

# An Analysis of Problem Situation of the Use of Electronic Payment Instrument in Indonesia

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## Abstract

This study examines the use of electronic payment instrument (EPI) problems in Indonesia. EPI in this study consists of debit card and credit card. The level of the use of EPI in Indonesia is currently still low caused by various complex problems in practice. To unravel the problems of the use of EPI and create a solution to these problems, in this research used the approach of Soft System Methodology (SSM). The result of the analysis shows that there are three problem aspects of the use of EPI in Indonesia, infrastructure, human resources, and regulation aspect. The problem related to the infrastructure aspect is divided into two terms, information technology (IT) aspect and the availability of EDC in merchants has not been evenly distributed. Regarding the problem related to human resources aspect, firstly, it concerns the competence of employees in operating the EDC, and secondly, the problem concerns society behavior of cash transaction. The last problem is the regulation support which has not been optimal.

**Keywords:** electronic payment instrument, behavior changes, cashless society

## 1. Introduction

Payment instrument is divided into two types, cash and non-cash. Technological advances significantly influence the development of non-cash payment instrument innovation. Following the increasing number of transactions as a result of population growth, therefore payment instrument innovation needs to be based on technology (Kuroda 2014). The development of non-cash payment instrument innovation in various countries is aimed to create a simple, secure, efficient, and reliable payment instrument. Furthermore, this innovation is intended to improve the service and consumer protection in the payment process. According to Duraj (2017), the regulatory tool will improve transparency related to the imposition of fees. In practice, there is still the existence of various weakness in using cash payment instrument; therefore, people should be encouraged continually to use non-cash or electronic payment instrument. According to Worthington (1995), the use of electronic payment instrument will be a trend in the 21st century.

Nowadays, in Indonesia, the level of the use of non-cash payment instrument is still low, and people still tend to use cash in the transaction (Pohan 2013). According to MasterCard Advisors' Cashless Journey The Global Journey From Cash to Cashless (2013), the evolutionary stages of the use of non-cash payment are divided into four steps. The four steps are Inception (non-cash payments of the total value of consumer payments <40%), transitioning (non-cash payments of the total value of consumer payments >40%), tipping point (non-cash payments of the total value of consumer payments >60%), and the last stage is nearly cashless (non-cash payments of the total value of consumer payments >80%). Based on this classification, Indonesia is in the inception stage that non-cash payments of the total value of consumer payments in Indonesia are only 31%.

In the economic context, non-cash payment instrument is positively related to the velocity of money, therefore the presence of non-cash payment instrument for the economy by providing benefits for increased efficiency and financial productivity that encourage real sector activity and in turn can promote economic growth and improve the public welfare (Prarono et al. 2006). Based on the description of the problems in the process of using EPI, required a proper approach to solve these complex problems.

## 2. Literatur Review

### 2.1 Regulations

According to Act Number 23 of 1999 concerning Bank Indonesia, the payment system is a system that includes a set of rules, institutions, and mechanisms, which are used to carry out the transfer of funds to meet an obligation arising from economic activity. Therefore, the payment instrument is part of the payment system, as the case in other countries that the current retail payment instrument in Indonesia currently uses cash and non-cash payment instruments.

The use of non-cash or electronic payment instrument closely related to the transfer of funds process, the arrangement is wholly regulated in Act Number 3 of 2011 concerning Funds Transfers. Definition of Fund Transfer system is an integrated system to process the transfer of funds command by using an electronic instrument or another instrument by the rules. Regulation related to electronic transaction receipts are regulated in article 76 states that paragraph (1) electronic information, electronic documents and/or prints in Fund Transfer activities are legal proof of law. In paragraph (2) it is stated that the electronic information, electronic documents and/or prints

as referred to paragraph (1) is an extension of the valid evidence following the applicable law of procedure. Similarly, the regulation of signature is clearly defined in article 77 which states that electronic signatures in Fund Transfer activities have legitimate legal force.

Bank Indonesia has issued Regulation Number 18/40/PBI/2016 concerning Implementation of Payment Transaction Processing. This regulation is relevant with financial technology to meet the public needs, including the payment system services sector, mechanisms, and infrastructure of payment transactions processing. Besides, the existence of these regulations is essential in supporting the creation of a convenience, secure, efficient, and reliable payment system. Furthermore, the existence of the regulation will complete the existing regulation by prioritizing compliance of prudential principles and adequate risk management. Other than that, the regulation also will complete by considering the expansion of access, national interests and consumer protection, including international standards and practice.

