Literature Review of a Cashless Society in Indonesia: Evaluating the Progress

Antragama Ewa Abbas

***Abstract*—A cashless society becomes a popular alternative to tackle the cash usage liability. Despite its popularity, in the context of Indonesia, the consumer payment transaction using non-cash methods cover only approximately 0.6%. This fact leads Indonesia categorised in the inception stage. In addition, the analysis point out that the advantages of a cashless society in Indonesia outweigh the disadvantages. As a result, to gain a better insight, measuring progress of a cashless society is an important phase to understand the current condition, examine the gap, and priorities the further action.**

The trend analysis with multiple sources of data was performed to measure the progress between 2011 and 2017. This research thereafter points out that the readiness indicator of a cashless society in Indonesia doesn't indicate a rapid progress. Thus, a shortcut way to accelerate the journey, for instance, government leadership and innovative payment solution, is required.

***Index Terms*—Cashless society, e-business.**

I. Introduction

In a global perspective, 'the burden of cash usage on national economies is substantial, representing as much as 1.5% of GDP' [1]. The huge maintaining cost could be allocated to other sectors if the government can manage transactions in more efficient ways. However, '85% of all retail payment transactions are done with cash' [1]. A cashless society therefore becomes a popular alternative to tackle the cash usage liability. Worthington describes a cashless society as a replacement of coins and notes with efficient electronic payments [2].

In the context of Indonesia, the consumer payment transaction using non-cash methods cover only approximately 0.6%. This fact leads Indonesia categorised in the inception stage, 'where owed largely to low financial inclusion rates and the absence of a broadly available cashless infrastructure' [3]. Moreover, based on the *Three Steps toward Electronic Payments* framework, Indonesia categorised into Stage 1 – bulk payer transition, which refers to the availability of the instrument and payment channel, yet the usage of those are limited [4].

As a developing country, an effective payment method will bring positive impacts to the economic sustainability. Thus, to gain a better insight, measuring progress of a cashless society is an important phase to understand the current condition, examine the gap, and priorities the further action.

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II. Literature Study

A. Cashless Society Definition

Less Cash Society (LSC) is a term used by Bank Indonesia in relation to a cashless society. Agus DW Martowardojo, Governor of Bank Indonesia, defines LSC as an environment where people are accustomed to use non-cash instruments, especially in the transaction of their economic activities [5]. In addition, 'a cashless society could be defined as one characterised by few notes and coins in circulation issued by a Central bank' [6].

Drawing together from the previous research, a cashless society consequently refers to the Bank Central Initiative to transform the cash instruments into the non-cash in economic activities.

B. Indicators of a Cashless Society

MasterCard introduces a framework to assess the cashless journey in a nation. There are three indicators to study the journey [1]: Share, the ratio between cash and non-cash payment for consumers; Trajectory, the share shift over a specific period; and Readiness, the prerequisite conditions, which deal with the 'access to financial services, macro-economic and cultural factors, merchant scale and competition, and technology and infrastructure'.

III. Advantages and Disadvantages: The Context of Indonesia

Before measuring the journey, it is important to take a look whether a cashless society will bring more positive impact in the context of Indonesia.

A. Positive Aspects

One of the main strengths of a cashless payment is an enhance of the tax base, as most transactions could be traced by the government [7]. This argument is supported by the other research in Indonesia that states non-cash transaction increase the potential value of tax [8].

Convenient and efficiency is the next advantage of implementing a cashless society. Akinola and Mallat believe cashless payment could enhance the remote access to payment, reducing the queue, and save individuals time [9], [10]. Furthermore, business entity accepted the payment method in because of its efficiency. Non cash transaction mechanism also correlated with Central Bank of Indonesia regulation to provide the efficient transaction value [8].

In respect to crimes reduction, researchers studied illegal

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activities such as terrorism, illegal immigration, human trafficking, and corruption could be restricted by cashless payment activities [6], [11]. The most suitable benefit of Indonesia is the corruption prevention. Coleman states with the corruption index of 34, the country just categories inside the corrupt country [12]. In consequence, cashless instruments not only help the nation achieve the economic stability, but also has a chance to decrease the corruption activities.

