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Unveiling the Determinants of Actual Use among Google Drive Users: A Comprehensive Analysis

Surahman Surahman[*1], *Himanshu Shee*[2], *Bela Barus*[2], *Sugeng Hariyadi*[2], *Afrillia Syailendra*[2] *and Sarlivia*[2]

[1]Marketing, Innovation & Technology, Department of Business Administration, Politeknik Negeri Samarinda, Indonesia

[2]Victoria University Business School, Victoria University Melbourne, Australia

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Corresponding Author:

Surahman Surahman

Marketing, Innovation & Technology, Department of Business Administration,

Politeknik Negeri Samarinda, Indonesia

surahman@polnes.ac.id

ABSTRACT

Purpose:

This study aims to examine and demonstrate the impact of perceived security, perceived privacy, system quality, and utilitarian motives on users' actual use of Google Drive in Indonesia.

Design/methodology/approach:

This study focuses on attitudes toward use and trust as mediating variables in this relationship. The sample consisted of 115 Google Drive users who had completed the questionnaire. A quantitative methodology was adopted, utilizing path analysis with IBM SPSS Statistics 23 and structural equation modeling (SEM) using AMOS-5. An accidental random sampling technique was employed, and the questionnaire was distributed to 120 Google Drive users in Indonesia.

Findings:

The structural model results indicate that perceived security and privacy influence attitudes and actual use. The relationship between attitudes toward use significantly affects the actual use of Google Drive among users in Indonesia. Likewise, perceived security and privacy significantly influence usage attitudes and relationships with actual use.

Practical implications:

The current research is valuable for Google Drive users to illustrate the development of a relatively secure cloud-based Google Drive.

Originality/value:

To the best of our knowledge, the current study is the first academic paper to broaden Google Drive user adoption by examining the determinants of usage among Google Drive users.

Keywords: Google Drive, Perceived security, Privacy, Attitudes, Actual use, Methodology

1. INTRODUCTION:

In recent years, cloud-based storage and collaboration platforms have become increasingly popular, revolutionizing how individuals and organizations store, manage, and share digital files. Google Drive, one of the leading platforms in this domain, has gained immense traction owing to its user-friendly interface, extensive storage capacity, and integration with other Google Productivity Tools (Al-Okaily, Alkhwaldi, Abdulmuhsin, Alqudah, & Al-Okaily, 2023). Despite its widespread adoption, a significant gap in our understanding of the factors that influence users' actual us of Google Drive. Cloud-based storage services such as Google Drive have become increasingly popular owing to their convenience, accessibility, and cost-effectiveness. Various factors, including perceived security, privacy, system quality, and utilitarian motive, influence the adoption and use of such services. Previous studies have explored the impact of these factors on the adoption of cloud-based storage services, but few have been conducted on the actual use of such services (Ali, Shrestha, Osmanaj, & Muhammed, 2021; Chen, Liu, Yu, & Zhang, 2020; Hoque & Sorwar, 2021) Perceived security and privacy are crucial factors that impact users' trust and confidence in using cloud-based services such as Google Drive. Users must feel secure in their data storage, protecting sensitive information from unauthorized access and potential breaches. Privacy concerns also arise when users entrust their data to a third-party provider, such as Google Drive, because they expect their personal information to be handled with utmost care and confidentiality. Previous studies have identified the importance of perceived security and privacy in the adoption of cloud-based storage services; however (Vrinda, Jaisingh, & Sarkar, 2019; Oh, Lee, & Kim, 2021), the impact of these factors on the actual use of such services in Indonesian requires further investigation. The utilitarian motive, which refers to the perceived usefulness and benefits of using Google Drive, is another influential factor in users' attitudes and adoption decisions. Users are more likely to utilize a cloud storage service if they perceive it to be highly useful, providing features and functionalities that meet their needs (Asyary & Djatna, 2022). The utilitarian aspect of Google Drive plays a significant role in driving user adoption and continued use. Previous studies have explored the impact of utilitarian motives on various contexts of technology adoption (Chang & Lin, 2021). However, despite the existing body of research on cloud-based services and user behavior, there needs to be more literature regarding the specific context of Google Drive usage in Indonesia. The impact of perceived security and privacy on the actual use of Google Drive and the mediating role of attitudes has yet to be extensively studied in the Indonesian context (Suryani & Soesanto, 2020; Maharani, Wicaksana, & Astuti, 2020). This study aims to bridge this gap by providing insights into the factors influencing the adoption and use of Google Drive among Indonesian users. By examining the relationships among perceived security, privacy, attitudes and actual use, this study contributes to the existing literature on cloud-based storage adoption and user behavior (Zhang & Chen, 2018). The findings of this study will provide valuable insights for service providers such as Google Drive to enhance security measures, improve system quality, and understand the factors that drive user adoption and utilization in the Indonesian market. Through a comprehensive analysis of the determinants of actual use among Google Drive users, this study can provide valuable insights for organizations looking to encourage the adoption and ongoing use of cloud storage solutions such as Google Drive (Miftahussurur & Arifianto, 2021; Rosdiana & Susanto, 2021). This study addresses these gaps by examining the impact of perceived security and privacy on the attitude and actual use of Google Drive among users in Indonesia. In addition, this study investigated the mediating role of attitudes toward use and trust in this relationship. Attitudes toward using reflect users' positive or negative evaluations of the service, while trust represents the confidence and reliance users place on Google Drive.

