

Determinants of Ride-Hailing Adoption: Extending TAM with Trust, Service Quality, and Gamification

Nik Hadiyan Nik Azman^{a,1}, Aswanti Setiawaty^{b,2},
Nurun Ala Salehati^{c,3}, Rizka Ramayanti^{d,4*}

^a School of Management, Universiti Sains Malaysia, 11800 USM, Penang, Malaysia

^{b,c} Faculty of Management and Business, Institut Transportasi dan Logistik Trisakti, Jl. IPN No. 2, Cipinang Besar Selatan, Jakarta 13410, Indonesia.

^d Accounting Study Program, Faculty of Economics and Business, Universitas Trilogi Jakarta. Jl. TMP. Kalibata No. 4, Duren Tiga, South Jakarta 12760, Jakarta, Indonesia

¹ nikhadiyan@usm.my, ² aswantiurgiyanto@gmail.com, ³ ala.salehati@gmail.com,

^{4*} rizka.ramayanti@universitas-trilogi.ac.id

*corresponding e-mail

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ABSTRACT

In emerging markets where public transportation is often limited, ride-hailing services have emerged as a crucial component of on-demand urban mobility. Although prior research has widely applied Technology Acceptance Model (TAM) to study digital adoption, findings remain inconsistent regarding the role of perceived ease of use, service quality, and trust in ride-hailing contexts. Furthermore, the role of gamification remains largely unexplored, despite its growing implementation in digital applications to augment user engagement. Addressing these gaps, this study investigates the determinants of Gojek ride-hailing adoption in Indonesia by extending TAM. The model integrates perceived usefulness, perceived ease of use, trust, service quality, and gamification as antecedents of adoption in an emerging-market context. A cross-sectional survey of 100 active Gojek users was conducted using convenience sampling. Each construct was measured with four items on a five-point Likert scale. Partial Least Squares–SEM (SmartPLS 4) was used in this study. Perceived usefulness and gamification significantly and positively influence adoption, whereas perceived ease of use, service quality, and trust do not exhibit significant direct effects ($p > 0.05$). The model explains 64.9% of the variance in adoption ($R^2 = 0.649$) and demonstrates strong predictive relevance ($Q^2 = 0.600$). Findings underscore the primacy of utilitarian value and gamified design features in driving ride-hailing adoption.

Keywords: ride-hailing adoption; TAM; gamification; trust; service quality

A. Introduction

Ride-hailing applications have become a core infrastructure of the on-demand economy and urban mobility, particularly in emerging markets where urbanization and digitalization occur simultaneously. Ride-hailing services are becoming more and more popular worldwide, but Indonesia is unique in how quickly and

widely they are being adopted. This is due to mobile-first behavior and densely populated areas where traditional transportation networks find it difficult to meet demand (Nguyen & Ha, 2022). Empirical analyses show that app-based transport provides greater time efficiency, affordability, and accessibility compared to conventional options, producing measurable consumer surplus along with

benefits in congestion reduction and reliability in urban centres (Thaithatkul et al., 2021). In Southeast Asia, mobility transformation has been enabled by widespread smartphone penetration, the rollout of 4G/5G connectivity, and demographic shifts toward urban living. Platform competition, in turn, has accelerated product innovation, service diversification, and the emergence of super-app architectures (Gunawan, 2024; Wardhana & Pradana, 2023).

In Indonesia, these platforms simultaneously facilitate transportation, digital payments, and last-mile logistics, lowering search and coordination costs for consumers while expanding market access for micro-entrepreneurs. Gojek exemplifies this transition: launched as a ride-hailing intermediary, it has evolved into a multi-sided super-app that integrates mobility, food and parcel delivery, and digital payments, thereby contributing to digital inclusion and broader economic dynamics (Gunawan, 2024; Putri & Sari, 2024).

The shift from single-function ride-hailing services to super-app ecosystems reflects a wider reconfiguration within the platform economy. In Southeast Asia, Gojek and Grab are prime examples of this evolution, competing not only on price or waiting time but also on ecosystem breadth, reliability, and perceived quality (Wardhana & Pradana, 2023). With the expansion of smartphone and internet access, consumers have internalized app-based coordination into their daily routines, fostering expectations of seamless and integrated experiences (Astuti & Setiawan, 2023; Subriadi & Baturohmah, 2023). At a macro level, platform-based mobility contributes to GDP by creating employment, empowering MSMEs, and accelerating digital payments, with estimates attributing significant annual value added to this ecosystem (Siswadi et al., 2023).

