



User Acceptance Analysis of My Pertamina Application Using UTAUT Model

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Abstract

The development of information technology makes the world of business competition increasingly fierce. Where not only private companies and MSMEs take a technological approach but also government agencies and BUMN. One of them is Pertamina, which launched the My Pertamina application and has required the use of the application in purchase transactions for subsidized pertalite and diesel fuel. After the enactment of this provision, many users found problems with its use. obstacles experienced by users, such as application errors when processing transactions or transaction data that is not appropriate, so that the application cannot be used outside Java. This study aims to find out how users accept the application and what variables are affected by using the UTAUT model. Performance Expectation, Effort Expectation, Social Influence, Facilitating Conditions, Behavioral Intention, and Use Behavior are the variables considered in this study. 200 respondents were gathered when researchers distributed questionnaires with many questions regarding factors on a Likert scale. Following data analysis, it was discovered that the variables Performance Expectation, Effort Expectation, and Social Influence all positively influence Behavioral Intention, which in turn positively influences Use Behavior.

Keywords: Business Competition, Application, User Acceptance.

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1. Introduction

Technological development innovations are carried out by almost all countries; this aims to achieve a more efficient life. One invention that greatly facilitates our travel is cars and motorcycles. Vehicles such as cars and motorcycles require energy to operate. So far, the sources that can be used for cars and motorcycles are solar power, electricity, and fuel from oil. We can buy fuel oil at public refuelling stations (SPBU). There are several choices of institutions that sell fuel products, namely Pertamina, Shell, Total, Vivo, and BP (British Petroleum). However, in 2016, Pertamina won the Top Brand award in the Gas Station or Gas Station category. This shows that Indonesians have the highest interest in Pertamina [1]. PT Pertamina is a State-Owned enterprise, commonly referred to as BUMN, that has business activities in the upstream oil and gas sector. Until now, Pertamina has been number one in the oil and gas sector throughout Indonesia. As of June 2020, there were 7,026 Public Filling stations, commonly known as gas stations. The technological approach is also applied to Pertamina, so that Pertamina is still the manager of oil and natural gas for all Indonesians. This is evidenced by the launch of an application called My Pertamina, which integrates with LinkAja, in December 2016. This application aims to make it easier for customers to make non-cash transactions, find the nearest Gas station, and provide promo vouchers with other brands [2].

The user factor can be a benchmark for assessing the acceptance of information technology by users; this is also supported by other studies that state the importance of testing user acceptance of information and communication technology systems because this can be used as an indicator of an application being accepted and used by users. In addition, the implementation or application of the system is also always related to user acceptance, which is useful to see how far the user can accept and understand the system that has been implemented, which is useful for knowing how high the success rate of system implementation is in an organisation or company [3]. Meanwhile, since the application was launched, there has been no research that leads to aspects of measuring user acceptance, both ease of use and other obstacles. Thus, there is no input that can improve the development of the application. It was mentioned in previous studies that failure to implement information technology is an aspect of user

behaviour. User acceptance is an important factor in the successful implementation of a technology. Measurement of user acceptance can be used to see how much information technology can be used correctly and is useful for the development of the application itself. An information system can be said to be successful if it can be used easily and meets the needs of its users [4]. Therefore, it becomes important for the application to know how well the user accepts it during its implementation. This user acceptance can be used as a reference and evaluation material for applications to improve performance and technology development in the future. One framework that can explain the measurement of user approval is the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. Scholars observe that there are numerous factors that need to be determined regarding the acceptance of the application. To assess the extent of the user's acceptance of the application, utilize the theoretical approach developed by previous researcher, specifically the Unified Theory of Acceptance and Use of Technology framework. The Unified Theory of Acceptance and Use of Technology is a user acceptance framework utilizing eight theories that impact information technology. The UTAUT framework is deemed capable of describing up to 70% of user variations compared to the eight previous frameworks, namely Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivation Model, Theory of Planned Behaviour (TPB), Combined TAM and TPB, Model of PC Utilisation (MPCU), Innovation Diffusion Theory, and Social Cognitive Theory (SCT) [5]. The UTAUT framework consists of six factors that impact the acceptance of information technology by users. These factors are categorized into three types: the main factor, the outcome factor, and the controlling factor. The main factors consist of Performance Anticipation, Effort Anticipation, Social Impact, and Enabling Conditions. The outcome factors consist of Intention to Act and Actual Usage, while the controlling factors consist of Age, Gender, Experience, and Willingness to Use. This model has an advantage over other models. The UTAUT model, among other user acceptance models, has a wider range of existing variables because it has a combination of variables owned by the previous model [6]. So the measurement of user acceptance can be better understood. However, the UTAUT model has two types that have been developed by Venkatesh, namely UTAUT and UTAUT 2. The difference between the two types is in the variables and moderating variables. The most noticeable difference between the two models is that Venkatesh added three elements to UTAUT 2: Pleasure Motivation, Value for Money, and Routine [7]. Pleasure Motivation refers to the extent to which users experience enjoyment and satisfaction while using a technology, while Value for Money is defined as a consumer's rational consideration of the perceived benefits of a technology in relation to the costs required to use the system, and Routine is the extent to which a user tends to perform an action automatically due to acquired knowledge and practice, one month later, and three months later [8]. After understanding these three elements, the researcher decided not to incorporate them into the study because there are no costs associated with using the application [9]. Furthermore, Pleasure Motivation and Routine variables do not significantly influence the use of the application since users are obligated to use it for transactions [10]. Therefore, based on the ongoing research, the researcher chose the UTAUT model due to the sufficient variables in this study to determine user acceptance of the application [11]. In addition, UTAUT also has other advantages, such as being able to explain individual differences that can affect technology, starting with the relationship between perceived benefits, user convenience, and user intentions in using the technology. The purpose of using this model is as a reference for improving and developing applications to be even better.

