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Financial Technology Application Success in the 4.0 Era

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Abstract--*The presence of the industrial era 4.0 has changed the way of life and way of life of the community at this time. One that is experiencing growth is financial transactions that are shifting towards application-based digital namely the application of Financial Technology applications. But from the success of the application, there are still problems that harm the user and indicate reducing the level of user confidence in the application. This study aims to analyze, test and explain the role of moderation of trust in the effects of system quality, information quality, service quality on application user satisfaction. The results show that information quality most determines user satisfaction. Meanwhile, the quality of service is not able to increase user satisfaction, but with the trust can strengthen the quality of application services in determining the satisfaction of application users, besides that the service is always available and on time when users experience problems that are needed by application users. This finding can enrich the success model of DeLone and McLean (2003) information systems that use system quality, information quality, and service quality variables to user satisfaction, in this study adding moderation variables, namely trust.*

Keywords-- *system quality; information quality; service quality; trust; user satisfaction.*

I. INTRODUCTION

The presence of the industrial era 4.0 has changed the way of life and people's way of life. Real changes that can be seen are all activities carried out by humans towards the direction of automation and digitalization. Digital-based information technology has become an inseparable part of everyday human life. The financial sector is one of the fields that are very clearly affected by the development of information technology. The development of information technology is adopted by organizations to achieve goals to increase the effectiveness and efficiency of their resources. Information technology in the financial sector has a very good effect to facilitate the public in accessing information, products and financial services.

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Information technology innovation brings convenience and security in conducting financial activities wherever and whenever quickly. An information technology innovation that has emerged in the field of financial services is *Fintech*. *Fintech* is an abbreviation of *Financial Technology* which is present as a breakthrough innovation in financial services. The presence of *Fintech is* very helpful and facilitates the public in accessing the information on financial products and financial literacy. According to The National Digital Research Center (NDRC), *Fintech* is an innovation in the sector *financially*. Of course, innovation *financial* gets a touch of modern technology (IOSCO Research Report on Financial Technologies, 2017). Although *Fintech* makes it easy for users, the development of this technology still raises and carries problems for users, then measuring the achievement of an objective or success of an information system is very important to understand about the value and progress of management, as well as investment in the information system itself. Much research has been done to find out the factors that cause the success of an information technology system. Among them are (Bailey & Pearson, 1983; Seddon, 1997; Molla & Licker, 2001; Wu & Wang, 2006). The research in the spotlight was conducted by DeLone and McLean. *Information quality, system quality,* and *service quality* have a positive effect on *user satisfaction* (DeLone & McLean, 2003). There are still inconsistent research results in measuring the success of a system using the DeLone and McLean models, including research that states that *system quality* has a positive and significant effect on *user satisfaction* (Daıhan & Akkoyunlu, 2016), whereas in other studies it states that *system quality is* no significant effect on *user satisfaction* (Roky & Meriouh, 2015), *information quality* has a positive and significant effect on *Hospital's satisfaction* (Lian, 2017), but the results of other studies consider *information quality* not to have a significant effect on *user satisfaction* (Koo et al., 2013). *Service quality* has a positive and significant effect on *user satisfaction* (Tam & Oliveira, 2017) but in other studies *service quality has* no significant effect on *user satisfaction* (Al-Debei et al., 2013).

One of the applications of Fintech that became the spotlight because it entered as the favorite digital payment application brand in Indonesia is OVO (Kontan.co.id, 2018). In its application, OVO still encounters obstacles that are detrimental to its users. If this continues it will reduce the level of user confidence OVO applications. Trust is the willingness of customers to trust or rely on the brand in a risky situation because of the hope that the brand will produce positive results (Lau & Lee, 1999). Users or customers who believe in a system means that they have high confidence in the system, so the decision to use the system is more open and satisfaction will be felt by the user. Therefore, trust is a very important factor in the successful implementation of an information

system, moreover, the system used is a financial transaction system (financial) that requires trust and impacts on the user's desire to continue to conduct financial transactions (financial), so the model this study added the trust variable. Given the important role of Fintech OVO at this time to facilitate financial transaction activities in terms of payment, it is necessary to have a measurement that aims to determine the factors of application success in determining the level of user satisfaction of the application as well as an evaluation of the successful implementation of financial information systems that have been running for this. This evaluation is useful for Fintech service providers, especially OVO. Through this research, the researchers tested the success of the Fintech OVO application using the DeLone and McLean (2003) models on application users in Denpasar.