Every payment instrument has a legal basis to be legitimate (legal tender). The legal basis of other retail payment instruments is Card-Based Payment Instrument (CBPI). CBPI consists of ATM Cards, Debit Cards, and Credit Cards regulated in Bank Indonesia Regulation Number 14/2/PBI/2012 concerning Amendment to Bank Indonesia Regulation Number 11/11/PBI/ 2009 concerning Card-Based Payment Instruments.

Completion of regulation related to CBPI has been conducted with the consideration that the prudential aspect and consumer protection aspect in practice need to be more noticed. Other considerations in improving this regulation as the impact of credit card distribution by instrument payment providers have not been entirely concerned with credit risk management.

## 2.2 Theory

As the title of the study "An Analysis of Problem Situation of The Use of EPI," there are three theories used in this study, payment system, planned behavior and changes theory. According to Pohan (2013), the payment system can be classified into two types, significant value and retail value. Bank Indonesia conducts the providers of the payment system in Indonesia, Real Time Gross Settlement (RTGS) of Bank Indonesia System and National Clearing System of Bank Indonesia (SKNBI) and services industry of payment system by banking and non-banking.

The development of EPI innovation is the impact of continuous improvement efforts to improve the existing shortcomings. Factors that encourage an individual to start and develop new invention are an awareness of a lack in a culture; quality of expertise in a culture, and stimulation system for creator's activities (Koentjaraningrat 2014).

Indonesian people still use cash transactions until now as their culture (Pohan 2013) even though non-cash payment are available in various instruments. Various ways of generating the changes in behavior, attitude, or trust to others have been created, considering these are familiar parts of our life. Most people behave according to social norms almost all the time, they show a strong tendency to adjust. The existence of norms is meant to affect one's behavior especially when it is relevant (Baron & Branscombe 2014).

The social dynamics that occur in society is affected by discoveries (innovations), as well as the innovation of EPI caused by technological advances. Innovation is mostly a process of renewal from the use of natural resources, energy, capital and the rearrangement of labor and the use of new technologies (Koentjaraningrat 2014).

There are two types of the attitude of society in responding to a lack of culture. Firstly, people think they can do nothing, but they accept it. Secondly, people who are not satisfied with their circumstances, but they can do nothing. Also, the last type, people who are actively improving the shortcomings and make innovation (Koentjaraningrat 2014).

One of the efforts to change social behavior is through the change of business model mechanism so people have no choice but to follow the rules. This method often occurs as a result of cultural influence or a mechanism that has been applied by other countries which becomes a reference to change.

To make changes, it needs to make the stages of changes consisting of awareness, desire, knowledge, ability, and reinforcement (ADKAR) Model. The first step on ADKAR model is building awareness of the need for a change, arising the desire to support and get involved in change, having knowledge how to make changes, having the ability to implement with expertise and behavior and strengthening efforts to keep the changes going (Hiatt 2006). To accelerate the process of cultural change in non-cash transactions, we need the full involvement of the society, services industry of payment system, Bank Indonesia and government.

## 2.3 Previous Research

Several previous studies have become the reference for the researcher so that can enrich the theory used in this study. The use of non-cash transactions including using EPI has many benefits. This statement is in line with Madasu's opinion (2015) which states that the government should be the catalyst that regulates the economy in cashless or less-cash by electronic payment model. The importance of cashless transactions is also stated by Yaqub et al. (2013) which states that Nigeria's step towards cashless transactions brings many benefits, but the government still needs to create greater awareness to attract Nigerians who do not yet have access to the banking system.

Research conducted by Szmigin & Bourne (1999) concluded that electronic cash has an advantage in certain situations. Therefore marketing must concentrate on identifying to incorporate appropriate services for the card to provide a relative advantage to consumers. Edwin & Mercy (2016) states that trust and security aspects are important factors that affect the use of internet banking services in Nigeria. However, aspects of fraud should be resolved. It needs regulation of internet security following international law and conventions by preparing adequate infrastructure. The number of available facilities is very inadequate. Improvements in infrastructure development are expected to encourage the participation of electronic banking in Nigeria.

According to Stavins (2017), consumer payments behavior is a complex interaction between supply-side factors such as cost, technology, regulation and income of traders and demand factors including demographics and consumer's income, consumer preferences, consumer ratings of payment methods.

