

ANALYSIS OF THE INFLUENCE OF THE TECHNOLOGY ACCEPTANCE MODEL (TAM) ON THE INTENTION TO USE THE PAYMENT FEATURES OF KAIPAY

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ABSTRACT

Technology development affects some companies by creating innovations to increase corporate activity. PT Kereta Api Indonesia (Persero) participates in the development of innovations that support customer comfort. Innovation lies in the developing of the KAI Access application. Not only that, PT Kereta Api Indonesia (Persero) also further developing the application by presenting the KAIPay payment feature. Researchers used the Technology Acceptance Model (TAM) to analyze KAI Access application users intention towards KAIPay payment feature. . The method used is a structural equation model (SEM) based on partial least square (PLS), along with a data collection method using Google Forms. The data analysis technique was performed using the SmartPLS application. The conclusions from the results of this study show that of the 7 hypotheses proposed, 6 hypotheses can be accepted and 1 hypotheses was rejected.

Keywords: digitalization; technology acceptance model (tam); kai access

INTRODUCTION

Increasingly developing technology provides a lot of convenience and support in various community activities, especially in the development of information technology (Kidi, 2018). Changes in information technology are the cause of changes in all fields, especially those centered on technology that support current progress (Bali & Darma, 2019). Advances in information technology and the development of electronic devices have an impact on the rapid adoption of an application (Prakosa & Sumantika, 2019).

In Indonesia, smartphone users are very large, this has made business people develop non-cash payment instruments in the form of applications (Luthfi, 2014). Means of payment using transfer systems and debit cards or credit cards have been highly developed among the public (Kumala et al. 2020). Then the card-based payment instrument underwent a change using a server which became known to the public as an e-wallet. E-wallet is defined as a non-cash transaction that is carried out online and is not card-based (Amoroso & Magnier-Watanabe, 2012).

PT Kereta Api Indonesia (Persero) is one of the companies that is improving its service system by utilizing information technology. As a company that provides passenger transportation services, PT KAI continues to innovate to meet the expectations of its customers (Purba, 2014). Nowadays, ordering train tickets is demanded to be easier, faster and more efficient. To address this, in 2014 PT KAI launched the KAI Access application to improve its service products (kai.id, 2021). KAI Access is an application for purchasing tickets online (e-ticketing) (Purba, 2014).

In 2021, PT Kereta Api Indonesia (Persero) will develop the KAIPay digital wallet feature as a payment method option in the KAI Access application. KAIPay is a mobile payment application

that is included in the KAI Access application. With the increasing need for digital train services, KAI Pay is presented to facilitate the needs of service users.

The Technology Acceptance Model (TAM) is a form that is commonly used as a model regarding technology adoption and user behavior. TAM was introduced in 1989 by Davis as a form of model that is useful for explaining how user behavior responds to the acceptance of technological advances (Ma & Liu, 2004). Then the constructs in technology acceptance introduced by Davis are perceived usefulness, perceived ease of use, attitudes, and intentions (behavioral intention to use) (Ma & Liu, 2004).

TAM is useful for testing the level of convenience, the level of usability of technology so that someone can accept a new technology. For this reason, the TAM model is used in this study with variables that have been developed by Davis (1989) in the development of the KAI Access application, especially in the KAI Pay payment feature. It is hoped that the research results can be used to further analyze how people's intentions are towards using the KAI Pay payment feature in the KAI Access application.

METHOD

Respondent Data Collection Method

Questionnaires were used by researchers as a medium for collecting data which were distributed to communities or people related to KAI Access users. The dissemination process uses a survey that is distributed via WhatsApp and Instagram social media. The Likert scale was used in this study as a reference for scoring. The data obtained is primary data in the form of direct data from respondents based on the results of distributing questionnaires.

Sampling Method

The population used is all users of KAI Access where the exact number is not known, so as a sampling method a purposive sampling technique was used. With this technique, only KAI Access users who meet the criteria can be used as samples. Determination of the sample using the formula according to Hair et al. (2013). The number obtained was 120 respondents with the hope of representing the population of KAI Access application users.

