International Journal of Applied Economics, Acounting and Management (IJAEAM)
Vol.1, No.2, 2023: 101-112

Analysis of Acceptance of Online Transportation Applications with the TAM Method

Yosi Afandi[1*], Tri Lestariningsih[2]
[1]Politeknik Negeri Malang
[2]Politeknik Negeri Madiun
Corresponding Author: Yosi Afandi yosi.afandi@polinema.ac.id

A R T I C L E I N F O

Keywords: Online, Transportation, Grab, TAM

Received : 4 June
Revised : 18 June
Accepted : 22 July

A B S T R A C T

The Grab application is one of the online transportation services in Indonesia. The Grab application also provides various services for consumer needs. From the various services provided by grab, it is necessary to conduct research to find out what variables affect the acceptance of the grab application. The method used is the TAM 3 method with the result that grab is accepted by consumers without being influenced by several, namely the Perceptions of External Control (PC) variable has no effect on the Behaviour Intention (BI) and Uses Behaviour (UB) variables, for the Subjective Norm (SN) variable has no effect on the Behaviour Intention (BI), Perceived Usefulnes (PU), and Uses Behaviour (UB) variables, while the Voluntariness (VOL) variable also has no effect on the Behaviour Intention (BI), Perceived Ease of Use (PEU), Perceived Usefulnes (PU), and Uses Behaviour (UB) variables.

INTRODUCTION

Transportation plays a role in driving the wheels of the national economy, so the transportation sector has good business opportunities. Transportation includes sea transportation, land transportation, and air transportation. Technological developments are utilized by business people, especially in the transportation sector, by building online transportation(Hasan et al., 2022)(Djundharto Djajasinga, 2022)(Prabowo et al., 2020).

Online transportation in Indonesia is currently growing rapidly. The existence of online transportation makes it easier for passengers to get transportation according to their wants and needs and the predetermined tariffs make passengers do not need to bargain(Tejomurti et al., 2019)(Indriyarti et al., 2021)(Yosi Afandi, 2019). In addition, using online transportation is very easy, just download the application on PlayStore, after installing and registering, passengers can use the application. In Indonesia, online transportation has developed and many business people provide online transportation applications with various attractive facilities so that passengers can choose(Ernawati et al., 2022).

The number of online transportation today such as gojek, grab, maxim, indriver, anterin, asia trans, okejek, linkaran and others, this causes intense competition. So that business people in the field of online transportation must always make innovations to be able to retain their consumers. One way to be able to retain consumers, by conducting an analysis that affects consumers in determining the choice of using online transportation. This research will analyze the variables that influence the acceptance of online transportation applications, especially for grab(Pasharibu et al., 2018)(Silalahi et al., 2022)(Aulawi, 2020).

LITERATURE REVIEW

Grab has been contributing to the transportation industry since 2014 by working with the government to address transportation and consumer finance challenges in Indonesia(Firman et al., 2021)(Kusuma et al., 2015). Grab's comprehensive service facilities and technological innovations make commuting easier, safer, and more efficient as it can reduce travel time by up to 64% compared to using public transportation in Indonesia Grab is currently the dominating online transportation in Southeast Asia, namely Indonesia, Malaysia, Singapore, Myanmar, Thailand, Cambodia, and also Vietnam. Grab is already available in more than 100 cities in Indonesia by offering many available services. With the many services available, grab opens branch offices in several areas with the aim of making it easier for consumers to communicate in case of complaints or booking special services(Yunus et al., 2020)(Kurniawan et al., 2020)(Nurahman, 2021).

Grab's success also does not escape the role of vendors in innovating applications so that they can be accepted by consumers(Pieters et al., 2019). So the hypothesis in the study is as follows:

1. Behaviour Intention (BI) affects Uses terhadap Uses Behaviour (UB).
2. Computer Anxiety (CA) affects Uses Behaviour Intention (BI).
3. Computer Anxiety (CA) affects Uses Perceived Ease of Use (PEU).
4. Computer Anxiety (CA) affects Uses Perceived Usefulnes (PU).

