

# The Intent Behind the Usage of Cryptocurrency: An Analysis Based on the Theory of Acceptance and Use of Technology Modification Model

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**Abstract.** Introduced in 2008, blockchain technology has experienced rapid development, in its development many digital assets have been created in the form of cryptocurrencies (cryptocurrency). For some people, crypto assets are the most modern solution and alternative for carrying out transactions on the blockchain. This study aims to determine how Behavioral Intention in Conducting Cryptocurrency Transactions. The model used is Structural Equation Modeling (SEM) with 228 data respondents spread throughout Indonesia. The results of this study indicate that the Facilitating Condition, Perceived Risk and Trust variables have a significant direct influence on the Behavioral Intention in Conducting Cryptocurrency Transaction variables while the Effort Expectancy, Hedonic Motivation, Performance Expectancy, Price Value, and Social Influence does not have a significant direct effect on the Behavioral Intention in Conducting Cryptocurrency Transaction variables and for the Performance Expectancy and Price Value variables it is not able to provide a stimulus to Effort Expectancy, Hedonic Motivation, Performance Expectancy, and Perceived Risk on the Behavioral Intention in Conducting Cryptocurrency Transaction variables.

**Keywords:** Crypto Assets; Intentions; Investments; Platform X; Transactions

## I. Introduction

Blockchain technology has begun to shape and define new aspects of computer science and information technology. It has been exploited beyond just a theoretical concept, since the increasing need for and trust in more decentralized crypto assets (Vujicic et al., 2018). Even in the last decade, the concept has become very popular with people, all thanks to the famous research of Satoshi Nakamoto (2008) who introduced Blockchain technology and the Bitcoin crypto asset. In its simplest form, cryptocurrency assets are considered digital assets that are built to function as a medium of exchange based on cryptographic technology to ensure the flow of transactions, as well as to control the creation of additional monetary units (Chohan, 2017). digital commodity trading (Online Trading) activists are increasing. Because previously investors and traders only made transactions on foreign currency commodities (Foreign Exchange) and stock exchanges of national and multinational companies (Liang et al., 2019). Based on previous studies, the application of the Unified Theory of Acceptance and Use of Technology (UTAUT) model is able to provide an overview of how respondents are able to adapt and use new technology.

## II. Literature Review

### Blockchain Technology

*Blockchain* technology is a technology used for *cryptocurrencies*, first proposed by “Satoshi Nakamoto” in 2008 (Nakamoto, 2008); *Blockchain* technology has actually been applied since 1991 by Haber and Stornetta (Haber & Stornetta, 1991), a *linear hash chain* or *blockchain* is used as a verifier when a digital document was created or was last modified by marking it using a cryptographic hash. Haber and Stornetta's proposal to tag digital documents with cryptographic hashes also addresses potential problems of collusion and lack of trust by associating cryptographic hash values and digital signatures that identify unique users.

### Cryptocurrency

*Cryptocurrency* is a digital asset designed to be a medium of exchange for transactions; use cryptography to secure transactions, manage the addition of *additional value units*, and verify the asset transfer process. Currencies without intrinsic value, such as *cryptocurrencies* (bitcoins), can only function if they are accepted by the market and there is user confidence that there is value attributable to the currency. While the conventional system is fiat, currency has value because people trust the central bank. *Cryptocurrency*, has a public ledger system (ledger) which is confirmed for every recorded transaction by public users (Miners), so there is no need for a central bank and between users there is no need to trust each other. Cryptocurrency users only *trust* the algorithms and networks *that* make up the blockchain. A *cryptocurrency* transaction is said to be valid only if the output code is the same as the input code; that's what proves that the transaction actor actually has the fees he wants to transfer. com (Iwamura, et al., 2014; Park et al., 2015; Abraham et al., 2016).