Data Processing Methods

Data processing is carried out using Partial Least Square (PLS) based on the Structural Equation Model (SEM), with data analysis techniques using SmartPLS software

Variable Operational Definitions

The research variables used in this research are Perceived Ease Of Use (PEOU), Perceived Usefulness (PU), Attitude Toward Using (ATU), and Intention To Use (ITU). PEOU and PU as the independent variables, ATU as the intervening/mediation variable, and ITU as the dependent variable.

Table 1.
 Variable Operational Definition

Variabel	Operational definition	Indicator	Question
<i>Perceived Ease Of Use</i>	According to Davis (1989) Perceived Ease Of Use or perceived ease is a measure used by someone considering the ease of use. Questionnaire adopted from Priyono (2017)	Ease of use	"In my opinion, the KAIPay payment feature is easy to use"
		Ease of understanding	"I think it's easy to understand how to use KAIPay"
		Convenience as desired	"I think it's easy to use KAIPay the way I want"
<i>Perceived Usefulness</i>	Davis (1989) Perceived Usefulness is defined as a measure used to determine people's perceptions that technology provides benefits to its users and improves individual performance.	Possible use effectiveness	"KAIPay lets me make payments" "KAIPAY increases my effectiveness in purchasing train ticket transactions"
		Usefulness value	"I feel that KAIPAY is useful in paying for train ticket purchase transactions"
<i>Attitude Toward Using</i>	Questionnaire adopted from Priyono (2017)	Interest value	"I like using KAIPay" "The KAIPay payment feature is interesting to use Using KAIPay as a payment method is a great idea"
<i>Intention To Use</i>		Attitude of acceptance in use	"I will use KAIPay as a payment method for KAI Access product transactions"
		Desire to use	"I intend to use KAIPay for payment purposes"
		Possible use	"I am very likely to use KAIPay to make my transaction payments"

RESULTS

Goodness Of Fit Test (Model Feasibility)

The model feasibility test is useful as a benchmark for independent variables influenced by the dependent variable or other variables. This stage is seen based on the calculation results of the R-Square and Q-Square values.

Table 2.
 R-Square Value

	<i>R-Square</i>
ATU	0,420
ITU	0,582

From the values obtained in the due diligence test, it is known that the influence of PEOU and PU on ATU is 0.420 or 42.0% and the effect of PEOU, PU and ATU on ITU is 0.583 or 58.3%. So from the results obtained the research model can be stated to have a moderate feasibility model. Subsequent assessments are made by looking at the Q-Square value, with the following calculations (Hair et al., 2006): The calculation results obtained a value of 0.759, which shows that the amount of data diversity that can be interpreted by the structural model developed in the study is 75.9%. From these results it was concluded that the structural model of the study had good feasibility.

Hypothesis testing

The test process is carried out by looking at the results of the t-statistics values, the origin of the sample, and the p-value needed to see how strong the influence between latent variables is. In this study there are 2 effects, namely direct effect (direct effect) and indirect effect (indirect effect). That is because there are exogenous, endogenous, and intervening variables.

