Data Leaks: can e-commerce convince users?

Cheng-Wen Lee1, Romi Ilham 2\*

1Department of International Business, Chung Yuan Christian University, 200 Zhong Bei Road, Zhong Li District, Taoyuan City, 32023, Taiwan, ROC, Email: chengwen@cycu.edu.tw

2\*Ph.D. Program in Business, Chung Yuan Christian University, 200 Zhong Bei Road, Zhong Li District, Taoyuan City, 32023, Taiwan, ROC, Email: g11204607@cycu.edu.tw

Department of Accounting, Universitas Hayam Wuruk Perbanas, Wonorejo Utara 16 Road, Rungkut District, Surabaya City, 60296, Indonesia

\*Corresponding Author: romi ilham, romi\_ilham@perbanas.ac.id

**Abstract**

This study aims to analyze e-commerce user satisfaction influenced by trust and privacy cynicism with expectation confirmation theory due to data leaks on the Tokopedia e-commerce platform in Indonesia. This type of research uses a quantitative approach through a survey method with a sample of Tokopedia e-commerce users in Indonesia, as many as 268 respondents, and data analysis using SEM-PLS with Smart PLS 4 software. Confirmation expectations affect perceived usefulness and trust but have no effect on satisfaction; privacy cynicism and perceived usefulness affect satisfaction and trust, and trust affects satisfaction.

Keywords: privacy cynicism, trust, e-commerce, perceived usefulness, confirmation expectation.

# Introduction

#### The exponential growth of Indonesia's population, surpassing 278 million according to the latest data from the Central Statistics Agency, has paralleled the rapid expansion of e-commerce within the country. In 2023, the Indonesian Central Bureau of Statistics also recorded that over 2.9 million businesses were using online trading platforms 2022. This transformation is emblematic of the overarching global trend toward digitalisation, where traditional trade practices are steadily giving way to the convenience and accessibility offered by e-commerce platforms (Agustina, 2017). Bolstered by an extensive user base exceeding 178 million in 2023 and over 215 million internet users recorded in the same year (IISPA, 2023), Indonesia stands at the forefront of the digital revolution. However, this transition has brought forth a critical concern—privacy (Othman et al., 2019). As consumers and businesses increasingly engage in online transactions, the vulnerability of personal data becomes a pressing issue, particularly in light of recent data breaches on prominent e-commerce platforms like Tokopedia, Bukalapak, and Lazada (Perkasa and Saly, 2022). In September 2023, the Tokopedia site recorded a 31% decline in users until now, there are 88.9 million active users, with data leaks spread across the internet, other data such as email, full name, cellphone number, address, date of birth, gender, and credit cards. This data can be misused by criminals, especially those related to scams and social engineering. (Telemarketing, Phishing/Scamming, Hacking other services, Dismantling keywords, Creating online loan accounts, profiling for political targets, or advertising on social media)

#### The convergence of burgeoning e-commerce activity and escalating concerns over data privacy forms the focal point of contemporary discourse within Indonesia's digital ecosystem (Noraga et al., 2021). As technology intertwines with daily life, the seamless exchange of goods and services through digital platforms has become ubiquitous, reshaping the dynamics of commerce and communication (Yutanto et al., 2023). Nevertheless, this digital transformation has not been without its challenges. The proliferation of e-commerce has been accompanied by a parallel rise in privacy apprehensions among users, fueled by data leakage and exploitation (Sharma & Lijuan, 2014). In this context, scholarly attention has increasingly turned towards understanding e-commerce privacy's complexities and its implications for individuals and businesses (Chawla & Kumar, 2022). Baruh, Secinti, and Cemalcilar (2017) and Nissenbaum (2011) have delved into the multifaceted nature of privacy concerns in the digital age, shedding light on the intricate interplay between technological advancements, consumer behavior, and regulatory frameworks. Against the backdrop of Indonesia's vibrant digital economy, addressing these privacy challenges becomes paramount, necessitating comprehensive strategies to safeguard user data and uphold consumer trust in the online marketplace (Komalawati et al., 2020).

####  Previous studies have consistently shown a link between users' privacy concerns and willingness to share information (Ackermann et al., 2022; Degutis et al., 2023). This connection is believed to be due to a lack of awareness about the potential risks of the internet and online platforms (C. P. Hoffmann et al., 2016; van Schaik et al., 2018). Nevertheless, there is limited knowledge regarding privacy cynicism and how it affects customer happiness and trust in e-commerce. Based on the above background, this study aims to analyse privacy cynicism and confirmatory expectations on e-commerce user satisfaction through perceived usefulness and trust in e-commerce platforms caused by data leakage.