### **Intention of using *cryptocurrency***

Intention is an indication of the individual's readiness to perform a behavior. The fundamental essential dimension that characterizes an intention is an individual's estimate of a possibility or possibility that is felt by the individual to perform a certain behavior. Until the right time and opportunity, the intention will remain a disposition of a behavior. When there is an effort made to change the intention into action, assuming that the behavior that appears is under the control of the individual's will, the effort will result in the desired action (Ajzen, 2012) .

### **The Technology Acceptance Model (TAM)**

The technology acceptance model (TAM) is one of the models built to analyze and understand the factors that influence the acceptance of the use of computer technology (Davis, 1986). The TAM model aims to facilitate researchers in explaining and predicting user acceptance of a technology. TAM is a development of the previous theory, namely TPB (*Theory of Planned Behavior*) and is believed to be able to predict user acceptance of technology based on the impact of two factors, namely the *perceived usefulness* perspective and the *perceived ease of use perspective* (Davis, 1989).

### **The Unified Theory of Acceptance and Use of Technology (UTAUT)**

The *Unified Theory of Acceptance and Use of Technology* (UTAUT) model is an integrated model developed by Venkatesh et al (2003) which is based on cognitive social theory with a combination of eight leading research models on the acceptance of information technology (Taiwo and Downe, 2013). The UTAUT model is the latest intention measurement model that develops various aspects of previous research, namely the TPB Model and the TAM Model. The UTAUT model has been proven to be successful in measuring eight theories of technology acceptance of a person, and has even been shown to measure the intention of 70% of user variants according to the research of Taiwo and Downe (2013) and Nasir (2013). The UTAUT model was then developed with the addition of several variables to the new model, namely UTAUT2 (Venkatesh et al., 2012).

## **III. Research Method**

### **Research Model**

The research model or framework in this study uses a combination of several pre-existing intention predictor models. First, the authors choose to use *The Unified Theory of Acceptance and Use of Technology 2* (UTAUT2) model (Abbasi et. al, 2021). This theory explains that there are at least eight constructs that can shape a person's intention to adopt a new technology with some adjustments to remove and add certain constructs. The *Personal Innovativeness* construct is removed and the *Perceived Risk construct* is added, so it can be seen that the model or framework used in this study is depicted in figure 1 in appendix section.

### **Research Hypothesis**

Research results of Chao, Cheng Min (2019) shows that (1) behavioral intention is significantly and positively influenced by satisfaction, trust, performance expectation, and effort expectation; (2) perceived enjoyment, performance expectations, and effort expectations have a positive relationship with behavioral intentions; (3) cellular self-efficacy has a significant positive effect on perceived enjoyment; and (4) perceived risk has a significant negative moderating effect on the relationship between performance expectations and behavioral intentions. Based on this description, the following hypothesis can be formulated:

H1: Effect of *Effort Expectancy* (EE) on *Behavioral Intention to Use Cryptocurrency*

H2: Effect of *Effort Expectancy* (EE) on *Performance Expectancy* (PE)

H3: Effect of *Performance Expectancy* (PE) on *Behavioral Intention in Conducting Cryptocurrency Transaction*

H4: Effect of *Performance Expectancy* (PE) on *Price Value* (PV)

H5: Effect of *Price Value* (PV) on *Behavioral Intention in Conducting Cryptocurrency Transactions*

H6: Effect of *Perceived Risks* (PR) on *Behavioral Intention in Conducting Cryptocurrency Transactions*

H7: Effect of *Perceived Risks* (PR) on *Price Value*

H8: The Effect of *Hedonic Motivation* (HM) on *Behavioral Intention in Conducting Cryptocurrency Transactions*

H9: Effect of *Hedonic Motivation* (HM) on *Price Value* (PV)

H10: Effect of *Hedonic Motivation* (HM) on *Performance Expectancy* (PE)

H11: Effect of *Trust* (TR) on *Behavioral Intention in Conducting Cryptocurrency Transaction*

H12: The Effect of *Social Influence (SI)* on *Behavioral Intention in Conducting Cryptocurrency Transactions*

H13: Effect of *Facilitating Conditions (FC)* on *Behavioral Intention in Conducting Cryptocurrency Transaction*

### Types and Methods of Data Collection

Data collection techniques used in this study are:

1. Interview, is a conversation between two or more people and takes place between the interviewer and the interviewee. The purpose of the interview is to get the right information from trusted sources.
2. Questionnaires, are a number of written questions given to respondents to obtain information in terms of reports concerning matters regarding responses to the variables studied with a Likert scale.

