

# Financial Technology as an Innovation Strategy for Digital Payment Services in the Millennial Generation

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**Abstract**—The aim of this paper is to develop a framework for assessing the Financial Technology landscape, which has been implemented by a number of companies in Indonesia. Financial stability is the basic foundation of solid, sustainable and inclusive growth of financial companies in the country. In this regard, this paper responds to the 4.0 technology prioritization of digitization issues. The emergence of technology-enabled innovation in financial services is the result of a confluence of drivers. Customer preferences, particularly amongst millennial, and —digital natives with regard to convenience, speed and cost of financial services are increasingly demanded. This research was conducted for 7 months, involving millennial respondents who had previously done FinTech transactions in the area of Jakarta, Depok and Tangerang. Quantitative data analysis was employed to analyze the research data. The findings indicate that, first, FinTech has been adopted in some rapidly growing emerging markets and frontier economies but still in small players. Second, evolving technologies, particularly those related to the internet, big data, mobile technology, and computing power, have become the drivers of innovations in financial services. In conclusion, there are a number of business opportunities which have opened for new entrants in the financial sectors by using the IT collaboration systems.

**Keywords**— FinTech; Technology innovation; Digital payment; Strategy

## I. INTRODUCTION

Indonesia is one of developing countries, which experienced an increase and emerging of economy in the last two decades. Through this time Indonesia's financial industry has shifted due to the fast technology advancement and development. Because of the massive use of information and communication technology (ICT) in today's era, all activities in organizations become faster (Purba, 2015, Kamaludin & Purba, 2014).

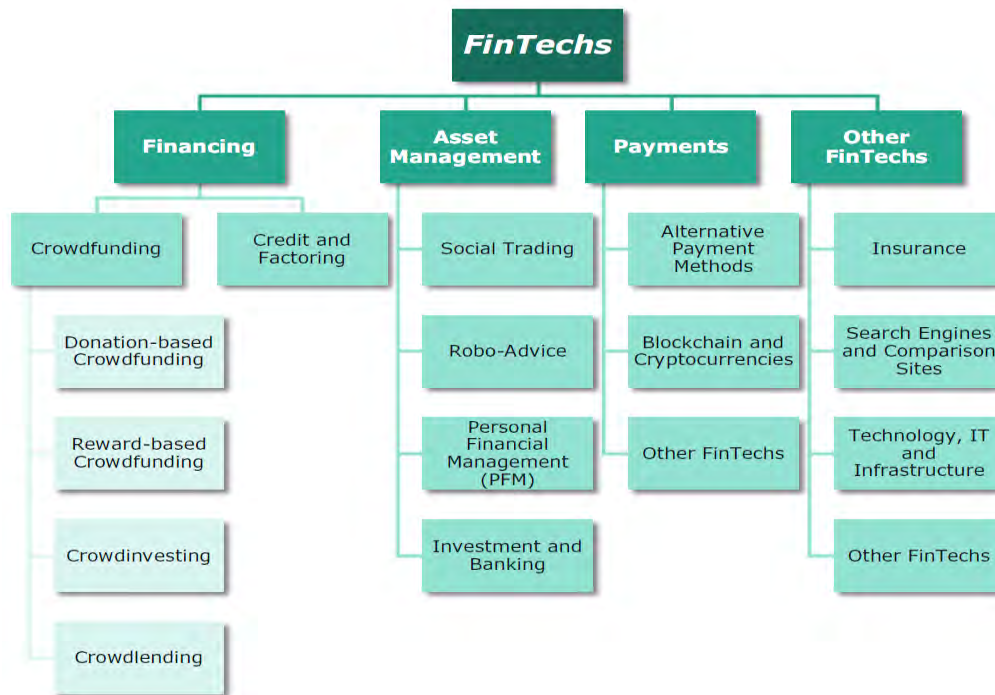
The usage of technology is become powerful tool, which can be used for solving the world's most challenging technical problems. Profit and nonprofit organizations often struggle to find a systemic way to strategic apply technology in order to run their strategic missions. Digital transformation is not simply about technology. Fundamentally, it is about connecting people, process, and technology to enable innovation and drive changes (Purba, 2015). For Bank Indonesia, as the central bank of the Republic Indonesia stated, the presence of FinTech has a positive influence on the macro and micro economy.

