A Model of Factors Influencing the Acceptance of Fintech Payment DANA Indonesia

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Abstract*: Technology has changed the world in every aspect. One of them is how we make a transaction. With Financial Technology (Fintech), payment can be made with only your mobile phone, your new digital wallet. Indonesia is one of the fastest countries in digitalization, surpassing Brazil and China, has begun utilizing this new technology. However, the penetration rate is considered low. The condition of Indonesia's fintech is still developing and competing fiercely against several other fintech that arose together in the same period. In this paper, the study focused on one fintech in Indonesia named DANA. The objective is to propose a model to identify the factors influencing the acceptance and usage of DANA. The methodology used in this study will be TAM that has been modified to fit the object of study. The results are hoped to be used as guidance for DANA's improvement.

Keywords: Financial Technology; Fintech Payment; DANA; Indonesia

I. INTRODUCTION

Nowadays, technology has helped us in every aspect of our daily life. From waking us up in the morning, arrange our schedule, getting our transportation, until we go back to sleep. Technology helps us in every imaginable way possible. One recent trend that could revolutionize the way people behave is mobile payment.

Mobile payment took the world by storm in China where everyone really doesn't use or bring their wallet anymore and fully relied on their mobile phone to pay and do a transaction [1]. They ditched the traditional payment method due to the simpleness and easiness of the new technology called Financial Technology or so we called Fintech. The fintech technology that we've been discussing earlier is called fintech payment where in China, there already multiple fintech payment platforms like WeChat pay and Alipay [2][3]. Both of these fintech titans is the biggest payment method provider that use by everyone in China, from homeless people asking for money, street musician, clothing store, restaurant, and everywhere. The payment maximizes QR code as their tools to ease the transaction and fasten the time it takes to do a single transaction [4]. This eliminates the use of traditional money as it tenses to be more complex to use.

Same with China, Indonesia is also have begun to adopt this behavior due to the rise of many fintech payment companies such as Gopay, OVO, DANA, and many others [5]. By 2019, there have been 99 fintech companies registered in Financial Service Authority in Indonesia [6]. They use the same tools as in China, which is a QR code [4]. They create a partnership with many merchants and offer a lot of benefits to reach new customers in the fresh new market in Indonesia. This creates a lot of people in Indonesia began to try and soon rely on the payment method that has given them benefits over time. Even though many merchants have adopted fintech payment as one of their payment methods, the adoption rate of fintech payment is still low. Based on McKinsey & Company's Report, the penetration level of fintech usage in Indonesia is about 5% [7]. This number is considered low compared to other Asian countries. In China, the penetration is 5%, 57% in Hongkong, and 39% in India [8]. Despite Indonesia being one of the fastest countries in digitalization, surpassing Brazil and China in the survey in 2017 by McKinsey & Company [7].

For that reason, we would like to explore the factors that affect the acceptance and usability of fintech payment in Indonesia. We would like to research on one of the rising fintech payment company in Indonesia called DANA. We choose DANA because DANA is one of the newest fintech payment to enter the market and have a partnership with Ant Financial and Ali Pay that have been big in China. In this paper, we would like to explore the factor that influences user's acceptance of using DANA as a mobile payment method.

To do this research, we use the Technology Acceptance Model Davis in 1989 [9]. This model is one of the most used and accurate models to explore and evaluate the acceptance of a technology. Still, we need to modify it to fit the object of this research which in this case is a financial technology payment in Indonesia. Therefore, we added some variables or factors that may impact the acceptance of a technology.

In Indonesia, the acceptance of a new payment method needs to have a good brand and people need to trust the

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services it provides. In the previous research, they discover that brand image has a positive significant impact on the attitude towards using a fintech [10][11]. Therefore, we added Brand and Service Trust as one of the added variables in our research model.

We also added advertising and social influence on the model. Advertising and social influence are two of the most important factors in Indonesia that affect branding and trust of an organization or individual. This happened due to the people in Indonesia that tend to follow the trends surrounding them. Some researchers in the past discover that advertising and social influences have an impact on the brand and or trust of the object [12][10][11]. Therefore, we also added Advertising and Brand and Service Trusts as variables in our research model.

