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Analyzing cashless behavior among generation Z in Indonesia

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CHRONICLE	ABSTRACT
	Secure, convenient, and affordable payment instruments are one factor that drives up the development of the national economy. Having a good and stable national economic condition is the intention of every country. The usage of electronic payment instruments is proven to boost economic growth and advance financial inclusion. However, the usage of e-payment among generation Z in Indonesia is still relatively low. Of these, this study is written to analyze the factors influencing electronic payment used to be taken as a concern on evaluating the current level of the cashless society. The model to assess the influencing factors is adopted from UTAUT variables: performance expectancy, effort expectancy, and social influence, combined with two external variables: culture and perceived security. The questionnaire is distributed to 458 respondents, covering generation Z in Bandung City. A quantitative approach was used to assess the questionnaire result, examining the relationship between each factor and electronic payment usage. The results indicate three factors that significantly influence electronic payment usage among generation Z in Bandung City: performance expectancy, social influence, and culture.

1. Introduction

Having a good and stable national economic condition is being the intention of every country. According to Ajayi and Ojo (2006), one factor that drives up the development of the national economy in every nation is a secure, convenient, and affordable payment instrument. In Indonesia, there are several types of payment instruments used by society. Starting from the paper-based payment instrument like cash and check to the electronic payment instrument like debit cards, credit cards, electronic money, and mobile payment. Humphrey (2004) stated that most developed countries are already starting to shift from paper-based payment instruments to electronic-based ones, where payment cards are being used intensively (Yaqub et al., 2003). Per the usage of electronic payment instruments throughout the society, which on the other hand can be called a non-cash payment instrument, it brings up something called: Cashless Society. The cashless society is defined as an environment where people use non-cash payment instruments as a habit, especially for their economic transactions (Aslinawati, Wulandari, and Soseco, 2016). In these past years, a cashless society has become a concern throughout nations. It is due to the burden of cash usage on society costs around 1.5% of GDP. On the other hand, the usage of electronic payment instruments is proven to boost economic growth and to advance financial inclusion as well (Thomas *et al.*, 2013). The Central Bank of Indonesia created a *Gerakan Nasional Non-Tunai* (GNNT) on August 14, 2014. This campaign aims to encourage society to start shifting away from using cash and start using electronic payment instruments as a replacement. Based on the data from the Central

Bank of Indonesia (2014), the data shows that the cash transactions in Indonesia cover up to 99.4% of total retail transactions. On the other hand, the non-cash transaction using electronic payment instruments is only covered up to 0.6%. Compared to other ASEAN countries, such as Thailand, with total cash transactions of 97.2% and Singapore with 55.5%, Indonesia is still the highest, which is unfavorable. According to the data from Badan Pusat Statistik (2017), Indonesia has an expansive pyramid population, which indicates that this country is highly populated with young-aged people, who will be a generation of the future. Therefore, the most straightforward approach to reaching the cashless society in the future is by leading to a generation who is responsive to some changes - specifically to technology and digital changes as the non-cash payment instrument uses an electronic-based system in general. Meet Generation Z, a future generation, born between 1995 and 2010 (Oblinger & Oblinger, 2005). Compare to its previous generation; generation Z is the first generation who are having the internet and technology readiness level at the highest at their very young age, which makes the usage of the internet and technology a part of their everyday life since the very beginning (Grail Research, 2011). Thus, the current study aims to analyze the cashless behavior of Generation Z in Indonesia, particularly in Bandung city.

2. Literature Review

2.1 Electronic Payment Instrument

In advance, the emergence of Information and Communication Technology (ICT) has been causing a tremendous revolutionary development in finance, economics, and the operational sector, including the development of electronic payment instruments (Slozko and Pello, 2015). Therefore, electronic payment instruments have become a concern and attracted researchers' attention in the interest of their vital role in today's electronic commerce era. As a result, it leads to different perspectives regarding the definition of electronic payment, among others, which are viewed from different perspectives, starting from finance, business technology, until information systems (Kabir, Saidin, & Ahmi, 2015). From the finance perspective, Abrazhevich (2004) defines electronic payment as a financial instrument, where electronic communications facilitate buyer and seller. While merely, Tella (2012) defines electronic payment as any type of payment made without using any paper instruments. Specifically, Ming-Yen et al. (2013) defined electronic payment as an electronic value payment transacted from payer to payee through a comprehensive electronic payment channel, which allows the payer to access and manage their transactions over an electronic network freely. From the definitions above, the electronic payment instrument can be defined as a payment instrument between parties, which occurs via electronic means.

2.2 Cashless Society

The central concept of the cashless society is based on transactions over electronic payment instruments (Jain and Jain, 2017). Even so, Yaqub et al. (2013) explained that a cashless society does not necessarily mean there is no cash transaction at all in the industrial setting. Instead, the number of cash-based transactions are being minimised at the barest level. Still, in line with the previous definition, Swartz *et al.* (2004) define a cashless society as the condition of society. Most of the transactions on their economic system are not for the exchange in the form of actual cash. Retail payment cash transactions show the result of 85% throughout nations, which equals 60% of retail sales value in total (Thomas *et al.*, 2013), on which cash is primarily being used as a payment instrument in low-value retail sales (Yaqub *et al.,* 2013). Also, even though there are many different options for non-cash payment instruments, such as credit cards; debit cards; electronic wallets; electronic cash; and mobile payment, the usage of actual money as the payment instrument still dominates. The points to be considered are that money may be convenient to use as a payment instrument, but it makes less transparency over the taxation and is costly. Driven up by this condition, many governments throughout nations begin to seek a strategy to reduce the cost inflicted using cash by making their payment system less dependent on cash and encourage the use of non-cash payment instruments to the society even further. In Indonesia, the cashless journey began in 2007, where electronic money, the non-cash payment instruments other than debit and credit cards, was being introduced (Wulandari, Soseco, Narmaditya, 2016). Even so, according to the study by Thomas et al. (2013), the usage of non-cash payment instruments in Indonesia still indicates low progress until 2013. The study showed that Indonesia has a sharing score of 31 out of 100. Trajectory score of 23 out of 100, and readiness score of 24 out of 100. It makes Indonesia categorised as the inception level. In response to this, the Central Bank of Indonesia created a campaign of *Gerakan Nasional Non-Tunai* (GNNT) on August 14, 2014, to encourage Indonesian citizens to use non-cash payment instruments. To conclude, the cashless society in Indonesia has not indicated rapid progress. Therefore, a shortcut way to accelerate the journey is required: government actions and innovations, for instance (Antragama, 2017).