2. Literature review

This study aimed to investigate the factors that influence the actual use of Google Drive among users in Indonesia, particularly the role of perceived security, perceived privacy, system quality, and utilitarian motive, and how attitudes toward use and trust mediate this relationship. The literature review provides a comprehensive overview of

the relevant theories and previous studies in the field, highlighting the importance of understanding user behavior and acceptance of technology. The authors begin by discussing the Technology Acceptance Model (TAM) and its extensions, which have been widely used to explain user acceptance of technology (Venkatesh, Morris, Davis, & Davis, 2003; Davis, 1989). TAM posits that perceived usefulness and ease of use are the primary factors influencing user intention to use technology, affecting actual usage. The authors then introduce the Unified Theory of Acceptance and Use of Technology (UTAUT), which expands on TAM by including additional variables such as social influence, facilitating conditions, and hedonic motivation. The literature review primarily relied on older references, with the most recent reference mentioned in 2017. Given the rapidly evolving nature of technology and user behaviors, it is crucial to include more recent studies to provide a comprehensive understanding of the current state of knowledge in the field. Including recent references would have strengthened the relevance and ensured that it built upon the latest findings and advancements. Lack of discussion on cultural factors: Since this study focuses on users in Indonesia, it is essential to consider the cultural context and its potential influence on user behavior. Cultural factors can significantly impact individuals' perceptions, attitudes, and technology adoption. It would have been valuable to explore previous studies addressing cultural factors in technology acceptance and usage, particularly in the Indonesian context. Understanding cultural nuances can provide deeper insights into the factors affecting Google Drive usage in Indonesia. There has been a detailed literature review of previous studies on the impact of perceived security and privacy on the actual use of cloud-based storage services: system quality and utilitarian motive. Previous studies have shown that system quality, or a system's perceived ease of use, functionality, and reliability, can significantly influence user attitudes and intentions to use cloud-based storage services. For example, in a study by Teo and Tan (2003), system quality was found to have a direct positive impact on user satisfaction and intention to use online file storage services. Utilitarian motives, or the perceived usefulness or benefits of using a cloud-based storage service, have also been shown to impact user attitudes and intentions to use these services significantly. In a study by Almusharraf et al. (2020), utilitarian motives significantly predicted user intentions to use cloud-based storage services.

2.1 Perceived Security

Perceived security, or the perception that personal data are protected from unauthorized access or breach, is another important factor in user attitudes and intentions to use cloud-based storage services. In addition, Khajeh-Hosseini et al. (2012) found that perceived security is a significant predictor of user trust and adoption of cloud computing services. User reactions to technology can have both positive and negative elements. For example, some users are concerned about the security of utilizing technology. Hence, users must be aware of this perspective before using technology. Perceived security is the degree to which a client thinks using a specific mobile payment technique will be secure (Gella & Bernal, 2022). Security perception is the user's view of the degree of protection against hazards that will befall the user (Nguyen, Nguyen, & Dang, 2020). The degree of trust and confidence as web channels, technologies, sensitive information, and transaction processes change (Kavitha & Kannan, 2020). Citizens' impressions of the degree of security protection in the online environment are called security perceptions (Khan, Umer, Umer, & Naqvi, 2020). Perceived security is a subjective probability where customers feel that unreliable parties will not view, store, and modify their personal and financial information during transit and storage in a way inconsistent with their expectations—people who exude assurance (Pusad & Lee, 2020; Nair & Paul, 2018). Researchers can make inferences about the definition of perceived security as an expectation when someone does something that seems safe based on the expert opinion presented above. Several perceived security issues affect consumer confidence in online transactions, preventing customers from feeling anxious while transacting (Kim, Tao, Kim, & Kim , 2010). Security in a transaction process is crucial in enticing someone to adopt and use it simultaneously (Aribake & Aji, 2020; Pham, Tran, Nguyen, & Nguyen, 2022).