### Research design

This research is a *single cross-sectional study*, with data collection done once in a certain period to the target respondents. Information is obtained from data from the distribution of structured questionnaires online through *Google Forms* distributed through social media. The *non-probability sampling* procedure is used in sampling through *purposive* or *judgment sampling methods*, namely setting specific criteria so that researchers obtain information according to research needs. The criteria for the respondents of this research are people who have an interest in and or who have transacted *Cryptocurrencies* living in Indonesia

For analysis of research data, the statistical program used is SmartPLS 3. SmartPLS is used in descriptive analysis to determine the profile of respondents who participate in the research and analysis of *pretest results* including validity, reliability, and *Structural Equation Modeling (SEM)* methods by utilizing SmartPLS is used to analyzed the influence between the variables studied, which include *Job Insecurity, Work-Family Conflict, Family-Work Conflict, Psychological Well-Being, Work Engagement* and *Job Performance*.

## IV. Results and Discussion

### Coefficient of Determination

Table 1. R<sup>2</sup> Value of Endogenous Variables in the Inner Model

Endogenous Variables	R value <sup>2</sup>
BI	0.727
PE	0.666
PV	0.637

Source: SmartPLS 3. data output

Based on table 1, it can be seen that the dependent variable *Behavioral Intention in Conducting Cryptocurrency Transaction e* (BI) is influenced by independent variables, namely *Trust (TR)*, *Perceived Risk (PR)*, *Price Value (PV)*, *Hedonic Motivation (HM)*, *Facilitating Condition (FC)*, *Social Influence (SI)*, *Effort Expectancy (EE)* and *Performance Expectancy (PE)* of 0.727, which means that 72.2% of the independent variables affect the dependent variable simultaneously and 27.8% are influenced by other variables not tested in the study. this. Meanwhile, the mediating variable, namely *Performance Expectancy (PE)* is influenced by the independent variables *Effort Expectancy (EE)* and *Hedonic Motivation (HM)* of 0.666 or 66.6%, which means that the independent variable affects the mediating variable by 66.6% and 23.3% is influenced by other variables that do not. tested in this study. And the mediating variable *Price Value (PV)* is influenced by independent variables, namely *Performance Expectancy (PE)*, *Hedonic Motivation (HM)* and *Perceived Risk (PR)* of 0.637, which means 63.7% of the mediation variable is influenced by independent variables of 63.7% and 26.3%. influenced by variables that were not tested in this study.

### Goodness of Fit

Based on Table 2, it can be seen that the *standardized root mean square residual (SRMR)* is 0.059 which is smaller than 0.08 so that the model is included in the fit category and the value of the *Normal Fit Index (NFI)* is 0.773 which exceeds the value of 0.60. It can be said that the model pretty good. This explains that the empirical data fits or fits the model (there is no difference between the model and the data so the data model is said to be fit) (Ghozali, 2018).