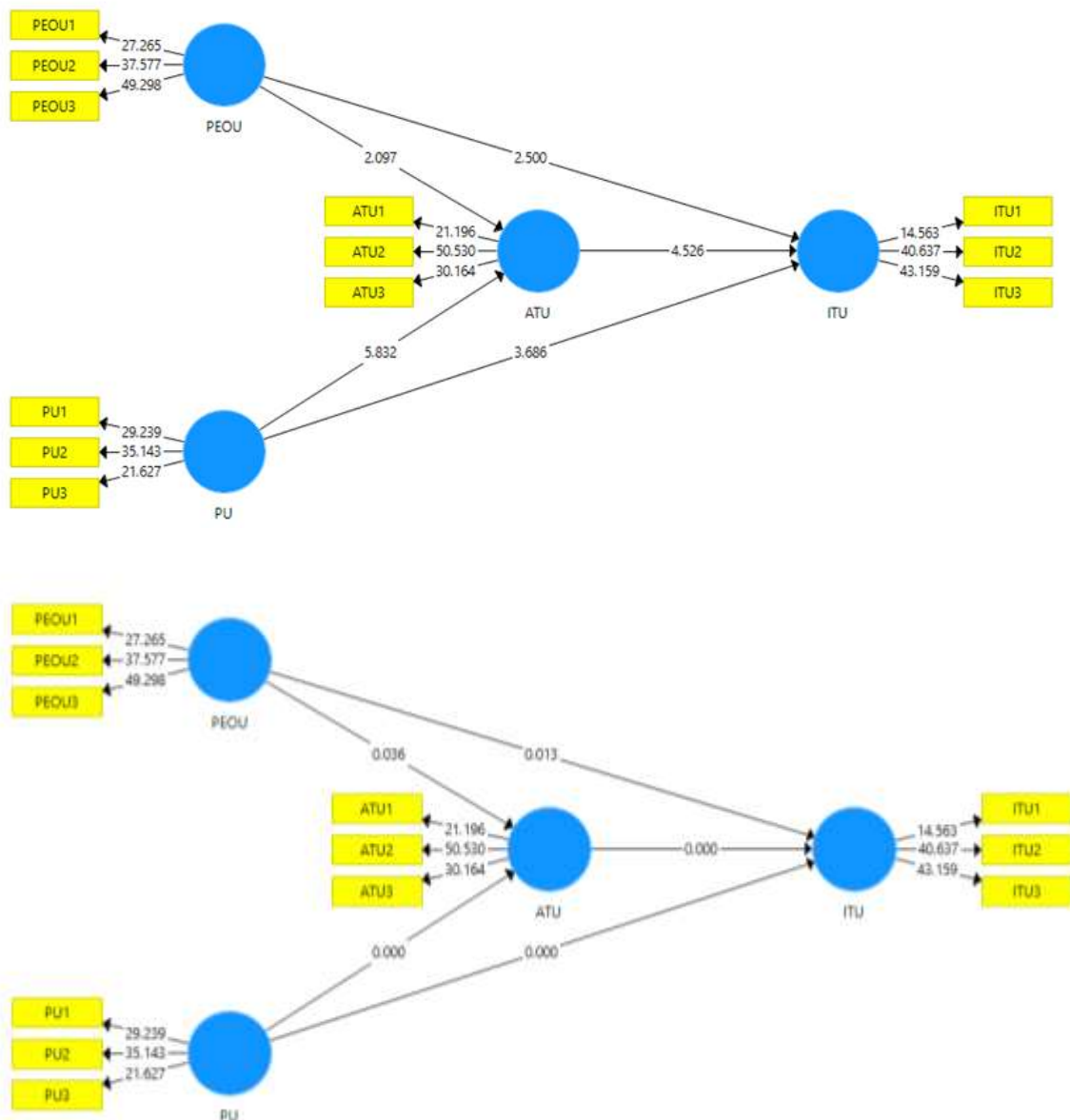


Figure 2. Results of p-values

Table 3.
 Results of the Direct Effect Hypothesis Test

	<i>Origin Sample</i>	<i>T Statistics</i>	<i>P Values</i>	<i>Significance Level</i>
PEOU -> ATU	0,191	2,097	0,036	Positif Signifikan
PU -> ATU	0,523	5,832	0,000	Positif Signifikan
PEOU -> ITU	0,210	2,500	0,013	Positif Signifikan
PU -> ITU	0,320	3,686	0,000	Positif Signifikan
ATU -> ITU	0,372	4,526	0,000	Positif Signifikan

From the results of the tests that have been carried out using the PLS program, it can be seen that the t-statistics values, origin sample values and p values are generated for each variable, namely PEOU to ATU, PU to ATU, PEOU to ITU, PU to ITU, and ATU. to ITU is higher than t-table (1.96) and the significance of the five relationships between the variables studied is <0.05. So it is concluded that the five relationships between each variable have a significant influence.

Table 4.
 Indirect Influence Test Results

	<i>Origin Sample</i>	<i>T Statistics</i>	<i>P Values</i>	<i>Significance Level</i>
PEOU -> ATU -> ITU	0,071	1,876	0,061	Tidak Signifikan
PU -> ATU -> ITU	0,195	3,498	0,001	Positif Signifikan

In the calculations that have been obtained using PLS it can be seen where the test results for the indirect effect of the PEOU variable on ITU through ATU are not significant. This can be seen based on the t statistics value <1.96 with a value of 1.876 and a p value > 0.05. So, it can be concluded that PEOU has no significant effect on ITU through the ATU variable.