Consumer behavior has shifted in line with the emergence of a convenience-oriented economy. Users prioritize saved time, reliability, and transparent pricing, while increasingly preferring integrated service

bundles that simplify transactions and reduce cognitive load (Fauzi & Sheng, 2020). Studies on mobility apps highlight that utilitarian value—efficiency, cost-effectiveness, and reliability—remains the dominant driver of adoption decisions, though social and hedonic dimensions are gaining importance as platforms introduce rewards and community features (Garside et al., 2023; Nguyen & Ha, 2022; Thaithatkul et al., 2021). At the same time, vulnerabilities become critical. Recurrent server outages or app instability can trigger user switching and reduce future usage probability by undermining trust (Astuti & Setiawan, 2023; Siswadi et al., 2023). Similarly, perceived service quality—driver professionalism, cleanliness, responsiveness, ETA accuracy, and transparent pricing—remains a decisive determinant of satisfaction and loyalty in highly competitive settings (Thaithatkul et al., 2021; Wardhana & Pradana, 2023).

The information systems canon provides cumulative explanations for these patterns. The Technology Acceptance Model (TAM) posits that perceived usefulness (PU) and perceived ease of use (PEOU) jointly shape adoption intentions, with PEOU often exerting an indirect effect through PU (Nguyen & Ha, 2022; Surya et al., 2021). The Unified Theory of Acceptance and Use of Technology (UTAUT) extends this framework by incorporating social influence and facilitating conditions, acknowledging the role of peer effects and infrastructure support in technology usage (Nguyen & Ha, 2022; Surya et al., 2021). In platform-based mobility, these frameworks suggest that value propositions must maximize utility—speed, availability, transparent pricing—while minimizing cognitive effort through intuitive interfaces and streamlined booking flows.

Trust emerges as an indispensable parallel determinant in digital intermediation. Online trust models emphasize platform integrity, competence, and benevolence as pre-requisites for risk reduction and transaction willingness (Zahara et al., 2021). In ride-hailing, trust

spans multiple layers: data security, payment protection, driver professionalism, passenger safety, and reliability of dispute resolution. Studies show that higher levels of trust mitigate perceived risk and foster both initial adoption and continued use, particularly when platforms communicate safety protocols and provide dependable service recovery (Siswadi et al., 2023; Subriadi & Baturohmah, 2023; Thaithatkul et al., 2021). Complementarily, digital service quality constructs adapted from SERVQUAL and ES-QUAL capture user experience dimensions—reliability, responsiveness, assurance, and clarity of interface design—that directly influence satisfaction, loyalty, and usage (Garside et al., 2023; Thaithatkul et al., 2021).

Empirical findings in mobility contexts align with these theoretical expectations. Higher PU and PEOU consistently correlate with stronger adoption intentions, with PEOU indirectly enhancing adoption through PU by lowering learning costs and decision friction (Fauzi & Sheng, 2020; Nguyen & Ha, 2022). Service quality exerts both direct and indirect effects, reinforcing trust and satisfaction that support continued usage and advocacy. Conversely, disruptions—whether app instability or inconsistent driver performance—undermine perceived quality and erode trust (Astuti & Setiawan, 2023; Thaithatkul et al., 2021). A relatively underexplored but promising factor is gamification. By embedding points, levels, badges, streaks, and feedback mechanisms, platforms can foster engagement and habit formation. Early regional evidence suggests positive effects on gig worker motivation and ecosystem participation, indicating a viable pathway for consumer adoption that warrants rigorous testing within adoption models (Putranti et al., 2024).

Despite the growing evidence base, significant research gaps remain. First, gamification has rarely been modelled alongside conventional adoption drivers—PU, PEOU, trust, and service quality—leaving its incremental explanatory power in app

ecosystems uncertain. Furthermore, platform reliability shocks (e.g., downtime events) are seldom incorporated as antecedents that may erode trust and hinder adoption. Therefore, this study proposes an integrated model of Gojek adoption that extends TAM by incorporating trust, digital service quality, and gamification.