# Literature review

## Expectation-Confirmation Model

The present study is based on the Expectation-Confirmation Model (ECM), which is a psychological approach. ECM is a framework derived from expectation-confirmation theory in the context of technology acceptance and user loyalty. The model was first proposed by Bhattacherjee (2001) and is an adaptation of the Expectation-Confirmation Theory (ECT) used in consumer satisfaction studies. ECM proposes that user satisfaction with technology is influenced by the level of fulfillment of the user's initial expectations and confirmation of these expectations after using the technology. Suppose users' experiences match or exceed their expectations. In that case, this will lead to higher levels of satisfaction, increasing the likelihood of continued use of the technology. This model is beneficial for understanding how users' initial experiences with technology can influence the adoption and long-term use.

Confirmation of expectations (utilitarian values, social values, continuance intention) by Bhattacherjee (2001) plays a crucial role in understanding continuance intention towards a particular service or product. Research has consistently shown that confirmation positively influences perceived usefulness (Daragmeh et al., 2022; Kumar & Natarajan, 2020; Nguyen & Ha, 2021). When users' experiences confirm their initial expectations, they are more likely to perceive the product or service as valuable and satisfying. Satisfaction (perceived usefulness, perceived ease of use, confirmation of expectations) is crucial in understanding continuance intention towards a particular service or product (Bhattacherjee, 2001).

Perceived Usefulness by Davis (1989) is the degree to which an individual believes that using a particular technology would be beneficial, which can be measured by knowing when it is operational, ease of operation, ease of remembering operation, as the user desires, flexible in operation, and easy to skilled.

Hypotheses 1a. Confirmation expectation will be significantly related to perceived usefulness.

Hypotheses 1b. Confirmation expectation will be significantly related to satisfaction

Hypotheses 1c. Confirmation expectation will be significantly related to trust.

Hypotheses 2a. Perceived usefulness will be significantly related to satisfaction.

Hypotheses 2b. Perceived usefulness will be significantly related to trust.

## Trust

Chen & Sharma (2013) define trust as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party. "In other words, trust involves believing that the trusted party will act in a reliable, ethical, and socially appropriate manner, even when there is no ability to monitor or control their actions (Ghane et al., 2011). Chen & Sharma (2013) measure trust using five indicators of perception: perceived honesty and openness, perceived competence and ability, perceived benevolence and goodwill, perceived predictability and reliability, and perceived security and privacy protection.

The relationship between trust and satisfaction is well-established in the literature. Several studies have found that trust positively affects customer satisfaction (Kurniadi & Ali Saeed Rana, 2023; Tanjung et al., 2022). Customers who trust a company tend to be satisfied with the product or service provided (Rolph & Srinivasan, 2003). Conversely, satisfaction can also increase trust in the company (Yussif et al., 2022). A study by Setyaningsih (2014) found that trust is particularly important when decisions involve expanding the scope of the relationship, while satisfaction is more important for relationship continuity. Trust and satisfaction are complementary concepts important for successful business relationships, especially in online businesses that do not meet directly with the seller and the product (Ghane et al., 2011).

Hypotheses 3. Trust will be significantly related to satisfaction.

## Privacy cynicism

Privacy cynicism is a concept introduced by Hoffmann et al. (2016) to explain the divergence between users' high privacy concerns and their lack of corresponding privacy protection behavior (Acikgoz & Vega, 2022; Choi & Jung, 2020; Khan, Loh, Hossain, & Hasan Talukder, 2023). They define privacy cynicism as "an attitude of resigned neglect of privacy protection, which serves as a cognitive coping mechanism to rationalise taking advantage of online services despite serious privacy concerns "(Hoffmann et al., 2016). Their research measured privacy cynicism using four indicators: less interested, less enthusiastic, doubt, and more cynical.

The relationship between privacy cynicism, satisfaction, and trust is complex (Khan, Loh, Hossain, & Talukder, 2023). On the one hand, privacy cynicism can lead to decreased satisfaction and trust in online services as users become disillusioned with companies' privacy practices (Acikgoz & Vega, 2022; Lyu et al., 2023). However, privacy cynicism also allows users to maintain a level of satisfaction and continue using services, despite their concerns, by rationalizing their behavior (Rajaobelina et al., 2021). A study by Hoffmann and Lutz et al. (2020) found that privacy cynicism was negatively related to privacy protection behaviour, suggesting that cynical users are less likely to take steps to protect their privacy online. Overall, privacy cynicism appears to be a maladaptive coping mechanism that allows users to maintain satisfaction in the short term but may erode trust and lead to worse privacy outcomes in the long run (Ooijen et al., 2022).

