraud risk in a traditional cash payment. fraud risk could happen in transactions using e-payment. It has been a concern for potential users to try to use e-payment. It could be an obstacle for the user to switch. Fraud risk could be in the form of trust of the user, concern about a breach of the system, and online embezzlement (Chidiebere & Oluchi, 2017; Gupta & Xia, 2018). Other concerns were privacy and security issue. Lack of privacy can

cause the theft of personal information and illegal abuse of personal information for personal benefit (Menaka, 2019). The security issue was about how well a system of e-payment providers (such as banks) could protect consumers' assets from cyber fraud (Kumari, 2017). The last obstacle discussed was that the user did not want to use digital payment because they thought that using it was forbidden according to Islamic sharia according to Focus Group Discussion.

4.4. Things to be prepared for switching to digital payment

In order to ease and accelerate the process of switching, there should be good preparation from the government and related stakeholders. Continuing discussion about fraud risk in using digital payment, therefore, there should have been good system security to increase the safety in using digital payment, and ultimately it will increase the trust in using it from users. It must be remembered that digital payment users will entrust their money to the e-wallet vendors, then it must be ensured that the funds will not be misappropriated. It also applies to the personal privacy information of users, and vendors must ensure that such information will be used for the vendor's own benefit, not for things that will harm users. Before preparing sophisticated system security, indeed, a good infrastructure has to be built first. Cyber fraud could be a significant challenge in forcing e-payment policy (Mohanty & Pawar, 2019). The system must have the ability to monitor financial crime that could be happened (Chidiebere & Oluchi, 2017).

Provider of e-payment system must be focused on privacy and security of the system in the preparation stage and maintain them regularly (Loh et al., 2020). The system must have the ability to conduct transactions safely and securely to have trust from the user (Tavilla, 2012). The provider must take measures as well to gain the trust of users. Measure can be in the form of efficient customer care for a problem and its solution (Gupta & Xia, 2018). The future of the increase in usage of e-payment depends on its security (Bezhovski, 2016).

The last is all about creating awareness among potential users by promoting and educating them on digital payment and how to use it. However, this education and awareness must be right on target, given to users and potential e-wallet users, or given to the e-wallet ecosystem that has already been settled or is heading towards being settled. All parties, such as the government, providers, merchants, and other stakeholders, must educate the potential users to create awareness of society in switching to e-payment systems (Ishak, 2020; Meena, 2017). Potential users must have a valid reason to switch from cash payment to e-payment. The right reasons include the benefit of using it (Loh et al., 2020).

Even though all stakeholders were responsible for educating to increase users' awareness and literacy, however, the critical role was on the government because they facilitated and regulated the policy (Sivathanu, 2019). The government created regulations regarding this e-payment system for all the stakeholders (Harasim, 2016). The government did the promotion about e-payment systems and movement to go cashless if needed (Ramya et al., 2017). Promotion and incentives can be given by providers or merchants in the form of such as discounts, cash back, etc. (Abele & Schaefer, 2016; Salim & Frederica, 2020). It also has to be emphasized how unbankable people will be worse off than bankable people, as unbankable people will subsidize the cost of using financial technology from bankable people.

4.5. The Impact of switching from traditional cash to digital payment

Eventually, if the preparation has already taken place properly, the impact of the usage of digital payment will emerge. The first benefit is the convenience of using digital payment relating to the feature of ubiquity. The previous discussion mentioned about the convenience of using traditional cash. In contrast, it found out that e-payment gives convenience also for its users to go digital (Ramya et al., 2017). It was considered that e-payment such as electronic cash and debit card was more convenient than physical cash (Birch, 1999; Bradford & Cundiff, 2006). The positive way of e-payment is that you do not need to carry physical cash, either notes or coins (Pritchard et al., 2015). It is convenient and efficient as an attractive benefit (Kabir et al., 2015; Tavilla, 2012).

Things that were considered convenient were like the feature of ubiquity. You can access e-payment everywhere (Bezhovski, 2016; Tavilla, 2012). Another feature was the speed of doing transactions using e-payment anytime, anywhere (Bradford & Cundiff, 2006; Yulianti et al., 2019). The next feature was the ease of using e-payment; a user-friendly user interface can increase convenience (Kumari, 2017; Ramya et al., 2017).