5. Computer Self Effecacy (CS) affects Uses Behaviour Intention (BI).
6. Computer Self Effecacy (CS) affects Uses Perceived Ease of Use (PEU).
7. Computer Self Effecacy (CS) affects Uses Perceived Usefulnes (PU).
8. Computer Self Effecacy (CS) affects Uses Uses Behaviour (UB).
9. Experience (EX) affects Uses Behaviour Intention (BI).
10. Experience (EX) affects Uses Perceived Ease of Use (PEU).
11. Experience (EX) affects Uses Perceived Usefulnes (PU).
12. Experience (EX) affects Uses Uses Behaviour (UB).
13. Perceptions of External Control (PC) affects Uses Behaviour Intention (BI).
14. Perceptions of External Control (PC) affects Uses Perceived Usefulnes (PU).
15. Perceptions of External Control (PC) affects Uses Uses Behaviour (UB).
16. Perceived Ease of Use (PEU) affects Uses Behaviour Intention (BI).
17. Perceptions of External Control (PC) affects Uses Uses Behaviour (UB).
18. Perceived Usefulnes (PU) affects Uses Behaviour Intention (BI).
19. Perceived Usefulnes (PU) affects Uses Uses Behaviour (UB).
20. Result Demonstrability (RD) affects Uses Behaviour Intention (BI).
21. Result Demonstrability (RD) affects Uses Perceived Usefulnes (PU).
22. Result Demonstrability (RD) affects Uses Uses Behaviour (UB).
23. Subjective Norm (SN) affects Uses Behaviour Intention (BI).
24. Subjective Norm (SN) affects Uses Perceived Usefulnes (PU).
25. Subjective Norm (SN) affects Uses Uses Behaviour (UB).
26. Voluntariness (VOL) affects Uses Behaviour Intention (BI).
27. Voluntariness (VOL) affects Uses Perceived Ease of Use (PEU).
28. Voluntariness (VOL) affects Uses Perceived Usefulnes (PU).
29. Voluntariness (VOL)) affects Uses Uses Behaviour (UB).

METHODOLOGY

TAM aims to explain and predict user acceptance of an information system. TAM provides a theoretical basis for knowing the factors that influence the acceptance of a technology in an organization.(Lestariningsih et al., 2020)(Panji Pratama Lifianto, 2023) TAM explains the causal relationship between beliefs (about the benefits of an information system and its ease of use) and behavior, goals / needs, and actual use of users of an information system. In this study to determine the effect of factors on the acceptance of an information system using the TAM 3 method. Where in the TAM 3 method, it will discuss the reciprocal relationship between belief in the benefits and ease of use of an information system(Siahaan et al., 2022)(Aulawi, 2020). The TAM 3 method framework can be seen in Figure 1 as follows:

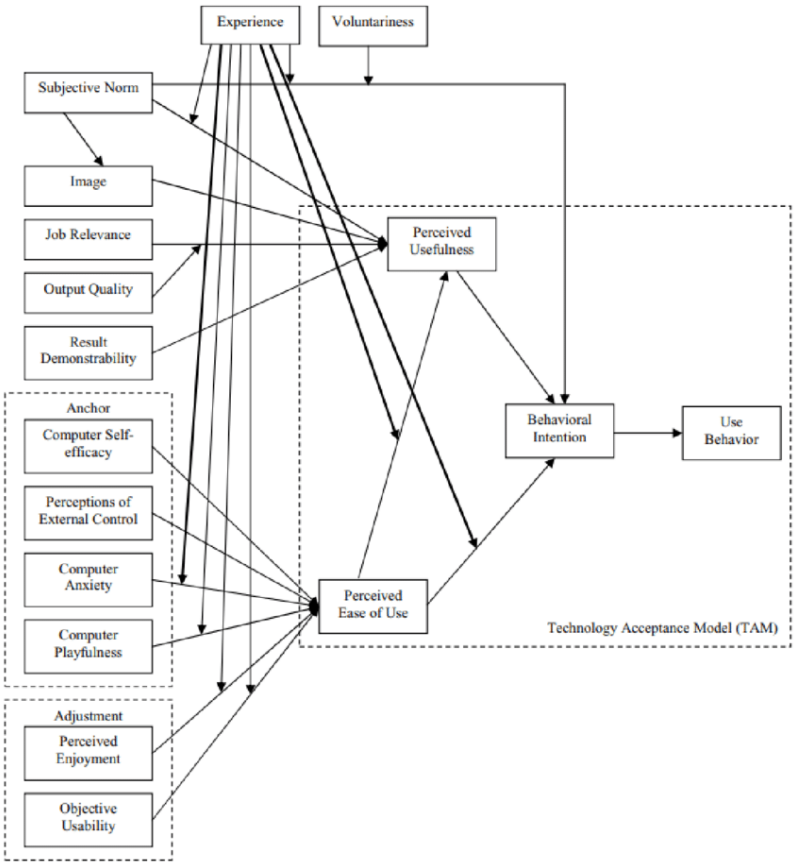

Figure 1. The TAM Framework 3

The research model that will explain the acceptance of grab is influenced by 17 variables based on the TAM method, namely the Perceived Ease of use (X1) variable with 9 indicators, Information Quality (X2) with 11 indicators, Service Quality (X3) with 6 indicators, Use (use) (X4) with 7 indicators, User satisfaction (X5) with 7 indicators, Benefits (net benefit) (X6) with 7 indicators, with the inner research model can be described as follows:

