Equivalent: Jurnal Ilmiah Sosial Teknik
Volume 8, Issue 3, 1336-1345
e_ISSN: 2775-0833
https://jurnalequivalent.id/index.php/jequi/index
DOI: doi.org/10.59261/jequi.vx83.378

Analysis of Users' Perception of Security and Trust in Information Security in the WhatsApp Chat Backup Feature

Mariska Diksy Yuniar* Telkom University, Indonesia
Rio Guntur Utomo Telkom University, Indonesia

***Corresponding author:**
Mariska Diksy Yuniar, Telkom University, Indonesia.
✉mariskaady@student.telkomuniversity.ac.id

Article Info:
Article history:
Received: June 17, 2026
Revised: July 09, 2026
Accepted: July 18, 2026
Available Online: September 01, 2026

Keywords:
Security; Trust; WhatsApp Chat Backup Feature; Push-Pull Mooring (PPM); PLS-SEM.

Abstract

Background: Advances in communication technology have driven the increased use of instant messaging apps like WhatsApp, including chat backup features, which are linked to security and user trust in cloud-based data storage. This situation is exacerbated by low user digital literacy, with most users unaware that WhatsApp message backups on Google Drive are not automatically protected by end-to-end encryption.
Objective: This study aims to analyze the factors influencing user perceptions of security and trust in WhatsApp's chat backup feature and their impact on continued usage intentions using the Push–Pull–Mooring (PPM) model.
Methods: Data were collected through an online questionnaire from 447 active WhatsApp users aged 20–50 in Indonesia and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the help of SmartPLS 4 software.
Results: The results showed that institutional privacy concerns had no significant effect on usage intention ($p = 0.123$), while relative privacy protection had a significant but weak effect ($p = 0.049$; $f^2 = 0.008$). Regarding the mooring factor, evaluation cost ($p < 0.001$; $\beta = 0.309$) and transition cost ($p < 0.001$; $\beta = 0.510$) significantly influenced switching exhaustion, while replacement cost had no significant effect. Furthermore, switching exhaustion was shown to significantly influence usage intention ($\beta = 0.418$; $p < 0.001$).
Conclusion: Results indicate that user decisions are influenced not only by perceived security and trustworthiness, but also by barriers and psychological fatigue when considering switching services. A Goodness of Fit (GoF) value of 0.460 indicates the model's overall performance is good.

To cite this article: Yuniar, M. D., & Utomo, R. G. (2026). Analysis of Users' Perception of Security and Trust in Information Security in the WhatsApp Chat Backup Feature. *Equivalent: Jurnal Ilmiah Sosial Teknik*, 8(3), 1336-1345. https://doi.org/10.59261/jequi.v8i3.378

INTRODUCTION

The development of digital communication technology has made instant messaging applications the main means of communication as well as a medium for storing personal data that cannot be separated from the daily lives of modern society (Wiryany et al., 2022). WhatsApp is one of the most widely used instant messaging apps globally (DataReportal, 2024; Hong et al., 2026; Luo et al., 2021; Statista, 2024), offering a wide range of communication features including a cloud-based chat backup feature that allows users to store conversation history, media, and documents through services such as Google Drive or iCloud (Bogos et al., 2023).

While chat backup features provide benefits in maintaining data continuity and ease of recovery, the use of cloud-based storage services also raises serious concerns regarding data security and privacy (Bogos et al., 2023). Technically, WhatsApp backups to Google Drive are not protected by *end-to-end* encryption (E2EE) automatically, unless the user manually enables

additional encryption features (Davies, 2023). This condition creates a significant security loophole, especially considering that previous research found that around 68% of active WhatsApp users in West Java were unaware that message backups on Google Drive were not automatically encrypted (Pangaribuan et al., 2023). On the other hand, around 63% of users rely more on personal caution than taking advantage of the technical security features that the application has provided (Oesch, 2020, 2022).

The Push–Pull–Mooring (PPM) theory was originally developed in the context of geographic migration to explain why individuals decide to move from one location to another. Along with the development of research in the field of information systems, the PPM framework has been widely adapted to explain user movement behavior in the context of digital services (Yuliawan et al., 2025).