The following implications had cost reduction and efficiency when there was an increase in using digital payment. A switch to e-payment systems and technology of e-payment was considered to reduce high operational costs in traditional cash payment (Gupta & Xia, 2018; Matthew & Mike, 2016). For the banking system, it will bear a reduction in the cost of banking service and high security and safety (Chidiebere & Oluchi, 2017; Mohanty & Pawar, 2019). E-payment will be cost-effective means of moving funds over a traditional cash payment (Ishak, 2020). E-payment also reduced the cost of preparing and transporting traditional cash to or from banking systems (Meena, 2017; Ugwoke et al., 2019). The non-cash transaction was also reduced social costs that came from traditional cash (it will discuss more detail in the next part) (Harasim, 2016).

Reduction in many aspects of the cost led to efficiency of using e-payment compared to traditional cash payment. This efficiency will impact more to society (Véber & Brosch, 2013). Efficiency appeared in cost reduction in cash collection by eliminating time spent on collecting, counting and sorting cash (Kumari, 2017). Another form of efficiency will be the ability of e-payment systems to track all transactions; therefore, it becomes transparent. On the macro level, this features; Government can monitor the tracking system in more detail transactions for taxation purposes (Meena, 2017; Mohanty & Pawar, 2019). On the individual level, users can monitor all of their spendings using e-payment systems (Ramya et al., 2017).

Reduction of the cost will also give benefit to society on a national level (Chidiebere & Oluchi, 2017; Sreenu, 2020). Mainly economic growth from cashless transactions was because of the reduction in the social cost of the economy (cost of shadow economy) on the national level (Ishak, 2020). The growth of the economy from cashless transactions also came from reduction in cash-related corruption (Meena, 2017).

Lastly, it found out that using digital payment will reduce the risk of crimes. These crimes can be comprised of risk of theft and robbery, cash-related corruption, black money that includes fake currency, money laundering and terrorism fund. All of this crime can create a shadow economy (Schneider, 2017). The simple crime that can be mitigated when using e-payment is cash robbery and theft, and you will

minimize the possibility of your cash being stolen when using e-payment (Menaka, 2019; Sreenu, 2020). The next step in crime from using traditional cash would be faking the currency by counterfeiting it (Mohanty & Pawar, 2019). The fraud can use actual cash for crimes like cash-related corruption and money laundering to laundering black money from cash-related corruption (Meena, 2017; Ugwoke et al., 2019). Another crime that can create a shadow economy is tax avoidance, a practical habit when transactions are not recorded to avoid related taxes (Kumari, 2017). Tax avoidance was similar to corruption because it lost the revenue of the nation. As already discussed before, e-payment was traceable. Therefore, it can be used for taxable calculations (Meena, 2017; Mohanty & Pawar, 2019).

It cannot be denied that black money can be in the form of fake currency, cash-related corruption, and money laundering. However, not to mention that illegal drugs transaction and the funding of terrorism can use traditional cash too (Menaka, 2019; Mohanty & Pawar, 2019). It can be concluded that Fake currency, cash-related corruption, tax avoidance and illegal transaction (drugs and terrorism) were part that created the shadow economy.

This finding answered the research question that was asked, that usage of digital payment will mitigate the fraud risk of using traditional cash payment.

5. Conclusion

Results of the thematic analysis of the systematic literature review that was done to see and explore how electronic payment (especially e-wallet) could mitigate fraud risk were as follow:

1. Due to its low (small) value payment, ease, acceptability, and cost-free nature, cash payments are still widely accepted around the world. it cannot be completely replaced by electronic payment.
1. Along with the time, there was a need to switch from traditional cash payment to electronic payment for a reason such as the cost needed for traditional cash payment and an increase of crime for holding traditional cash payment. However, this situation has its own problems, such as supporting infrastructures needed (internet, electricity, etc.), acceptability and availability of e-payment itself, and the possibility of fraud risk from using e-payment.
2. The obstacles mentioned above indeed have to be overcome such as a good preparation from government and stakeholders, there should be good system security to increase the safety in order to build the trust from the users, good supporting infrastructure and lastly, building awareness and education to potential and current users of e- payment.
3. Eventually, when all the previous consideration has already been done, there are a benefit and impact of using e-payment such as convenience and ubiquity, cost reduction efficiency and reducing crime risk from holding physical cash on hand.

6. Limitation and Future of Study

The study was conducted using systematic literature review based on related prior articles published. Future study can be done by other qualitative methodology such as in depth interviews of even

using quantitative methodology to explore fraud either in traditional cash payment systems of digital payment systems. Future researches also could be more specific on types of digital payment available.