2. Research Methods

This research was conducted in general using a quantitative approach. To support this research, data collection methods, data analysis methods, and the use of analysis tools were applied so that the research could run properly. Methods of data collection will be carried out in various stages. Starting with application observations, questionnaire instruments aimed at active users of the application indirectly Distributing questionnaires through the use of social media, such as WhatsApp, Instagram, Email, and Facebook. As for the method of analysis, researchers used statistical processing software. The software used is Microsoft Word for writing reports and data. For software that processes data, researchers use Microsoft Excel. Then, for processing the data resulting from distributing the questionnaires, we will use SmartPLS. This study uses a purposive sampling technique as a method of determining the questionnaire respondents. This study's sample size was 200 people.

3. Results and Discussion

According to the outcomes of the path coefficient examination, there are four variables that surpass the threshold. These variables include the influence of behavioral intention on use behavior, which has the highest impact with a value of 0.849. It is followed by the impact of performance expectation on behavioral intention with a value of 0.444, the impact of social influence on behavioral intention with a value of 0.297, and the impact of effort expectation on behavioral intention with a value of 0.206. However, there is one variable that is stated to have no significant influence and is not positively related because it has a value below the threshold of 0.1, namely facilitating conditions on use behaviour, with a value of 0.023. Based on the results of the r-square test, the two variables are stated to be substantial. This is because the r-square value for the behavioural intention and use

behaviour variables has a score above 0.67. The behavioural intention variable has a value of 0.772, and the use behaviour variable has a value of 0.745. The facilitating condition hypothesis on use behaviour has a value of $0.494 < 1.96$, so the hypothesis is declared rejected. However, the results of the t-test conducted on h1 performance expectancy > behavioural intention were accepted with a positive value of 4.614, then on h2 effort expectancy > behavioural intention were accepted with a positive value of 3.520, then h3 social influence > behavioural intention was accepted with a value of 3.255, and H5 behavioural intention > use behaviour was accepted with a positive value of 25,565. Then, of the five hypotheses, only four are accepted. The performance expectation on behavioural intention has a small effect of -0.285, the effort expectation on behavioural intention has a small effect of -0.309, the social influence on behavioural intention has a small effect of -0.100, and the facilitating condition on use behaviour has a small influence of -0.27. These are the five hypotheses with the smallest effect sizes. The predictive relevance test results for each variable are above zero, with a value of 0.631 on the behavioural intention variable and 0.620 on the use behaviour variable. So it can be stated that each variable in the model has predictive interest. Demographic results, which show that from 200 respondent data, it can be seen that it is dominated by respondents aged around 17–24 years, as many as 81 people (41.5%), followed by respondents with ages around 25–32 years, as many as 55 people (29%), then followed by respondents aged 33–38 years, as many as 31 people (16.1%), and finally respondents with ages 39 and over, as many as 13.5%. This is based on the age of the researcher, who is 22 years old, so the respondents met by the researcher are more or less the same age. The male gender dominates the existing respondents. Respondents of male gender were 110 (57%), while respondents of female gender were 83 (43%). This is because male respondents, when filling out the online questionnaire conducted on the Google form, participated more when compared to women. The number of respondents who had backgrounds as private employees was 105 people (54.9%), followed by student respondents as many as 38 people (19.7%), then respondents who did not work as many as 26 people (13%), then student respondents as many as 18 people (9.3%), and the last civil servant respondents were 6 people (3.1%). This is based on the research environment, which is dominated by students and private employees. The majority of application users are in a period of 1–3 months, with a total of 111 respondents (57.5%). Then followed a period of 4–6 months with a total of 59 (30.1%) respondents, followed by respondents with a period of more than a year of 12 (6.2%), and the last sequence in a period of 6–12 months with a total of 11 people (5.7%). This is based on the use of new applications that are widely used after the government and Pertamina require customers to use the application for every refuelling transaction at gas stations.