B. Method

This study used quantitative research methodology, and questionnaires were distributed. In regard to the implementation of Gojek ride-hailing, this study made use of questionnaires as the research instrument. This poll was primarily directed at individuals who utilize the Gojek ride-hailing service. For the purposes of this investigation, a sampling approach known as convenience sampling was utilized. For the purpose of collecting data, questionnaires were distributed to Gojek users. These questionnaires were distributed through digital survey platforms in order to reach groups of Gojek users who were easily accessible.

In total, the researchers handed out 154 questionnaires to the participants. After doing a manual examination of the questionnaires, it was determined that 54 persons did not meet the criteria for inclusion. It was due to the fact that they either did not finish the survey or did not utilize the Gojek ride-hailing service. Lastly, one hundred questionnaires were deemed suitable for examination.

The evolution of instruments and the variability of measurement. Variable items were modified and adjusted in order to meet the unique objectives of the study (Ramayanti et al., 2025). This was accomplished while ensuring that the measures were accurate and contained essential information. The validity of the items that were modified or adopted was subjected to a comprehensive investigation undertaken by the researchers. The vocabulary that was utilized in the questionnaire was selected with the intention of catering to the degree of comprehension possessed by Gojek users in Indonesia. PU (four items),

PEOU (four items), trust (four items), service quality (four items), gamification (four items), and adoption (four items) are the items that pertain to users' experience. The concepts of PU, PEOU, and adoption were derived from research carried out by Venkatesh et al. (2003) and Ramayanti et al. (2025)

An adoption of the service quality variable was made from a study that was carried out by (Abu-Taieh et al., 2022). In the meantime, the trust variable was derived from a study conducted by To & Trinh (2021). The variables that were employed in Puig et al. (2023) served as the basis for the use of gamification. When it came to the functioning of the variables, previous studies, Ramayanti et al (2025). utilized multi-item scales that ranged from five to nine. A five-point Likert or semantic differential scale, ranging from strongly disagreeing to agreeing, was utilized in this study to conduct an in-depth analysis of all of the aspects that were taken into

consideration.

The demographic data from 100 respondents was shown in Table 1. The majority of respondents in this study were female (69%), while male were only 31%. This composition indicated that Gojek ride-hailing users were predominantly women, who may prioritize comfort and safety when using app-based transportation services. In terms of age distribution, the largest group consisted of Generation Z (88%), while Millennials (4%) and Generation X (8%) were fewer. This finding highlights that Gojek was mainly used by younger generations who were more familiar with digital technologies, smartphones, and app-based services.

Regarding educational background, most respondents are high school or vocational students (53%), followed by undergraduate students (41%) and postgraduate degrees (6%). This demonstrates that the adoption of Gojek services cuts across different educational

Table 1 Demographic Profile of Respondents

	Frequency (N)	Percentage (%)
Gender		
Male	31	31.00%
Female	69	69.00%
Total	100	100.00%
Age		
Gen Y/ Millenials (born between 1981-1996)	4	4.00%
Gen Z (born between 1997-2012)	88	88.00%
Gen X (born between 1965-1980)	8	8.00%
Total	100	100.00%
Education		
S1	41	41.00%
S2/S3	6	6.00%
SMA/SMK	53	53.00%
Total	100	100.00%
Experience		
6-12 months	5	5.00%
> 12 months	92	92.00%
3-5 months	3	3.00%
Total	100	100.00%

levels, though it is dominated by users with secondary education. In terms of experience, nearly all respondents (92%) have been using Gojek for more than 12 months, with a smaller proportion using the service for 6–12 months (5%) and 3–5 months (3%). These results suggest that the respondents are largely experienced users who are familiar with Gojek's features and service quality, thereby providing more representative and reliable assessments of the platform are necessarily.