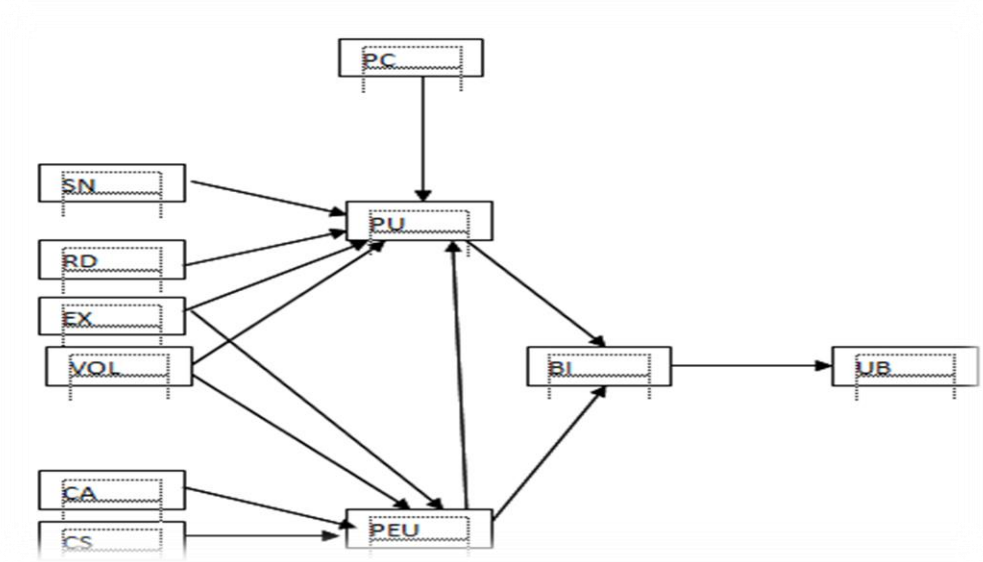

Figure 2. Inner Model of Research

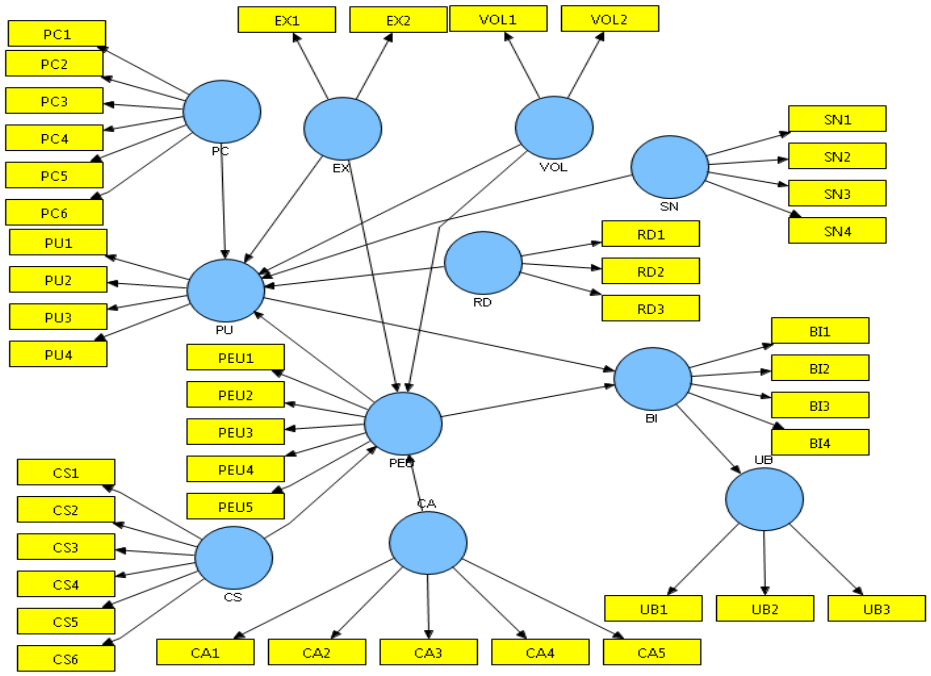

Figure 3. Outer Model of Research

Inner and outer models have been formed, then a path diagram construction can be formed. The construction of the path diagram is presented in Figure 3 below:

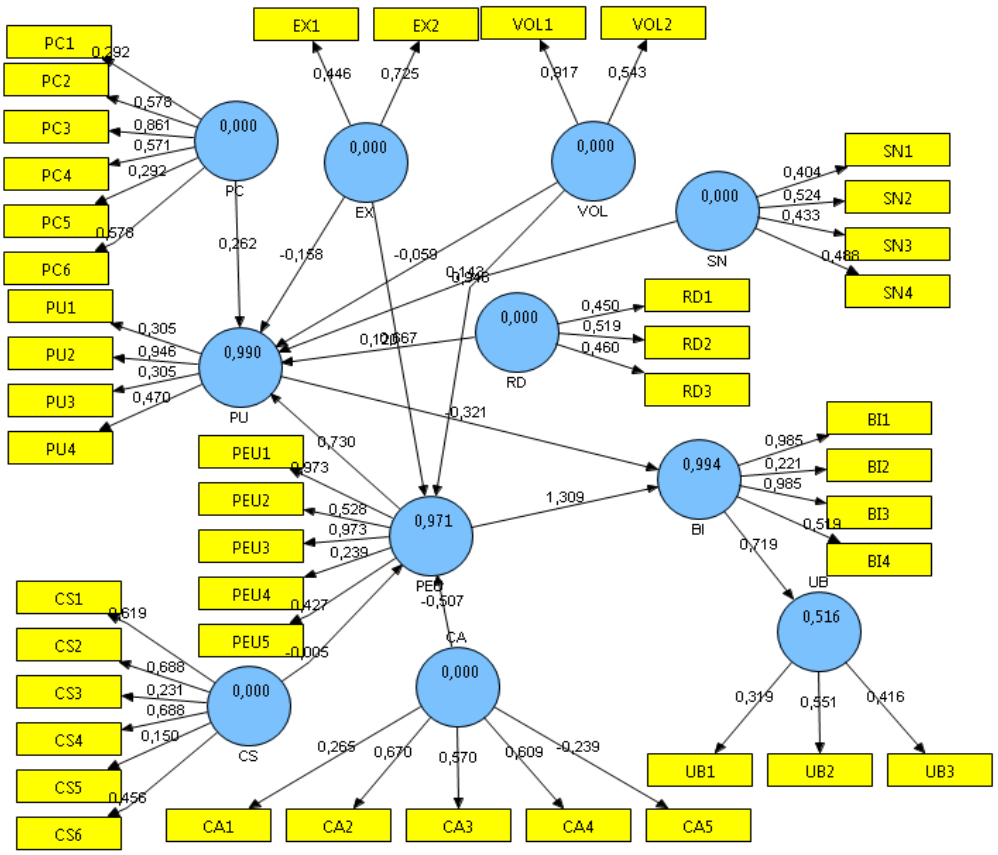

Figure 4. Path Diagram Constructs

RESULT

From the goodness fit test results, the R-square value is obtained in table 1 below