2.3 Generation Z

There is no standardised labelling of various generations since the study over the generational differences is conducted by different researchers, which comes up with multiple names on labelling the specific generations (Reeves and Oh, 2008). However, for this study, the term of generations will follow the born year labelling from Oblinger and Oblinger (2005), which said that the generation born after Generation Y or Millennial (1981-1995) is Generation Z or Post-Millennial (1995-2010). According to McCrindle and Wolfinger (2010), being born in the same life period and influenced by the same technologies and experiences are the things that define a generation. Born in the digital world, Generation Z is dependent on the emergence of technologies, which influence how they interact, play, and learn (Grail Research, 2011). Technologies have genuinely

become a critical part of their life, as research conducted by Vision Critical (2016) showed that their habits strongly influence the behavioural traits of Generation Z on keeping up with the technologies since the beginning. The explanation regarding the research of Vision Critical (2016) will be as follows.

Compared to Millennials, Generation Z is proven to be more exploring technology usage and more responsive to its changes. The use of technology, the internet, mobile devices, and social networking sites have made Generation Z more accessible. Since they are very attached to technology use, they desire connectivity and make them grown-up impatient when the world lags. According to Grail Research (2011), Generation Z wants constant connectivity through the internet, instant messaging, mobile devices, and other social networking sites. Also, these influence their decisions and create a broader exposure to cultures, languages, and ideas. However, they are not letting technologies tie them. All they want is the connectivity: to link them up with people in a better and more natural way, to accomplish tasks without difficulties. Their preferences toward technology and its connectivity become their identity and will shape the future of technology (Vision Critical, 2016).

Talking about personal financial matters, Generation Z is just as confident as Millennials, where they believe they will reach their financial freedom in the future. However, they are still learning about financial literacy. Their psychological profile indicates a high level of confidence about their future, which in line with the usage of technology and living digitally, is already reflected in their attitudes towards money, which indicates their willingness to do savings. A new generation of savers shows the right things for financial services companies. The way for financial services companies to earn their trust is again, through the implementation of technology. By referring to a study by TD Bank, 3 percent of Generation Z said that mobile banking is most important, while 11 percent said online banking is so. Meanwhile, Generation X and Y see mobile banking only as a supplement to offline banking on branches. According to this, Generation Z may be the first to refuse to go to the branches and prefer to do their financial matters through mobile devices (Vision Critical, 2016).

Based on the study of GfK (2016) regarding the use of mobile payments, 53 percent of Generation Z has made the transaction on purchasing goods via the mobile payment during the previous six months period, compared to Millennials that show the result of 37 percent and Generation X of 27 percent. This fact reflects their behaviour as a generation, which concerns the ease of performing on connectivity, thereby looking for the payment instruments that suit them effectively. Furthermore, generation Z is determined by the online researchers, who do not see offline store visits as a necessary part of the shopping experience when it comes to shopping. According to Accenture (2017), regarding its behaviour towards shopping, Generation Z is an impulsive buyer and more likely to make a purchase just because they want to buy something valuable for them, compared to Millennials. Also, 58 percent of them said that they are willing to pay much more for on-time deliveries.

On the other hand, as the usage of screen devices has become a vital part of their lives, it affects Generation Z' preference for shopping online, which also uses electronic payment to purchase items. By referring to the study by Accenture (2017), most of Generation Z said that they are interested in buying online because it is not time-consuming.

2.4 Technology Adoption

According to Carr (1999), technology adoption is the condition of accepting the technology for individual or organisational use. Due to the advanced and dynamic growth of technologies, user acceptance of technologies depends on specific factors, such as the availability of technology, convenience, consumers' need, and security (Lai, 2017). These factors come from several dimensions that differ and depend on the models and theories of technology adoption that underlies (Sharma & Mishra, 2015). This study will focus on the proposed theory of Unified Theory of Acceptance and Use of Technology (UTAUT). UTAUT is a theory proposed by Venkatesh *et al.* (2003), which developed through a systematic, comprehensive review over the prior eight models (DIT, TRA, SCT, TAM, TPB, MPCU, MM, and C-TAM-TPB), that has been explained briefly in the previous section of this study. On the other hand, this model can be said to be the refinement from the prior technology adoption models. It is proven by the result regarding the adoption behaviour variance. This theory confessed that it could explain up to 70% of the variance, whereas the prior theories could only explain 30 until 40% variance (Venkatesh *et al.,* 2003). UTAUT has four factors affecting behavioural intention and user behaviour, which construct the theory. Those factors are Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Condition. The framework and explanation of each factor are shown as follows.
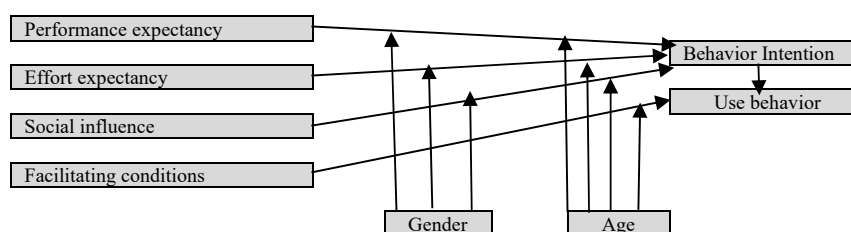

Fig. 1. UTAUT Framework Source: Venkatesh et al., (2003)

To figure out what factors significantly influence the electronic payment instrument adoption among generation Z in Bandung City, a technology adoption model that combines specific variables is being used in this study. The model adopted in this study will modify a model proposed by Junadi (2015) in his previous study.