The financial services industry in Indonesia is also significantly changing due to the digital transformation development. The latter has forced new and old organizations as well as companies have to innovate their value propositions and services, their internal processes, do to engage with their customers. Frame, Srinivasan, and Woosely (2001) found a substantial increase in small businesses lending at large banks that adopted credit-scoring techniques. They concluded that credit scoring lowered information costs and reduced the value of traditional small bank-small borrower lending relationships. Otherwise, finTech not only used for peer-to-peer lending, but also for massive digital payment.

The technology, which develops rapidly from time to time which had have penetrated widely in this archipelago. It has become a necessity and forced the organizations or institutions to adopt new high-end technologies such as Information Technology to optimize the effectiveness and efficiency in the various working processes within the organizations. The development is so fast that it does not follow a series of calculations but a series of measurements (Purba, 2014, 2015). In the actual evidence that FinTech companies in Indonesia are developing very fast and are mushrooming especially in urban areas. It is estimated that starting in 2016 the Indonesian FinTech industry has an extraordinary transaction value of reaching USD15.02 billion, a growth of 24.6% from the previous year. This has spread to various sectors, from startup payment companies, loans, personal financial planning, retail investment, financing such as crowd funding, remittances, financial services, and others.

They can reach communities not having access to banks due to a number of requirements as stipulated in the regulations of Bank Indonesia. On the one hand, banks cannot reach the FinTech market because of many regulations. This means that cannot

be done by conventional banks can actually be worked on by finTechs companies in this country. The components of the FinTechs itself can be seen as the following figure:



Source: FinTech in Germany G. Dorfleitner et al. (2017)

FIGURE I: SEGMENTS OF THE FINTECHS INDUSTRY.

As the Figure I displayed that FinTechs industry consists of Financing, Asset Management, Payments, and other Fintechs. In this paper only, discuss on crowd lending and digital payment.

The Information Communication Technology also shapes financial services in this country, resulting in the emergence of financial technology or FinTech. Much of these funding companies are provided by community banks such as bank Tabungan Pensiun, bank BCA and etc. which allocated close to firm owners and managers (and often their suppliers and customers) who make frequent on-site visits.

Due to increasing customers; there is a growing body of non-banking on business lending; PT. Gojek Indonesia, Traveloka, Modalku.com for example and community banking in the country. Berger and Udell (1998) and DeYoung, Hunter, and Udell (2004) provide broad reviews of the literature. In this section, this research focus more closely on the recent increases in small borrower-lender distance and small business credit scoring; the potential substitution of automated credit scored lending for high-touch relationship lending to small businesses; and the likely effects of these developments on the quantity and quality of bank loans to small businesses, (Vegara 2016). There are some limitations of study about FinTech services adoption in the previous researches. Although there are a number of empirical researches available on in these services most of the investigated perceived general perspectives. In this research is focusing the Financial Technology of millennial with a number of variables information technology TRAM adoption and previous implemented theory and studies. This will fill up the gaps between the previous and the existing evidence in the digital payment services in general and in Indonesia in particular.

The distinction between traditional players and new massive customers in the urban and around urban area, there are disruptive entrants is necessary as evidence, which shows that FinTech companies have an impact on the digitization of the banking sector. Although this research does not cover all the issues, it is evident that each type of banks faces different choices, opportunities and threats when it comes to deciding how to deal with FinTech companies and the millennial customers. Due to the new Fintech model business in the world, there are only a few researches documents available. Especially in Indonesia, according to the researchers there is not yet FinTech services with millennial generation. There a number of impacts to the existing business in Indonesia due to the entrance of this FinTech business, that is why this research is very valuable contributions as well as incremental benefits for those companies or business players in this country who want to run the similar

business with the millennial generations. In the results and conclusion suggest that new player and star up business with financial expertise can use the benefit from this research due to millennial population in this country.

*A. About FinTech in Indonesia*

Government of Republic Indonesia gives the authority supervising payment systems to Bank Indonesia (BI) as the country’s central bank. BI, as the central bank, play as the regulator has responded to the development of Fintech by issuing Bank Indonesia Regulation No. 19/12/PBI/2017 on the Implementation of Fintech (—PBI 19/12I). This aims to synchronize, harmonize, and integrate the implementation of Fintech with other issued policies such as the national payment gateway and payment service processing.