In the context of digital services, the push factor represents negative conditions that drive users to leave a service, such as privacy concerns and data security risks. The pull factor represents a positive attraction that encourages users to retain or move to a service, such as superior privacy protection and ease of use. Meanwhile, the mooring factor is an obstacle that strengthens or weakens the decision to move, such as beliefs, habits, and the cost of switching services (Yuliawan et al., 2025).

The PPM framework was chosen in this study because of its ability to explain the behavior of using the WhatsApp chat backup feature more comprehensively than conventional technology adoption models such as TAM and UTAUT. The use of backup features is not only influenced by the perception of the benefits of technology, but also by the perception of security, privacy protection, and psychological barriers that influence the decision to use the service.

Davies *et al.* (2023) and Bogos *et al* (2023) analyzed the security of WhatsApp's end-to-end encrypted backup protocol and found that data protection is a crucial aspect of the use of cloud-based digital communications services (Bogos et al., 2023). Their findings confirm that backups without E2EE are potentially accessible to third parties, including cloud service providers.

Elciyar found that changes in WhatsApp's privacy policy had a significant impact on user behavior towards digital services (Elciyar, 2025). Schaewitz et al. (2021) found that most users still have a limited understanding of the end-to-end encryption mechanism in instant messaging applications (Schaewitz et al., 2021; Singh et al., 2023). In Indonesia, Pangaribuan et al. revealed that 68% of active WhatsApp users in West Java were unaware that chat backups on Google Drive are not protected by automatic encryption (Schaewitz et al., 2021; Singh et al., 2023), indicating a serious gap between the security features available and the digital literacy of users.

In the context of the PPM framework, Firdausi and Dharmmesta used it to analyze the intention to switch to environmentally friendly cosmetic products (Firdausi & Dharmmesta, 2023), while Liang applied it to explain the behavior of application switching on mobile-based search services (Yuliawan et al., 2025). Ariena et al. (2024) shows that privacy, security, and dissatisfaction affect user migration intent on instant messaging applications (Ariena et al., 2024). Yuliawan et al. found that switching cost plays an important role in determining user behavior on mobile-commerce platforms (Yuliawan et al., 2025).

However, these studies were limited because most focused only on technology adoption, privacy, or migration behavior separately. There has been no research that specifically integrates security perception, privacy protection, switching costs, and switching exhaustion in a single PPM framework in the context of WhatsApp chat backup features. This research aims to fill this gap.

This gap between the technical conditions of security and user understanding creates a double problem: on the one hand users are at risk of data leaks, on the other hand inaccurate security perceptions can influence technology usage decisions. Several previous studies have shown that the perception of security and privacy concerns have a significant influence on users'

attitudes and intentions in using digital services (Elciyar, 2025). However, most of these studies still focus on the context of application use in general, technology adoption through TAM or UTAUT models, and migration behavior separately without specifically examining cloud-based chat backup features that have their own risk characteristics (Pebiyanti, 2023).

Based on the research gap, this study adopts a Push–Pull–Mooring (PPM) framework that can comprehensively explain user behavior through a combination of push factors, pull factors, and mooring factors. In this study, the push factor is represented by institutional privacy concerns, the pull factor by relative privacy protection, and the mooring factor by switching costs (consisting of replacement cost, evaluation cost, and transition cost) through switching mediation exhaustion to the intention of continuous use of the WhatsApp chat backup feature.

This study aims to: (1) analyze the influence of institutional privacy concerns on the intention of use; (2) analyze the influence of relative privacy protection on the intention of use; (3) analyze the influence of the three dimensions of switching costs on switching exhaustion; and (4) analyze the effect of switching exhaustion on the intention of use. The research findings are expected to make a theoretical contribution to the development of the PPM framework in the context of digital privacy, as well as a practical contribution for platform developers in improving the security and transparency of cloud-based data storage services.