The privacy element when using information is related to the user's view of how the information is processed or used (Li, Tan, & Zhang, 2018)
H-1 Perceived Security has a significant effect on Attitude
H-3 Perceived Security has a significant effect on Actual Use

2.2 Perceived Privacy

Perceived privacy, or the perception that personal data are kept confidential and not disclosed to third parties, is also an important factor in user attitudes and intentions to use cloud-based storage services. In a study by Yang et al. (2019), perceived privacy was a significant predictor of user trust and intention to use cloud storage services. Thus, the use of technology to facilitate activities is crucial. Today's most well-known modern technology, primarily smartphones, can enable various activities, making it more straightforward for users to record moments, create notes or files, and save other things. This sense of privacy is crucial to determining whether users believe their privacy is secured when using technology because consumers are also concerned about whether data about themselves are appropriately protected. Privacy perceptions refer to people's beliefs about their ability to watch over and regulate how personal information is shared, used, and reused online (Khan, Umer, Umer, & Naqvi, 2020). Customers' sense of their ability to watch over and manage information about themselves is their "perception of privacy" (Xu, Dinev, Smith, & Hart, 2020). Privacy is the ability to govern how one's personal information is used, transferred, and exchanged (Shin D. , 2010). The degree to which consumers believe they have the right to regulate the gathering and use of their personal information, even after they give it to others, is related to the perception of privacy (Duong & Guan, 2020). Based on the expert opinion above, the researcher can conclude that the definition of perceived privacy is the expectation that someone feels when they store, control, and use their personal information online or offline. Online systems that are dependable on preserving consumer privacy improve customer trust significantly (Zhang, Wang, Cao, & Wang, 2019). When using information, the privacy element is related to the user's view of how the information is processed or used (Zafeiriou & Arabadzhiev, 2018).
H-2 Perceived Privacy has a significant effect on Attitude
H-4 Perceived Privacy has a significant effect on Actual Use

Trust, or the belief that a service provider can be relied on to protect user data and provide quality service, is a critical factor in user adoption and continued use of cloud-based storage services. In a study by Almusharraf et al. (2020), trust was found to mediate the relationship between utilitarian motive and intentions to use cloud storage services. Trust and perceived risk have also emerged as crucial factors for cloud storage adoption. Users' trust in the provider and their perceptions of risk associated with storing data in the cloud significantly affect their adoption decisions (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2015; Omar, Anuar, & Karim, 2021). Studies have shown that trust can be influenced by factors such as system security, privacy protection, and reputation of the service provider (Van Slyke, Iliev, & Sivo, 2022; Ali, Rana, Dwivedi, & Dwivedi, 2021)

2.3 Attitudes Toward Use

Attitudes toward use, or the general positive or negative feelings a user has about using a cloud-based storage service, are also important factors in user adoption and continued use of these services. In a study by Kim et al. (2013), attitudes toward use significantly predicted user intentions to use cloud storage services. Attitude toward use is a disposition toward using a system with a degree of the evaluative effect connected to its use by a target system by a person in his work. Attitude is a user's evaluation of the desire to use the system (Akturan & Tezcan, 2012; Gao, Bai, & Shen, 2022). The attitude of use is defined as the extent to which a person has an evaluation or assessment that can be favorable or not based on specific behaviors (Pozzebon, 2000; Luo, Li, Zhang, & Shim, 2021). Researchers can make inferences about the meaning of "attitude toward usage," which is an attitude demonstrated in the use of a system and can be utilized as an evaluation of the behavior of its users based on the expert opinion presented above.
H-5 Attitude has a significant effect on Actual Use

Furthermore, studies have highlighted the importance of system quality in users' adoption and usage behaviors. System quality encompasses reliability, performance, and user interface design (Oliveira, Thomas, Baptista, & Campos, 2021; Niu, Wang, Zhang, & Lu, 2020). Positive user experiences with system quality contribute to users' favorable attitudes toward cloud storage services and increase their likelihood of continued use (Li & Liu, 2022; Pham, Nguyen, & Pham, Determinants of continued cloud storage adoption: An integrated perspective of expectation-confirmation and technology acceptance models, 2019). However, despite the growing body of study on cloud storage adoption, there needs to be more literature regarding the specific context of Google Drive usage in Indonesia. Few studies have examined the factors influencing user behavior and adoption of Google Drive in this market. This study aims to address this gap by investigating the impact of perceived security, perceived privacy, system quality, and utilitarian motive on using Google Drive among users in Indonesia while considering the mediating roles of attitudes toward use and trust.