II. LITERATURE REVIEW

A. Mobile Payment

Mobile payment is an alternative method in doing the transaction for goods, services, and bills/invoices. As the name implies, mobile payment maximizes mobile devices (such as smartphone, tablet, and other mobile devices) and wireless communication technology (such as mobile telecommunications networks, or proximity technologies) [15]. By using mobile payment, the user could utilize it in a variety of ways, such as payment for digital content, flight tickets, parking fees, bus ticket, taxi fares, concert, tram, and train tickets. With the help of mobile devices, the system is able to connect to the server, perform authentication and authorization, execute a mobile payment, and also confirm the past transaction [16].

There are two types of categories, payments for purchases and payments of bills or invoices [17]. In the payment for purchases category, mobile payment's competitor is traditional cash, debit cards, checks, and credit cards because it has the same function as payment. As for the payments of bills or invoices category, mobile payment usually provide access to account-based payments, including online banking payments, money transfers, or direct debit assignments.

B. Financial Technology

Financial technology, or FinTech for the short-term, is modern innovative and radical solutions that aim to improve the efficiency, effectiveness, and experiences in the financial service industry. The solutions come in forms of new applications, products, processes, and business models[18].

Fintech is not a new concept and has developed into three eras [19]. Fintech 1.0 is when the Trans-Atlantic communication with transmission cable first occurred in 1958. In this era, the new technology solution is the Automated Teller Machine (ATM). While in fintech 2.0, the financial services are applied with the internet as the digitalization arises, but still partially traditional [20]. Finally, fintech 3 is related to data technologies and start-up companies that focus on online platforms [21]. The fintech has not yet finished and keeps evolving with newer and more advanced technology. Fintech is not a new concept and has developed into three eras [19]. Fintech 1.0 is when the Trans-Atlantic communication with transmission cable first occurred in 1958. In this era, the new technology solution is the Automated Teller Machine (ATM). While in fintech 2.0, the financial services are applied with the internet as the digitalization arises, but still partially traditional [20]. Finally, fintech 3 is related to data technologies and start-up companies that focus on online platforms [21]. The fintech has not yet finished and keeps evolving with newer and more advanced technology.

Another context of fintech is a company that integrates technology with financial services [22]. The well-known example of fintech company is the bank. However, fintech is not only that, companies that offer financial instruments, distribute insurance, and provide third-party financial services are also called fintech.

C. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was first introduced by Davis in 1986, where TAM is a model adapted from the Theory of Reasoned Action (TRA) model which was later modified to be suitable for measuring user acceptance of computer technology [9]. Since its introduction, TAM has been continuously tested and empirically validated by scientists in various fields and contexts to explain the behavior of users' trust in various computer-related technologies [9].

According to TAM, someone using technology is actually affected directly or indirectly by behavioral intentions or user behavior intentions, attitudes, perceived usefulness or perceived benefits of the system, and perceived ease of use or perceived ease of the system. TAM also proposes that external factors influence intentions and actual use by mediation through perceived usefulness and perceived ease of use [9]. The TAM model can be seen in figure 1.

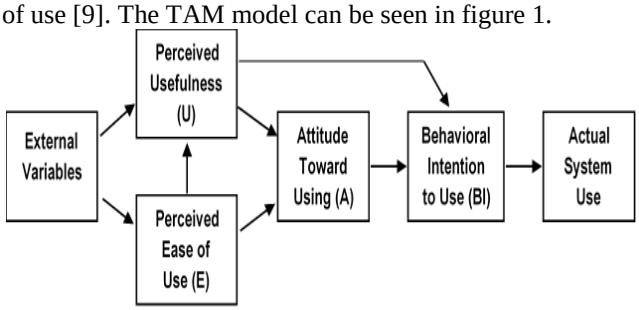

Fig. 1 Technology Acceptance Model Framework [9]

Among these predictors, perceived usefulness (U) or perceived usefulness and perceived ease of use (E) are hypothesized to be the main determining factors of user acceptance, an idea that is verified through empirical support [23].[23]. Benefit perception (U) is the extent to which a person believes using certain technologies will improve their performance, while perceived ease (E) refers to the level of simplicity expected by potential users of the target system [9].