References

- Abele, H., & Schaefer, G. (2016). The cost of cash and debit cards in Austria. *The Journal of Financial Market Infrastructures*, 4(4), 1-16. <https://doi.org/10.21314/jfmi.2016.061>
- Adeyemo, K. A., Isiavwe, D., Adetula, D., Olamide, O., & Folashade, O. (2020). Mandatory adoption of the Central Bank of Nigeria's cashless and e-payment policy: implications for bank customers. *Banks and Bank Systems*, 15(2), 243-253. [https://doi.org/10.21511/bbs.15\(2\).2020.21](https://doi.org/10.21511/bbs.15(2).2020.21)
- Aishah Mohamad, S., & Kassim, S. (2017). An Overview of E-Payment Adoption Among Muslim Micro-Entrepreneurs in Malaysia. *International Journal of Accounting Finance and Business*, 2(5), 49–59. <http://www.ijafb.com/PDF/IJAFB-2017-05-09-05.pdf>
- Alt, R., Beck, R., & Smits, M. T. (2018). FinTech and the transformation of the financial industry. *Electronic Markets*, 28(3), 235–243. <https://doi.org/10.1007/s12525-018-0310-9>
- Arango, C. A., & Taylor, V. (2009). *The Role of Convenience and Risk in Consumers' Means of Payment*. *The Role of Convenience and Risk. Bank of Canada Discussion Paper 2*.
- Arango, C. A., Hogg, D., & Lee, A. (2015). Why is cash (still) so entrenched? Insights from Canadian shopping diaries: why is cash so entrenched? *Contemporary Economic Policy*, 33(1), 141-158. <https://doi.org/10.1111/coep.12066>
- Bagla, R. K., & Sancheti, V. (2018). Gaps in customer satisfaction with digital wallets: challenge for sustainability. *Journal of Management Development*, 37(6), 442–451. <https://doi.org/10.1108/JMD-04-2017-0144>
- Bergman, M., Guiborg, G., & Segendorf, B. (2008). *Card and cash payments from a social perspective*. *Sveriges Riksbank Economic Review*.
- Berthiaume, D. (2021). Study: Global cash usage drops as mobile wallets surge | *Chain Store Age*. Retrieved June 27, 2021, from <https://chainstoreage.com/study-global-cash-usage-drops-mobile-wallets-surge>
- Bezhovski, Z. (2016). The Future of the Mobile Payment as Electronic Payment System. *European Journal of Business and Management*, 8(8), 127–132.
- Birch, D. (1999). E-cash issues: electronic cash is not just about technology. *European Business Review*, 99(4), 211-218. <https://doi.org/10.1108/09555349910281388>
- Boku. (2021). *Mobile Wallets Report*. Retrieved from <https://boku.mobilewallet.report/>
- Bradford, T., & Cundiff, B. (2006). *Payments Fraud: Consumer Considerations*. *Federal Reserve Bank of Kansas City Payments System Research Briefing*.
- Braun, V., & Clarke, V. (2012). Thematic analysis. *APA Handbook of Research Methods in Psychology, Vol 2: Research Designs: Quantitative, Qualitative, Neuropsychological, and Biological*, 2, 57–71. <https://doi.org/10.1037/13620-004>
- Chen, H., Huynh, K. P., & Shy, O. (2019). Cash versus card: Payment discontinuities and the burden of holding coins. *Journal of Banking & Finance*, 99, 192-201. <https://doi.org/10.1016/j.jbankfin.2018.12.009>
- Chidiebere, M., & Oluchi, C. (2017). Electronic Transactions and the Prevalence of Fraud in the Nigeria Banking Sector. *Journal of Finance, Banking and Investment*, 4(2), 97–114.
- Clark, C. L. (2005). Shopping Without Cash: The Emergence of the E-Purse. *Economic Perspectives*, 34-51. Federal Reserve Bank of Chicago.
- Dahlberg, T., & Oorni, A. (2007). Understanding Changes in Consumer Payment Habits - Do Mobile Payments and Electronic Invoices Attract Consumers? *2007 40th Annual Hawaii International Conference on System Sciences (HICSS'07)*. <https://doi.org/10.1109/hicss.2007.580>
- Dalinghaus, U. (2017). *Keeping cash: Assessing the arguments about cash and crime*. CashMatter.
- Datareportal. (2021). *Digital 2021 April Statshot Report — DataReportal – Global Digital Insights*. www.wearesocial.com
- Gleick, J. (1996). The End of Cash, originally published as Dead as a Dollar. *New York Times Magazine*.