Hypotheses 4a. Privacy cynicism will be significantly related to trust.

Hypotheses 4b. Privacy cynicism will be significantly related to satisfaction.

Based on the literature study above, the following is the theoretical framework (Figure 1) in this study:

H2a

H2b

H1b

H4b

H1c

H1a

H4a

H3

**Figure 1:** Theoretical Thinking Framework

# Research Methodology

This research uses a quantitative approach through a purposive sampling survey method with inclusion criteria for active users of the Tokopedia e-commerce platform for at least one year and exclusion criteria for active users over 18 years old. The determination of this requirement aims to ensure that the selected respondents actively use the Tokopedia platform and are at least of sufficient age to use e-commerce wisely. The survey was distributed online using a Google form platform through WhatsApp, Indonesia's most popular mobile messenger, with a sample of East Java province. During April 2024, we received 257 respondents.

We designed a closed-ended questionnaire organised into four sections: a brief survey introduction, a screening question, primary measurement questions, and demographic inquiries. This questionnaire format was deemed suitable for our research as it eliminated the need for extensive qualitative coding (Westland, 2014). We implemented specific protocols within the questionnaire to mitigate potential common method bias (CMB) and non-response bias. To control for CMB, we ensured the questionnaire's brevity, placed demographic questions at the end, allowed respondents to answer anonymously, used diverse scale types, and conducted a pilot test (Podsakoff et al., 2003; Reio, 2010). Additionally, to address non-response bias, we adhered to Lynn recommendations (2008), including providing a brief survey introduction and constructing a respondent-friendly questionnaire with understandable and non-offensive questions, facilitating easy responses by participants.

The analysis technique uses the Structural Equation Model Partial Least Square (SEMPLS) with SMART PLS software version 4. The variables in this study consist of demographic variables used to determine the characteristics of respondents, including gender, age, education, and occupation. Exogenous latent variables include confirmatory expectations and privacy cynicism, endogenous latent variables consist of perceived usefulness, trust, and satisfaction, and the last is manifest variables used to describe and measure latent variables.

Table 1. Respondent's overview

|  |  |  |  |
| --- | --- | --- | --- |
| Demographic | Option | Frequency | Percentage |
| Gender | Male | 152 | 59% |
|  | Female | 105 | 41% |
| Age | 18-27 (Gen Z) | 122 | 47% |
|  | 28-43 (Gen Y) | 98 | 38% |
|  | 44-59 (Gen X) | 24 | 9% |
|  | 60-69 (Baby Boomers) | 13 | 5% |
| Education | High School or lower | 12 | 5% |
|  | Diploma | 37 | 14% |
|  | Bachelor degree | 167 | 65% |
|  | Postgraduate degree | 41 | 16% |
| Occupation | Student | 94 | 37% |
|  | Civil Servant | 43 | 17% |
|  | Labour | 72 | 28% |
|  | Professional | 48 | 19% |
| How long to used Tokopedia | 1-3 years | 52 | 20% |
|  | 3-6 years | 127 | 49% |
|  | More than six years | 78 | 30% |
| Did you read the policies of the platform  | Yes | 27 | 11% |
| No | 231 | 90% |

## Descriptive Statistics

Based on Table 1, most Tokopedia platform users are male, as many as 152 respondents (59%); this is in line with a survey conducted by Statista, which revealed that men dominate 58% of Tokopedia users. The average age of Tokopedia users is 18-27 years old as many as 122 respondents (47%) followed by 28-43 years old, as many as 98 respondents (38%); this is in line with a survey conducted by (Asosiasi Penyelenggara Jasa Internet Indonesia, 2020) APJIXX which found that the penetration of internet users in Indonesia is dominated by 19-34 years old. The educational background of those who use Tokopedia at the undergraduate level is 167 respondents (65%) with a job as a student as many as 94 respondents (37%), where 127 respondents (49%) have used Tokopedia between 3-6 years, and there are 231 respondents (90%) who do not read the rules applied by the Tokopedia e-commerce platform.

## Model estimation procedure

The developed conceptual model was drawn in SmartPLS software or simulation work to assess the eﬀect of confirmatory expectations and privacy cynicism on satisfaction through perceived usefulness and trust. Structural Equation Model - Partial Least Square (SEM PLS) simulation of the model is carried out by calculating and assessing various parameters which include item loading, reliability, and validity tests. This method was chosen as it is the most suitable approach for estimating mediation and conditional process models (Sarstedt et al., 2020). Additionally, PLS-SEM was highly appropriate for our dataset, given its non-normal distribution, as this statistical tool effectively handles non-normal data distributions (Hair et al., 2019).