III. METHODOLOGY

A. Research Model

The research model used in this study is the TAM (Technology Acceptance Model) with a little bit twist on it as shown in Figure 2 This model is very suitable for examining the intention (Behavioral Intention) of user in using the fintech payment method.

Based on previous research that uses TAM to explore the factor that influences user's acceptance, we combine some of the factors that have been explored from the previous research.

The factors are as follow:

1. Social Influence

Social Influence is the degree an individual perceives the importance to use a system based on the people they believe that he or she should use the new system [24]. This influence is proved to impact the trust of people. For the reason, that trust is not only based on hard data, but trust can be built by the community [25]. Previous research about online purchase in Malaysia showed that social influence has positive significant effect on trust and also the interaction of both factors results in willingness to use [26].

2. Advertising

This factor refers to the influences that advertisement have that affect the brand for the system [12]. There was a research that expand the current understanding of how to build brand trust, brand affect, and brand loyalty. The research suggests that brand trust, affect, and loyalty could be built through a good advertising and marketing communication [27].

3. Perceived Usefulness

Perceived Usefulness refers to a person's level of trust in technology to be useful in their activities in the context of this research lecturing activities. Previous research about perceived usefulness explained level of user's trust, when user use the system, they can improve their work performance [28]. Useful itself defined into adequate to be used and have a manner that affording benefits [29]. Usefulness will determine the attitude towards using which will affect the intension to use. The statement is supported by older studies that find that Usefulness have a significant impact towards Attitude towards using [10][11][18][30][31]. Previous studies also shown that Usefulness also directly affect Behavioral Intention to Use [32][33].

4. Perceived Ease of Use

In this factor, user's perception about an effortless system that gave easiness will be defined. In this research, the easiness is about practicality and user's expectation of fintech that can be used without any difficulties [28]. Ease is a freedom against difficulties nor efforts. Effort in this context is about allocation of resources that a person uses for the activities which is their responsibilities [34]. As fintech aims to give an easy way to do a transaction without extra effort, Indonesian people are expected to feel this ease. When they feel this easiness, they will more likely to have a positive attitude toward using and have intention to use it. Previous study also show that Perceived Ease of Use affect Attitude Towards Using [11][18][31][33].

5. Brand and Service Trust

Brand and Service Trust is defined as a belief of user's confident that they can rely on the promised service or product from the brand [35]. Trust in this case is very important because Fintech service is associated with money which makes it a sensitive thing for Indonesian people. They are still worried and doubt the safety of the transaction [6]. Previous researches showed that this variable had significant effect on attitude toward using [10][11][18][33].

6. Attitude Toward Using

Attitude toward using is a person's acceptance of rejection of a system after assessing the benefit of the system [9]. This positive or negative feeling will affect the tendency of someone's behaviour to keep using the system or stop using it. Based on multiple the previous study, attitude towards using affect behavioural intention to use [10][18][30][31][33].

7. Behavioral Intention to Use

Behavioral Intention is defined as a person's subjective thought whether he/she will be using the technology willingly [36]. In the theory, intention is the process after attitudes and behaviors. Strong intention will reflect the person's overall acceptance and use of fintech. Based on multiple the previous study, Behavioral Intentioin to Use is usually affected by Attitude Towards Using [10][18][30][31][33] and Perceived Usefulness [32][33].

From the variables we've discussed before, we constructed our research model. Our researched model is shown in Fig. 2.

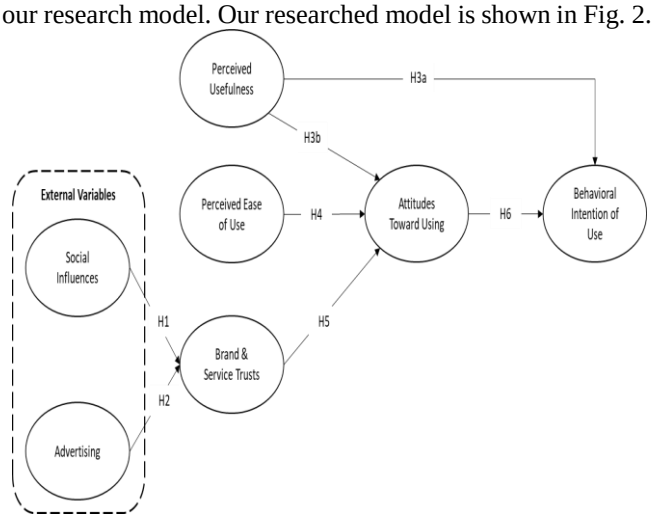

Fig. 2 Our Research Model (Modified TAM)