Research and Hypothesis Development Model

Based on theoretical studies and previous research, the research model was built with exogenous variables: Institutional Privacy Concerns (IPC) as a push factor; Relative Privacy Protection (RPP) as a pull factor; Replacement Cost (RC), Evaluation Cost (EC), and Transition Cost (TC) as mooring factors. The mediation variable is Switching Exhaustion (SE), and the endogenous variable is Continuance Intention to Use Chat Backup (INT).

Institutional Privacy Concerns (H1)

Institutional privacy concerns refer to the level of concern users have about how service providers collect, manage, store, and protect their personal data. In the PPM framework, this variable is categorized as a push factor that has the potential to encourage users to avoid or reduce the use of a service. The higher the user's concern for institutional privacy, the lower the intention to use digital services (Maria, 2026).

H1: Institutional privacy concerns have a negative effect on the intention of continuous use.

Relative Privacy Protection (H2)

Relative privacy protection refers to the user's perception of the advantages of privacy protection of a service compared to other alternatives. In the PPM framework, this variable is a *pull* factor that increases user security and reduces uncertainty about data security risks. A better perception of privacy protection has a positive effect on the intention to use digital services (Maria, 2026).

H2: Relative privacy protection has a positive effect on the intention of continuous use.

Switching Costs to Switching Exhaustion (H3)

In this study, switching costs are divided into three dimensions: (a) Replacement cost refers to the time, effort, and resources to switch to alternative platforms. High replacement costs increase barriers to moving but do not always translate into psychological fatigue (Elciyar, 2025); (b) Evaluation cost refers to the cognitive effort to evaluate and compare alternative services. The greater the evaluation effort, the higher the fatigue felt (Yuliawan et al., 2025); (c) Transition cost refers to the effort to adapt to the new service including learning the interface and moving data. The complexity of the transition increases the user's discomfort (Amani, 2022).

H3a: Replacement cost has a negative effect on switching exhaustion.
H3b: Evaluation cost has a positive effect on switching exhaustion.
H3c: Transition cost has a positive effect on switching exhaustion.

Switching Exhaustion to Intention of Use (H4)

Switching exhaustion is a condition of psychological fatigue experienced by users when considering moving from one service to another. Users who experience fatigue in the evaluation and adaptation process tend to choose to continue using existing services as the most practical option (Elciyar, 2025).

H4: Switching exhaustion has a positive effect on the intention of continuous use

METHOD

This research employed a quantitative methodology utilizing a survey technique to empirically examine the relationships among variables within the PPM model. The PLS-SEM method was selected due to its capacity to analyze relationships in intricate models featuring multiple latent variables, while not necessitating stringent normal distribution assumptions regarding the data (Yarsasi et al., 2025).

The measurement instrument was adapted from relevant previous studies (Elciyar, 2025), resulting in seven latent constructs. All items were measured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Prior to the PLS-SEM analysis, the instrument consisted of 28 items with each construct operationalized using four indicators.

The instrument was first tested for validity using corrected item-total correlation (r-calculated > r-table = 0.361 at 5% significance) and reliability using Cronbach's Alpha ($\alpha \geq 0.70$) in 30 initial respondents using SPSS. This preliminary test served as an initial screening; the measurement model validity and reliability were comprehensively confirmed through outer model evaluation in PLS-SEM (see Section Data Analysis). Once the instrument was declared valid and reliable, the questionnaire was distributed to the main sample.

The survey was conducted through Google Forms for two months to active WhatsApp users in Indonesia aged 20–50 years. Sampling was conducted using a purposive sampling technique, with inclusion criteria: (1) active WhatsApp users aged 20–50 years in Indonesia; (2) having awareness or direct experience of the WhatsApp chat backup feature. Respondents who submitted incomplete or duplicate responses were excluded from the final dataset. Ethical considerations were upheld through voluntary participation and anonymity, with an informed consent statement provided at the beginning of the questionnaire instrument. The minimum number of samples is set at 400 respondents according to the provisions of the PLS-SEM analysis (10 times the number of indicators in the model) (Yarsasi et al., 2025). Data were successfully collected from 447 respondents (100% valid response rate). The demographic distribution of respondents is presented in Table 1.