Table 2. *Goodness - of - Fit Indices*

<i>Good of Fit Index</i>	<i>Cut off Value</i>	SmartPLS Results	Model Evaluation
<i>rms Theta</i>	<0.102	0.147	Not Fit
<i>SRMR</i>	<0.10 or <0.08	0.059	Fit
<i>x<sup>2</sup>(Chi-Square)</i>	Expected small	1272,575	Not Fit
NFI	>0.60	0.773	Fit

### Hypothesis test

The results of hypothesis testing are shown in table 3,

Table 3. Path Coefficients

		Original Sample	T Statistics	P Values
1	EE -> BI	0.005	0.062	0.950
2	EE -> PE	0.628	11,087	0.000
3	FC -> BI	0.194	2,343	0.020
4	HM -> BI	0.113	1,895	0.059
5	HM -> PE	0.237	4,256	0.000
6	HM -> PV	0.384	5,835	0.000
7	PE -> BI	0.109	1,558	0.120
8	PE -> PV	0.463	6,525	0.000
9	PR -> BI	0.121	2,300	0.022
10	PR -> PV	0.034	0,703	0.482
11	PV -> BI	0.122	1,780	0.076
12	SI -> BI	0.127	1,836	0.067
13	TR -> BI	0.210	2,730	0.007

Based on the results of the path coefficient test in table 3, it can be concluded that this study has 13 positive original sample values and 1 negative original sample value so that the relationship between variables is more dominantly positive except for the PV variable on BI.

Based on the results of the hypothesis, it can be seen that of the 13 hypotheses, 7 of them are accepted and 6 are rejected. The accepted hypotheses were 2,4, 6, 9, 10, 11, 13 while the rejected hypotheses were 1, 3, 5, 7, 8, and 12.

## V. Conclusion

Based on the description in the previous chapter, several conclusions can be drawn as follows:

1. The majority of respondents in this study are in the age group of 26-33 years, which is included in the category of the young workforce. Most of their jobs are Students/Students, Private Employees, and Entrepreneurs/Entrepreneurs, and only a small proportion of the respondents are civil servants. The domicile group came from the province of West Java. Based on consumption patterns, respondents stated that they had or often made *cryptocurrency transactions*. The transactions that are often carried out are buying and selling (online *trading*) crypto assets, long-term investments, and buying NFT (Non-Fungible Tokens).
2. Based on the *Structural Model Analysis*, it can be seen that there are three constructs that can significantly affect the *Behavioral Intention in Conducting Cryptocurrency Transactions*, namely *Facilitating Condition*, *Perceived Risk* and *Trust* have a positive and significant direct effect, which means that the use of *cryptocurrency* is influenced by the condition of facilities in terms of regulation and ease of access to use, while the *Perceived Risk variable* proves that *cryptocurrency users* think about the risk aspect in using *cryptocurrency* itself. And the *Trust variable* proves that *cryptocurrency users* believe in the *cryptocurrency* itself, so they make a purchase or use the *cryptocurrency*.
3. *Effort Expectancy*, *Hedonic Motivation*, *Performance Expectancy*, *Price Value* and *Social Influence* have a direct positive but not significant effect on the *Behavioral Intention in Conducting Cryptocurrency Transaction variable*, which means that the use of *cryptocurrency* is not affected by how *Effort Expectancy*, *Hedonic Motivation*, *Performance Expectancy*, *Price Value* are of the *cryptocurrency* itself.

4. *Effort Expectancy*, and *Hedonic Motivation* have a direct and significant positive effect on the mediating variable, namely *Performance Expectancy* means *Effort Expectancy*, and *Hedonic Motivation* affects *Performance Expectancy* of *cryptocurrency* users
5. *Hedonic Motivation*, and *Performance Expectancy* have a direct and significant positive effect on the mediating variable, namely *Price Value*, which means that the price of *cryptocurrency* can be formed by hedonic motivation and performance expectations but not *Perceived Risk*, meaning that the price of *cryptocurrency* is formed from the perception of risk that *cryptocurrency* users will always buy *cryptocurrency*. at any price without considering the risks that will occur.