II. LITERATURE REVIEW

IOSCO *Research Report on Financial Technologies* (2017), mentions that the term *Financial Technology is* used to describe various innovative business models and new technologies that have the potential to change or disrupt the financial services industry. Through the rapid development of digitalization *Financial Technology* has been present in all sides of society without limits. The community is greatly facilitated in terms of accessing investment opportunities or online loan platforms. The presence of this *Financial Technology* service can indirectly replace banking services.

Professor Douglas W. Arner from Hongkong University divides development *Fintech's* into four eras. *Fintech* 1.0 took place between 1866-1967, the era of infrastructure development and computerization to form a global financial network. *Fintech* 2.0 took place between 1967-2008, the era of internet use and digitalization in the financial sector. *Fintech* 3.0 and *Fintech* 3.5 take place from 2008 until now. *Fintech* 3.0 is the era of the use of telephones and smartphones in the financial sector. *Fintech* 3.5 is the era of the emergence of financial technology business forms as newcomers who take advantage of opportunities from technological process innovations, products and business models and changes in people's behavior. In the industrial era 4.0 which carries the vision of increasing the relationship between physical and virtual industrial machines has enormous impacts and benefits in terms of data collection, integration and analysis on a scale not previously imagined. With theera *Fintech* 4.0, companies *Fintech* will be intensively connected with traditional financial institutions, this will be a systematization of technological solutions from a technical point of view and from an industry point of view there will be strong relationships or integration in building the stability of the financial system.

Every company that implements *Fintech* has different services. The World Economic Forum (2015) categorizes services *Fintech* into six categories, namely *payment, insurance, deposits and lending, capital raising, investment management and market provisioning.* In Indonesia *Fintech is* regulated by Bank Indonesia in Bank Indonesia Regulation (PBI) No. 18/40 / PBI / 2016 concerning Implementation of Payment Transaction Processing. Services *Fintech* found in Indonesia such as *personal finance and investment, payment, point of sales system* (POS), *lending, accounting, comparison, crowdfunding* and *cryptocurrency.*

The payment system has a huge influence on the stability of the financial system and economy in a country. According to Bank Indonesia the payment system is a system that includes a set of rules, institutions and mechanisms used to carry out the transfer of funds to meet obligations arising from an economic activity. Payment instruments have developed very rapidly along with the increasingly rapid technological development. The first time a means of payment is known as barter, which is the exchange of goods or services traded. Then later on, it began to be known as "money" as a means of payment used by the community until now.

Money is a payment instrument that has a certain unit or value of payment. The payment instrument continues to develop from the cash payment instrument (*cash based*) by using currency (banknotes or coins), then developing to the non-cash payment instrument (*non-cash*). Recognizing the inefficiency of the use of currency, Bank Indonesia took the initiative to encourage the public to build a trend of people accustomed to using non-cash payments, or what is known as the *Less Cash Society* (LCS). Non-cash movements are driving the growth of consumer expectations of real-time payments. Formerly, non-cash payment instruments were based on paper, namely checks, bilyet, demand deposits and debit notes. Furthermore, it has developed into a card-based business such as ATMs, credit cards, debit cards, prepaid cards and the latest is electronic money. Non-cash facilities provided by banks and financial institutions other than banks make non-cash payment instruments become widely used both communities in the process of transferring funds, clearing and settlement system end(settlement).

The use of electronic money has been regulated in Bank Indonesia Regulation Number 20/6 / PBI / 2018 concerning electronic money. Electronic money is a payment instrument that fulfills the elements that are issued on the basis of the value of money that was deposited in advance to the issuer, the value of money stored electronically in a media *server* or *chip* and managed by the issuer is not a deposit as referred to in the Law on banking. Electronic money can be used for payment transactions or fund transfers. According to Bank Indonesia, Digital Financial Services

(DFS) are payment system and financial service activities carried out by publishers in collaboration with third parties and using web and-based technology tools and devices *mobile* for financial inclusion. Based on the storage media electronic money can be divided into two, namely *chip based* such as Flazz, e-money, Brizzi and *server based* such as T-cash, Doku, Finpay, XLTunai. *The device* that is currently widely discussed and widely used by the public in electronic money transactions is a *mobile device,* this is the basis for the recognition of this payment as *Fintech Payment*.