B. Negative Aspects

The most problematic subject regarding non-cash payments is privacy issues. Without no doubt, the government will have a total record of the consumer transactions. With this information, the privacy of individual could be treated. Brown also agrees with the argument, as he says 'the government has substantial power over society by having access to these types of confidential information' which lead to the privacy issue. However, regarding the Indonesian perspective, privacy is not a huge indicator to decide whether people want to use a specific service or not. This idea is therefore proven by Quthbi investigation which found the privacy perception has no significant impact on the decision using e-money [13].

In addition to privacy issues, computer hacker is the other challenging subject of applying non-cash instruments. Unlike the privacy issue, in Indonesia, security concern has a major impact on the decision using non-cash payments [8]. To deal with the problem, the government has released Bank of Indonesia regulation No.11/12/PBI/2009. This regulation governs the implementation of electronic money, for instance: the requirement to transform magnetic stripe to chip-based.

C. The Benefits Outweigh the Risks

Based on the comparative aspects above, it is highly likely the benefits will outweigh the risks. Thus, implementing a cashless society could bring a greater benefit to the context of Indonesia.

IV. PROGRESS TOWARD A CASHLESS SOCIETY: THE READINESS INDICATOR

Among the three indicators to measure the cashless journey, the readiness indicator is the most fundamental part to determine a nation journey to a movement from cash to non-cash [1]. Based on Thomas' finding, the analysis will be focused on understanding the movement of the readiness indicator in Indonesia.

A. Access to Financial Services

Access to financial services is the first factor of readiness indicator. This factor is evaluated by three main variables, which are: 'the availability of financial services, the affordability of financial services, and the bank account usage'. The information related to access to financial service can be seen in Table I.

Following the data above, a trend related to the access to financial service can be generated as per shown in Fig. 1.

Both the first and second variable have slowly increased since 2012. Despite their slow movement, *the availability of financial services* shows a more stable journey from the first point rather than *the affordability of financial services*. Based on the trend analysis, the movement pattern will carry on over the next two years.

TABLE I: ACCESS TO FINANCIAL SERVICES

Indicator \ Year	Scale	2011	…	2014	2015	2016	2017
The Availability	1 - 7	4.8	…	4.9	4.9	4.95*	4.98*
The Affordability	1 - 7	4.4	…	4.9	4.9	4.4	4.72*
Bank Account Usage (by People)	100%	19.8%	…	35.9%	-	-	-

Note: adapted from multiple source from the World Economic Forum and the World Bank in the range between 2011 and 2016 [14]–[20].
*predicted data.

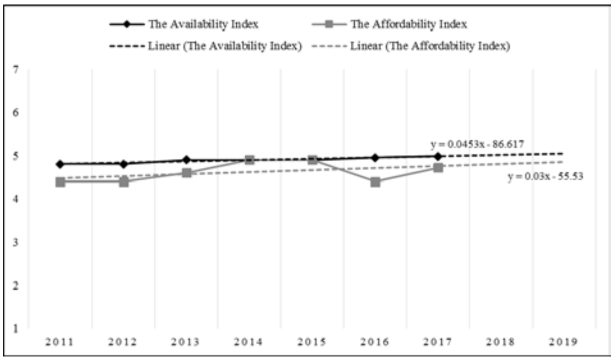

Fig. 1. Access to financial services trend: variable (I) and (II).

Despite the lack of information, the third variable, *the bank account usage by people* illustrates the positive signal in the development of financial services. The result reached to 35.94% which is almost double than the usage in 2011.

Regardless of the positive movement in these variables, the progress couldn't be categorised in the rapid development since there is no significant result shown.

B. Macro-economic and Culture

The second factor of readiness indicator is *macro-economic and culture.* This indicator consists of two variables, which refer to the *ease of doing business* and *size of informal economy* [1]. Table II illustrates the ease of doing business index in Indonesia from 2011 to 2016.