Table 1. R-Square Value

Variabel Laten	R Square
BI	0,859600
CA	
CS	
EX	
PC	
PEU	0,988962
PU	0,984442
RD	
SN	
UB	0,715444
VOL	

The results of the Q-Square value test can be seen in table 2 below:

Table 2. Q-Square Value Test Results

Variabel Laten	Q-Square
BI	0,018914
CA	
CS	
EX	
PC	
PEU	0,145172
PU	0,000179
RD	
SN	
UB	0,012505
VOL	

The Q-Square results of all dependent variables have a value of more than 0, this indicates that the model has predictive relevance. In PLS, bootsrapping is used to obtain variable test results. The following table 3 is the result of the t-statistic test

Table 3. Results of The T-Statistic Test

	Original Sample (O)	T Statistics (|O/STERR|)
BI -> UB	0,8458	27,7060
CA -> BI	2,5674	4,8422
CA -> PEU	3,3572	6,3085
CA -> PU	1,6094	3,7280
CA -> UB	2,1716	4,4437
CS -> BI	-3,3725	3,5433
CS -> PEU	-4,4099	3,9857
CS -> PU	-2,1140	4,0072
CS -> UB	-2,8526	3,4992
EX -> BI	2,0224	2,9531
EX -> PEU	2,6476	3,1217
EX -> PU	1,2635	4,3921
EX -> UB	1,7106	3,0365
PC -> BI	-0,0690	1,7685
PC -> PU	-0,1682	2,7696
PC -> UB	-0,0584	1,6935
PEU -> BI	0,7647	13,2425
PEU -> PU	0,4794	4,6763
PEU -> UB	0,6468	10,7242
PU -> BI	0,4105	3,5574
PU -> UB	0,3472	3,3878
RD -> BI	0,2944	4,5157
RD -> PU	0,7171	7,1115
RD -> UB	0,2490	4,6128
SN -> BI	0,0302	1,1450
SN -> PU	0,0735	1,5472
SN -> UB	0,0255	1,1041
VOL -> BI	0,0273	1,3218
VOL -> PEU	0,0209	0,8465
VOL -> PU	0,0376	1,4785

	Original Sample (O)	T Statistics (|O/STERR|)
VOL -> UB	0,0231	1,3069

DISCUSSION

Based on the results of the t-statistic test, it can be determined which variable test in this research:

1. Behaviour Intention (BI) affects Uses on Uses Behaviour (UB). The t-statistic results of BI -> UB have a calculated t value of 27.706012, the calculated t value is greater than 2.00, which means that BI is accepted or there is an influence on Uses Behavior (UB).
2. Computer Anxiety (CA) affects Uses Behavior Intention (BI). The t-statistic result of CA -> BI has a t value of 4.842163, the t value is greater than 2.00, which means that CA is accepted or there is an influence on Behavior Intention (BI).
3. Computer Anxiety (CA) affects Uses Perceived Ease of Use (PEU). The t-statistic result of CA -> PEU has a t value of 6.308498, the t value is greater than 2.00, which means that CA is accepted or there is an influence on Perceived Ease of Use (PEU).
4. Computer Anxiety (CA) affects Uses Perceived Usefulnes (PU). The t-statistic result of CA -> PU has a calculated t value of 3.727961, the calculated t value is greater than 2.00, which means that CA is accepted or there is an influence on Perceived Usefulnes (PU).
5. Computer Self Effecacy (CS) affects Uses Behavior Intention (BI). The t-statistic result of CS -> BI has a t value of 3.543334, the t value is greater than 2.00, which means that CS is accepted or there is an influence on Behavior Intention (BI).
6. Computer Self Effecacy (CS) affects Uses Perceived Ease of Use (PEU). The t-statistic result of CS -> PEU has a t value of 3.985673, the t value is greater than 2.00, which means that CS is accepted or there is an influence on Perceived Ease of Use (PEU).
7. Computer Self Effecacy (CS) affects Uses Perceived Usefulnes (PU). The t-statistic results of CS -> PU have a t value of 4.007194, the t value is greater than 2.00, meaning that CS is accepted or there is an influence on Perceived Usefulnes (PU).
8. Computer Self Effecacy (CS) affects Uses Uses Behavior (UB). The t-statistic results of CS -> UB have a calculated t value of 3.499242, the calculated t value is greater than 2.00, which means that CS is accepted or there is an influence on Uses Behavior (BU).
9. Experience (EX) affects Uses Behavior Intention (BI). The t-statistic result of EX -> BI has a calculated t value of 2.953080, the calculated t value is greater than 2.00, which means that EX is accepted or there is an influence on Behaviour Intention (BI).
10. Experience (EX) affects Uses Perceived Ease of Use (PEU). The t-statistic result of EX -> PEU has a calculated t value of 3.121668, the calculated t value is