B. Hypothesis

Based on the description and study of literature that has been explained previously, this research proposes the following hypotheses:

H1: Social Influences has a significant influence on Brand & Service Trusts. H2: Advertising has a significant influence on Brand & Service Trusts. H3a: Perceived Usefulness has a significant influence on Behavioral Intention of use. H3b: Perceived Usefulness has a significant influence on Attitude Towards Using. H4: Perceived Ease of Use has a significant influence on Attitude Towards Using. H5: Brand & Service Trusts has a significant influence on Attitude Towards Using. H6: Attitude Towards Using has a significant influence on Behavioral Intention of use.

C. Variable Measurement

For the measurement of the variables to be done properly, then the appropriate indicators are needed, indicators are an overview of the statement of the questionnaire that will be used in this study. The variables and indicators are shown in Table-I

Table- I Variables and Indicators

No.	Variable	Indicator	Reference
1	Social Influence	Friend recommendation	[13][14][26]
2		Friend influence	
3		Online recommendation	
4		Trends influence	
5		Influencer influence	

No.	Variable	Indicator	Reference
6	Advertising	Social media advertisement awareness	[12][27]
7		Advertisement awareness	
8		Advertisement influence	
9		Advertisement information	
10		Advertisement influences	
11	Usefulness	Fast transaction	[10][11][18][30][31][32][33][37][38]
12		Online merchant transaction	
13		Split bill feature	
14		Bill transaction	
15		Credit card payment	
16	Ease of Use	Application ease of use	[10][11][18][30][31][32][33][37][38]
17		Transaction easiness	
18		Easy merchant online transaction	
19		Bills payment easiness	
20		Split bill usefulness	
21		Registration easiness	
22	Brand and Service Trust	Personal information share	[10][11][18][33]
23		Data safety	
24		Top up safety	
25		Brand awareness	
26		Slogan awareness	
27	Attitude Towards Using	Application choice	[10][11][18][30][31][33][38]
28		Happiness	
29		Profitable	
30		Trending	
31		Beneficial	
32	Behavioral Intention to Use	Intention to use	[10][14][18][30][31][33][37][38]
33		Plan to use	
34		Loyalty	
35		Transaction intensity	
36		Recommend to others	

In this quantitative study, researchers will use a questionnaire as an instrument to collect data. In conducting quantitative research, it is necessary to have a scale that aims to produce accurate data measurements. The scale used to measure each indicator in this study is the Likert scale. Likert scale allows researchers to classify the object of research (fillers questionnaire) in terms of how much they agree and disagree with a statement [39]. In a Likert scale, the variables to be measured are divided into several indicator variables that act as a starting point for constructing instrument items that can be statements. The answer to each instrument item that uses a Likert scale has a gradation from very positive to very negative as shown in the Table-II below.

Table- II Skala Likert

Answers	Initial	Scale
Strongly Disagree	SD	1
Disagree	D	2
Neutral	N	3
Agree	A	4
Strongly Agree	SA	5

D. Collection Of Data

Questionnaire will be made in an *online form* using Google forms. To collect the data in this research, researchers will apply *purposive sampling* and *convenience sampling*. *Purposive sampling* is chosen by the criteria of people who have experiences in using DANA. *Convenience sampling* is executed by giving the questionnaire to the customers of merchants that utilize DANA as one of their payment methods.

E. Data Analysis

The data analysis technique used to achieve the objectives in this study is a covariance-based SEM method or Structural Equation Modelling (SEM) using the SMART PLS application. SEM is one statistical model to explain the relationship between several variables. SEM is a statistical modelling technique that is very cross-sectional, linear, and general [40]. SEM can be considered a unique combination of both types of techniques because the foundation of SEM lies in two known multivariate techniques: factor analysis and multiple regression analysis [41]. SEM has a function similar to multiple regression, but it seems SEM to be a more powerful analysis technique because it considers interaction modelling, nonlinearity, correlated independent variables, measurement error, disturbance of correlated errors, some latent independent variables where each measured using many indicators, and one or two latent dependent variables, each of which is measured by several indicators [42].