Table 1
Factors of UTAUT

Factor	Definition
Performance Expectancy	A measure to the belief that using technology will help them to perform better
Effort Expectancy	A measure to ease when using the technology
Social Influence	A measure to the belief that an individual needs to use the new technology
Facilitating Condition	A measure to believe that there are sufficient infrastructures and supports for using the technology

Source: Venkatesh et al., (2003)

In the previous study, Junadi (2015) developed a proposed model to examine the factors that influence users' intention to use electronic payment instruments by combining variables from the UTAUT model. He used Performance Expectancy (PE), Effort Expectancy (EE), and Social Influence (SI) (Venkatesh et al., 2003), with two additional external variables, which are Culture (C) and Perceived Security (PS). These external variables are added to this model regarding its importance on the electronic payment instrument study, as stated by some previous studies and research in the same field. However, Junadi (2015) proposed model has only been assessing the technology adoption up to the intended level and has not yet evaluated the actual user behaviour. At the same time, the underlying theory of the adoption model explained in the previous section examined the behavioural intention to use towards the actual user behaviour. Therefore, the proposed model in this study will modify Junadi (2015) model by adding a new variable - Actual Use Behavior (AU). Based on the explained literature, the framework of this study can be seen in Fig. 2 below.
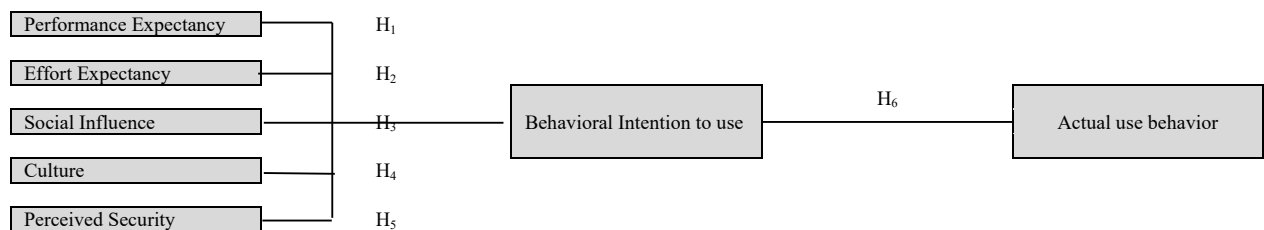

Fig. 2. Conceptual Framework

Source: Putri, Rahadi and Murtaqi, (2017)

The factors that influence the usage of electronic payment instruments among generation Z in Bandung City become the concern of this study. The proposed model will be assessed with five independent variables: performance expectancy, effort expectancy, social influence, culture, and perceived security. In addition, these independent variables are being tested towards another variable: behavioural intention to use, which leads to one dependent variable - actual user behaviour.

3. Methodology

As this study has the primary purpose of measuring the level of the electronic payment instrument to support the cashless society, a quantitative approach, which needs many samples to explore the behaviour about social phenomena, is preferred for this study (Bryman and Bell, 2015). Therefore, the primary data is chosen as part of this study (Easterby-Smith *et al.*, 2012). The primary data is collected by using a questionnaire to cover up specific factors on the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Regarding the usage of electronic payment instruments, targeted for Generation Z in Bandung City to find the relationship among those factors, and at last figure out how far the electronic payment instrument supports the cashless society in Bandung City.

Aside from collecting the primary data, the relationships and patterns from the existing data also need to be figured out to support the content of this study (Easterby-Smuth *et al.,* 2012). Since then, secondary data is also necessary for this study. The secondary data sources used in this study consist of journals; textbooks; and research publication, which discusses all the terms used in this study: electronic payment instrument; cashless society; generation Z; and the development of the technology of acceptance. Furthermore, all this data is being used as the fundamental foundation of this study. In advance, it needs to be remembered that this study has its scope and limitations. The primary constraint in this study is resources concerning time and budget. According to that, the sample of this study is scaled down to make it more specific, where the term of generation Z itself will follow Oblinger and Oblinger (2005), which states that it is a generation born between 1995 until 2010.

However, since the object of this study is an electronic payment instrument, it needs to be considered that these kinds of the instrument can only be accessible by those who already own the citizenship identity card that will only be given when they already reach the age of 17 by 2018. The data from BPS Kota Bandung (2018) shows that the total population of Generation Z in Bandung City, who was born between 1995 until 2001, is around 326,274 people. By referring to the study by Israel (1992), the appropriate sample size of the population above 100,000 is 400 people (if the level of precision is ±5%, level of

confidence is 95%, and P = .05). The sampling technique used in this study is the non-probability sampling technique. This method was chosen because it is impossible to name all the population in this study. Also, for time and budget limitation reasons, this sampling technique is appropriate as well. To be specific, the non-probability sampling technique chosen in this study is convenience sampling. It is a kind of sampling where the respondents from the targeted population are chosen since they meet specific criteria, such as the accessibility to the respondent and their time availability (Etikan *et al.,* 2016). The required data will be obtained in the form of offline and online questionnaires. The offline questionnaire will be collected directly to specific schools in Bandung City, whereas the online questionnaires are distributed through instant messaging applications: WhatsApp and LINE.