greater than 2.00, which means that EX is accepted or there is an influence on Perceived Ease of Use (PEU).

11. Experience (EX) affects Uses Perceived Usefulnes (PU). The t-statistic result of EX -> PU has a calculated t value of 4.392065, the calculated t value is greater than 2.00, which means that EX is accepted or there is an influence on Perceived Usefulnes (PU).
12. Experience (EX) affects Uses Uses Behavior (UB). The t-statistic result of EX -> UB has a calculated t value of 3.036463, the calculated t value is greater than 2.00, which means that EX is accepted or there is an influence on Uses Behavior (UB).
13. Perceptions of External Control (PC) affects Uses Behavior Intention (BI). The t-statistic result of PC -> BI has a t value of 1.768465, the t value is greater than 2.00, meaning that PC is rejected or there is no influence on Behavior Intention (BI).
14. Perceptions of External Control (PC) affects Uses Perceived Usefulnes (PU). The t-statistic result of PC -> BI has a t value of 2.769578, the t value is greater than 2.00, meaning that PC is accepted or there is an influence on Perceived Usefulnes (PU).
15. Perceptions of External Control (PC) affects Uses Uses Behavior (UB). The t-statistic result of PC -> UB has a t value of 1.693548, the t value is greater than 2.00, meaning that PC is rejected or there is no influence on Uses Behavior (UB).
16. Perceived Ease of Use (PEU) affects Uses Behavior Intention (BI). The t-statistic results of PEU -> BI have a calculated t value of 13.242494, the calculated t value is greater than 2.00, meaning that PEU is accepted or there is an influence on Behaviour Intention (BI).
17. Perceptions of External Control (PC) affects Uses Uses Behavior (UB). The t-statistic results of PEU -> UB have a calculated t value of 10.724151, the calculated t value is greater than 2.00, which means that PEU is accepted or there is an influence on Uses Behavior (UB).
18. Perceived Usefulnes (PU) affects Uses Behavior Intention (BI). The t-statistic results of PU -> BI have a t value of 3.557372, the t value is greater than 2.00, meaning that PU is accepted or there is an influence on Behaviour Intention (BI).
19. Perceived Usefulnes (PU) affects Uses Uses Behavior (UB). The t-statistic results of PU -> UB have a calculated t value of 3.387766, the calculated t value is greater than 2.00, meaning that PU is accepted or there is an influence on Uses Behavior (UB).
20. Result Demonstrability (RD) affects Uses Behavior Intention (BI). The t-statistic result of RD -> BI has a t value of 4.515721, the t value is greater than 2.00, which means that RD is accepted or there is an influence on Behaviour Intention (BI).
21. Result Demonstrability (RD) affects Uses Perceived Usefulnes (PU). The t-statistic result of RD -> PU has a t value of 7.111495, the t value is greater than 2.00, which means that RD is accepted or there is an influence on Perceived Usefulnes (PU).