Council and Chen (2015) define *Fintech Payment* as a device that allows users to make payment transactions via devices *mobile* including *handsets* wireless, *personal digital assistants* (PDAs), radio frequency devices and communication-based devices. Fintech Payment (*m-payment*) is a process in which two parties exchange *financial values* using a *mobile device* in return for goods and services. There are still many obstacles to *m-payment* on the market, one of which is related to the limited explanation and definition and the differences between *m-payment, m-banking* and other payment functions that use *mobile devices. M-payment* can be used for various payment transactions including transportation, restaurants, utility payments, to cinema ticket payments. Through *wireless devices* such as *mobile phones* and *smartphones, m-payment* provides ideas for increasing convenience, reducing transaction costs, and increasing the security of electronic payments (Hoofnagle, Chris Jay, Urban, Jennifer M, & Su Li, 2012). This payment system also makes it easy for companies to gather useful or important information about consumers and what consumers buy.

Paunov and Vickery (2006) state that the application of the *m-payment system is* quite extensive because of the extraordinary growth of cellular devices and greater penetration of cellular devices compared to other telecommunications infrastructure. The Smart Card Alliance in 2008 stated that the integration of telecommunications (mobile) and payment technology is a complex process and requires the coordination of various stakeholders /*stakeholders* including customers, financial service providers, payment service providers, *merchants*, transmission networks, cellular devices, regulators , product standardization, *trusted service manager*, and application developer.

Nowadays mobile devices have been widely used for financial transactions and it is estimated that their use will continue to increase. Every year the development of devices *smartphone* since 2010 has always been increasing so as to encourage the advancement of *m-payment services* in Indonesia. Massive improvements in operating systems and *user interfaces,* coupled with

increasingly reliable cellular internet connectivity have enabled significant changes to the *m-payment service*. The *m-payment service* in Indonesia uses server-based electronic money as the underlying currency in its services. *M-payment is* mainly used for telecommunications top-ups, utility bill payments, and money transfer services. The *m-payment service is* also designed to improve access to financial services for residents who do not have a bank account regulated by Bank Indonesia. *M-payment* is a product that is very helpful in accelerating financial inclusion programs in Indonesia.

Many studies have been conducted on the success of information technology systems by many researchers since ancient times. This is because technology is developing rapidly continuously. It is important for us to know what factors contribute to influencing the success of an information technology system. One of the most well-known studies is the study conducted by William H. DeLone and Ephraim R. McLean. DeLone and McLean developed a successful model of information technology systems in 1992, where this model quickly received responses from other researchers because it is a simple model but is considered quite valid. The research model conducted by DeLone and McLean (*D&M IS Success Model*) was formed from theoretical studies and the results of empirical research on information systems conducted by several researchers in the 1980s. DeLoan and McLean developed their research model from research conducted by Shannon and Weaver (1949). Shannon and Weaver state that the success of the output of information systems or messages in a communication system can be measured on three different levels. The *technical level is* defined as the accuracy and efficiency of the system that produces information. The (*sematic level the sematic level*) is defined as the success of information in conveying the intended meaning. The next level of effectiveness (*the effectiveness level*) as the effect of information on the recipient.

The success model of DeLone and McLean's information system (1992) was also developed from Mason's (1978) research with *information influence theory*. Mason changed the term levels of effectiveness*(the effectiveness* level) into the effect*(influence)*and defines the level of influence as the information hierarchy events occurring on the receiving end information system which can be used to identify a variety of approaches that may be used to output at the level of influence. The series of events of this influence include receipt of information (*receipt*), evaluation of information, and application of information that leads to changes in recipient behavior (*influence on recipient*) as well as changes in system performance (*influence on system*). The information system success model DeLone and McLean (1992) has six interrelated dimensions that can represent the success

of an information system. The success variable implementation of an information system is divided into three parts, namely the system itself, the use of the system, and the impact resulting from the use and satisfaction of users.