2.4 Actual Use

Security and perceived data privacy are crucial factors that impact individuals' decisions to adopt and use a technology. The effectiveness and advantages of the technology employed can shape attitudes and beliefs, subsequently influencing actual usage. Actual usage refers to how individuals interact with and utilize the information technology they employ (Ali, Zhou, Ali, & Khan, 2019). Meanwhile, actual buying behavior is defined as an individual's willingness to purchase a product or service for the intended use (Son, Kim, Kim, & Lee, 2017). Actual use can be understood as the intention to buy, which leads to post-purchase or post-use loyalty in behavior (Prasad & Garg, 2019). Recent studies have further contributed to our understanding of these concepts. For instance, a study by Lee and Turban (2021) explored the role of security and privacy concerns in shaping users' actual usage of mobile payment applications. The findings highlighted that users who perceived higher levels of security and privacy in the mobile payment system were more likely to engage in actual usage of the technology. Another relevant study by Zhang, Guo, and Chen (2022) examined the influence of security and privacy concerns on individuals' actual use of smart home devices. Their research demonstrated that individuals who perceived higher security and privacy protection levels were more inclined to utilize intelligent home devices daily. Moreover, a study conducted by Wang, Chen, and Lu (2020) investigated the impact of perceived data privacy on users' actual usage of social media platforms. The results revealed that individuals with higher trust in the privacy protection measures implemented by social media platforms were more likely to engage in active and frequent usage. These recent studies contribute to the existing literature by shedding light on the significance of security, privacy, and trust in influencing individuals' actual usage of various technologies. By addressing users' concerns regarding these factors and implementing robust security measures, technology providers can enhance users' trust and confidence, thereby promoting greater adoption and usage of their products and services.

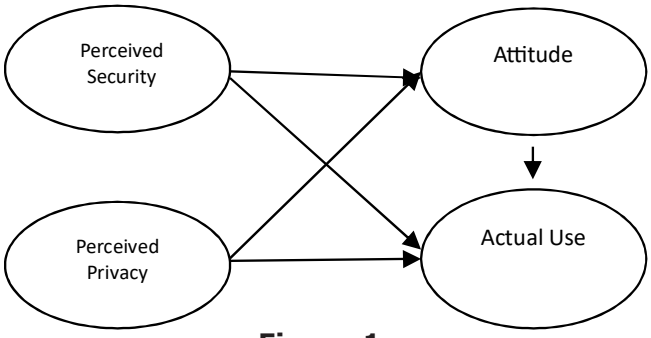

Figure 1:
Model of study

3. Research Methodology

The research methodology employed in this study involved selecting samples from the population and collecting data through a questionnaire. A combination of direct and indirect data surveys was utilized to ensure convenience for the students and the respondents, which included creating questionnaires on online platforms such as Google Forms, conducting face-to-face, telephone, and online text message interviews, and providing various data collection methods to minimize respondent burden and improve the data quality. It is crucial to avoid rushed responses from participants who might feel burdened, as