TABLE II: MACRO-ECONOMIC AND CULTURE: EASE OF DOING BUSINESS

Indicator \ Year	Scale	2011	…	2014	2015	2016	2017
Ease of doing business	100%	57.62	…	56.69	56.73	58.12	57.25

Note: adapted from multiple source from the World Economic Forum in the range between 2011 and 2016 [15]–[20].
*predicted data.

Following the data above, a trend related to the *macro-economic and culture* can be generated as per shown in Fig. 2.

There was no substantial progress regarding the *ease of doing business* as the index result remained stable in the past five years. Based on the prediction, this typical pattern will be continued in the next two years.

Despite no direct statistic found to assess *size of informal economy*, the size of informal labour could be a way to analyse the journey in the variable. According to Noeraini, because of the increasing opportunity in the formal sector, the number of Indonesian informal labours decreased gradually over the past five years. It was approximately 65% and 58% of the total workers in 2010 and 2015, respectively. By generalising the fact, the *size of informal economy* constantly dropped from its first point in 2010 [21].

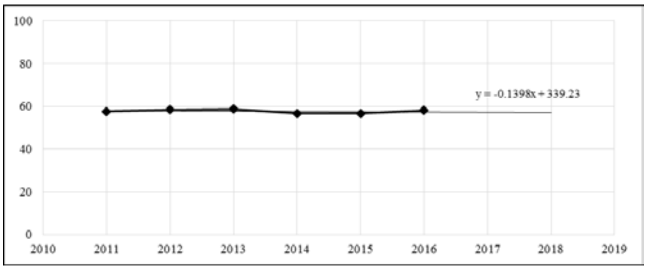

Fig. 2. Macro-economic and culture factor: variable (I).

To summarise, the first and second variables demonstrate the steady and downward trend over the past six years, respectively. This finding leads to an argument that there is most likely no fast movement in the second indicator: *macro-economic and culture*.

C. Merchant Scale and Competition

The third factor of readiness indicator is *merchant scale and competition*. The variable to evaluate these factors is *the intensity of local competition*. The provided table (see Table III) outlines the *intensity of local competition* from 2011 and till 2016. The table then reproduce to analyse the trend in term of the progress of this variable (refer to Fig. 3).

TABLE III: MERCHANT SCALE AND COMPETITION

Indicator \ Year	Scale	2011	…	2014	2015	2016	2017
Intensity of Local Competition	1 - 7	4.6	…	5.3	5.1	5.3	5.60

Note: adapted from multiple source from the World Economic Forum in the range between 2011 and 2016 [15]–[20].
*predicted data.

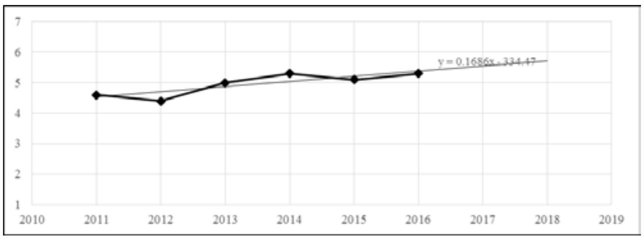

Fig. 3. Merchant scale and competition: variable (I).

Despite a small drop in 2012 and 2016, the trend of *intensity of local competition* shows the most positive movement in the future. The index in 2017 will be predicted hit 5.60, pass over almost a point comparing to 2011. Based on this fact, it is relevant to argue that *merchant scale and competition factor* categorised in a rapid area of expansion.

D. Technology and Infrastructure

The last factor in the relation of readiness is technology and infrastructure. Both variable access to and uptake of new technology and quality of infrastructure become a tool to evaluate this factors. Table IV and Fig. 4 give information about the movement over the past five years.

TABLE IV: TECHNOLOGY AND INFRASTRUCTURE

Indicator \ Year	Scale	2011	…	2014	2015	2016	2017
Access to and uptake of new technology as well as innovation	1 - 7	4.9	…	5.2	4.8	4.7	4.98
Quality of infrastructure	1 - 7	3.9	…	4.2	3.8	3.8	3.9

Note: adapted from multiple source from the World Economic Forum in the range between 2011 and 2016 [15]–[20].
*predicted data.