This research model uses the success model of DeLone and McLean (2003) which shows system quality, information quality, service quality, user satisfaction is the success variable of an information system. But in this paper, the researcher adds trust as a moderating variable in the model.

H_1: System Quality has a positive effect on application user satisfaction Fintech.

$H_{2:}$ Information Quality has a positive effect on application user satisfaction Fintech.

H_3: Service quality has a positive effect on application user satisfaction Fintech.

H_{4a}: Trust can moderate the relationship between system quality and user satisfaction on Fintech applications.

H_{4b}: Trust can moderate the relationship between information quality and user satisfaction on Fintech applications.

H_{4c}: Trust can moderate the relationship between service quality and user satisfaction on Fintech applications.

III. DATA COLLECTION

The methodological approach in this study uses a quantitative approach that is carried out by methods *survey* (Margono, 2010). research *Survey* with the questionnaire as the main research instrument designed to explain the interrelation of the variables studied namely: system quality, information quality, service quality moderated by trust in user satisfaction. This research is associative research which is causal. Causal research is research that has the main goal of proving a causal relationship or relationship influencing and influenced by the variables studied. Data analysis is quantitative to test the hypotheses that have been set (Sugiyono, 2017).

In this study using three variables, namely endogenous *variables* bound variables notated with Y, *exogenous variables or* independent variables noted with X and moderating variables notated with M. Endogenous variables in this study are user satisfaction, exogenous variables in this study is the quality of the system, the quality of information and the quality of service and moderation variable is trust. Five indicators are used to measure user satisfaction (Doll & Torkzadeh, 1988), Five indicators to measure the quality of the system (DeLone & McLean, 2003). Three indicators

were chosen to measure the quality of information (Bailey & Pearson, 1983). Three indicators to measure service quality (Parasuraman et al., 1985) as well as two indicators to measure the confidence of (Delgado & Munuera, 2005). The research uses a scale *Likert* to measure the attitudes, opinions, and perceptions of a person or group of people (Sugiyono, 2017).

The data used in this study to test the research model were obtained from questionnaires involving 205 respondents using OVO applications. Samples were obtained from four sub-districts in the City of Denpasar (East Denpasar, West Denpasar, North Denpasar, and South Denpasar) so that the target sample in each district was determined by 52 units.

The analysis technique used in this study is descriptive analysis and inferential analysis. The descriptive analysis describes the demographics of research respondents, as well as descriptive of research variables and inferential analysis techniques in this study using a structural equation model (*Structural Equation Modeling* - SEM) based on *variance* or *component-based* SEM, known as *Partial Least Square* (PLS).

IV. DATA ANALYSIS

The structural model is evaluated by observing the relevant predictive Q^2 model that measures how well the observed value generated by the Q^2 model is based on the coefficient of determination of all dependent variables. The quantity Q^2 has a value with a range of $0 < Q^2 < 1$, the closer to 1 means the better the model. Evaluation results show the Q2 value obtained is 0.731 or close to number 1. The evaluation results provide a clue that the structural model has a good fit. This result means that the information contained in 73.1% of data can be explained by the model. While the remaining 26.9% is explained by other variables not contained in the research model.

The quality of the system has a positive and significant effect on user satisfaction. These results are shown by a positive path coefficient of 0.391 with a t-statistic of 4.264 (t-statistics> 1.96 so that the hypothesis-1 (H_1) is accepted. These results that the better the quality of the system from the application, it can improve OVO application user satisfaction Information quality has a positive and significant effect on user satisfaction (Y) This result is shown by the path coefficient that has a positive value of 0.395 with a t-statistic of 4.401 (t-statistic> 1.96). 2 (H_2) is accepted This finding means that improving the quality of information can increase the satisfaction of users of OVO applications The quality of service has a positive and not significant effect on user satisfaction This result is shown by a positive path coefficient of 0.066 with a t-statistic of 0.912 (t-statistic <1.96) This result shows that hypothesis-3 (H_3) is rejected, this finding gives the

meaning that the increase but service quality may not be able to satisfy users of the OVO application.