Table 1

Demographic Characteristics of Respondents (N=447)

Categories	Classification	N	Percentage (%)
Gender	Male	165	36,9
	Women	282	63,1
Age	20–25 years old	180	40,3
	26–30 years	74	16,6
	31–35 years old	74	16,6
	36–40 years old	62	13,9
	41–45 years old	40	8,9
	46–50 years old	17	3,8
Length of Use of WhatsApp	<1 year	7	1,6
	1–5 years	121	27,1
	>5 years	319	71,4
Backup Frequency	Never	20	4,5
	Sometimes	146	32,7
	Frequent	161	36,0
	Always	120	26,8

Source: Research Data

Most respondents were aged 20–25 (40.3%) and had used WhatsApp for more than five years

(71.4%), indicating that they were experienced and active users of digital communications. The dominance of users with a usage duration of >5 years is relevant because they are more likely to have hands-on experience with the chat backup feature.

Data analysis was conducted utilizing PLS-SEM with SmartPLS 4 in a two-stage process: (1) assessment of the outer model to evaluate the validity of convergent (factor loading ≥0.70; AVE ≥0.50), discriminant validity (Fornell-Larcker criteria, cross-loading, and HTMT <0.90), and reliability (Cronbach's Alpha and Composite Reliability >0.70); and (2) internal model evaluation to examine R-Square, effect size (f^2), VIF values (VIF ≤ 5.0) to assess collinearity, bootstrapping with 5,000 subsamples for path coefficients, and p-value to test hypothesis significance ($p < 0.05$) (Yarsasi et al., 2025).

RESULTS AND DISCUSSION

Results

Evaluation of Measurement Models (Outer Model)

An evaluation of the outer model is carried out to ensure the validity and reliability of each construct. Table 2 summarizes the results of convergent validity tests.

Table 2

Convergent Validity Test Results

Variable	Code	Outer Loading	AVE	Remarks
Institutional Privacy Concerns	IPC1	0,759	0,727	Valid
	IPC2	0,962		Valid
	IPC3	0,783		Valid
	IPC4	0,891		Valid
Relative Privacy Protection	RPP1	0,832	0,721	Valid
	RPP2	0,860		Valid
	RPP3	0,839		Valid
	RPP4	0,864		Valid
Replacement Cost	RC1	0,751	0,587	Valid
	RC2	0,783		Valid
	RC3	0,721		Valid
	RC4	0,807		Valid
Evaluation Cost	EC1	0,743	0,548	Valid
	EC2	0,710		Valid
	EC3	0,809		Valid
	EC4	0,695		Valid
Transition Cost	TC1	0,768	0,568	Valid
	TC2	0,764		Valid
	TC3	0,782		Valid
	TC4	0,698		Valid
Switching Exhaustion	SE1	0,793	0,646	Valid
	SE2	0,805		Valid
	SE3	0,794		Valid
	SE4	0,823		Valid
Intent (INT)	INT1	0,735	0,514	Valid
	INT2	0,711		Valid
	INT3	0,718		Valid
	INT4	0,703		Valid

Source: Research Data

All constructs met the convergent validity criteria with a factor loading value of >0.70 (except EC4 = 0.695 which is still acceptable because >0.50) and AVE >0.50. The results of the discriminant validity test using the Fornell-Larcker criterion (Table 3) showed that the AVE root of each variable was greater than the correlation between the construct and the other constructs, confirming the adequate discriminant validity.

Table 3
Discriminatory Validity – Fornell-Larcker Criteria

	EC	INT	IPC	RC	RPP	SE	TC
EC	0,740						
INT	0,413	0,717					
IPC	0,249	0,064	0,853				
RC	0,484	0,592	0,212	0,766			
RPP	0,309	0,180	0,463	0,402	0,849		
SE	0,588	0,423	0,266	0,418	0,305	0,804	
TC	0,588	0,579	0,228	0,611	0,296	0,665	0,754

Source: Research Data

Reliability testing (Table 4) shows that the entire construct has a Composite Reliability value of >0.70. Cronbach's Alpha value of the INT variable (0.685) is slightly below the threshold of 0.70, but it is still acceptable because its Composite Reliability value (0.809) has exceeded the threshold, according to the recommendations of Hair et al. (Cheung, 2024).