this could compromise the validity of the data. The target population for this study comprised Google users who had either used or were currently using the Google Drive data storage application. The sample size for the study was determined based on Hair's (2019) recommendation, which suggests multiplying the number of items (15) by a range of 5-10 to determine the desired sample size. This calculation resulted in an overall sample size of 75-150 participants. The researchers used statistical software such as SPSS (Statistical Package for the Social Sciences) and AMOS (Analysis of Moment Structures) to analyze the collected data. SPSS is widely used for data analysis and provides a range of statistical techniques, while AMOS is a specialized software for structural equation modeling (SEM) analysis. It is worth noting that specific references for recent or updated methodologies may vary depending on the research topic and field. Therefore, it is recommended to consult relevant research articles or textbooks specific to individual research areas to obtain the most up-to-date and appropriate references for study. A quantitative methodology was employed to achieve the objectives of this study, utilizing path analysis with IBM SPSS Statistics 23 and structural equation modeling (SEM) using AMOS 5 (Chung, Chen, Tsai, & Chuang, 2021). The sample comprised 115 Google Drive users in Indonesia who completed a questionnaire to measure their perceptions of security, privacy, attitudes, and actual use (Drogra & Adil, 2022). The questionnaire utilized a Likert scale with a rating of 1–5 to assess participant's responses. The findings of this study provide valuable insights into the factors that influence the adoption and use of Google Drive. By examining the relationships among perceived security, privacy, attitudes, and actual use, this study contributes to the existing literature on cloud-based storage adoption and user behavior (Alharbi & Drew, 2014). The results have practical implications for service providers such as Google Drive in terms of enhancing security measures, improving system quality, and understanding the factors that drive user adoption in the Indonesian market. The SEM analysis tool within the AMOS statistical software packages will be utilized to construct models and evaluate hypotheses in this study. The AMOS software allows for examining and testing hypotheses within a casual model, providing structural measurements and insights. Two types of testing will be employed to ensure the validity and reliability of the instruments used in this study. The validity test will assess the instrument's accuracy and precision in measuring the intended constructs. This study will evaluate validity by examining the Pearson correlation coefficient. A correlation coefficient higher than 0.30 is acceptable for establishing validity (Sugiyono, 2012). On the other hand, reliability testing examines whether the instrument used in the study is consistent and dependable over repeated measurements. In this study, reliability will be evaluated using Cronbach's alpha coefficient. Each variable assessed using indicators should have a Cronbach's alpha value higher than 0.60 to be considered reliable (Sugiyono, 2012). SPSS software will be utilized to evaluate the reliability and validity. The validity assessment in this study will employ bivariate Pearson correlation (Pearson moment product). The correlation between each item's scores and the overall score will be examined. Given that the study instrument is a questionnaire with a multi-item scale, the researchers will employ Cronbach's alpha formula to examine the instrument's reliability.

4. Data analysis

4.1 Respondent Profile

This study obtained data from a total of 120 respondents, revealing that the respondents were predominantly female (71 or 59%), with an average age of 21-25 years, as many as 78 respondents or 65%, with a high school education background (79 respondents or 66%), with an average job (78 or 65%), and with a dominant income level of less than $1,000,000 (61 respondents or 51%).

4.2 Validity and Reliability Test

The effectiveness of the instrument was assessed using a validity test. The measurement of an instrument's accuracy or precision measuring point is another definition of validity (Sugiyono, 2012). Specific study item assessments may be valid if the Pearson correlation coefficient is substantially higher than 0.30 (Sugiyono, 2012). Reliability tests were carried out to determine whether the study's instruments would hold up under

Profile	N = 120	%
Man	49	41%
Woman	71	59%
Age in Years		
<20	23	19%
21 – 25	78	65%
26 – 30	14	12%
31 – 40	5	4%
Education Level		
Junior High School/Equivalent	1	1%
High School/Equivalent	79	66%
Diploma (D1,D2,D3)	12	10%
Bachelor (S1)	22	18%
Graduate (S2)	6	5%
Job Level		
Student	78	65%
Private Employees	28	23%
Civil Servants	5	2%
Entrepreneurial	4	4%
Others	5	4%
Income in a million rupiah		
< 1.000.000	61	51%
1.000.000 – 5.000.000	38	32%
5.000.000 – 10.000.000	17	14%
> 10.000.000	4	3%

Table 1:
Respondent's Profile

repeated measurements in the future (Sugiyono, 2012). For each variable tested using indicators, reliable items had test results with Cronbach's alpha values > 0.60 (Sugiyono, 2012).

Variable	Statement	Code	Correlation Coefficient	Validity	Alpha Cronbach (Reliability)
Perceived Privacy (X1)	PV 1	X1.1	.640**	Valid	.604 (Reliability)
	PV 2	X1.2	.620**	Valid	
	PV 3	X1.3	.657**	Valid	
Perceived Security (X2)	PS 1	X2.1	.655**	Valid	.734 (Reliability)
	PS 2	X2.2	.735**	Valid	
	PS 3	X2.3	.723**	Valid	
Attitude (Y1)	ATT 1	Y1.1	.699**	Valid	.631 (Reliability)
	ATT 2	Y1.2	.620**	Valid	
	ATT 3	Y1.3	.651**	Valid	
Actual Use (Y2)	AU 1	Y2.1	.640**	Valid	.611 (Reliability)
	AU 2	Y2.2	.675**	Valid	
	AU 3	Y2.3	.604**	Valid	

Table 2:
Validity and Reliability Test Results

4.3 Model Fit Test

The effectiveness of the model was evaluated using several fit criteria. A variety of fit indices and cut-off values were used to determine whether a model was accepted or rejected.