As stipulated, in the regulation BI no: PBI19/12 divides Fintech into the following categories: (i) Payment Systems (e.g. the use of blockchain or distributed ledger technology for the implementation of funds transfer, electronic money, electronic wallet, and mobile payments); (ii) Market Support (e.g. the provision of comparison data of financial services products); (iii) Investment and Risk Management (e.g. the provision of online investment products or online insurance); (iv) Lending, Financing, Funding, Capital Raising (e.g. peer-to-peer lending and crowd funding); and (v) Other financial technology services than those mentioned above (Makarim & Taira, 2018).

Responding that there are a number of startup companies in Indonesia and Jakarta, Bogor, Tangerang, and Bekasi (JABODETABEK) growing, most of them are Small Medium Enterprises (SMEs).

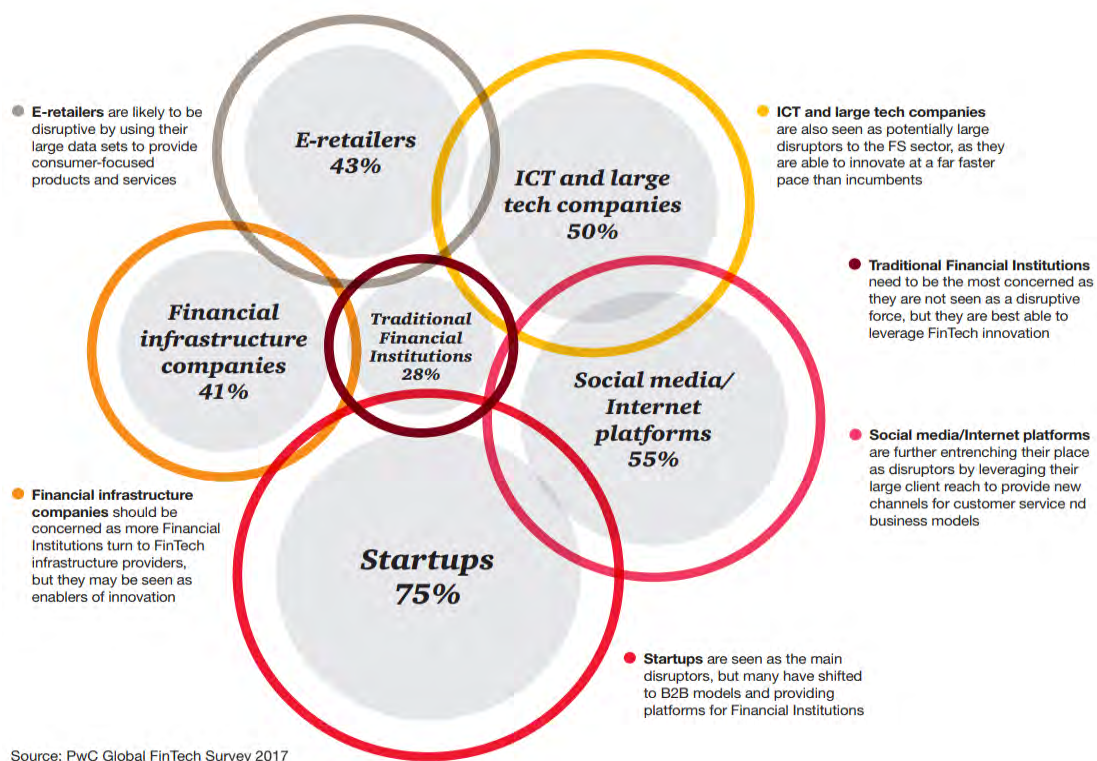


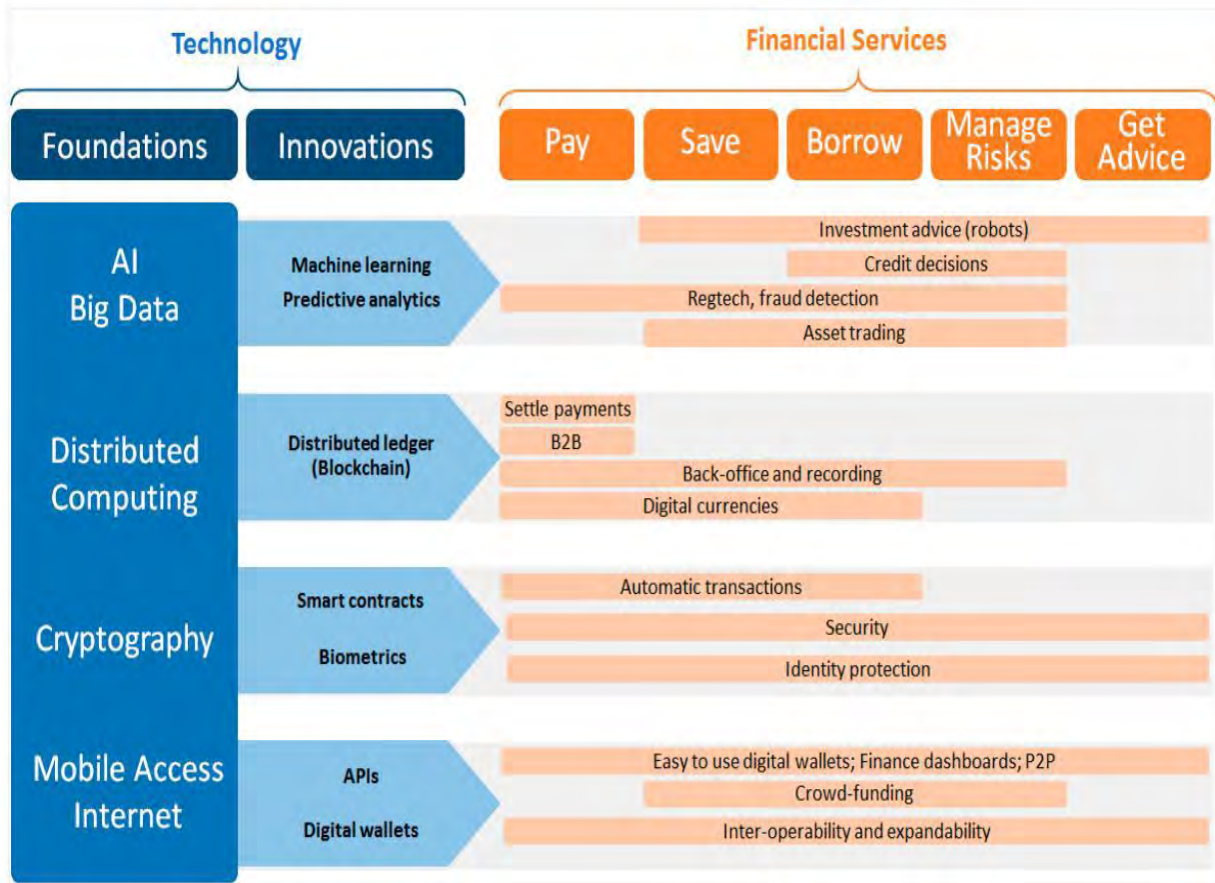
FIGURE II: FINTECH AND DISRUPTIVE ENTITIES

As Figure II indicates, FinTech players have evolved from startups that want to take on and beat incumbents which a number of rigid regulations, to a broader ecosystem of different businesses looking in any cases for partnerships. FinTech startups provide easier and faster model business lending to them, which need capital. They also need customers, at the same time, incumbents need new approaches to drive change and deliver innovation (PwC Report, 2017). From the observation of this research, it is found that there are a number of SMEs in Jakarta Bogor Depok Tangerang Bekasi which use finTech for startup companies. The SMEs also use it for digital payment.

Digital payment is one of the most expansive applications for basic products and services, which look and cost the same PT. Gojek Indonesia offers to its massive customers. Therefore, the company embraces FinTech as a way to break this cycle as they have received the licensee legally from the government in this case from OJK and Bank Indonesia and the regulator. These



embrace the massive customers about not only the technology, but also the culture, ways of working, problem solving, customer engagement and new ideas among this generation in this nation. For further explanation about the combination of technology and financial services will be presented in the following Figure III below;



Source: IMF staff.

Source: Dong He et al. (2010)

FIGURE III. MAJOR TECHNOLOGIES TRANSFORMING FINANCIAL SERVICES

## II. LITERATURE REVIEW

Fintech brings about a new paradigm in which information technology is driving innovation in the financial industry. Fintech is touted as a game changing, disruptive innovation capable of shaking up traditional financial markets. Financial technology is recognized as one of the most important innovations in the financial industry and is evolving at a rapid speed, driven in part by the sharing economy, favorable regulation, and information technology. Respected to development technology, Fintech promises to reshape the financial industry by cutting costs, improving the quality of financial services, and creating a more diverse and stable financial land-scape (The FinTech Revolution, 2015, Lee & Shin, 2018).