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## Appendix

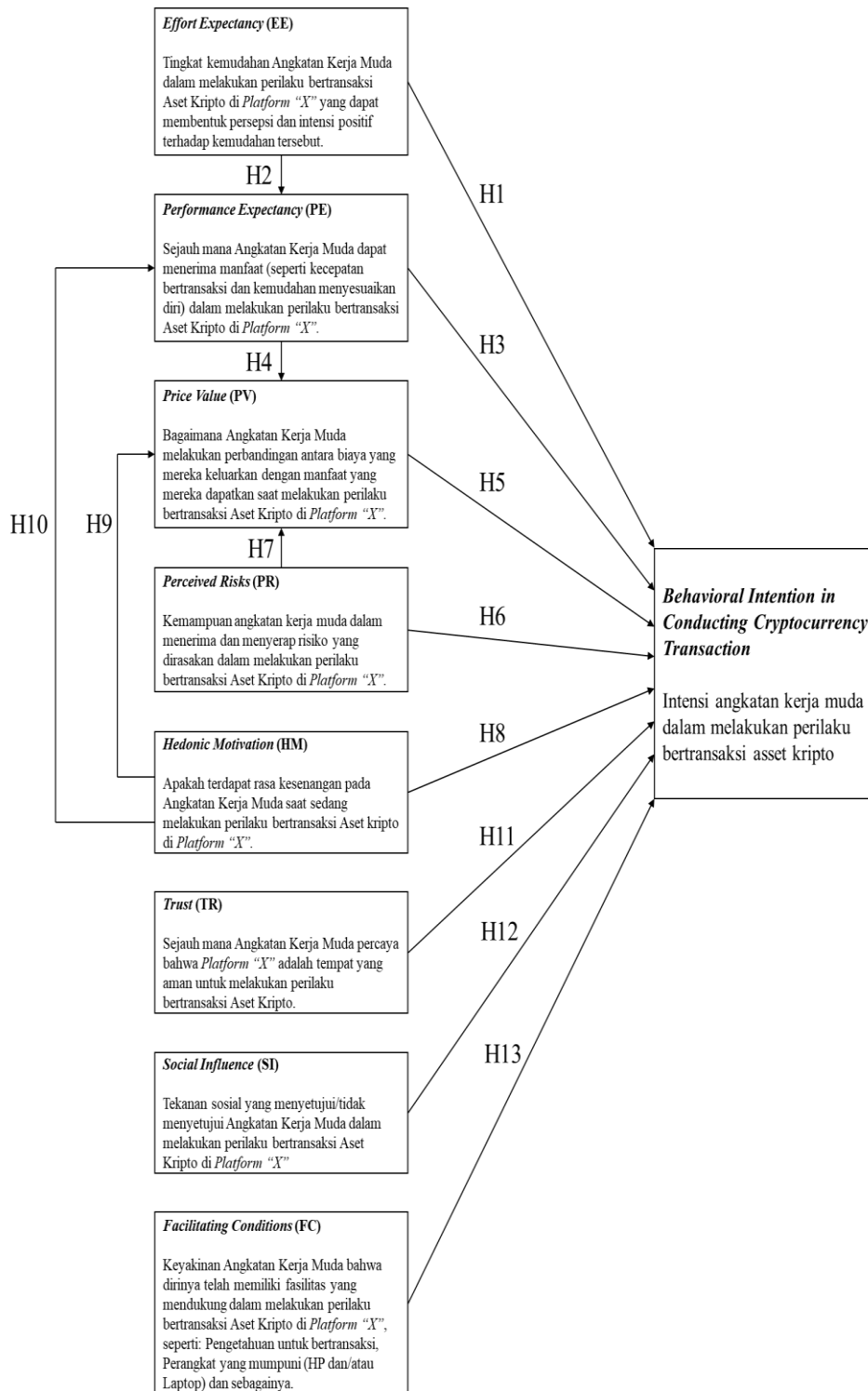


Figure 1. Research Model Used

Source: Adapted and developed from Abbasi et. al. (2021)