4.4 Loading Factor

The value of the loading factor, utilized as a measure of each variable examined in this study, is the weight of each indication or item used. Indicators with high factor load-

Goodness of Fit Index	Cut off Value	Model Results	Description
X2-chi-square	<df with α =0,05	34.612	Fit
Significance probability	≥ 0,05	0.940	Fit
RMR	≤ 0,10	0.032	Fit
RMSEA	≤ 0,08	0.000	Fit
GFI	≥ 0,90	0.954	Fit
AGFI	≥ 0,90	0.927	Fit
CMIN/ DF	≤ 2,00	0.706	Fit
TLI	≥ 0,95	1.085	Fit
CFI	≥ 0,95	1.000	Fit

Table 3:
Goodness of Fit Index

Variable	Indicator	Standardise Loading Factor	Strongest Indicator	Average Variable Score
Perceived Security (X1)	*Restrict Unauthorised Access*	0.619	Strongest	High
	Protection	0.485		
	Rigourous Security Control	0.596		
Perceived Security (X2)	*Protected*	0.708	Strongest	High
	Feel Safe	0.703		
	Adequate	0.666		
Attitude (Y1)	*Good Ide*	0.616	Strongest	High
	General Option	0.597		
	Intelligent Idea	0.590		
Actual Use (Y2)	*Times*	0.562		
	Hours	0.588	Strongest	High
	Frequently	0.588		

Table 4:
Loading Factor Results

Relationship Path	Standardised Path Coefficient	C.R (Critical Ratio)	Probability	Description
H1	0.528	2.844	0.004	Significant
H2	0.056	0.515	0.606	Significant
H3	0.262	1.589	0.112	Significant
H4	0.174	1.891	0.059	Significant
H5	0.621	3.186	0.001	Significant

Table 5:
Hypothesis Test Results:

ing measure the majority of possible variables.

5. Discussion

Hypothesis testing aims to establish the viability of a previously propose theory such that the number of samples that have been determined and the data collected agree. Statistical analyses were then carried out using AMOS software. All five hypotheses produced meaningful outcomes. With a critical ratio of 2,844 and a probability of 0.004, the relationship between perceived security and attitude was significant. The same is true for the relationships between perceived security and behavioral intention, which are significant with a critical ratio value of 1,589 and a probability of 0.112, and between perceived privacy and behavioral intention. The association between attitude and perceived security was modest, with a ratio of 0.515 and a likelihood of 0.606.

6. Conclusion and Limitation

6.1 Conclusions

According to the study, trust positively impacts the "perceived privacy on actual use" measure with a path coefficient 0.207. This value is the largest Compared to the other direct and indirect effects. Therefore, companies are urged to pay attention to perceived privacy factors, particularly in protecting personal user data and fostering user confidence in Google Drive by adding personal data security system settings and fostering user confidence. Of five study hypotheses, the findings of this study show that five are significant. These five hypotheses relate to system quality for actual use and perceived security and privacy effects on attitudes. Future studies must, therefore, explore exogenous characteristics such as performance expectations, pricing values, and social influences that are more closely tied to actual endogenous use. It is advisable to use the general opinion indicator for the attitude toward the use variable and the adequate indicator for the perceived privacy variable as study indicators for these study variables in the future because they have low loading factors.

6.2 Limitations of Study

The outcomes of the study conducted for this study have been examined using accepted standards for scientific studies. However, in the past, many issues have developed into barriers or restrictions in processes and procedures, necessitating future improvements. The limitations of this study are as follows:

a. As there are many Google Drive users in other places outside Indonesia, the study being done at this moment can only cover Indonesia and has yet to include other cities in Indonesia.

b. This study is cross-sectional, and to achieve biased results, data were gathered by giving respondents a selection of assertions.

c. The study data for Google Drive items had limitations. Researchers only use precise data discovered on specific websites because they contain private company information.

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Ethics Statement:

All procedures performed is studies involving human participants were in accordance with the ethical standards of the institutional and/or national study committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Conflict Of Interest Declaration:

The authors declare that they have NO affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

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