Ossolinski et al. (2014), in 2013 data shows that the use of cash and check continues to decline. The use of card has increased significantly, and there is also an increase in PayPal use. Card usage growth and cash usage reduction are evident across households in all age groups. A strong growth in long-distance payments is one of the contributors of changes observed in the use of cash and cards in transactions. However, the main contribution is from the increase of cards usage at the point of sale, which tends to reflect growth in card terminal availability in merchants and change consumer preferences as authentication methods have evolved. One of a technological innovations in banking, finance, and trade is electronic payments. Electronic payment (e-payment) refers to a technological breakthrough that allows for electronic financial transactions, thus avoiding difficulties. Electronic payment gives individuals greater freedom in paying their taxes, licenses, fees, fines, and purchases in alternative locations and at any time, 365 days of the year (Sumanjeet 2009).

Worthington (1995) introduces people without cash and the implications of imposing costs on consumers or payments with plastic cards. It is due to costs for the use of paper money and coins are expensive. therefore, it needs to be replaced by electronic payments to be efficient. There are two significant implications for the marketers, first is how to educate and attract cardholders from existing payment media to use plastic cards. The second implication is that such a piece of plastic will become the key physical manifestation of an account holder's relationship with a financial services provider, replacing the cheque-book or pass-book.

Regarding behavior in electronic transactions, Teoh et al. (2013) found that factors affecting perceptions of electronic payment (e-payment) in Malaysia, these are benefits, self-efficacy, and ease of use give a significant effect on consumer perceptions of e-payment. However, significant results obtained for trust and security need to be further investigated. Teoh et al. (2013) are aimed at determining factors that affect perceptions of electronic payment (e-payment) of Malaysian consumers' perspective.

According to Ajzen (1991), research is concerned with various aspects of planned behavior theory (Ajzen, 1985, 1987) reviewed, and some of the issues which have not been resolved. Intentions to perform various behaviors can be predicted by high accuracy of attitudes toward behavior, subjective norms, and perceptions of behavior control; and this intention, along with the perception of behavioral control, takes into account considerable variance in actual behavior. Attitudes, subjective norms, and perceived behavior control are shown to be related to a set of behavioral, normative, and behavioral beliefs that stand out, but a fixed character of these relations remains uncertain.

Osazevbaru et al. (2015) state that bank income is higher in non-cash-based than cash-based. Thus, cash-less policies offer substantial benefits to the banking sector. As infrastructure recommendations and appropriate regulation support are prepared to facilitate that implementation of the policy. Osazevbaru et al. (2015) are aimed at identifying the benefits and challenges of a non-cash transaction policy in Nigeria.

### 3. Research methods

This study uses Soft System Methodology (SSM) approach to improve complicated problem situation in using EPI in Indonesia. It is following the character of the research problem that is in contact with the human activity system (HAS) area that raises many perspectives. SSM is a methodology of action research to explore the unstructured problems situation so that it can be improved. Data collected by observation techniques, documentation, and situational analysis questionnaires via online version, successfully managed to capture 400 respondents with various backgrounds. After the data collected, the next step is data analysis. In conducting data analysis in this study refers to the stages of analysis in research using SSM with seven stages (Checkland & Scholes 1990), as follows:

- a) Recognizing the problem situation;
- b) Revealing the problem situation;
- c) Making a definition of the root (root definition);
- d) Building a conceptual model;
- e) Comparing conceptual models with the real world;
- f) Making changes and improvements to the model; and
- g) Implementing the actions to improve the situation of the problem.

However, considering time constraints, this research is only done until the sixth stage.

#### 4. Research Results and Discussion

##### 4.1 Problem Situation of The Use of EPI in Indonesia

Currently, in Indonesia, there is various EPI that makes transactions to be more efficient, safe and comfortable. However, literature and research results on the behavior of Indonesian people in retail transactions still usage in cash. Therefore, we need efforts to develop transaction behavior electronically. Prerequisites for electronic transactions can be done with the readiness of infrastructure, human resources and a set of regulation.

To avoid technical problems, the infrastructure in electronic transactions must be well available. Infrastructure and its operations should run smoothly so that people believe that electronic transactions will run safely, efficiently and reliably. Based on the results of the survey, currently, there are still problems in EPI transactions in Indonesia related to aspects of infrastructure, human resources and regulation.

Issues concerning infrastructure aspect include unequal distribution of IT network and EDC and problems related to the business calculation that is related to the percentage of merchant discount rate (MDR) which is currently considered too high to be applied.

The human resources aspect concerning the competence of employees in operating the EDC and the behavior of the society. The last problem is the absence of optimal regulation support for the non-cash transaction that must be applied by the society. Human resource aspect consists of the readiness of human resources which operate the infrastructure. To create electronic transaction culture, people also need to have proper knowledge because electronic payment transaction demands people awareness of high technology. The people awareness should be continually built to use electronic transactions.