Table 4
Reliability Test Results

Variable	Cronbach's Alpha	Composite Reliability	Remarks
IPC	0,907	0,913	Reliable
RPP	0,873	0,912	Reliable
RC	0,766	0,850	Reliable
EC	0,725	0,829	Reliable
TC	0,747	0,840	Reliable
SE	0,817	0,879	Reliable
INT	0,685	0,809	Reliable

Source: Research Data

Evaluation of Structural Models (Inner Model)

Coefficient of Determination (R-Square)

Based on Table 5, the R-Square adjusted variable switching exhaustion (SE) value of 0.500 indicates that RC, EC, and TC are able to explain 50.0% of the SE variance classified as a moderate category. The R-Square adjusted intention variable (INT) value of 0.182 means that IPC, RPP, and SE explain 18.2% of INT variance, relatively weak but common in user behavior studies involving many external latent variables.

Table 5
R-Square Test Results

Variable	R-Square	R-Square Adjusted	Categories
Switching Exhaustion (SE)	0,503	0,500	Moderate
Intent (INT)	0,188	0,182	Weak

Source: Research Data

Effect Size (f^2)

The results of the effect size (f^2) calculation showed that TC had the greatest influence on SE (f^2 = 0.270; moderate), followed by SE on INT (f^2 = 0.191; moderate), and EC on SE (f^2 = 0.121; moderate). Meanwhile, the RC against SE (f^2 = 0.002), IPC against INT (f^2 = 0.008), and RPP against INT (f^2 = 0.008) were classified as very weak effects.

Goodness of Fit (GoF)

GoF values are calculated based on the average of AVE (0.615) and the average of R-Square (0.345), resulting in GoF = $\sqrt{(0.615 \times 0.345)}$ = 0.460. This value indicates the overall good performance of the model in combining the quality of the outer model and the inner model (Yarsasi et al., 2025).

Hypothesis Testing (Path Coefficients)

Table 6 presents the results of the test of the path coefficient and hypothesis significance.

Table 6

Results of the test of the coefficient of the path and the hypothesis

Hypothesis	Pathway	β	T-Statistics	P-Value	f^2	Verdict
H1	IPC → INT	-0,091	1,160	0,123	0,008	Rejected
H2	RPP → INT	0,095	1,659	0,049*	0,008	Accepted
H3a	RC → SE	-0,043	0,706	0,240	0,002	Rejected
H3b	EC → SE	0,309	3,864	<0,001***	0,121	Accepted
H3c	TC → SE	0,510	6,339	<0,001***	0,270	Accepted
H4	SE → INT	0,418	7,615	<0,001***	0,191	Accepted

*Note: *p<0.05; **p<0.01; p<0.001*

Source: Research Data

Based on Table 6, four of the six hypotheses are accepted. H1 was rejected because the IPC had no significant effect on INT ($p = 0.123 > 0.05$). H2 received with RPP had a significant positive effect on INT ($p = 0.049$; $\beta = 0.095$) although with a weak effect. H3a was rejected because RC had no significant effect on SE ($p = 0.240$). H3b and H3c were accepted, with EC ($\beta = 0.309$) and TC ($\beta = 0.510$) both having a significant positive effect on SE. H4 received with SE had a significant positive effect on INT ($\beta = 0.418$; $p < 0.001$).

Discussion

Institutional Privacy Concerns and Intent to Use (H1)

The results of the analysis showed that institutional privacy concerns (IPC) did not have a significant effect on the intention to use the WhatsApp chat backup feature ($\beta = -0.091$; $p = 0.123$). These findings indicate that users' concerns about data privacy are not directly a major factor in digital service usage decisions. This phenomenon can be explained through the concept of privacy paradox, which is a condition in which users continue to use digital services despite having concerns about privacy because the perceived benefits are considered to outweigh the risks.