The t-statistics value of the influence of PU on ITU through ATU > 1.96 is 3.498 with an origin sample of 0.195 and a p-value of 0.001. So it can be concluded that the perceived usefulness of the intention to use an innovation through attitude has a positive and significant effect. So it can be concluded that PU has a significant effect on ITU through ATU.

DISCUSSION

The results of the analysis show that the PEOU variable has an influence on ATU. In line with the results of research by Kusumadewi et al., (2021) which showed PEOU had a

positive effect on ATU in online learning applications. The results of this study indicate that PEOU has an important role in the attitude of users towards the innovative KAIPay feature that has been developed.

The results of the analysis show that PU has an influence on ATU. In line with the research by Kusumadewi et. al, (2021) which shows the relationship between PU and ATU in online learning applications has a positive and significant relationship. This shows that perceived usefulness has an important role in the user's attitude towards the innovation being developed. The more use of these innovations will affect the attitude of its users.

The results of the analysis show that PEOU has an influence on ITU. In line with the research of Prakosa & Sumantika (2020), Loanata & Tileng (2016), and Kumala et al., (2020) showed that PEOU had a positive and significant effect on ITU for each research object. This shows that perceptions of convenience have an important role in people's intentions in using the KAIPay feature innovation.

The results of the analysis show that ATU has an effect on ITU. In line with Kusumadewi's research (2021) that ATU has a positive and significant relationship to ITU in online learning applications. This shows that user attitudes have an important role in people's intentions to use the KAIPay feature innovation.

The results of the analysis show that through ATU, PEOU does not have a large influence on ITU. This can be interpreted that PEOU does not have a big role in the community's intention to use innovation if it is through the ATU variable. It can be interpreted that people's intention to use an innovation is more concerned with perceived convenience without looking at their attitude towards the innovation. In this study, people are considered to be more concerned with the convenience of the KAIPay feature than their attitude in using it.

The results of the analysis show that through ATU, PU has an influence on ITU. In line with research conducted by Setyawati & Polar (2022), it shows that perceptions of usability have an influence on the intention of Gopay users through the ATU variable. This shows that perceptions of usability through attitudes also have an important role in people's intentions to use KAIPay's innovative features.

CONCLUSION

Based on the results of data analysis from the acquisition of the results of the questionnaire, it is known that all hypotheses of direct influence on each relationship between variables have a significant effect. In testing the indirect effect, the relationship between PEOU variables on ITU through ATU has an insignificant effect. Meanwhile, the relationship between PU and ITU through ATU has a significant influence. Overall it can be concluded that of the 7 hypotheses proposed, 6 hypotheses are accepted while 1 hypothesis is rejected. From these results, in line with PT KAI's transformation in the field of digitization, PT KAI should continue to improve service quality so that the features that have been developed do not only complement the application but to make it easier for service users and PT Kereta Api Indonesia (Persero) must maintain convenience and the use of the KAIPay feature that has been developed so that KAI Access application users get good service quality.