### A. The Millennial Generations

Most of them concern with technology having the potential to drive changes in the workplace. Millennials are considered digital natives —whereas Generation Xers are —digital adaptives and Baby Boomers are digital immigrants. Although the experience differential begins to lessen, power imbalance can still occur if senior employees have to rely on their younger counterparts for computer and information technology (Proudfoot, 2008). While Millennials' technological —wizardry may draw awe from some, it can also be disconcerting - and even annoying - to the less technologically savvy in the workplace (Pooley, 2005). They are also the most technology-fluent, multitasking, adaptable and team-oriented workers in the history (Trigaux, 2003). The millennial generations have grown up in the e-commerce age, seen greater technological advances than ever before, and are more comfortable with changes and globalization than any previous generation (Chavez, 2005). Their world has always included personal computers, laptops, the Internet, CDs, DVDs, ATMs, cellular phones, and digital cameras

(Trigaux, 2003; Spiro, 2006). They are very eager to use digital systems, such as digital payment, which become part of their everyday life style.

### B. Defenition of Fintech

The term ‘fintech’ appeared in business journals to describe the disruptive challenge to the financial sector due to the introduction of faster, cheaper and human-centered financial services. The term has become a buzzword among private and institutional investors who invested more than 50 billion dollars into the sector between 2010 and 2015 (Accenture, 2015).

According to Kawai (2016), General Secretary of the International Association of Insurance Supervisors, a member organization of the Financial Stability Board, offers a working definition of —FinTech as follows: it is a —technologically enabled financial innovation. It is giving rise to new business models, applications, processes and products. These could have a material effect on financial markets and institutions and the provision of financial services. He added that FinTech influences not only on developed markets but also on emerging markets. In fact, some emerging markets have benefited from FinTech more than the developed markets have because traditional financial institutions are less developed in the emerging markets. FinTech has also facilitated significant cross-border financial transactions. Technology is accelerating the trend towards a borderless economy.

TABLE I: DEFINITIONS OF FINTECH

<i>Definitions</i>	<i>Source</i>	<i>Year</i>
Financial innovation can be defined as the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions and markets. It includes institutional, product and process innovation.	Farha Hussain	2015
FinTech, which is the short form of the phrase financial technology, denotes companies or representatives of companies that combine financial services with modern, innovative technologies.	Kawai	2016
Fintech is a portmanteau of financial technology that describes an emerging financial services sector in the 21st century.	Investopedia	2016
Financial technology or FinTech refers to technology-enabled financial solutions. The term FinTech is not confined to specific sectors (e.g. financing) or business models (e.g. peer-to-peer (P2P) lending), but instead covers the entire scope of services and products traditionally provided by the financial services industry.	Arner, DW; Barberis, JN; Buckley, RP	2015
Fintech may spur efficiency gains in the financial sector, offer better and more targeted products and services, and deepen financial inclusion in the developing world.	IMF Team	2017
FinTech refers to the provision of new solutions in the field of finance by IT venture companies. New business models are being created one after another, particularly in the area of BtoC services using the Internet.	Iwashita, N; Wise, E.	2015
FinTech describes a business that aims at providing financial services by making use of software and modern technology.	Fintech weekly	2016
Fintech is a service sector, which uses mobile-centered IT technology to enhance the efficiency of the financial system.	Kim, Y., Park, Y. J., & Choi, J.	2016
An economic industry composed of companies that use technology to make financial systems more efficient.	McAuley, D.	2015
Organizations combining innovative business models and technology to enable, enhance and disrupt financial services	Ernst&Young	2016

Source: (Varga, D. 2017, Dorfleitner, et al., 2017, He, D. et al. 2017, Iwashita, N. 2015)

### C. Hypotheses development

The readiness in using the technology in financial sector has been well-known as a critical factor influencing individuals’ acceptance and usage of new technologies (Panday & Purba, 2015). Similarly, Liljander et al. (2006) stated that both positive TRI factors (optimism and innovativeness) have a positive influence on one’s attitude toward using mobile technology devices. Walczuch et al. (2007) explored the relationships between TRI factors and the cognitive dimensions of the TAM (PU and PEOU). They found that positive TR factors positively influenced PU and PEOU, while negative TRI factors had a negative impact on PU and PEOU. Lin et al. (2007) initially expanded the TAM by adding TRI for evaluating consumer attitudes toward using online service systems. Their results reveal that the influence of TR on the intention to use the technology was fully mediated by PU and PEOU. In addition, Oh et al. (2014) conducted a cross-cultural study between. According to the TAM, PEOU is a determinant of PU (Davis, 1989; Venkatesh, 2000). When individuals perceive ease when using technology, they are more likely to believe that the technology is useful for a specific purpose.