3.1 Questionnaire Design

The questionnaire will be divided into two sections. Section 1 will be composed of a set of questions related to the respondent's profile. In contrast, Section 2 will be composed of a set of questions to measure the acceptance level of the electronic payment instrument. The questions that will be given for Section 1 are explained in Table 2.

Table 2
Respondent's Profile

Variable Description	Variable Type
Gender	Non-metric
Year of Birth	Non-metric
E-payment Instrument	Non-metric
Monthly Outcome	Non-metric

Section 2 will consist of the set of questions from the proposed model of technology adoption by Junadi (2015) that has been modified. This model combines five UTAUT variables that have been introduced by Venkatesh et al. (2003), which are Performance Expectancy; Effort Expectancy; Social Influence; Behavioral Intention to Use; and Actual Use Behavior with two additional variables, which are Culture (He & Mykytyn, 2007) (Keramati et.al., 2012) and Perceived Security (Lee, 2009; Ghorban et al., 2011; Perkins & Annan, 2013; Susanto et al., 2013). The measurements of each variable are presented in Table 3.

Table 3
Technology Adoption Measurement

Factors		Measures	Variable Type
Performance Expectancy	PE1	Productivity in the transaction	Non-metric
	PE2	Convenient in the transaction	Non-metric
	PE3	Speed in the transaction	Non-metric
	PE4	Overall performance expectancy	Non-metric
Effort Expectancy	EE1	Flexibility in the transaction	Non-metric
	EE2	Easiness to learn electronic payment instrument	Non-metric
	EE3	Easiness to use the electronic payment instrument	Non-metric
	EE4	Overall effort expectancy	Non-metric
Social Influence	SI1	The influential people (family or relatives or friends) recommend electronic payment instrument	Non-metric
	SI2	The influential people (family or relatives or friends) use the electronic payment instrument	Non-metric
	SI3	Trend	Non-metric
	SI4	Overall social influence	Non-metric
Culture	CU1	Internet access	Non-metric
	CU2	The familiarity of technological-based usage	Non-metric
	CU3	Level of education	Non-metric
	CU4	Overall culture	Non-metric
Perceived Security	PS1	Technical protection	Non-metric
	PS2	Security statements	Non-metric
	PS3	Government and central bank regulation	Non-metric
	PS4	Overall perceived security	Non-metric
Behavioural Intention to Use Electronic Payment Instrument	BI1	Not interested in using the electronic payment instrument	Non-metric
	BI2	Willing to use the electronic payment instrument	Non-metric
	BI3	Using electronic payment instrument is fun	Non-metric
	BI4	Recommend others to use the electronic payment instrument	Non-metric
Actual Use Behaviour	AU	The current level of electronic payment instrument usage	Non-metric

Source: Junadi, (2015)

4.   Results and Discussion

4.1 Validity and Reliability

Validity and Reliability are tested twice in this study. The first test is conducted for a pilot test with 40 respondents, and the second test is conducted with 458 respondents. KMO score and Extracted variance with cut-off values of 0.5 and 50% respectively will be used for validity testing (Kaiser and Rice, 1974; Wijayanto, 2008), while Cronbach's Alpha score with a cut-off value of 0.6 will be used for reliability testing (Murphy and Davidsholder, 1988).

The pilot test result shows the scores for all variables, including Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Culture (CU), Perceived Security (PS), and Behavioral Intention to Use (BI) are all passing the cut-off values in both validity test and reliability test, indicating that all the variables are already valid and reliable. Thus, the questionnaire is distributed to the remaining respondents, reaching 458 respondents in total, and the validity and reliability tests are conducted once again, which is summarised in Table 4.

Table 4
The Result of Validity and Reliability Testing

Variable(s)	KMO	Extracted Variance	Cronbach's Alpha
Performance Expectancy	0.797	67.63%	0.831
Effort Expectancy	0.769	63.92%	0.793
Social Influence	0.59	55.20%	0.727
Culture	0.704	51.50%	0.648
Perceived Security	0.706	59.03%	0.757
Behavioural Intention to Use	0.750	62.77%	0.744

Table 4 displays all the variables passing the validity and reliability test since the scores for KMO, extracted variance, and Cronbach's Alpha are all above the cut-off values. For the validity testing, the KMO scores and extracted variance percentages for all variables range from 0.59 to 0.797 and 51.50% to 67.63% respectively, which surpass the cut-off value of 0.5 for KMO and 50% for an extracted variance. It indicates that all variables are valid. While for the reliability testing, the Cronbach's Alpha scores for all variables range from 0.648 to 0.831, surpassing the cut-off value of 0.6. It indicates that all variables are reliable. Since all the variables are already proven to be valid and reliable, thus the data can be further analysed using other statistical methods.

4.2 Confirmatory Factor Analysis

The analysis using confirmatory factor analysis can proceed if only all the variables are reliable. Since the reliability test result shows that all the variables are already reliable, now the data can be further analysed by using confirmatory factor analysis.

Table 5
Confirmatory Factor Analysis Results

Performance Expectancy		Effort Expectancy	
PE1	0.832	EE1	0.666
PE2	0.830	EE2	0.802
PE3	0.848	EE3	0.857
PE4	0.777	EE4	0.857
Social Influence		**Perceived Security**	
SI1	0.766	PS1	0.671
SI2	0.726	PS2	0.855
SI3	0.724	PS3	0.694
SI4	0.756	PS4	0.835
Culture		**Behavioural Intention to Use**	
CU1	0.524	BI1	0.412
CU2	0.762	BI2	0.880
CU3	0.770	BI3	0.909
CU4	0.782	BI4	0.860

The first aim of conducting confirmatory factor analysis is to determine whether each indicator of the variables (e.g, PE1, PE2, PE3, PE4) can be extracted into one variable (e.g., PE). The extraction result for each variable is presented in Table 5. From all the tables above, there is only one component extracted from the indicators for each variable. Therefore, it indicates that each variable is confirmed to be well represented by those indicators.