C. Results and Discussion

The results of the outer model evaluation (see Table 2) indicate that most indicators achieved outer loadings above the recommended threshold of 0.7, confirming

good item reliability (Hair et al., 2019). Although a few items show slightly lower loadings (e.g., 0.671 and 0.793), they are retained because the corresponding constructs demonstrated acceptable composite reliability and AVE values. All constructs report Cronbach's alpha and composite reliability coefficients greater than 0.7, ensuring strong internal consistency. Similarly, the AVE values for all constructs exceed 0.5, confirming adequate convergent validity. Overall, the measurement model meet the required criteria, indicating that the constructs are both reliable and valid for further structural model testing.

This study uses HTM for discriminant validity testing. The results (Table 3) show that all values are below 0.9. It means that the data can be considered valid (Sarstedt et al.,

Table 2 Measurement model

	ADOP	Cronbach's alpha	Composite reliability	Average variance extracted
ADOP1	0.876	0.829	0.855	0.664
ADOP2	0.831			
ADOP3	0.671			
ADOP4	0.864			
GAM1	0.880	0.903	0.925	0.771
GAM2	0.893			
GAM3	0.918			
GAM4	0.820			
PEOU1	0.895	0.912	0.919	0.791
PEOU2	0.882			
PEOU3	0.916			
PEOU4	0.863			
PU1	0.880	0.907	0.907	0.782
PU2	0.885			
PU3	0.888			
PU4	0.883			
SQ1	0.847	0.857	0.872	0.701
SQ2	0.928			
SQ3	0.772			
SQ4	0.793			
TRU1	0.858	0.875	0.889	0.800
TRU2	D			
TRU3	0.933			
TRU4	0.892			

Table 3 HTMT Results

	ADOP	GAM	PEOU	PU	SQ	TRU
ADOP						
GAM	0.611					
PEOU	0.729	0.381				
PU	0.846	0.436	0.862			
SQ	0.623	0.551	0.620	0.772		
TRU	0.745	0.664	0.713	0.770	0.864	

Using SmartPLS, structural

2021).

Using SmartPLS, structural model testing was conducted to examine the relationships among the proposed constructs. The bootstrapping procedure with 10,000 subsamples was applied in SmartPLS 4 to assess the significance of the path coefficients. The evaluation included collinearity diagnostics (VIF), path coefficients, effect size (f^2), coefficient of determination (R^2), and predictive relevance (Q^2) (Hair et al., 2019). Table 4 shows the results of the structural model. Figure 1 shows the results of the relationship between variables.

The results of the collinearity test show that all VIF values fall between 1.554 and 3.496, which are below the conservative threshold of 5, indicating that multicollinearity

does not pose a problem in this model. Path coefficients were then assessed by comparing the computed t-statistics with the critical value of 1.96 (at $\alpha = 0.05$). As shown in Table 4, the hypothesized relationship between Perceived Usefulness (PU $\rightarrow$ ADOP) is supported ($\beta = 0.575$, $t = 4.435$, $p < 0.001$, $f^2 = 0.269$), demonstrating a strong and significant effect on adoption. Perceived usefulness plays a crucial role in the adoption of ride-hailing applications such as Gojek, significantly influencing user satisfaction and decision-making processes. Research by Siswadi et al., (2023) shows that perceived value directly influences users' intention to adopt services such as Gojek, highlighting that when users assess the usefulness of the application, their loyalty and satisfaction increase accordingly.