Trust is not able to act as a moderating variable of the relationship between system quality and user satisfaction. These results are indicated by a negative path coefficient of -0.108 with a t-statistic of 1.059 (t-statistic <1.96). These results indicate that hypothesis-4 (H_{4a}) is rejected. Trust is not able to act as a moderating variable of the relationship between information quality and user satisfaction. These results are shown by the negative path coefficient of -0.066 with a t-statistic of 0.061 (t-statistic <1.96). These results indicate that hypothesis-4 (H_{4b}) is rejected. Trust can act as a moderating variable of the relationship between service quality and user satisfaction. These results are indicated by a positive path coefficient of 0.139 with a t-statistic 2.130 (t-statistic> 1.96). These results indicate that hypothesis-4 (H_{4c}) is accepted. This finding gives a sense that the level of trust of application users is a determining factor in strengthening the relationship of service quality with application user satisfaction.

Research findings that information quality most determines user satisfaction other than system quality. Meanwhile, service quality is not able to increase user satisfaction. But on the other hand, trust can act as a moderator to strengthen the quality of service in determining the satisfaction of OVO application users in Denpasar. This finding can enrich the success model of DeLone and McLean (2003) information systems that use system quality, information quality, and service quality variables to user satisfaction, in this study adding the moderating variable of trust.

Hypothesis testing results indicate that the quality of the system has a positive and significant effect on user satisfaction. These results mean that the better the quality of the system from the application will increase the satisfaction of users of OVO applications. The results of this study illustrate that the quality of the system puts forward the reliability, ease of use, speed of access, security and flexibility that can increase user satisfaction. The results of this study support previous studies which found that the quality of the system significantly influences user satisfaction (Kerta et al., 2013; Romi, 2013; Daıhan & Akkoyunlu, 2016; Lian, 2017; Manchanda et al., 2014; Azeemi et al., 2013; Baraka et al., 2013).

The results of hypothesis testing indicate that the quality of information has a positive and significant effect on user satisfaction. These results mean that the better the quality of information from the application will increase the satisfaction of OVO application users. The results of this study illustrate that the quality of information puts forward the relevance, accuracy of information and timeliness that can increase user satisfaction. The results of this study are in line with previous

studies that found that information quality significantly influences user satisfaction (Al-Debei et al., 2013; Montesdioca & Macada, 2015; Tam & Oliveira, 2016).

The results of hypothesis testing indicate that service quality does not affect user satisfaction. These results indicate that the quality of service generated from the application cannot increase user satisfaction. These results are in line with research conducted by (Montesdioca & Macada, 2015; Mtebe & Raisamo, 2014; Roky & Meriouh, 2015). The quality of service measured by indicators of guarantee, reliability, and responsiveness is an objective quality of service. This is because the user considers the application services cannot solve the problem, the need for the human touch to help users if a problem occurs. In the current digitalization era, good quality system and information for users is the best service provided by an application, this proves that the presence of technology that supports the reliability of a system makes users feel satisfied and feel their best experience. However, in another study, the moderation examination showed that trust can moderate the effect of service quality in determining user satisfaction for OVO applications. In other words, the quality of service in the application if supported by trust in the application will increase user satisfaction, this means that trust in the use of applications has an important role in helping the quality of services provided by the application to create satisfaction in the minds of users.

Hypothesis testing results show that trust is only able to moderate the effect of service quality on application user satisfaction. Application trust can strengthen the influence of the quality of service available on the application to user satisfaction. The brand intention which is the strength of the application plays an important role in increasing trust in the application. Also, application users expect applications that provide comfort and guarantee user satisfaction through various features of the application. These results are in line with research that explains that trust is an important factor in the study of information systems, trust has a positive effect on the satisfaction of users of information systems (Kassim & Asiah Abdullah, 2010).*4.1 Outer Model Evaluation*

In evaluating the validity of using convergent validity tests by looking at the score of outer loading and discriminant validity by looking at the value of AVE. The recommended AVE value must be greater than 0.50. The outer loading score obtained varies between 0.730 and 0.942 and the AVE value is above 0.50. A construct must not have a score below 0.50 (Ghozali, 2016), so all indicators of each construct of the research variable do not have convergent validity and discriminant validity problems. The next outer model evaluation is the reliability evaluation which uses a composite reliability test with values that must be above 0.70 and Cronbach alpha

above 0.60. In this study, all variables meet the requirements of the composite reliability value and discriminant validity.