Based on the above definition, it can be concluded that SEM has characteristics which are as an analytical technique to confirm rather than explain [42]. The purpose of the statement is that research using SEM is research conducted to determine whether a particular model is valid or not, not to find a particular model is suitable or not.

The SEM model consists of measurement models and structural models. Measurement model is part of SEM model that describes the relationship between latent variables and indicators,

while structural models describe the relationship between latent variables or between exogenous variables and latent variables [43]. In using the measurement model from SEM, validity, reliability, and compatibility testing are tested. While using the structural model, a path analysis is used to test the hypothesis.

But, in this research we are using a special case SEM due to the research model having only one path and only consist of one model. But we could still use SEM as the tools to analyse the data.

IV. RESULT AND DISCUSSION

After distributing the questionnaire through online form and face-to-face, we receive the responses from 118 respondents from 200 peoples that we randomly picked from various age range. We picked the respondent randomly by broadcasting it on a social media group of a specific age range and also distributed it by face-to-face to multiple merchants that have DANA as a payment method.

Table- III bellow is the gender of the respondent that we have collected.

Table- III Respondents' Gender

Gender	Quantity
Male	63
Female	55

Table- IV bellow is the gender of the respondent that we have collected.

Table- IV Respondents' Age Range

Age Range	Quantity
15 - 25 years old	82
26 - 35 years old	7
36 - 45 years old	15
46 - 60 years old	13
> 60 years old	1

A. Data Validity and Reliability Test Results

After collecting the data, we then proceed by doing a validity and reliability test to the data by checking the convergent validity, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE).

Table- V Outer Loading Test Results

	A	AT	BI	BS	PE	PU	SI
A1	0,588						
A2	0,671						
A3	0,842						
A4	0,825						
A5	0,815						
AT1		0,793					
AT2		0,863					
AT3		0,802					
AT4		0,789					
AT5		0,877					
BI1			0,864				
BI2			0,900				
BI3			0,925				
BI4			0,756				
BI5			0,816				
BS1				0,755			
BS2				0,766			
BS3				0,759			
BS4				0,758			
BS5				0,645			
PE1					0,798		
PE2					0,829		
PE3					0,790		
PE4					0,784		
PE5					0,686		
PE6					0,770		
PU1						0,745	
PU2						0,756	
PU3						0,773	
PU4						0,724	
PU5						0,706	
SI1							0,758
SI2							0,762
SI3							0,821
SI4							0,664
SI5							0,728

From the results of loading factor in Table- V, the smallest value of all the indicators is 0,588 and the highest value is 0,925. From the theory, the value of loading factor should be greater than or equal to 0,5 but ideally, it should be greater than or equal to 0,7. The results from test reveal that there are still some indicators that are below 0,7 which are not ideal but they are still enough for the indicators to be claimed as valid and could be used to continue the research.

Table- VI Validity and Reliability Test Results

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
A	0,805	0,867	0,570
AT	0,882	0,914	0,681
BI	0,906	0,931	0,730
BS	0,789	0,856	0,544
PE	0,868	0,901	0,604
PU	0,795	0,859	0,549
SI	0,803	0,864	0,560

Based on the results of validity and reliability test in Table-VI, we could summarize the validity and reliability of the variables based on Cronbach's alpha, composite reliability, and average variance extracted. Based on the value of Cronbach's alpha and composite reliability, we determined that the variables that we used are reliable as the value of both Cronbach's alpha and composite reliability are all greater than or equal to 0,7. Then, from the values of AVE, we determined that the variables have a good convergent because the value of each variable is greater than or equal to 0,5.

B. Hypothesis Test Results

After the data deemed to be valid and reliable, we proceed by testing the hypothesis stated earlier by checking the p-value from the result that the application produces. Based on the results of the test in Table- VII, all of the hypothesizes are accepted except for H_1 and H_3a because both of them have a p-value greater than or equal to 0,05. Meanwhile,

H_2, H_5, and H_6 have p-value that less than or equal to 0,001 which means that they are very significant.