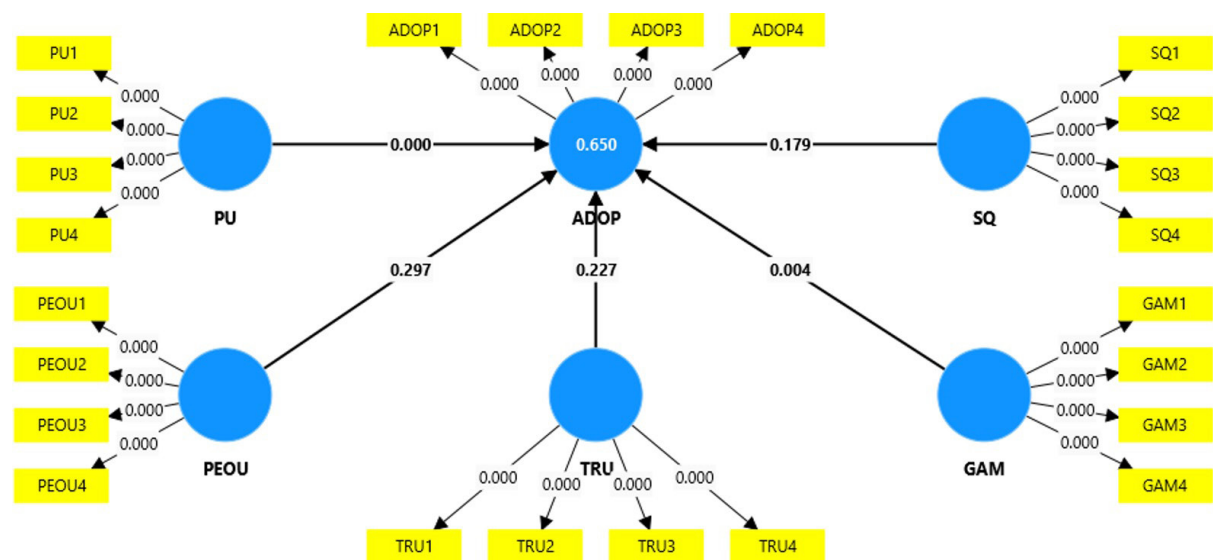


Figure 1 Results of The Relationship Between Variables

This relationship is further supported by the findings of Putri & Sari (2024), who emphasize perceived benefits as a key factor influencing users' satisfaction.

Furthermore, studies show that increasing perceived value through features such as service quality, reliability, and affordability effectively attracts and retains users in a competitive market (Thaithatkul et al., 2021; Wardhana & Pradana, 2023). These attributes align with consumer expectations in urban transportation, as they seek not only convenience but also economic benefits (Fauzi & Sheng, 2020). Therefore, the perceived usefulness gained from using Gojek, which is enhanced through reliable services and user-friendly features, significantly correlates with higher adoption rates (Al-Masaeed et al., 2022; Zahara et al., 2021).

Similarly, Gamification (GAM → ADOP) is significant ($\beta = 0.250$, $t = 2.873$, $p < 0.01$, $f^2 = 0.115$), confirming that gamification positively contributes to adoption. Gamification significantly influences the adoption of ride-hailing applications such as Gojek by increasing users' engagement and satisfaction. The integration of gamification elements such as rewards, leaderboards, and feedback mechanisms can improve driver performance and motivation, which in turn improves service quality and customers' loyalty (Gunawan, 2024; Putranti et al., 2024). Studies show that gamification creates a more engaging users' experience by promoting social values and encouraging competitive participation, which is crucial for users' retention in the gig economy (Novianto, 2024; Wardhana & Pradana, 2023).

Furthermore, findings from Putranti et al. indicate that the social values and participatory engagement associated with gamification systems significantly improve driver performance, thereby enhancing overall service quality (Putranti et al., 2024). Gunawan (2024) also discusses how digital platforms such as Gojek are changing social norms and economic dynamics in the gig economy. As Gojek continues to utilize gamification

strategies, this becomes increasingly important to attract and retain users in a competitive market, demonstrating the effectiveness of these tools in the ride-hailing sector (Novianto, 2024; Wardhana & Pradana, 2023).

On the other hand, the paths from Perceived Ease of Use (PEOU → ADOP) ($\beta = 0.106$, $t = 1.054$, $p > 0.05$, $f^2 = 0.011$), Service Quality (SQ → ADOP) ($\beta = -0.139$, $t = 1.189$, $p > 0.05$, $f^2 = 0.020$), and Trust (TRU → ADOP) ($\beta = 0.134$, $t = 1.053$, $p > 0.05$, $f^2 = 0.016$) are found to be insignificant, leading to the rejection of these hypotheses. Perceived ease of use (PEOU) has been shown to have a limited influence on the adoption of transportation booking applications, such as Gojek. Several studies show that although ease of use is relevant, factors such as perceived benefits and service quality often have a more significant impact. For example, Siswadi et al., (2023) highlight that dimensions such as perceived value and service quality significantly influence user satisfaction and loyalty, suggesting that users may prioritize functionality over ease of navigation. Furthermore, Putri and Sari note that perceived ease of use is one factor that influences user satisfaction, but not the most critical one, indicating a complex relationship with other elements such as service quality and perceived benefits (Putri & Sari, 2024).