Furthermore, to use of EPI, it needs to be comprehensive regulation support for non-cash transactions that must be done by the society. The arrangement of the non-cash transaction by using EPI needs to be regulated harmoniously at the central and local government level. This effort can make cashless society by the central and local government policy. Coordination between central and local government is necessary and need to be continuously developed so that the harmonization of policies can be realized. The absence of harmonization can cause a counterproductive policy.

##### 4.2. Conceptual Model

In the approach of SSM, system thinking framework begins by making root definition and then building the conceptual model based on the definition of a problem. The definition of the root of the problem is a continuance of the structuring of problems that result from a relevant perspective. The relevant perspectives on the problem situation analysis of the use of EPI in Indonesia are: The Strategy of Behaviour Changes of Society in Using EPI is a policy strategy undertaken by the Policy Regulator in the behavior changes of society in using EPI (P) through a measurable and targeted strategy (Q) for contributing significantly to the achievement of strategy targets (R).

Root definition will be expressed with CATWOE which is an acronym of Costumer (part who takes the advantages or disadvantages of transformation), Actor (part who performs transformation), Transformation (the changes of input into output), Worldview (perspective), Owner (part who could stop changes activity), Environmental Constraints (environmental barriers). Besides, performance measurement is done through Efficacy, Efficiency, Effectivity, Elegance, and Ethics (5E's). CATWOE and 5E's analysis for each step in the process of preparing a problem situation analysis of the use of EPI in Indonesia, mentioned below:

Root Definition Components	Results Definition
<b>C</b> - Customers	EPI users
<b>A</b> - Actors	Bank Indonesia, Government-Related Institution, EPI Issuers, IT Network Supplier Company, Merchant.
<b>T</b> - Transformation Process	Behavior changes of society in transactions of using cash to non-cash
<b>W</b> - Worldview	Behavior changes of society in transactions of using cash to non-cash will accelerate the realization of cashless society.
<b>O</b> - Owners	Government and Bank Indonesia
<b>E</b> - Environmental constraints	Awareness of all stakeholders Behavior changes in transactions still in cash

Furthermore, 5E can be explained as follows:

<b>Efficacy</b>	Society behavior occurs in using EPI
<b>Efficiency</b>	The behavior changes of society in using EPI by a measurable and targeted strategy
<b>Effectiveness</b>	Actual achievement of behavior changes of society in using EPI
<b>Elegance</b>	The process of behavior changes of society in using EPI that can be created by the full support of all stakeholders.
<b>Ethics</b>	The contribution of stakeholders in the behavior changes of society in using EPI has gained recognition from the stakeholders so that stakeholders' role in behaviour changes of society can not be denied.

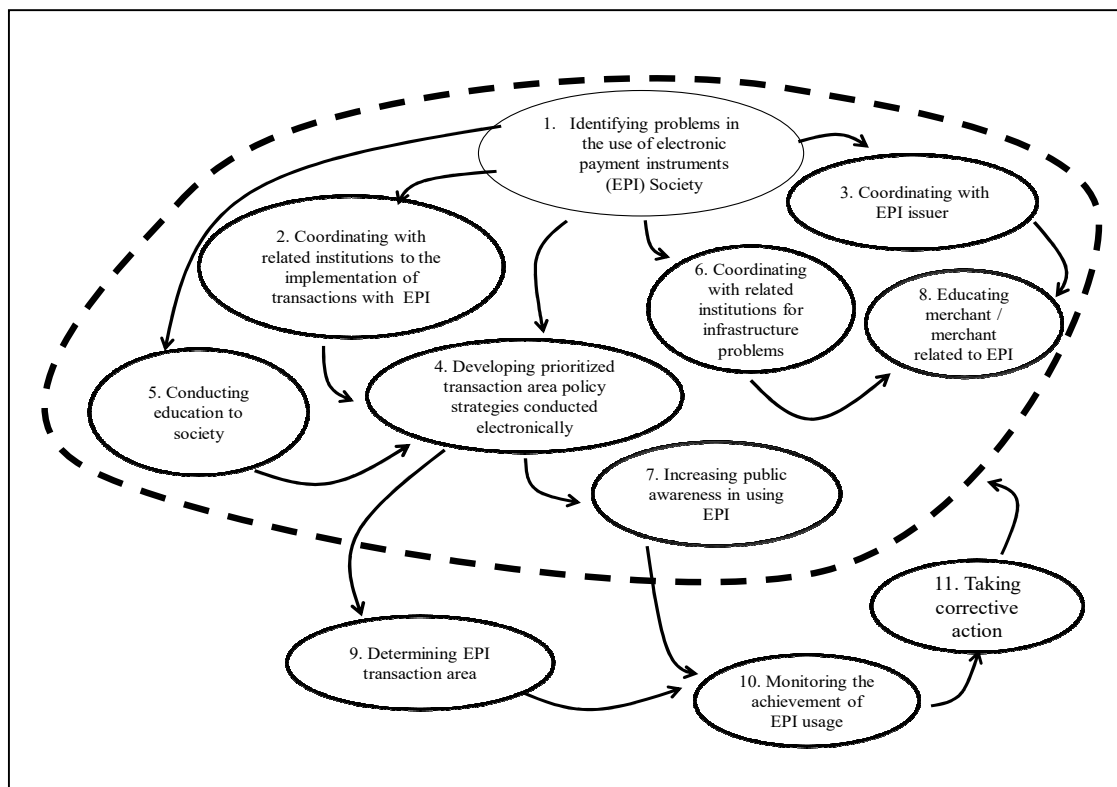
Based on CATWOE and 5E analysis as described in the previous table, several points that must be concerns are process of change (transformation) based on the relevant perspective (worldview) because every problem situation needs a change so that the problem does not happen in the future. After the change, the next step is determining who will be costumers, actors, ownera and environmental constraints that affect the system.