From the perspective of the PPM framework, these findings confirm that the push factor is not always the dominant determinant of user behavior, especially on platforms that have become a key communication need. Users tend to maintain use due to the high habits and utility provided by WhatsApp in daily life (Ariena et al., 2024). These results are in line with Ariena et al. (2024) who found that privacy is not always the single determinant factor in the intention of moving instant messaging applications, as it is moderated by mooring factors such as switching fatigue.

Theoretically, these findings extend the application of the PPM framework by showing that push factors in the context of digital privacy do not necessarily directly affect intent to use. In practical terms, this implies that efforts to improve security alone are not enough to change user behavior without increased digital literacy and effective risk communication.

Relative Privacy Protection and Intent to Use (H2)

Relative privacy protection (RPP) was shown to have a positive and significant effect on intent to use ($\beta = 0.095$; $p = 0.049$), confirming H2. This means that the better the user's perception of WhatsApp's privacy and data security protection compared to other alternatives, the higher their intention to continue using the chat backup feature. However, the relatively weak effect size value ($f^2 = 0.008$) indicates that this influence, although statistically significant, has a limited practical contribution to explaining INT variance.

These findings reinforce the role of pull factors in the PPM framework. When users perceive WhatsApp's privacy protection as superior to similar services, this serves as an attraction that maintains the use of the service. This result is in line with a study by Elciyar (2025) which found that the perception of privacy protection affects user behavior in digital communication services.

In practical terms, these findings suggest that Meta/WhatsApp needs to consistently improve and communicate the advantages of its security systems including privacy policy transparency, ease of activation of end-to-end encryption on backups, and user education on data protection

mechanisms as an effective user retention strategy.

Switching Costs to Switching Exhaustion (H3)

Of the three dimensions of switching costs, evaluation cost (β = 0.309; p < 0.001) and transition cost (β = 0.510; p < 0.001) were shown to have a significant positive effect on switching exhaustion, while replacement cost (β = -0.043; p = 0.240) had no significant effect.

H3a's rejection suggests that reimbursement costs in the context of instant messaging service switching do not significantly create psychological fatigue. This can be explained by the increasing technical ease of exporting and migrating conversation data, so that users no longer perceive replacement as something emotionally burdensome. These findings differ from several studies that show a significant role of replacement costs in different contexts (Elciyar, 2025), likely due to differences in service and respondent characteristics.

On the contrary, the acceptance of H3b and H3c confirms that the cognitive process in evaluating alternatives (evaluation cost) and the complexity of adapting to new platforms (transition cost) are the main sources of user fatigue. Transition cost has the greatest influence (β = 0.510; f^2 = 0.270) because the transition process includes not only data migration, but also social network reconstruction and interface customization that requires significant time and cognitive investment.

These results strengthen the role of mooring factors in the PPM framework as the main determinants of user behavior, in line with the findings of Liang (Yuliawan et al., 2025) regarding the role of switching costs on digital platforms.

Switching Exhaustion to Intention of Use (H4)

Switching exhaustion was shown to have a positive and significant effect on intent of use (β = 0.418; p < 0.001; f^2 = 0.191), making it the variable with the strongest influence and the greatest effect on INT in this model. This shows that psychological fatigue in considering moving services directly strengthens users' intention to continue using WhatsApp's chat backup feature.

These findings reinforce the concept of the mooring effect within the PPM framework, where psychological factors not just economic rationality play a crucial role in sustainable use decisions. Users who are already tired of the complexity of evaluation and transition will tend to maintain the status quo as a cognitive load reduction mechanism. These results are in line with the findings of reference research (Elciyar, 2025) and expand the validity of the switching exhaustion construct in the context of instant messaging applications in Indonesia.

In practical terms, these findings imply that an effective user retention strategy for platform developers relies not only on improving security features, but also on optimizing the overall user experience that minimizes system complexity and maximizes ease of use.

Theoretical and Practical Implications

Theoretically, this research makes several contributions. First, this study extends the validation of the PPM framework to a specific and under-studied context, namely cloud-based chat backup features in instant messaging applications in developing countries. Second, this study confirms the existence of the privacy paradox in the Indonesian context, where privacy concerns do not necessarily affect user behavior. Third, this study shows that the mooring factor especially psychological fatigue has a more dominant role than the push and pull factors in determining the intention of sustainable use.