Furthermore, Wardhana & Pradana (2023) argue that in a diverse market such as Indonesia, with varied user demographics and different levels of digital literacy, users may overlook ease of use if they recognize the application as beneficial or cost-efficient. This idea is supported by the argument that other aspects of the service, such as reliability and social trust, play a significant role in user adoption decisions (Gunawan, 2024; Thaithatkul et al., 2021). Therefore, although perceived ease of use contributes to the overall user experience, it does not drive adoption as much as perceived benefits and service quality. Trust has traditionally been considered a crucial element influencing service adoption, including ride-hailing applications such as

Table 4 The Structural Model Results

Hypotesis	Original sample	Std dev	T statistics	P values	VIF	F2	Q2	R2
GAM ->							0.600	0.649
ADOP	0.250	0.087	2.873	0.004	1.554	0.115		
PEOU ->								
ADOP	0.106	0.100	1.054	0.292	2.785	0.011		
PU ->								
ADOP	0.575	0.130	4.435	0.000	3.496	0.269		
SQ ->								
ADOP	-0.139	0.117	1.189	0.234	2.750	0.020		
TRU ->								
ADOP	0.134	0.127	1.053	0.292	3.285	0.016		

Source: data author

Gojek. Recent studies show that although trust is important, its influence on Gojek adoption may be less significant than other factors. For example, Siswadi et al. (2023) found that perceived value and service quality are more critical in shaping user loyalty and satisfaction than trust alone. Their research suggests that, with technological advances, consumers often prioritize functional benefits over trust, especially in fast-paced service environments.

Service quality is recognized as an important factor in user satisfaction; however, evidence suggests that it may not be the primary influence in the adoption of ride-hailing apps such as Gojek. Although improving service quality is often considered vital for customer retention, studies show that other elements may have a more significant impact on adoption rates. For example, Astuti & Setiawan (2023) found that customer perceptions of fare structure and driver cleanliness are more critical to user acceptance than service quality alone. These findings are supported by Thaithatkul et al. (2021), who emphasize that aspects such as price and convenience are often prioritized over service quality in the user decision-making process.

The explanatory power of the model is indicated by the R^2 value of 0.649, suggesting that the constructs collectively explain approximately 64.9% of the variance in adoption. Furthermore, the Q^2 value of

0.600 demonstrates that the model has strong predictive relevance, as Q^2 values greater than zero indicate adequate predictive capability. Overall, the structural model results highlight that adoption of Gojek ride-hailing is primarily driven by perceived usefulness and gamification, whereas perceived ease of use, service quality, and trust do not exhibit significant direct effects. These findings provide empirical support for the robustness of the model, demonstrating both strong explanatory power and predictive relevance.

D. Conclusion

This study demonstrates that adoption of Gojek's ride-hailing service in Indonesia is driven primarily by perceived usefulness and gamification. Perceived usefulness and gamification show the positive effect on adoption. By contrast, perceived ease of use, service quality, and trust do not exert significant direct effects on adoption in this sample, suggesting their influence may be indirect (e.g., via usefulness or satisfaction) or contingent on user segments.

The novelty of this work lies in extending TAM with gamification alongside trust and e-service quality in an emerging-market super-app context. The results clarify that, beyond ease and utility, motivational design features (points, badges, challenges,

feedback) contribute meaningfully to actual adoption—evidence that is still sparse in ride-hailing literature.

Managerially, platforms should prioritize utility delivery (reliable ETAs, transparent pricing, coverage density) and evidence-based gamified mechanics (progress feedback, calibrated rewards) to strengthen use. Investments in platform reliability and clear service recovery remain essential to protect trust, even if its direct path to adoption is weak. Theoretically, the findings support a utility-and-motivation view of adoption and invite models that test indirect paths (PEOU→PU; service quality→trust→adoption) and segment effects (e.g., younger, long-tenure users). Limitations include convenience sampling and a Gen-Z heavy composition; future studies should broaden sampling, incorporate longitudinal or experimental designs, and explicitly model mediation/moderation to generalize and deepen these insights.

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