4.3 Multiple Linear Regression

Multiple linear regression will be performed to figure out the relationship between five independent variables (i.e., performance expectancy, effort expectancy, social influence, culture, and perceived security) and one dependent variable (i.e., behavioural intention to use). First, it needs to be noted that all the analysis of this multiple linear regression methods is using the alpha of 0.05 since this study used 95% level of confidence.

Table 6
Multiple Linear Regression Analysis: ANOVA Result

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	260.793	5	52.159	120.157	.000[b]
	Residual	196.207	452	.434		
	Total	457.000	457			

a. Dependent Variable: BI
b. Predictors: (Constant), PS, SI, PE, CU, EE

The analysis by using ANOVA is necessary to figure out whether the sample of this study is already well representing the overall population. It can be interpreted by looking over the F-sig test in the ANOVA result, which is presented in Table 6. Table 6 shows the p-value (i.e., Sig.) is 0.000, which is below 0.05. Thus, it indicates that the model is not limited only to the sample of this study, as it already well represents the overall population. The overall model fit must be analysed to figure out how well the model fits the data. It will be represented by the value of R, which indicates the correlation score between independent variables and dependent variables, and R-squared, which measures independent variables' ability to explain the dependent variable. The result is presented in the model summary Table 7.

Table 7
Multiple Linear Regression Analysis: R-Square Test Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.755[a]	0.571	0.566	0.659

a. Predictors: (Constant), PS, SI, PE, CU, EE

Table 7 shows there is a 75.5% correlation between independent variables and dependent variables. Also, the independent variables' ability to explain the dependent variable with the variability of the data in this study is 57.1%. In comparison, the remaining 42.9% is explained by other factors that are not included in this study. Lastly, the analysis towards the coefficient of each variable is necessary to figure out which variables are significantly correlated with the dependent variable to test the hypothesis of this study. It can be analysed by looking over the t-sig test, as presented in Table 8.

Table 8
Multiple Linear Regression Analysis: Regression Coefficient T-sig Test Result

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.824E-16	0.031		0.000	1.000
	PE	0.388	0.042	0.388	9.202	0.000
	EE	0.069	0.041	0.069	1.688	0.092
	SI	0.165	0.037	0.165	4.489	0.000
	CU	0.280	0.041	0.280	6.896	0.000
	PS	0.037	0.040	0.037	0.939	0.348

a. Dependent Variable: BI

Table 8 displays a result of p-value (i.e., Sig.), which indicates whether the variable has a significant relationship towards the dependent variable and represents the overall population. Since the cut off value of Sig. in this study is 0.05, then the variables with significance below 0.05 are considered significant and vice versa. Three out of five independent variables are showing a result of having a significant relationship with the dependent variable. Those are Performance Expectancy (PE) ($\beta = 0.388$, Sig.=0.000) which has the highest beta number that indicates this variable has the strongest influence on the dependent variable, followed by Culture (CU) ($\beta = 0.280$, Sig.=0.000), and at last by Social Influence (SI) ($\beta = 0.165$, Sig.=0.000). Since all the beta scores are positive, these three variables have a positive relationship with the dependent variable. Also, since the variables are significant, the result is not limited only to the sample of this study, as it can represent the overall population. On the other hand, two other variables are showing a result of having no significant relationship with the dependent variable. Those are Effort Expectancy (EE) ($\beta = 0.069$, Sig.=0.092) and Perceived Security (PS) ($\beta = 0.037$, Sig.=0.348). Also, this indicates that these variables could not represent the overall population. Performance expectancy and social influence are two factors that are proven to have a significant relationship with the behavioural intention to use the electronic payment instrument. It is consistent with the previous study by Zhou et al. (2010) about mobile banking adoption, Hongxia et al. (2011) about mobile payment adoption, Ghalandari (2012) about e-banking services, Jansorn et al. (2013) about electronic payment services, and Martins et al. (2014) about internet banking adoption. Concerning the performance expectancy, this result indicates that the more users find that the electronic payment instruments can increase their productivity, convenience, and speed in doing the transaction, the more they will intend to use electronic payment instruments. Whereas relating to the social influence, it indicates that the more people around that are using the electronic payment instrument, the more they will intend to use the electronic payment instrument.

Effort expectancy is found out to be one of the insignificant factors for the behavioural intention to use the electronic payment instrument. This result contrasts with the previous study by Ghalanadri (2012), Jansorn et al. (2013), and Martins et al. (2014). However, this result is consistent with the previous study by Zhou et al. (2011) and Hongxia et al. (2011), in which both studies are conducted in China. According to Miladinovic and Hong (2016), effort expectancy has no significant relationship with the behavioural intention to use online shopping apps in Sweden. They suggested that this happens because of the respondents' characteristic that is already familiar with technology usage. Therefore, they have no difficulties in using the technology-based instrument. It may be related to the culture of generation Z as the respondent of this study, which is considered tech-savvy, remembering that cultural factors that include their characteristics shows the result of having a significant relationship towards the intention to use electronic payment instruments (H4). Therefore, the difficulty of using electronic payment instruments is not considered a significant factor for the behavioral intention to use electronic payment instruments among generation Z in Bandung City.