Table- VII Path Coefficient Test Results

	P Values	Description
Advertising → Brand and Service Trusts	0,000	Very Significant
Attitude Towards Using → Behavioral Intention to Use	0,000	Very Significant
Brand and Service Trusts → Attitude Towards Using	0,000	Very Significant
Perceived Ease of Use → Attitude Towards Using	0,020	Significant
Perceived Usefulness → Attitude Towards Using	0,012	Significant
Perceived Usefulness → Behavioral Intention to Use	0,805	Not Significant
Social Influence → Brand and Service Trusts	0,067	Not Significant

C. Discussions

Social Influences does not have a significant influence on Brand & Service Trusts.

Based on the hypothesis testing on Table-VII, we could conclude that the hypothesis of the Social Influences against the Brand & Service Trusts is not accepted. This finding does not supports the previous study that Social Influences affects Brand & Service Trusts [26].

Advertising has a very significant influence on Brand & Service Trusts.

Based on the hypothesis testing on Table-VII, we could conclude that the hypothesis of the Advertising against Brand & Service Trusts is accepted, in fact based on the p-value, it has a very significant influence on Brand & Service Trusts. This finding supports the previous studies that Advertising affects Brand & Service Trusts [27].

Perceived Usefulness does not have a significant influence on Behavioral Intention of use.

Based on the hypothesis testing on Table-VII, we could conclude that the hypothesis of the Perceived Usefulness against Behavioral Intention to use is not accepted. This finding does not supports the previous study that Perceived Usefulness affects Behavioral Intention to Use [32][33].

Perceived Usefulness has a significant influence on Attitude Towards Using.

Based on the hypothesis testing on Table-VII, we could conclude that the hypothesis of the Perceived Usefulness against Attitude Towards Using is accepted. This finding supports the previous study that Perceived Usefulness affects Attitude Towards Using [10][11][18][30][31].

Perceived Ease of Use has a significant influence on Attitude Towards Using.

Based on the hypothesis testing on Table-VII, we could conclude that the hypothesis of the Perceived Ease of Use against Attitude Towards Using is accepted. This finding supports the previous study that Perceived Ease of Use affects Attitude Towards Using [11][18][31][33].

Brand & Service Trusts has a very significant influence on Attitude Towards Using.

Based on the hypothesis testing on Table-VII, we could conclude that the hypothesis of the Brand & Service Trusts against Attitude Towards Using is accepted, in fact based on the p-value, it has a very significant influence on Brand & Service Trusts. This finding supports the previous studies that Advertising affects Brand & Service Trusts [10][11][18][33].

Attitude Towards Using has a very significant influence on Behavioral Intention of use.

Based on the hypothesis testing on Table-VII, we could conclude that the hypothesis of the Attitude Towards Using against Behavioral Intention of use is accepted, in fact based on the p-value, it has a very significant influence on Brand & Service Trusts. This finding supports the previous studies that Advertising affects Brand & Service Trusts [10][18][30][31][33].

V. Conclusion

Based on this research, we can conclude that Advertising is a very important factor to influence the Brand and Service Trusts which will eventually affect the Attitude Towards Using and Behavioral Intention to Use. Brand and Service Trusts has a slightly bigger influence than Perceive Ease of Use and Perceived Usefulness. Therefore, DANA's advertising can be said effective and should be continued.

Brand and Service Trusts should also be a priority due to the very significant effect on Attitude Towards Using. DANA are advised to keep their brand image good by doing advertising. It can mean that, because DANA is relatively new, people are learning about DANA through their advertisement, rather than their social networks. Their environments might still perceive this as a new thing and still passive, so they don't influence much. Or it can mean that DANA hasn't maximized its online media to influence people.

The results also confirmed that both Perceived Ease of Use and Perceived Usefulness are proved to drive people to use DANA indirectly by the first influencing the Attitude Toward Using. This can mean Indonesian people considered DANA as a technology that brings them benefits and considers it as easy to use. It can mean that DANA has successfully achieved the aim of providing a digital wallet to facilitate transactions because the users have perceived DANA this way.

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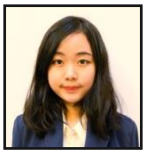

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