Practically, digital platform developers need to: (1) increase transparency and ease of activation of security features, such as E2EE encryption on backups enabled by default; (2) develop comprehensive digital education programs to improve user safety literacy; (3) maintain a simple and intuitive quality of user experience to minimize evaluation costs and transition costs; and (4) build user trust through transparent communication regarding personal data management and protection policies.

CONCLUSION

This study examined the factors influencing users' perceptions of security and trust in the WhatsApp chat backup feature using the Push–Pull–Mooring (PPM) framework and PLS-SEM. The findings indicate that relative privacy protection, evaluation cost, transition cost, and switching

exhaustion significantly influence users' continuance intention, whereas institutional privacy concerns and replacement cost do not show significant effects. Among all variables, switching exhaustion emerged as the strongest determinant of continuance intention, indicating that users' decisions to continue using the chat backup feature are driven more by psychological and cognitive barriers associated with switching than by privacy concerns alone. These findings extend the application of the PPM framework by demonstrating the dominant role of mooring factors in explaining continuance behavior toward cloud-based messaging services.

The study contributes theoretically by providing empirical evidence for the applicability of the PPM framework in the context of cloud-based chat backup services and by highlighting the importance of switching exhaustion as a key predictor of continuance intention. Practically, the findings suggest that platform providers should improve privacy protection transparency, simplify security feature activation, and enhance user education to strengthen trust while minimizing perceived switching complexity. This study is limited to WhatsApp users in Indonesia and employs a cross-sectional design; therefore, future research should include multiple messaging platforms, adopt longitudinal approaches, and incorporate additional variables such as digital literacy, institutional trust, or prior security experience to provide a more comprehensive understanding of users' continuance behavior.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to Telkom University for providing academic support, research facilities, and a supportive environment throughout the completion of this study. Appreciation is also extended to all respondents and relevant parties who contributed valuable insights and information regarding users' perceptions of security and trust in the WhatsApp chat backup feature.

AUTHOR CONTRIBUTION STATEMENT

Mariska Diksy Yuniar contributed to the conceptualization, research design, data collection, data analysis, interpretation of findings, and preparation of the original manuscript. Rio Guntur Utomo contributed to methodology development, supervision, validation, and critical review of the manuscript. Both authors collaboratively contributed to the development of the research framework, discussion of results, manuscript revision, and final approval of the submitted version.

REFERENCES

Amani, D. (2022). Circumventing Customers' Switching Behavior in Telecommunication Industry in Tanzania: Insight from Sternberg's Triangular Theory of Love. *Cogent Social Sciences*, *8*(1), 2042078. https://doi.org/10.1080/23311886.2022.2042078

Ariena, J., Widia, S., Fitriani, R., & Nizar, A. (2024). The Roles of Privacy, Security, and Dissatisfaction in Affecting Switching Intention on Messenger Applications. *Multimedia Tools and Applications*, *83*(15), 45625–45651. https://doi.org/10.1007/s11042-023-17466-4

Bogos, C.-E., Mocanu, R., & Simion, E. (2023). A Security Analysis Comparison between Signal, WhatsApp and Telegram. In *Cryptology ePrint Archive*. https://eprint.iacr.org/2023/071

Cheung, G. W. (2024). Reporting Reliability, Convergent and Discriminant Validity with Structural Equation Modeling: A Review and Best-Practice Recommendations. *Asia Pacific Journal of Management*, *41*(2). https://doi.org/10.1007/s10490-023-09871-y

DataReportal. (2024). *Digital 2024: Global Overview Report*. Kepios. https://datareportal.com/reports/digital-2024-global-overview-report

Davies, G. T. (2023). Security Analysis of the WhatsApp End-to-End Encrypted Backup Protocol. In *Lecture Notes in Computer Science* (Vol. 14084, pp. 330–361). Springer. https://doi.org/10.1007/978-3-031-38551-3_11

Elciyar, K. (2025). Users' Privacy Behaviors in Response to WhatsApp Policy Changes. *Information & Computer Security*. https://doi.org/10.1108/ICS-04-2024-0096