Culture is found as another factor that is proven to have a significant relationship with the behavioral intention to use electronic payment instruments. The term culture in this factor refers to the traits and characteristics of the user, which in this case is generation Z in Bandung City. It is consistent with the previous study by He and Mykytyn (2007) and Keramati et al. (2012). This result indicates that the characteristic, which is more likely to talk about the users' educational level and familiarity with the internet and technology, becomes a significant factor in increasing their intention to use electronic payment instruments. On the other hand, perceived security is another insignificant factor for the behavioural intention to use electronic payment instruments. This result contrasts with the previous study by Lee (2009) about internet banking adoption, Ghorban et al. (2011) about e-payment systems, Perkins and Annan (2013) about online banking adoption, and Susanto et al. (2013) about internet banking adoption. However, this result is consistent with the previous study by Brasit and Nursyamsi (2017) about internet banking adoption in Jayapura, Indonesia. Referring to that study, this result is suggested to have happened as it is influenced by the respondent's age, which in this case is generation Z who are ranging from 17 until 23 years old and categorised as a teenager to young adult. It is stated that a group of this age is still in the transitional phase. They are still less likely to take security matters as their concern, as they have not considered much about the importance of having a secure transaction. Therefore, the importance of having a secure transaction on using electronic payment instruments is not considered as a significant factor for the behavioural intention to use electronic payment instruments among generation Z in Bandung City.

4.4 Ordinal Logistic Regression

Since the dependent variable of this analysis has an ordinal measurement scale, then ordinal logistic regression should be performed to analyse the data. Actual use Behavior (AU) as the dependent variable of this analysis is a variable with a three-level ordinal scale. In this analysis, the answer will be coded to 1 for "never use," 2 for "occasionally use," and 3 for "always use." There are 458 responses to this variable included in this analysis, as presented in Table 9.

Table 9
Ordinal Logistic Regression Analysis for Actual use Behaviour

Category	N	Marginal Percentage
Never Use	11	2.4%
Occasionally Use	359	78.4%
Always Use	88	19.2%
Total	458	100.0%

In addition, the result of ordinal logistic regression analysis is presented in Table 10.

Table 10
Ordinal Logistic Regression Analysis: Model Fitting Information Result

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	296.291			
Final	195.964	100.327	1	.000

Table 10 shows the p-value (i.e., Sig.) is 0.000, which is below 0.05. It indicates the model is not limited only to the sample of this study; instead, it already well represents the overall population. The analysis of the relationship of the independent variable to the dependent variable is necessary to test the hypothesis of this study. Using p-value (i.e., Sig.) and estimate score, which result is presented in Table 11.

Table 11
Ordinal Logistic Regression Analysis: Parameter Estimates Result

		Estimate	Std. Error	Wald	df	Sig.
Threshold	[AU = 1.00]	-4.673	0.382	150.037	1	0.000
	[AU = 2.00]	1.925	0.162	141.066	1	0.000
Location	BI	1.380	0.158	76.538	1	0.000

Link function: Logit.

Table 11 displays a result of the p-value (i.e., sig.), which indicates whether the variable has a significant relationship with the dependent variable and represents the overall population. Since the cut off value of sig. in this study is 0.05, then the variables with significance below 0.05 are considered significant and vice versa. Refer to the previous explanation about sig. value, as the only independent variable in this analysis, BI has the sig. value of 0.000, which is considered significant. It indicates that this variable has a significant relationship with AU as the dependent variable, and the result can represent the overall population. Behavioural intention to use is found out as a factor that is proven to have a significant relationship with the actual user behaviour of electronic payment instruments. It is consistent with the previous study by Hongxia et al. (2011), Ghalandari (2012), and Martins et al. (2014). This result indicates that the more the users have an intention to use the electronic payment instrument, the more probability that they will use the electronic payment instrument in doing the transaction. After the statistical analysis is performed to test the hypotheses of this study, it is figured out that some hypotheses are rejected, and

others are accepted. Therefore, the new framework in Fig. 3 will show the conceptual framework modified based on the analysis result that combined multiple linear regression and ordinal logistic regression methods.
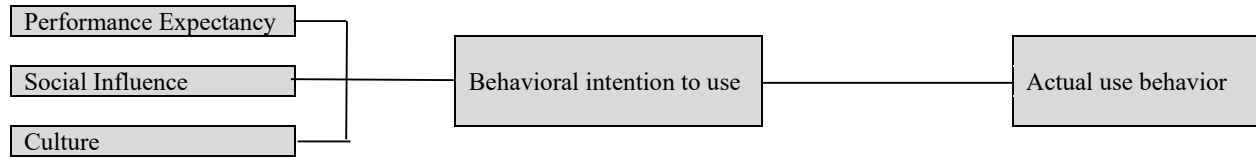

Fig. 3. Modified Conceptual Framework based on analysis

5. Conclusion, Implication and Recommendation for future research

5.1 Conclusion

This study aims to analyse the factors that influence the behavioural intention to use electronic payment instruments that lead to its actual usage among generation Z in Bandung City, as electronic payment instrument usage plays a vital role in supporting the cashless society. It is measured by using a questionnaire distributed to 458 respondents, covering generation Z in Bandung City. The results were then analysed using confirmatory factor analysis, multiple linear regression, and ordinal logistic regression with Statistical Package for the Social Science (SPSS) as the statistical software. The first objective of this study is to figure out the extent of electronic payment instrument usage in supporting the cashless society among generation Z in Bandung City. As interpreted from the questionnaire result about the type of payment instrument used for the respondents' monthly transaction, the result shows that 58% of the transaction is still done by using cash, and only 42% use the electronic payment instrument. Following the framework from Thomas et al. (2013), a society with a proportion of cashless transactions between 40-60% is classified in a transitioning level, which indicates that society's readiness has improved on accepting the usage of the electronic payment instrument. Since the cashless transaction among generation Z in Bandung City shows a result of 42%, then the level of cashless society among generation Z in Bandung City can be classified as a transitioning level. The following objectives are to examine the relationship between some factors towards behavioural intention to use an electronic payment instrument, which factors are adopted from a model proposed by Junadi (2015). Those factors are performance expectancy, effort expectancy, social influence, culture, and perceived security. The behavioural intention to use electronic payment instruments itself is also further examined towards its actual user behaviour.