### III. METHOD

#### A. Sample

The populations for this research were millennial consumers in Jakarta, Bogor, Depok, Tangerang and Bekasi (Jabodetabek) in Java Island Indonesia. This research used the sampling method with non-parametric with purposive sampling technique where only give opportunity the ones of the millennial generations who ever used or familiar with Fintech were preferred. This research was conducted by distributing the questionnaires to a number of respondents who use FinTech in Jabodetabek but only 238 respondents returned to researchers.

#### B. Measurement

The survey instrument was established based on previous research on TRI (Lin et al., 2007; Meng et al., 2009) and the TAM (Davis, 1989; Davis et al., 1989). First, four TRI factors, including optimism, innovativeness, insecurity, and discomfort, were taken and modified from Meng et al. (2009). Their study cross-culturally of tribes in Jabodebek which validated the items of a TRI scale involving millennial respondents and developed purified from TRI scale. The purified TRI scale revealed appropriate reliability and validity. Second, the measures of the TAM, comprising PEOU, PU, and intention to use, were adopted and modified from Kim et al. (2017). The demographic information collected included gender, age, and education level. Due to the Indonesian respondents, the items were originally written in English and then translated into Indonesian language using back translation (Brislin, 1970). All items were assessed on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). However, the actual usage of running apps was coded as a continuous variable.

#### C. Analysis

Since this study applied an existing theoretical model (TRAM) to predict individuals 'behavior, consist of the millennial, using the digital payment perception, this research is considered an appropriate approach for this study. Following the guideline of Hair et al. (2017), data analysis was performed in two phases. First, this study assessed the validity and reliability of the measures used, including indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Second, Coefficient Determination and multiple regressions were evaluated by examining collinearity, R2 explanation of endogenous latent variables, and the significance and relevance of path coefficients. Then, the results obtained show how strong the significance of each independent variable toward the dependent variables by using multiple regression.

This research uses quantitative method. The research data were collected using a survey. A questionnaire was distributed to 238 respondents. The sampling used nonparametric method with a purposive sampling approach. Considering that finance technology is still limited, only those who have used Fintech applications were involved. This was suggested by Imam Gozali who stated that respondents could only give data needed for further analysis from a group with certain characteristics (Ghozali, 2013, 140). The characteristics of the respondents are men/women in the age of millennial, and the users of Fintech applications are those who had already familiar using the transactions of Fintech applications. Having the collected the data, then analyzed with Quantitative analysis, Multiple Regression by using the SPSS 24 software application.

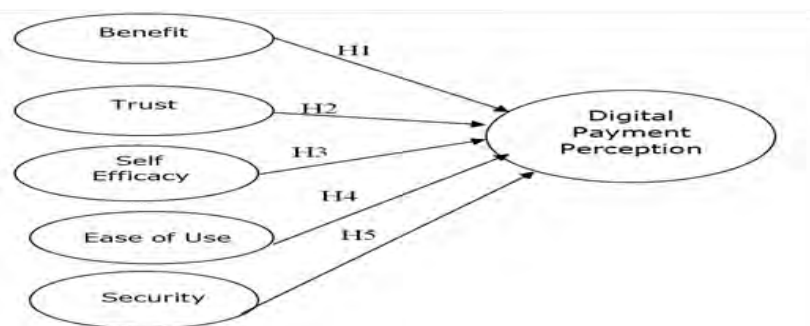


FIGURE IV. HYPOTHESIS AND RESEARCH MODEL

There are 5 (five) hypotheses formulated based on the above theoretical foundation:

1. There is a significant influence of the Benefit variable on Fintech consumers' perceptions.
2. There is a significant influence of Trust variables on Fintech consumers' perceptions.
3. There is a significant effect of the Self-efficacy variable on Fintech consumers' perceptions.
4. There is a significant influence of the Ease of Use variable on Fintech consumers' perceptions.
5. There is a significant influence of Security variables on consumers' perceptions.

#### IV. FINDING AND DISCUSSION

The following shows the relationship of indicators and unobserved variables in the Research Model, as the following table 2 shows the relationship of indicators with their respective variables. The validity of each indicator of all variables are meet the requirements. Therefore the research model can be continued to analyze the reliability of each variable.