- Górka, J. (2012). Payment behaviour in Poland – The benefits and costs of cash, cards and other non-cash payment instruments. In *The usage, costs and benefits of cash. Theory and evidence from macro and micro data. International Cash Conference 2012* (pp. 273–325).
- Gupta, A., & Xia, C. (2018). A paradigm shift in banking: Unfolding asia's fintech adventures. In *Banking and Finance Issues in Emerging Markets*. Emerald Publishing Limited.
- Hamdi, H. (2011). Can E-Payment Systems Revolutionize Finance of the Less Developed Countries? The Case of Mobile Payment Technology. *International Journal of Economics and Financial Issues*, 1(2), 46–53.
- Harasim, J. (2016). Europe: The Shift from Cash to Non-Cash Transactions. In *Transforming Payment Systems in Europe*. https://doi.org/10.1057/9781137541215_2
- Hayashi, F., & Bradford, T. (2014). Mobile Payments: Merchants' Perspectives. *Economic Review*, 99, 33–58. <https://www.kansascityfed.org/XdNVZ/publicat/econrev/pdf/14q2Hayashi-Bradford.pdf>
- Ishak, N. (2020). Overview of Cashless Payment in Malaysia. *International Journal of Accounting, Finance and Business (IJAFB)*.
- Kabir, M. A., Saidin, S. Z., & Ahmi, A. (2015). Adoption of e-Payment Systems: A Review of Literature. In *Proceedings of the International Conference on E-Commerce (ICoEC) 2015* (pp. 112–120).
- Karoubi, B., Chenavaz, R., & Paraschiv, C. (2016). Consumers' perceived risk and hold and use of payment instruments. *Applied Economics*, 48(14), 1317–1329. <https://doi.org/10.1080/00036846.2015.1100249>
- Karsen, M., Chandra, Y. U., & Juwitasary, H. (2019). Technological factors of mobile payment: A systematic literature review. *Procedia Computer Science*, 157, 489–498. <https://doi.org/10.1016/j.procs.2019.09.004>
- Kitchenham, B., & Charters, S. (2007). Guidelines for performing systematic literature reviews in software engineering. *Technical Report, Ver. 2.3 EBSE Technical Report. EBSE*.
- Kumari, N. K. J. (2017). Cashless Payment: A Behaviourial Change to Economic Growth. *Qualitative and Quantitative Research Review*.
- Lim, S. H., Kim, D. J., Hur, Y., & Park, K. (2019). An Empirical Study of the Impacts of Perceived Security and Knowledge on Continuous Intention to Use Mobile Fintech Payment Services. *International Journal of Human-Computer Interaction*, 35(10), 886–898. <https://doi.org/10.1080/10447318.2018.1507132>
- Loh, X.-M., Lee, V.-H., Tan, G. W.-H., Ooi, K.-B., & Dwivedi, Y. K. (2020). Switching from cash to mobile payment: what's the hold-up? *Internet Research*, 31(1), 376–399. <https://doi.org/10.1108/intr-04-2020-0175>
- Lundberg, H., Öhman, P., & Sjödin, U. (2014). Transaction convenience in the payment stage: the retailers' perspective. *Managing Service Quality*, 24(5), 434–454. <https://doi.org/10.1108/msq-02-2014-0032>
- Matthew, O. M., & Mike, A. (2016). Cashless Economic Policy in Nigeria: A Performance Appraisal of The Banking Industry. *IOSR Journal of Business and Management*, 18(10), 01–17. <https://doi.org/10.9790/487x-1810030117>
- Meena, M. (2017). From a Cash Economy to a Less-Cash Economy. *World Wide Journal of Multidisciplinary Research and Development WWJMRD*, 3(7), 7–9.
- Menaka, B. (2019). Electronic payment in cashless economy: Problem and prospect. *International Journal of Scientific and Technology Research*, 8(12), 2688–2690.
- Mohanty, B. R., & Pawar, B. R. (2019). Cashless (Less Cash) Economy & Digitization of Indian Economy. In *Proceedings of 10th International Conference on Digital Strategies for Organizational Success*.
- O'Brien, S. (2014). Consumer preferences and the use of cash: Evidence from the diary of consumer payments choice. In *The usage, costs and benefits of cash – revisited. Proceedings of the 2014 International Cash Conference*.
- Prasetya, M. E., Mohamed, I. S., Shuhidan, S. M., & Wasistha, G. H. (2021). Mitigating Fraud Risk in Cash-Based Payment System via E-Payment Implementation: Case of Indonesia. *Proceedings of the Asia-Pacific Research in Social Sciences and Humanities Universitas Indonesia Conference (APRISH 2019)*. <https://doi.org/10.2991/assehr.k.210531.085>