REFERENCE

- Amoroso, D. L., & Magnier-Watanabe, R. (2012). *Building a research model for mobile wallet consumer adoption: The case of mobile Suica in Japan*. *Journal of Theoretical and Applied Electronic Commerce Research*, 7(1), 94–110. <https://doi.org/10.4067/S0718-18762012000100008>
- Bali, I. N. A. P., & Darma, G. S. (2019). *Menguji Kesiapan Pengelolaan Desa Berbasis Manajemen Modern Guna Menghadapi Era Revolusi Industri 4.0*. *Jurnal Manajemen Bisnis*, 16(2), 1–13. <http://journal.undiknas.ac.id/index.php/magister-manajemen/>
- Davis, F. D. (1993). *User acceptance of information technology: system characteristics, user perceptions and behavioral impacts*. In *International Journal of Science Education* (Vol. 41, Issue 18, pp. 2675–2695). <https://doi.org/https://doi.org/10.1006/imms.1993.1022>
- Davis, F. D. (1989). *Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. Delle Vicende Dell'agricoltura in Italia; Studio e Note Di C. Bertagnolli.*, 13(3), 319–340. <https://doi.org/10.5962/bhl.title.33621>
- Gefen, D., & Straub, D. (2000). *The Relative Importance of PEOU in IS Adoption: A Study of E-Commerce Adoption*. *Jais*, 1(8), 1–28
- Hair, J., Black, w., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate Data Analysis (6th Edition)*. Pearson Prentice Hall.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate Data Analysis*. Pearson Education Limited.
- Kai.id. (2021). *KAI Luncurkan Dompot Digital "KAIPay."* Retrieved Januari 31, 2022, from [Www.Kai.Id. https://www.kai.id/information/full_news/5175-kai-luncurkan-dompot-digital-kaipay](https://www.kai.id/information/full_news/5175-kai-luncurkan-dompot-digital-kaipay)
- Kai.id. (2021). *Download dan Nikmati Berbagai Benefit Menggunakan Aplikasi KAI Access*. Retrieved Juli 22, 2022, from [Www.Kai.Id. https://www.kai.id/information/full_news/4777-download-dan-nikmati-berbagai-benefit-menggunakan-aplikasi-kai-access](https://www.kai.id/information/full_news/4777-download-dan-nikmati-berbagai-benefit-menggunakan-aplikasi-kai-access)
- Kidi. (2018). *Teknologi Dan Aktivitas Dalam Kehidupan Manusia*. *Jurnal Pendidikan*, 28, 1–28.
- Kumala, D. C., Pranata, J. W., & Thio, S. (2020). *Pengaruh Perceived Usefulness, Perceived Ease of Use, Trust, Dan Security Terhadap Minat Penggunaan Gopay Pada Generasi X Di Surabaya*. *Jurnal Manajemen Perhotelan*, 6(1), 19–29. <https://doi.org/10.9744/jmp.6.1.19-29>
- Kusumadewi, A. N., Lubis, N. A., Prastiyo, R., & Tamara, D. (2021). *Technology Acceptance Model (TAM) In The Use of Online Learning Applications During The Covid-19 Pandemic For Parents of Elementary School Students*. *Edunesia : Jurnal Ilmiah Pendidikan*, 2(1), 272–292. <https://doi.org/10.51276/edu.v2i1.120>
- Loanata, T., & Tileng, K. G. (2016). *Pengaruh Trust dan Perceived Risk pada Intention To Use Menggunakan Technology Acceptance Model (Studi Kasus Pada Situs E-Commerce Traveloka)*. *JUI SI Jurnal Informatika Dan Sistem Informasi*, 02(01), 64–73.

- Lutfi, A. (2014). *Di Indonesia, Smartphone Sudah Menjadi Kebutuhan Utama*. Retrieved Januari 31, 2022, from <https://Techno.Okezone.Com>.
<https://techno.okezone.com/read/2014/05/13/57/984293/di-indonesia-smartphone-sudah-menjadi-kebutuhan-utama>
- Ma, Q., & Liu, L. (2004). *The technology acceptance model: A meta-analysis of empirical findings*. *Advanced Topics in End User Computing*, 4(January), 112–127.
<https://doi.org/10.4018/978-1-59140-474-3.ch006>
- Priyono, A. (2017). *Analisis pengaruh trust dan risk dalam penerimaan teknologi dompet elektronik Go-Pay*. *Jurnal Siasat Bisnis*, 21(1), 88–106.
<https://doi.org/10.20885/jsb.vol21.iss1.art6>
- Prakosa, A., & Sumantika, A. (2020). *Analisis Technology Acceptance Model Pada Pengguna Dompet Digital Di Daerah Istimewa Yogyakarta* (Vol. 10, Issue 2).
<http://jurnalfe.ustjogja.ac.id>
- Purba, M. M. (2014). *Pemesanan Tiket Kereta Api Online (E-Ticketing) Menggunakan Aplikasi KAI Access*. *Jurnal Sistem Informasi Universitas Suryadarma*.
<https://doi.org/10.35968/jsi.v6i2.324>
- Rodrigues Pinho, J. C. M., & Soares, A. M. (2011). *Examining the technology acceptance model in the adoption of social networks*. *Journal of Research in Interactive Marketing*, 5(June), 116–129. <https://doi.org/10.1108/17505931111187767>
- Setyawati, C. Y., & Polar, D. C. (2022). *Pengaruh Perceived Usefulness Terhadap Behavior Intention To Use E-Wallet Gopay Melalui Mediasi Attitude Toward Using Di Kota Ternate*. 10(9-1 (87)), 153–167.