TABLE II. VALIDITY AND RELIABILITY TEST FOR PERCEIVED DIGITAL PAYMENT

<i>Validity and Reliability test for perceived value data</i>				
<b>Variable 1.</b> Be1 .458(**)	Be2 .574(**)	Be3 .601(**)	Be4 .664(**)	Be5 .525(**)
<b>Variable 2.</b> Tr1 .691(**)	Tr2 .430 (**)	Be3 .702 (**)	Be4 .509 (**)	
<b>Variable 3.</b> Self Eff (**) .468	Self Eff .688 (**)	Self Eff .671(**)	Self Eff .368 (**)	
<b>Variable 4.</b> EOU .502(**)	EOU .527(**)	EOU .608(**)	EOU .456(**)	
<b>Variable 5.</b> Sec1 .668(**)	Sec2 .534(**)	Sec3 .477(**)	Sec4 .633(**)	
<b>Variable 6.</b> Dpp1 .693(**)	Dpp2 .642(**)	Dpp3 .702(**)	Dpp4 .579(**)	

Note: \*Correlation is significant at 0.01 levels (2-tailed).

As Table II indicates, the Pearson correlation value for each variable is significant at the level of 0.01. So, the data obtained from the questionnaire are all valid.

TABLE III. DESCRIPTIVE STATISTICS

	<i>Mean</i>	<i>Std. Deviation</i>	<i>N</i>
DPP	17.2857	2.46029	238
Benefit	21.5168	2.84288	238
Trust	16.2941	2.44381	238
EOU	3.7059	1.06222	238
Security	4.2941	.71574	238

TABLE IV. RELIABILITY TEST RESULTS

No. Var	Variables	Cronbach Alpha	Remark
Var1	Benefit	.810*	Reliable
Var2	Trust	.733*	Reliable
Var3	Self-efficacy	.619*	Reliable
Var4	Ease of Use	.654*	Reliable
Var5	Security	.679*	Reliable
Var6	Digital Payment Perception	.871*	Reliable

Note: \* Correlation is significant at 0.05 levels (2-tailed).

For Cronbach Alpha values of each group of questionnaires where the questionnaires grouped in to 6 variable components, the value of Cronbach Alpha also was found to be greater than 0.6. So, it can be said that the result of the questionnaire is reliable.

TABLE V. COEFFICIENT DETERMINATION TEST RESULT

<b>Coefficient Determination</b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	966.720	4	241.680	120.362	.000 <sup>b</sup>
	Residual	467.851	233	2.008		
	Total	1434.571	237			

Note: a. Dependent Variable: DPP; and Predictors: (Constant), Security, EOU, Trust, Benefit

As the above table V shows, R-squared is a goodness-of-fit measure for linear regression total 237 significant at 0.000. This means that all independent variables explain the change in DPP (Y) the independent variable by 23.7% while the remaining 76.3 % is explained by other factors outside the model.

TABLE VI. REGRESSION TEST RESULT

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.125	.777		1.448	.149
	Benefit	.404	.046	.467	8.827	.000
	Trust	.065	.051	.064	1.277	.203
	EOU	.211	.088	.091	2.402	.017
	Security	1.310	.168	.381	7.806	.000

a. Dependent Variable: DPP

Mathematical multiple regression model equation formula for four independent variables:

$$Y = \beta_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + \varepsilon$$

then, translated to the name of the variables will be;  $Y = \beta 1.125 + 0.404benefit + 0.065trust + 0.211eou + 1.310security + \varepsilon$

Based on the Regression test result as displayed at the table 6 above;

1. Regression constant value of 1.125 indicates that Benefit = 0.404 + Trust= 0.65 + ease of use (EOU)=0.211 and Security=1.310 with constant condition or X = 0, then the Digital Payment Perception (Y) 1.125.
2. Benefit regression coefficient is 0.404, having a positive effect on Digital Payment Perception (Y). This means that if it is better, while assuming another variable is constant, then it can increase the benefit transaction through digital payment perception (Y).
3. Trust with regression coefficient value of 0.065 has a positive effect on Digital Payment Perception (Y). It means the use of digital payment will increase the trust in digital payment 0.065.
4. Ease of use (EOU) regression coefficient value of 0.211 has positive effect on Digital Payment Perception. It means the EOU can increase good strategy in using the Digital Payment.
5. Security regression coefficient value of 1.310 has positive effect on Digital Payment Perception. It means the security variable can be as innovation strategy for digital payment services in the Millennial Generation.