Firdausi, A. S. M., & Dharmmesta, B. S. (2023). The Effect of Push, Pull, and Mooring Factors on Customers' Switching Intention to Green Cosmetics. *Gadjah Mada International Journal of*

Business, *25*(3), 327–354. https://doi.org/10.22146/gamaijb.69863

Hong, Y., Wan, M., & Yao, W. (2026). More than Just Payment! Exploring the Determinants of Mobile Payment Continuance Intention: Insights from WeChat Pay. *Journal of Theoretical and Applied Electronic Commerce Research*, *21*(1), 7.

Luo, Y., Wang, G., Li, Y., & Ye, Q. (2021). Examining Protection Motivation and Network Externality Perspective Regarding the Continued Intention to Use M-Health Apps. *International Journal of Environmental Research and Public Health*, *18*(11), 5684. https://doi.org/10.3390/ijerph18115684

Maria, Y. S. (2026). *Pengaruh Perceived Usefulness, Perceived Security Risk, Perceived Privacy Risk Dan Perceived Ease Of Use Terhadap Kepercayaan Dan Niat Penggunaan Pada Fitur Grabfood Dine Out Deals Di Indonesia*. Universitas Lampung.

Oesch, S. (2020). Understanding User Perceptions of Security and Privacy for Group Chat: A Survey of Users in the US and UK. In *ACM International Conference Proceeding Series* (pp. 234–248). ACM. https://doi.org/10.1145/3427228.3427275

Oesch, S. (2022). User Perceptions of Security and Privacy for Group Chat. *Digital Threats: Research and Practice*, *3*(2). https://doi.org/10.1145/3491265

Pangaribuan, T., Sari, D., Takariani, C. S. D., & Simatupang, O. (2023). Kesadaran Keamanan dan Privasi Data Pengguna WhatsApp (Studi Kasus di Provinsi Jawa Barat). *Jurnal Studi Komunikasi Dan Media*, *27*(1), 93–108. https://doi.org/10.17933/jskm.2023.5129

Pebiyanti, E. (2023). Pengaruh Kualitas Informasi, Persepsi Keamanan, dan Persepsi Privasi Terhadap Kepercayaan Pengguna Belanja Online (Literature Review). *Jurnal Ekonomi Manajemen Sistem Informasi*, *4*(5), 850–858. https://doi.org/10.31933/jemsi.v4i5.1548

Schaewitz, L., Lakotta, D., Sasse, M. A., & Rummel, N. (2021). Peeking into the Black Box: Towards Understanding User Understanding of E2EE. In *ACM International Conference Proceeding Series* (pp. 129–140). ACM. https://doi.org/10.1145/3481357.3481521

Singh, A., Jain, R., Jha, P., & Saha, S. (2023). Peeking inside the black box: A commonsense-aware generative framework for explainable complaint detection. *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*, 7333–7347.

Statista. (2024). *Number of Monthly Active WhatsApp Users Worldwide from 2013 to 2024*. Statista. https://www.statista.com/statistics/260819/number-of-monthly-active-whatsapp-users/

Wiryany, D., Natasha, S., & Kurniawan, R. (2022). Perkembangan Teknologi Informasi dan Komunikasi terhadap Perubahan Sistem Komunikasi Indonesia. *Jurnal Nomosleca*, *8*(2), 242–252. https://doi.org/10.26905/nomosleca.v8i2.8821

Yarsasi, S., Tahyudin, I., & Hariguna, T. (2025). Analisis Validitas dan Reliabilitas Kuesioner dengan Metode PLS-SEM pada Aplikasi SMARTPLS. *Jurnal Pendidikan Dan Teknologi Indonesia*, *5*(7), 1905–1913.

Yuliawan, E., Sanny, L., Saroso, H., & Candra, S. (2025). How Gamification Affects Switching Behaviors in the Mobile-Commerce Platform: The Role of Customer Engagement and Switching Cost. *Frontiers in Communication*, *10*, 1608764. https://doi.org/10.3389/fcomm.2025.1608764