22. Result Demonstrability (RD) affects Uses Uses Behavior (UB). The t-statistic result of RD -> UB has a t value of 4.612845, the t value is greater than 2.00, meaning that RD is accepted or there is an influence on Uses Behavior (UB).
23. Subjective Norm (SN) affects Uses Behavior Intention (BI). The t-statistic result of SN -> BI has a calculated t value of 1.144971, the calculated t value is greater than 2.00, which means that SN is rejected or there is no influence on Behaviour Intention (BI).
24. Subjective Norm (SN) affects Uses Perceived Usefulnes (PU). The t-statistic result of SN -> PU has a calculated t value of 1.547173, the calculated t value is greater than 2.00, which means that SN is rejected or there is no influence on Perceived Usefulnes (PU).
25. Subjective Norm (SN) affects Uses Uses Behavior (UB). The t-statistic result of SN -> UB has a calculated t value of 1.104067, the calculated t value is greater than 2.00, which means that SN is rejected or there is no influence on Uses Behavior (UB).
26. Voluntariness (VOL) affects Uses Behavior Intention (BI). The t-statistic result of VOL -> BI has a calculated t value of 1.321793, the calculated t value is greater than 2.00, which means that VOL is rejected or there is no influence on Behaviour Intention (BI).
27. Voluntariness (VOL) affects Uses Perceived Ease of Use (PEU). The t-statistic result of VOL-> PU has a calculated t value of 0.846493, the calculated t value is greater than 2.00, which means that VOL is rejected or there is no influence on Perceived Ease of Use (PEU).
28. Voluntariness (VOL) affects Uses Perceived Usefulnes (PU). The t-statistic results of VOL -> PU have a calculated t value of 1.478465, the calculated t value is greater than 2.00, meaning that VOL is rejected or there is no influence on Perceived Usefulnes (PU).
29. Voluntariness (VOL)) affects Uses Uses Behavior (UB). The t-statistic result of VOL -> UB has a calculated t value of 1.306942, the calculated t value is greater than 2.00, which means that VOL is rejected or there is no influence on Uses Behavior (UB).

CONCLUSION AND RECOMMENDATION

Based on the research results, it can be concluded that the Perceptions of External Control (PC) variable does not affect Uses on the Behaviour Intention (BI) and Uses Behaviour (UB) variables, for the Subjective Norm (SN) variable does not affect Uses on the Behaviour Intention (BI) variable, Perceived Usefulnes (PU), and Uses Behaviour (UB), while the Voluntariness (VOL) variable also does not affect Uses on Behaviour Intention (BI), Perceived Ease of Use (PEU), Perceived Usefulnes (PU), and Uses Behaviour (UB) variables.

SUGGESTION

The research conducted still has several other external factors that were not examined by the researcher. So that the research variables used are less able to explain the success of implementation based on the technology acceptance model using TAM variables.

REFERENCES

Aulawi, H. (2020). Technology Acceptance Model for Online Transportation. *International Journal of Advanced Trends in Computer Science and Engineering*, *9*(1), 31–35. doi: 10.30534/ijatcse/2020/06912020

Djundharto Djajasinga, N. (2022). The smart mobility concept by developing online-based transportation information and communication technology for sustainable transportation. *International Journal of Artificial Intelligence Research*, *ISSN*(1), 2579–7298. doi: 10.29099/ijair.v6i1.350

Ernawati, D., & Lutfi, H. (2022). Gojek's Strategy to Win the Online Transportation Competition. *Jurnal Manajemen Bisnis*, *13*(1), 76–92. doi: 10.18196/mb.v13i1.11381

Firman, A., Ilyas, G. B., Reza, H. K., Lestari, S. D., & Putra, A. H. P. K. (2021). The Mediating Role of Customer Trust on the Relationships of Celebrity Endorsement and E-WOM to Instagram Purchase Intention. *Jurnal Minds: Manajemen Ide Dan Inspirasi*, *8*(1), 107. doi: 10.24252/minds.v8i1.20594

Hasan, M., Rifai, A. I., & Djamal, E. Z. (2022). Phenomena of Online Transportation Mode Choice as an Alternative Public Transport in South of Jakarta. *Citizen: Jurnal Ilmiah …*, *2*(5), 776–784. doi: 10.53866/jimi.v2i5.192