The above regression coefficients result shows that all variables have good influence to Digital Payment Perception (DPP) to (Y), based on regression the coefficient all value of (unstandardized coefficients) and of all Beta value (standardized coefficients) with significance of 0.149, 0.00, 0.203, 0.017, and 0.000.

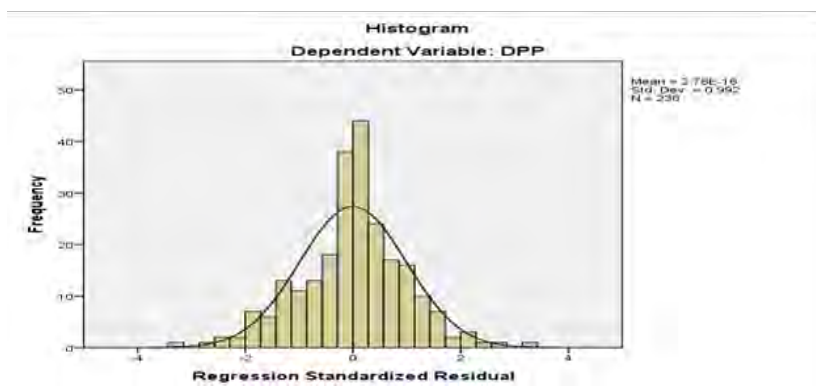


FIGURE V. HISTOGRAM OF REGRESSION STANDARDIZED RESIDUAL

As displayed in the Figure V shows that the histogram of the data is met the good standard because the curvature is in the middle, so it can be concluded that the result has fulfilled the requirements as a model in multiple regression.



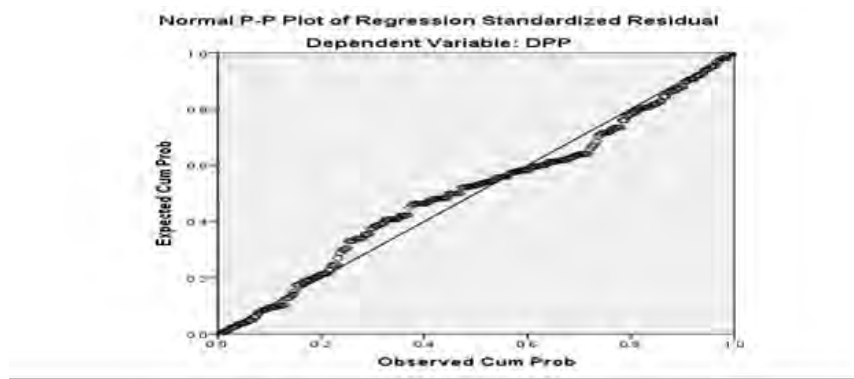


FIGURE VI. NORMAL P-P PLOT REGRESSION STANDARDIZED RESIDUAL OBSERVED

In Figure VI shows a normal graph pattern, it can be seen from the figure above that the rounded lines are closed on the diagonal line, therefore it can be concluded that the regression model is feasible to use because it meets the good assumption of normality.

## V. CONCLUSION

The article will fill up the gaps in the current research by providing a resource-based analysis of the key value drivers underlying as the digital payment for FinTech companies in Indonesia. The exponential growth of the number of finTech companies in Indonesia can be explained with reference to, at least, distinctive evolutionary forces of the users especially the Millennial generation. The related companies realized that technology (and especially software application) creates a great opportunity to innovate new services strategy and selling the massive products. The ecosystem of IT technology in this country with the existence of the internet and smart mobile phones enable companies to grow quickly and sometimes exponentially, while marginal costs decrease with the addition of software users.

The success of the existing financial technology companies indicates that these are becomes the new business models in supporting the other industries offer lucrative business opportunities through the nationwide in Indonesia. These new business models and services, resulting the innovation strategy for Digital Payment services in this country. With this existing systemic use of prototyping and design created the benefit, trust, self-efficacy, ease of use and security services that offer a faster, cheaper and frictionless experience for users will open good opportunity for the SMEs and other business players. These strategies enable services to succeed, and many times expand virally to new users and the business players.

The ongoing changes in the financial technology landscape have affected the under- or completely unbanked, peer to peer landing, digital payment and created convenient and easy-to-use solutions. Even though the new global trends are receiving increasing attention from various stakeholders, especially in Indonesia (and in ASEAN country), the phenomenon of FinTech is a new and under-researched territory.

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