5.2 Research Implications

The results of this study are giving some implications not only in theoretical as it implies for the literature reference but also in practical and managerial for the parties related to the use of electronic payment instruments. The implications of both are explained in the following paragraphs.

5.3 Theoretical Implication

This study gives the theoretical implication of the new produced conceptual framework about factors affecting behavioural intention to use the electronic payment instrument. This study tests the proposed model from Junadi (2015) and finds that five factors proposed in the model have no significant relationship towards the behavioural intention to use the electronic payment instrument. The subject that is being examined is specified as generation Z in Bandung City. Therefore, a modified conceptual framework is produced as the result of this study, as shown in Figure 3. The modified conceptual framework in Figure 3 implies the reference and literature study for those who want to modify or conduct a study related to the electronic payment instrument usage among generation Z in Bandung City.

5.4 Practical and Managerial Implication

For the provider, such as fintech companies, banks, and financial institutions, this study implies some information in regard to the influential factors having a significant relationship with the intention to use the electronic payment instrument. Therefore, the result may be useful to be taken as a concern on making some business strategic, primarily when the targeted market covers up generation Z in Bandung City to be precise. From the result of this study, three factors are proven to have a significant relationship to the intention to use electronic payment instruments. First, expectancy users towards the electronic payment performance concerning its productivity are convenient and speed in doing the transactions, which may be considered to improve the system. Second, influence from the users' surroundings, such as the relative and family, can be taken as an opportunity to make the promotion strategy. Lastly, traits and the characteristics of the users belonging to the culture are essential in choosing the potential target market to expand the market share.

Two other factors are not having a significant relationship towards the intention to use the electronic payment instrument. Still, as interpreted from the descriptive result, the evaluation from the provider is needed to improve these factors. First, the

problem arises concerning the flexibility of using electronic payment for every transaction for the effort expectancy. Many merchants are not yet accepting electronic payment for the transactions, which can be taken as the evaluation for making a strategic alliance and making the system improvements. Second, perceived security still shows a moderate to a low level, which indicates that the users are still not yet feeling highly secure on doing the transaction using the instrument, which the provider should evaluate to convince the users concerning the security or instrument.

For the user, this study gives the information that it is essential to use electronic payment instruments on the transaction to support a cashless society in a nation. Also, this study has been examined that the social influence is significantly influencing the intention to use the electronic payment instrument. Therefore, it implies that the user can actively contribute by influencing and recommending their surroundings to use the electronic payment instrument for the transaction to increase the current level of electronic payment instrument usage.

For the government, this study gives information about the current level of the cashless journey in the society, especially among generation Z in Bandung City that is currently on the transitioning level. Therefore, it implies that the government should take steps to help to increase the current cashless journey-level among the society.

5.5 Future Research

For future research, this study may be re-conducted within a few years to investigate the extent of the cashless journey to figure out whether there are some changes compared to the result of this study since the condition of the respondents may also change. Also, this study can be analysed with a broader scope from the broader range of populations and not limited only to one generation in one city, as it may generate different results. Other independent variables may also be included in the research since the model of this study still indicates that 42.9% of the behavioural intention to use electronic payment instruments as the dependent variable is still being explained by other factors that are excluded from this study. Moreover, it is also recommended to combine the study method by using a qualitative method to ensure the data that has been analysed with the quantitative method, thus generating a more accurate result.

References

Abrazhevich, D. (2004). *Electronic payment systems: A user-centered perspective and interaction design*. Dennis Abrazhevich.

Accenture (2017). Global Consumer Shopping Survey 2017: Generation Z to Switch The Majority of Purchases to Retailers That Provide the Newest Digital Tools and Channels.

Ajayi, S. I., & Ojo, O. O. (2006). *Money and banking: analysis and policy in the Nigerian context*.

Antragama, E. A. (2017). Literature Review of a Cashless Society in Indonesia: Evaluating the Progress. *International Journal of Innovation, Management, and Technology*, *8*(3), 193.

Aslinawati, E., Wulandari, D., & Soseco, T. H. O. M. A. S. (2016). Public perception of the effectiveness of less cash society. Int. Rev. Soc. Sci, 4(1), 7-12.

Badan Pusat Statistik (2017). Penduduk Indonesia Menurut Kelompok Umur dan Jenis Kelamin. Retrieved from: https://databoks.katadata.co.id/datapublish/2017/

BPS Kota Bandung (2018). Jumlah Penduduk Menurut Kelompok Umur dan Jenis Kelamin di Kota Bandung. Retrieved from: https://bandungkota.bps.go.id/statictable

Brasit, N., & Nursyamsi, I. (2017). An Analysis on Factors that Influence Customers' Intention to Use Internet Banking in Jayapura City.

Bryman, A., & Bell, E. (2015). *Business research methods*. Oxford University Press, USA.

Carr Jr, V. H. (1999). Technology adoption and diffusion. *The Learning Center for Interactive Technology*.

Central Bank of Indonesia (2014). Gerai Info Edisi 50. Retrieved from http://www.bi.go.id/id/publikasi/gerai-info/Pages/GeraiInfo-Edisi-5014.aspx

Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). *Management research*. Sage.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4.

GfK (2016). Gen Z Lead in Use, Trust of Mobile Payment System. Retrieved from http://www.gfk.com/en-us/insights/press-release/in-us-gen-z-leads-in-use-trust-of-mobile-payment-systems-gfk-study/

Ghalandari, K. (2012). The effect of performance expectancy, effort expectancy, social influence and facilitating conditions on acceptance of e-banking services in Iran: The moderating role of age and gender. *Middle-East Journal of Scientific Research*, *12*(6), 801-807.