After going through several tests on the measurement model, the researcher sees that there are several explanations that must be considered at this stage. In the initial test of individual item reliability, there are indicators that need to be removed because they have values below the threshold of 0.7, namely the FC4 and SI2 indicators. This is because FC4 contains the statement I need someone else's help in using the application and SI2, which contains the statement I use the application because the support from the provider (government) is not easy enough to understand, so there may be misunderstandings about the meaning of the statements in the questionnaire by respondents and due to the distribution of the questionnaire. carried out online and widely, so that researchers do not have the capability to provide direct directions to each respondent who fills out the questionnaire. However, after deleting the two indicators, the analysis shows that the measurement model meets the requirements for each test. Starting with the initial individual reliability item with a threshold value of 0.7, then internal consistency reliability testing with an ideal value above 0.7, then the AVE value that exceeds 0.5 so that it is declared ideal, and the discriminant validity testing requirements are fulfilled. Based on the findings of the path coefficient test, this hypothesis receives a score of 0.444, indicating that Performance expectation significantly impacts Behavioural Intention. When testing this hypothesis, the t-test also yields a score above 1.96, signifying that Performance expectation positively influences Behavioural Intention with a t-test score of 4.461. This aligns with previous research and studies that have examined online transportation services using the UTAUT model, which have found that Performance expectation has a positive impact on Behavioural Intention in online transportation services, with a score of 3.303, surpassing the 1.96 threshold. Furthermore, previous studies have also demonstrated that performance expectations have a positive effect on user interest in mobile banking. This study confirms that application performance expectations do influence user intentions when using the application. Therefore, Hypothesis 1 (Performance Expectancy Has a Positive Influence on Behavioural Intention) is accepted in this study.

Based on the results of the H2 t-test, it has a value that exceeds the value of 1.96 at a significance level of 5%, so that the Effort Expectancy Hypothesis for Behavioural Intention can be accepted with a positive t-test value of 3,520. In addition, with a value of 0.206, Effort Expectancy has a significant influence on Behavioural Intention. This is in line with other studies that say that the amount of effort used by users will affect their interest in using the BRI Mobile Service application. Furthermore, there are other studies that say that Performance Expectations have a positive influence on Interest in Use in the OVO application, so that it is stated that users feel easy in using the OVO application and that they feel efficient both in the energy expended and the time spent in the transaction process. Based on the H2 analysis, user convenience in using the application to carry out each transaction is

important. The smaller the effort used by users to use the application, the more it encourages users to use it. So Hypothesis 2, "Effort Expectancy has a favorable impact on Behavioral Intention," is confirmed in this investigation. Based on the results of the path coefficient examination, Social Influence has a noteworthy effect on Behavioral Intention, with a value of 0.297. This hypothesis also obtains favorable results in the t-test, with a value surpassing the t-table of 1.96, registering at 3.255. Furthermore, this hypothesis also achieves a substantial value in the coefficient of determination test, reaching a value of 0.772, which exceeds the 0.67 requirement for a substantial value. This aligns with previous studies. Additionally, this hypothesis is consistent with research that examines the UTAUT model on the Blibli.com application. This study states that Performance Expectancy positively influences Social Influence, with a test value of 5.37 in the t-test. Other studies also support this notion, stating that Social Influence has a positive impact on Behavioral Intention in the Android Work Order application (Wondroid). This highlights the significance of influence or recommendations from individuals in stimulating users' interest in utilizing the application. Therefore, Hypothesis 3 (Social Influence Has a Positive Impact on Behavioral Intention) is affirmed in this investigation.

Based on the conducted tests, this hypothesis is rejected with a t-test value of 0.494, indicating that it does not have a significant impact on Use Behaviour. This is because the t-test results for this hypothesis do not exceed 1.96, leading to the rejection of H4. This finding contradicts previous research. However, similar findings have also been observed in other studies, which suggest that facilitating conditions do not affect user behaviour when using the system. Furthermore, other studies have also indicated that facilitating conditions do not have a positive effect on the behaviour of using the Mobile JKN application, suggesting that the condition of the facilities does not influence the behaviour of Mobile JKN users. In this study, the condition of the facilities owned by users did not have a positive impact on user behaviour when using the application. Therefore, Hypothesis 4 (Facilitating Conditions Have a Positive Influence on Behavioural Intention) was rejected in this study. The results of the structural model analysis show that this hypothesis has a t-test value with a significance level of 5% and a value above 1.96, indicating a positive influence of Behavioural Intention on Use Behaviour, with a value of 25.565. Additionally, Behavioural Intention significantly influences Use Behaviour, as the path coefficient value for this hypothesis is 0.849, surpassing the threshold value. This finding aligns with previous research and is supported by other studies that suggest that behavioural intention determines user behaviour when using the system. Moreover, other studies have found a positive influence of Behavioural Intention on behaviour when using Bitcoin. Similarly, in other studies, an increase in Behavioural Intention leads to an increase in Use Behaviour in the acceptance and use of the OVO application in Denpasar City. The hypothesis in this study posits that user interest in the application directly influences its actual use. Therefore, it can be concluded that Hypothesis 5 (Behavioural Intention Has a Positive Influence on Use Behaviour) was accepted in this study.