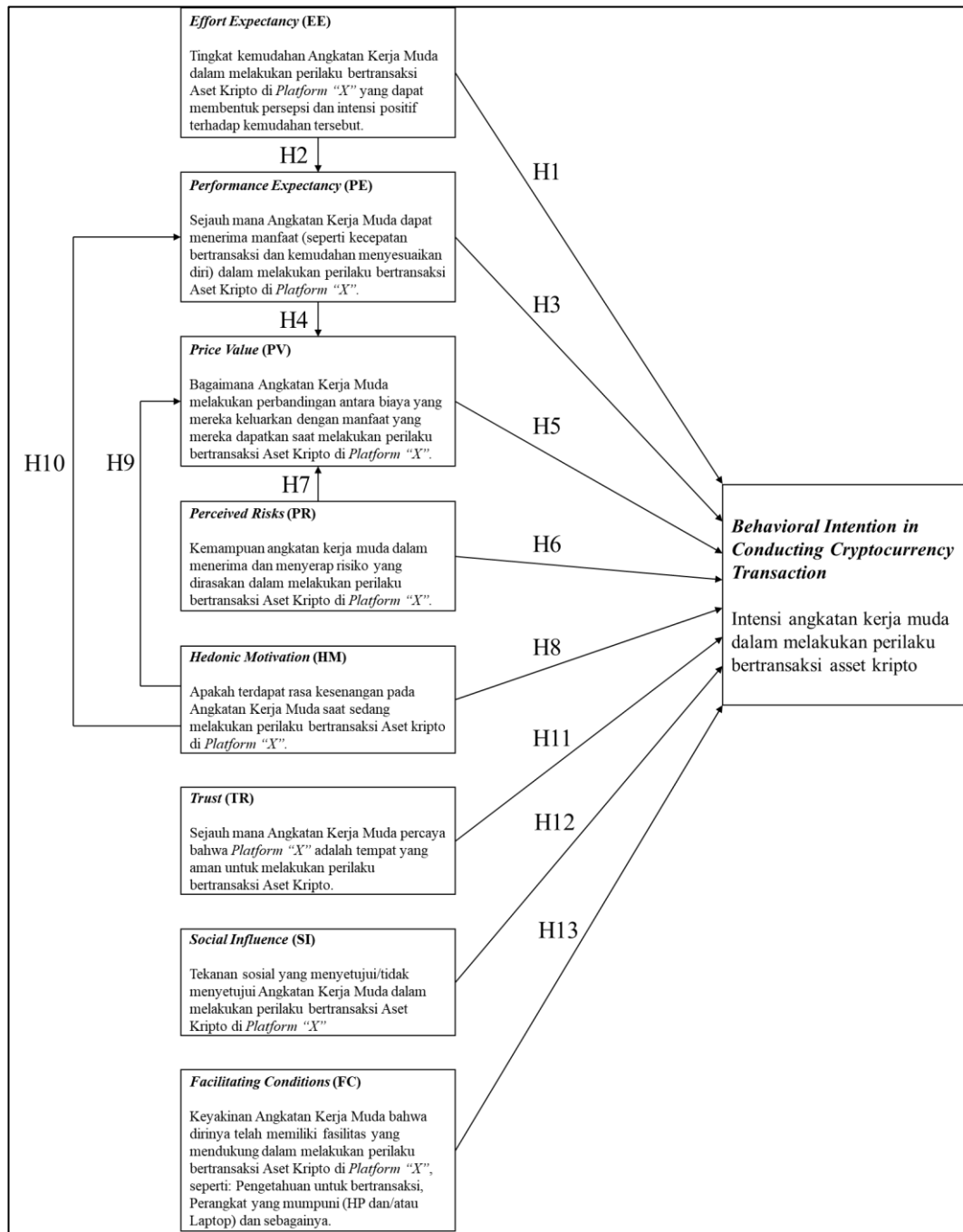


Figure 2. Hypothesis Test Results  
Source: Data processed by researchers