V. ANALYSIS RESULTS

Table 1. Summary of Hypothesis Testing

No	Effects	Coefficient Line (bootstrapping)	T-Statistic	Remark
1	System Quality > User Satisfaction	0.391	4.264	H_1 accepted
2	Information Quality > User Satisfaction	0.395	4.401	H_2 accepted
3	Service Quality > User Satisfaction	0.066	0.912	H_3 rejected
4	Trust *System Quality > User Satisfaction	-0.108	1.059	H_{4a} rejected
5	Trust*Information Quality > User Satisfaction	-0.066	0.061	H_{4b} rejected
6	Trust*Service Quality > User Satisfaction	0,139	2,130	H_{4c} accepted

Source: analysis results

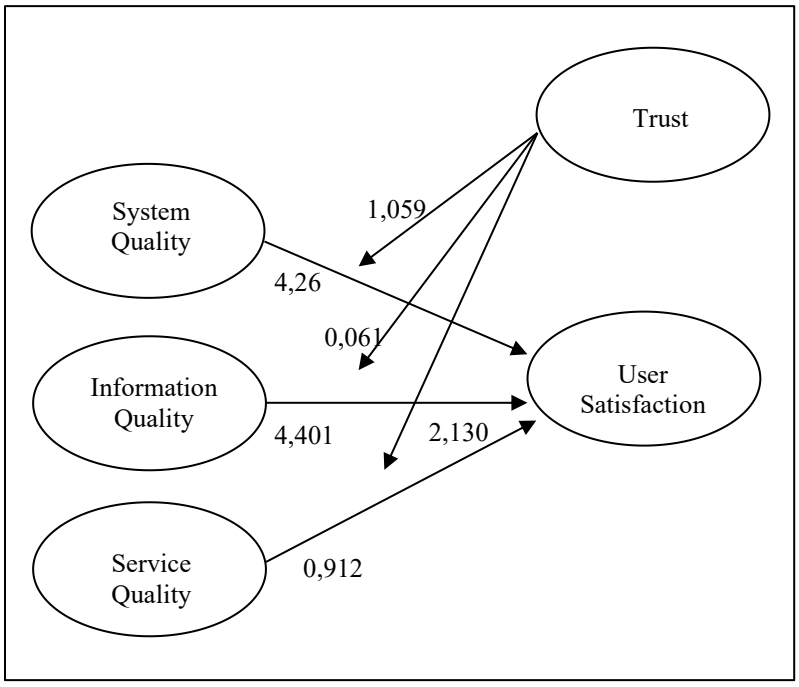

Figure 1. Full Model of Analysis Results

VI. STUDY RESULTS, SUMMARY AND CONTRIBUTION

The results of this study can be concluded that the quality of the system and the quality of information can increase user satisfaction OVO applications. It's just that service quality cannot

determine user satisfaction, but in another study, moderation testing shows that trust can moderate the effect of service quality in determining user satisfaction for OVO applications. In other words, the quality of service in the application if supported by confidence in the application will increase user satisfaction.

The OVO application provider needs to pay attention to the components in presenting and providing information on the application which includes accuracy, relevance, and timeliness, considering the information quality variable is the main variable determining user satisfaction. This can be used as input to application providers to pay more attention to the timeliness of information so that information can be presented in a timely and up to date manner. Providers of OVO applications should pay more attention to the flexibility of the system that can be accessed anytime, anywhere and most importantly can be used according to user needs so that the quality of the system will be better without ignoring other indicators such as ease of use, speed of access, reliability, and security.

The reliability of services in the application must be of particular concern to application providers, such as services that are always available and on time when users experience problems when making transactions so that the quality of service will be better without ignoring other indicators such as guarantees and responsiveness. Honesty in providing promos and guaranteeing compensation when problems arise that harm the user is something that must be done by application providers to be able to increase trust in the use of OVO applications.

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