4. Conclusion

Behavioral Intention is the element that has the biggest impact. This explains why consumers will use an application more frequently if they are more certain that utilizing it will provide convenience and increase performance. The connection between behavioral intention and usage behavior is the most persuasive theory. This explains that the amount of user interest in using the application has an influence on how frequently it is used. In addition, the application already has the right policy in requiring applications to purchase subsidized fuel so that users have an intention of sustainability, which leads to an increase in the frequency of application users. Facilitating conditions are factors that have no influence on user acceptance of the application. So indirectly, these variables do not affect the increase in the frequency of application use. This is because adequate facilities do not determine whether a user accepts an application. For future researchers, you can add variables like anxiety and Perceived Credibility. To continue this research, future researchers can use the UTAUT 2 model as a comparison with this research model. For application providers, in the future they can improve the system to avoid the constraints that users experience when using the application so that user acceptance of the system can continue to increase. This is based on the test results showing that the variables Performance Expectation, Effort Expectation, Social Influence, Behavioral Intention, and Use Behavior have an influence on interest in application utilization. So, in this case, the need for better system performance so that users don't feel disturbed and continue to use the application in the future.

References

- [1] Meisarah, F., Octiva, C. S., Sucipto, P. A., Satyaninrum, I. R., & Bakri, A. A. (2023). Improving Student Text Writing Ability by Utilizing the Use of Augmented Reality Feature. *Jurnal Sistim Informasi Dan Teknologi*, 5(1), 129–134.
- [2] Evanita, E., Khotimah, T., & bakhar Bakhar, M. (2022). Analisa Forecasting Pendaftaran Mahasiswa Baru Universitas Muria Kudus Pusat Studi: Sains dan Teknologi. *Smart Comp: Jurnalnya Orang Pintar Komputer*, 11(2), 162-174.
- [3] Evanita, E., Putra, D. A., & Bakhar, M. (2021). Sistem Informasi Pencatatan Transaksi Berbasis Web Di Badan Usaha Milik Desa (BUMDES) Prasaja Desa Batarsari, Kecamatan Batangan Kabupaten Pati. *Smart Comp: Jurnalnya Orang Pintar Komputer*, 10(1), 26-29.

- [4] Rachmadi, D., Sunarto, D., & Mastan, I. (2011). Measurement Acceptance of UWKS Academic Smart Mobile Aplikations Using UTAUT (Unfied Theory of Acceptance and Use of Technology). *Jurnal Sistem Informasi dan Komputer Akuntansi*, 11.
- [5] Firdaus, D. R., Harto, B., & Ferdiansyah, H. (2023). The Effectiveness Analysis of Distance Learning by Optimizing the Use of Information Technology. *JISTE (Journal of Information System, Technology and Engineering)*, 1(1), 1–5.
- [6] Ferdiansyah, H., Komaria, N., & Arief, I. (2023). The Application of Support Vector Machine Method to Analyze the Sentiments of Netizens on Social Media Regarding the Accessibility of Disabilities in Public Spaces. *JISTE (Journal of Information System, Technology and Engineering)*, 1(1), 6–10.
- [7] Ting, G., & Yanhong, D. (2012). A study on users' accaptance behavior to mobile e-books applicatin based on UTAUT model. *IEEE International Conference on COnputer Science and Automation Engineering*.
- [8] Sarumaha, Y. A., Firdaus, D. R., & Moridu, I. (2023). The Application of Artificial Bee Colony Algorithm to Optimizing Vehicle Routes Problem. *JISTE (Journal of Information System, Technology and Engineering)*, 1(1), 11–15.
- [9] Saufi, M., Rofi'i, A., & Firdaus, D. R. (2023). The Analysis of User Intention to Subscribe Netflix Using UTAUT Framework. *JISTE (Journal of Information System, Technology and Engineering)*, 1(1), 16–20.
- [10] Agus Rofi'i, Firdaus, D. R., & Moridu, I. (2023). The Analysis of User Acceptance Using UTAUT and Delone & McLean Model: Study Case of Banking Mobile Application. *JISTE (Journal of Information System, Technology and Engineering)*, 1(1), 21–25.
- [11] Venkatesh, V., Thong, J., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *2015 IEEE MTT-S International Mocrowave Symposium*, 157-178.