Ghorban, Z. S., Jajaee, S. M., & Tahernejad, H. (2011). The Study of Customer's Perceptions of Security in E-Payment System in Iran. In *International Conference on Business and Economic Research (2nd)* (pp. 891-910).

Grail Research (2011). Insights and Observations about Generation Z: Consumers of Tomorrow.

He, F., & Mykytyn, P. P. (2008). Decision factors for the adoption of an online payment system by customers. *Selected Readings on Electronic Commerce Technologies: Contemporary Applications: Contemporary Applications*, *352*.

Hongxia, P., Xianhao, X., & Weidan, L. (2011, May). *Drivers and barriers in the acceptance of mobile payment in China*. In E-Business and E-Government (ICEE), 2011 International Conference on (pp. 1-4). IEEE.

Israel, G. D. (1992). Determining sample size: University of Florida Cooperative Extension Service. *Institute of Food and Agriculture Sciences, EDIS*.

Jain, V., & Jain, P. (2017). A Journey Towards A Cashless Society.

Jansorn, T., Kiattisin, S., & Leelasantitham, A. (2013, September). Study of acceptance factors for electronic payment services. *In International Conference on Business and Information.*

Junadi, S. (2015). A model of factors influencing consumer's intention to use e-payment system in Indonesia. *Procedia Computer Science, 59*, 214-220.

Kabir, M. A., Saidin, S. Z., & Ahmi, A. (2015, October). Adoption of e-payment systems: a review of literature. *In International Conference on E-Commerce (pp. 112-120)*.

Kaiser, H. F., & Rice, J. (1974). Little jiffy, Mark IV. *Educational and Psychological Measurement, 34*(1), 111-117.

Keramati, A., Hadjiha, B., Taeb, R., & Mojir, N. (2012). Adoption of electronic payment services by Iranian customers. *Succesful Customer Relationship Management Programs and Technologies Issues and Trends*, *18*, 268-285.

Lai, P. C. (2017). The Literature Review Of Technology Adoption Models And Theories For The Novelty Technology. *JISTEM-Journal of Information Systems and Technology Management*, *14*(1), 21-38.

Lee, M. C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications, 8*(3), 130-141.

Martins, C., Oliveira, T., & Popovič, A. (2014). Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management, 34*(1), 1-13.

McCrindle, M., & Wolfinger, E. (2010). Generations defined. *Ethos*, *18*(1), 8.

Miladinovic, J., & Hong, X. (2016). A Study on Factors Affecting the Behavioral Intention to use Mobile Shopping Fashion Apps in Sweden

Ming-Yen Teoh, W., Choy Chong, S., Lin, B., & Wei Chua, J. (2013). Factors affecting consumers' perception of electronic payment: an empirical analysis. *Internet Research*, *23*(4), 465-485.

Murphy, K. R., & Davidshofer, C. O. (1988). Psychological testing. Principles, and Applications, Englewood Cliffs.

Oblinger, D., & Oblinger, J. (2005). Is it age or IT: First steps toward understanding the net generation. *Educating the Net Generation*, *2*(1-2), 20.

Perkins, E. D., & Annan, J. (2013). Factors affecting the adoption of online banking in Ghana: implications for bank managers. *International Journal of Business and Social Research (IJBSR), 3*(6), 94-108.

Putri, N. R. R., Rahadi, R. A., & Murtaqi, I. (2017). A Conceptual Study on the Use of Electronic Payment Instruments among Generation Z in Bandung City. *Journal of Global Business and Social Entrepreneurship (GBSE), 3*(9), 32-40.

Reeves, T. C., & Oh, E. (2008). Generational differences. *Handbook of research on educational communications and technology*, *3*, 295-303.

Sharma, R., & Mishra, R. (2015). A Review of Evolution of Theories and Models of Technology Adoption. *Indore Management Journal*, *6*(2), 17-29.

Slozko, O., & Pelo, A. (2015). Problems And Risks Of Digital Technologies Introduction Into E-Payments. *Transformation in Business & Economics*, *14*(1).

Swartz, D. D. G., Hahn, R. W., & Layne-Farrar, A. (2004). The economics of a cashless society: an analysis of the costs and benefits of payment instruments (pp. 221-222). AEI-Brookings Joint Center for Regulatory Studies.

Susanto, A., Lee, H., Zo, H., & Ciganek, A. P. (2013). User acceptance of Internet banking in Indonesia: initial trust formation. *Information Development, 29*(4), 309-322.

Tella, A. (2012). Determinants of E-Payment Systems Success: A User's Satisfaction Perspective. *International Journal of E-Adoption (IJEA)*, *4*(3), 15-38.

Thomas, H., Jain, A., & Angus, M. (2013). The global journey from cash to cashless. *MasterCard Advisors' Cashless Journey*, 1-15.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478.

Vision Critical (2016). The Everything Guide to Generation Z. Retrieved from https://www.visioncritical.com/resources/everything-guide-gen-z/

Wijayanto, S. (2008). Struktural Equation Modeling dengan Lisrel 8.8: Konsep dan Tutorial.

Wulandari, D., Soseco, T., & Narmaditya, B. S. (2016). Analysis of the Use of Electronic Money in Efforts to Support the Less Cash Society. *International Finance and Banking*, *3*(1), 1.

Yaqub, J. O., Bello, H. T., Adenuga, I. A., & Ogundeji, M. O. (2013). The cashless policy in Nigeria: prospects and challenges. *International Journal of Humanities and Social Science*, *3*(3), 200-212.

Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior*, *26*(4), 760-767.