Changes made should be measured by the 5 E criteria. Efficacy answers the question of what changes are made, the efficiency answers the question of how the changes are made, and the effectiveness answers the question of what the long-term goal is. *Elegance* is the process of behavior changes of society in using EPI goes with the full support of all stakeholders. *Ethics* (Ethics) is the contribution of stakeholders in behavior changes in using EPI is acknowledged by stakeholders, so that the role of stakeholders in behavior changes in using EPI can be denied.

After doing the third stage of SSM analysis (making root definition), the next step is to create a conceptual model. The conceptual model is a model resulted by root definition. The conceptual model contains purposeful activity which is a representation of all things in real situations by calculating the concept of real activity purpose. According to Checkland & Poulter (2006), the main steps in making a conceptual model as follows:

- a) Making the guidelines: root definition and CATWOE;
- b) Activities classified into activity groups related to something being transformed, activity group related to the part which transforms and the activity related to the transforming entity;
- c) The activity aims at using active verbs and measurable nouns;
- d) Linking the intended activities with arrows indicating interdependence;
- e) Add three monitoring criteria and performance control of the ongoing transformation process; and
- f) Examines the conceptual model created with benchmarks or root definition criteria and CATWOE.

The conceptual model is as follows:



In the system thinking framework using conceptual model SSM begins with CATWOE analysis. The analysis

begins by determining what changes (transformation) should be created. The transformation is the realization of the use of EPI in Indonesia. Referring to the transformation made by the beneficiary (Customer) is the Government, Bank Indonesia, EPI Industry, merchant. Furthermore, who makes the transformation (actor) is Bank Indonesia, Government-Related Institution, EPI Issuer, IT Company, Merchant.

The conceptual model requires the monitor and control functions to be performed continuously. Guidelines for monitoring and controlling are measures of system performance that must meet the 5E's requirements (Efficacy, Effectiveness, Efficiency, Elegance, Ethics).

## 5. Conclusion

The absence of ideal payment system causes the low level of the use of EPI in Indonesia. Therefore, the improvement of EPI is necessary, which consists of infrastructure, human resources, and regulation aspect. Improvement efforts related to aspects of infrastructure can be divided into two groups, the problem of information technology (IT) network and the availability of EDC in the merchant. Problems concerning the uneven IT network infrastructure can be overcome by coordinating with ministries/related institution) and linkage programs between merchants and EPI issuers related to the availability of EDC in merchants. Regarding EDC problems, there is also problem-related to business calculations (the percentage of MDR) which is currently considered too high to be applied. Therefore it is necessary to coordinate and facilitate between EPI issuers and merchants, also educate and linkage programs between merchants and EPI issuers.

Regarding issues concerning human resources, improvement efforts that can be created are divided into two ways, and firstly, it is necessary to provide training for the employees in operating EDC. Furthermore, it is important to make change management related to social behavior by massive education.

Furthermore, to ensure the realization of the full use of EPI, it needs regulation which regulates non-cash transaction comprehensively. The regulation of non-cash transaction needs to be regulated harmoniously by central and local government level. It is one of the efforts to create the cashless society which will be in line between central government and local government.

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