- Pritchard, G., Vines, J., & Olivier, P. (2015). Your money's no good here: The elimination of cash payment on London buses. In *Conference on Human Factors in Computing Systems - Proceedings*. <https://doi.org/10.1145/2702123.2702137>
- Rainer, R. K., & Prince, B. (2019). *Introduction to Information Systems, 7th Edition* (3rd ed.). John Wiley & Sons (Asia) Pte. Ltd.
- Ramya, N., Sivasakthi, D., & Nandhini, M. (2017). Cashless Transaction: Modes , Advantages and Disadvantages. *International Journal of Applied Research*, 3(1), 122–125. www.allresearchjournal.com
- Runnemark, E., Hedman, J., & Xiao, X. (2015). Do consumers pay more using debit cards than cash? *Electronic Commerce Research and Applications*, 14(5), 285–291. <https://doi.org/10.1016/j.elerap.2015.03.002>
- Rusu, C., & Stix, H. (2017). Cash and card payments—recent results of the Austrian payment diary survey. *Monetary Policy and the Economy Q, I*, 19–31.
- Ryu, H. S. (2018). Understanding Benefit and Risk Framework of Fintech Adoption: Comparison of Early Adopters and Late Adopters. *Proceedings of the 51st Hawaii International Conference on System Sciences*, 3864–3873. <https://doi.org/10.24251/hicss.2018.486>
- Saini, M., & Shlonsky, A. (2012). *Systematic Synthesis of Qualitative Research*. OUP USA. <https://doi.org/10.1093/acprof:oso/9780195387216.003.0005>
- Salim, S., & Frederica, D. (2020). How is the Impact of Non-Cash Payment System on Sales of Micro, Small and Medium Enterprise? In *International Conference on Management, Accounting, and Economy (ICMAE 2020)* (pp. 188–191). <https://doi.org/10.2991/aebmr.k.200915.044>
- Sandelowski, M., & Barroso, J. (2006). *Handbook for Synthesizing Qualitative Research*. Springer publishing company (Vol. 39). <https://doi.org/10.3928/00220124-20080101-07>
- Scardovi, C. (2017). Digital Transformation in Financial Services. *Digital Transformation in Financial Services*, 65–84. <https://doi.org/10.1007/978-3-319-66945-8>
- Schneider, F. (2017). Restricting or Abolishing Cash: An Effective Instrument for Fighting the Shadow Economy, Crime and Terrorism? In *International Cash Conference*.
- Segendorf, B., & Jansson, T. (2012). Cards or cash. How should we pay? *Sveriges Riksbank Economic Review*.
- Sienkiewicz, S. J. (2011). Prepaid Cards: Vulnerable to Money Laundering? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.969042>
- Sivathanu, B. (2019). Adoption of digital payment systems in the era of demonetization in India: An empirical study. *Journal of Science and Technology Policy Management*, 10(1), 143–171. <https://doi.org/10.1108/JSTPM-07-2017-0033>
- Sreenu, N. (2020). Cashless Payment Policy and Its Effects on Economic Growth of India: An Exploratory Study. *ACM Transactions on Management Information Systems*, 11(3), 1-10. <https://doi.org/10.1145/3391402>
- Stewart, H., & Jürjens, J. (2018). Data security and consumer trust in FinTech innovation in Germany. *Information & Computer Security*, 26(1), 109-128. <https://doi.org/10.1108/ics-06-2017-0039>
- Swammy, S., Thompson, R., & Loh, M. (2019). History of Money. *Crypto Uncovered*. <https://doi.org/10.1007/978-3-030-00135-3>
- Świecka, B. (2019). A comparative survey over time between cash and cashless payments in Poland. In *Contemporary Studies in Economic and Financial Analysis*. <https://doi.org/10.1108/S1569-375920190000101009>
- Tavilla, E. (2012). *Opportunities and Challenges to Broad Acceptance of Mobile Payments in the United States*. Federal Reserve Bank of Boston.
- Ugwoke, R. O., Okafor, M., & Vivian, O. U. (2019). Perceived effect of the cashless policy of the Central Bank of Nigeria on improvement of the payment system in Nigeria. *International Journal of Management*, 10(6), 294–316. <https://doi.org/10.34218/IJM.10.6.2019.029>
- Véber, Z., & Brosch, J. (2013). Can cash payment be limited in a modern payment system? *MNB Bulletin (Discontinued)*, 8(1), 52–61.

- Yulianti, M. M. F., Nurcahyo, R., & Farizal. (2019). Cash and Non-Cash Payment Data Analysis in Indonesia. *2019 IEEE 6th International Conference on Engineering Technologies and Applied Sciences (ICETAS)*. <https://doi.org/10.1109/icetas48360.2019.9117219>
- Zavolokina, L., Dolata, M., & Schwabe, G. (2017). FinTech transformation: How IT-enabled innovations shape the financial sector. In *Lecture Notes in Business Information Processing*. https://doi.org/10.1007/978-3-319-52764-2_6