Indriyarti, E. R., & Wijihastuti, S. (2021). Exploring the Intention Factors of Using Online Transportation in Jakarta with Multiple Regression. *Journal of Business & Applied Management*, *14*(1), 001. doi: 10.30813/jbam.v14i1.2680

Kurniawan, Y., & Putritama, A. (2020). Customers' Satisfaction Factors of Online Transportation Services. *Nominal: Barometer Riset Akuntansi Dan Manajemen*, *9*(2), 13–32. doi: 10.21831/nominal.v9i2.29739

Kusuma, D. S., & Indriyani, S. (2015). The Effect Of Oonline Transportation Customer Sservice Quality On Customer Loyalty In Bandar Lampung. *Actual Problems of Economics*, *2*, 109–125. Retrieved from http://140.116.249.155/file.php/66423/CB_Final-Telecom_in_Vietnam.pdf

Lestariningsih, T., Artono, B., & Afandi, Y. (2020). Evaluasi Keberhasilan Implementasi E-learning dengan Metode Hot Fit Model. *Innovation in Research of Informatics (INNOVATICS)*, *2*(1), 22–27.

Nurahman, I. (2021). Pengaruh Nilai Pelanggan dan Pengalaman Pelanggan terhadap Keputusan Pembelian Ulang melalui Kepuasan Pelanggan pada Transportasi Online Grab (Survei pada Pelanggan Grab di Kabupaten Sleman). *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis Dan Inovasi Universitas Sam Ratulangi)*, *8*(2), 404–426. Retrieved from https://doi.org/10.35794/jmbi.v8i2.35039

Panji Pratama Lifianto. (2023). Predicting consumer loyalty to online taxi servicesusing the technology acceptance modal (TAM). *Journal Riset Bisnis Dan Manajemen*, *16*(1), 44–52.

Pasharibu, Y., Paramita, E. L., & Febrianto, S. (2018). Price, service quality and trust on online transportation towards customer satisfaction. *Jurnal Ekonomi Dan Bisnis*, *21*(2), 241–266. doi: 10.24914/jeb.v21i2.1965

Pieters, V. P., Saerang, D. P. E., Gunawan, E. M., Pieters, V. P., Saerang, D. P. E., & Gunawan, E. M. (2019). Online Transportation Services: Factors Affecting Consumer Switching Behavior Layanan Transportasi Online: Faktor-Faktor Yang Mempengaruhi Perilaku Beralih Konsumen. *5117 Jurnal EMBA*, *7*(4), 5117–5126.

Prabowo, F. H. E., Rustendi, E., & Nurbaiti, A. (2020). The selection of public transportation modes in industrial era 4.0. *Jurnal Manajemen*, *12*(1), 49–55. Retrieved from http://journal.feb.unmul.ac.id/index.php/JURNALMANAJEMEN

Siahaan, M., & Kurniawan, K. (2022). Analisis Penerimaan Aplikasi Transportasi Online di Kepulauan Riau Menggunakan Metode Technology Acceptance Model. *Journal of Applied Informatics and Computing*, *6*(1), 16–24. doi: 10.30871/jaic.v6i1.3509

Silalahi, D. F., & Gunawan, D. (2022). Solar Energy Potentials and Opportunity of Floating Solar PV in Indonesia. *Indonesia Post-Pandemic Outlook: Strategy towards Net-Zero Emissions by 2060 from the Renewables and Carbon-Neutral Energy Perspectives*. doi: 10.55981/brin.562.c5

Tejomurti, K., Hadi, H., Imanullah, M. N., & Indriyani, R. (2019). Legal Protection for Urban Online-Transportation-Users' Personal Data Disclosure in the Age of Digital Technology. *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law)*, *5*(3), 485–505. doi: 10.22304/pjih.v5n3.a5

Yosi Afandi, T. L. (2019). Evaluasi Keberhasilan Implementasi Gojek. *Jurnal PPKM*, *6*(3), 176–179.

Yunus, M., Soesilowati, E., Setyowati, D. L., & Arsal, T. (2020). Can online transportation applications improve driver professionalism? *International Journal of Scientific and Technology Research*, *9*(2), 3155–3159.