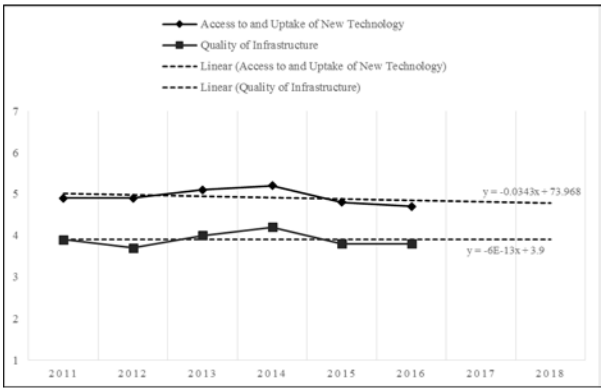

Fig. 4. Technology and Infrastructure: variable (I) and (II).

The fluctuate data related to the *new technology aspect* and *quality of infrastructure* can be seen in Fig. 4. After reached the peak point in 2014, the index number gradually decline over the past two years. Moreover, the future trend predicts the trend will continue in the next two years. In addition, there is no major change in the index value in the 2011 and 2017: (4.9 to 4.98 in the first indicator, 3.9 to 3.9 in the second indicator). Thus, because of the declining trend, it is relevant to argue there is no major progress in the Technology and Infrastructure factor.

E. Analysis Result: Compiling the Factors

Thomas states that the factors comprising the score for readiness fall into four broad categories of nearly equal weight [1]. Therefore, based on the analysis result which analyse the trend and the tipping point between 2011 and 2017 (refer to Table V), the progress toward a cashless society in the Readiness Indicator shows the slow development. There is only a factor which leads to a rapid progress, meanwhile the others remain stagnant and at some point, declining.

TABLE V: BRINGING THE FACTORS TOGETHER

No	Factor	Result
1.	Access to financial services	Slow progress
2.	Macro-economic and culture factors	Stagnant, tend to slowly decrease
3.	Merchant scale and competition	Positive, lead to rapid progress
4.	Technology and infrastructure	Declining trend

V. SPEED UP THE JOURNEY THROUGH DIFFERENT TECHNIQUE

Given the finding of readiness indicators, the share and trajectory indicator of a cashless society in Indonesia is most likely do not rapidly developed. To speed up the journey, investment to grow the readiness factor is a long and continues journey, hence identify a different way beyond the readiness factor could be a great opportunity to accelerate the journey.

Once more, Thomas points out two different methodology which can accelerate the cashless journey. Those two pathways are *government leadership* and *innovative payment solution* [1].

A. Government Leadership

China is one successful role model of accelerating the cashless journey through the government leadership. 'The nation is taking atypical cashless journey by shifting cash at a faster pace what would be expected (with trajectory score 100) given their low readiness scores solution' [1].

Both MasterCard and Songwanich identify that a strong government focus on growing a cashless society, for example increased point-of-sale machines and opened up the domestic card-payments market to competition are the reasons behind the success [22], [23].

B. Innovative Payment Solution

In MasterCard research, an innovative payment solution to Kenyans delivers a successful example to speed up the journey despite the low readiness result [1]. M-PESA is the disruptive innovation which allows the people do the transaction without having a bank account; for just using their mobile phone. Hughes & Lonie find within the first month, M-PESA had been recorded over 20,000 accounts. This is a clear sign that M-PESA fills a gap in the market [24].

VI. Conclusion

Based on the elaboration, the advantages of a cashless society in Indonesia could outweigh the disadvantages. Consequently, understanding the progress of a cashless society will create an insight to find focus in the further development. This research thereafter points out that the readiness indicator of a cashless society in Indonesia doesn't indicate a rapid progress. Thus, a shortcut way to accelerate the journey, for instance, government leadership and innovative payment solution, is required.

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