# Results and Analysis

## ****Measurement model estimation****

We evaluated the measurement model for this study following the guidelines proposed by Hair Jr. et al. (2021), which included reliability and validity assessments. As shown in Tables 2 and 3, both indicator reliability (indicator loading) met the minimum required threshold of 0.70, indicating a highly reliable measurement model. Regarding the validity assessment, each latent variable's convergent validity, represented by average variance extracted (AVE) scores, exceeded the minimum threshold of 0.50. Additionally, discriminant validity, assessed using the heterotrait-monotrait ratio (HTMT), revealed that all HTMT values were lower than the more liberal threshold of 0.90 (Henseler et al., 2015), signifying a highly valid measurement model.

Table 2. Reliability and validity test

|  |  |  |  |
| --- | --- | --- | --- |
| Construct | Cross loading | AVE | Cronbach Aplha |
| Perceived Usefulness (PU) - (Davis, 1989)  |  | 0.794 | 0.948 |
| PU1 | e-commerce allows me to find products/services more quickly | 0.859 |  |  |
| PU2 | e-commerce makes it easier for me to find goods/services that are useful for me | 0.906 |  |  |
| PU3 | e-commerce is effective in managing my transactions. | 0.889 |  |  |
| PU4 | e-commerce allows me to shop faster | 0.89 |  |  |
| PU5 | I find e-commerce useful for shopping. | 0.896 |  |  |
| PU6 | I find e-commerce platforms useful in my daily life | 0.904 |  |  |
| Satisfaction (ST) - (Bhattacherjee, 2001)  |  | 0.797 | 0.915 |
| ST1 | I am satisfied with my interactions with one-commerce. | 0.903 |  |  |
| ST2 | I am happy with the quality of the e-commerce information. | 0.873 |  |  |
| ST3 | I am very confident about using e-commerce to access relevant information. | 0.887 |  |  |
| ST4 | I am satisfied with the way e-commerce works to deliver information | 0.908 |  |  |
| Confirmation of expectations (CE) - (Bhattacherjee, 2001)  |  | 0.828 | 0.896 |
| CE1 | the service potential of e-commerce is better than I expected. | 0.913 |  |  |
| CE2 | e-commerce saves time in my personal  | 0.899 |  |  |
| CE3 | Overall, most of my expectations for using e-commerce platforms were confirmed. | 0.917 |  |  |
| Privacy Cynicism - (Hoffmann et al., 2016)  |  | 0.796 | 0.914 |
| PC1 | I have become less interested in online privacy issues. | 0.898 |  |  |
| PC2 | I have become less enthusiastic about protecting personal information provided to online vendors. | 0.88 |  |  |
| PC3 | I often doubt the significance of online privacy issues. | 0.887 |  |  |
| PC4 | I have become more cynical about whether my efforts in protecting online privacy are in any way effective. | 0.903 |  |  |
| Trust - (Chen & Sharma, 2013) |  | 0.769 | 0.925 |
| TR1 | I trust e-commerce for my shopping needs. | 0.871 |  |  |
| TR2 | I trust e-commerce for shopping. | 0.861 |  |  |
| TR3 | e-commerce platforms provide content that is in my best interests. | 0.866 |  |  |
| TR4 | e-commerce platforms protect my interest as a user. | 0.898 |  |  |
| TR5 | e-commerce is a safe and secure space for everyone. | 0.889 |  |  |

s

Table 3. HTMT Values

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | CE | PC | PU | SF | TR |
| CE |  |  |  |  |  |
| PC | 0.824 |  |  |  |  |
| PU | 0.774 | 0.827 |  |  |  |
| SF | 0.723 | 0.824 | 0.744 |  |  |
| TR | 0.814 | 0.773 | 0.748 | 0.833 |  |

Note: CE=confirmatory expectation; PC=privacy cynicism; PU=perceived usefulness; SF=satisfaction; TR=trust

## ****Structural model estimation****

Structural model evaluation is related to hypothesis testing of the influence between research variables. The structural model evaluation check is carried out in three stages, namely first checking the absence of multicollinearity between variables with the Inner VIF (Variance Inflated Factor) measure. Inner VIF values below 5 indicate no multicollinearity between variables (Hair et al., 2021).

The second is hypothesis testing between variables by looking at the t-statistical value or p-value (Hair et al., 2021). Suppose the t statistic calculated is greater than 1.96 (t table), or the p-value of the test results is less than 0.05. In that case, there is a significant influence between the variables. In addition, it is necessary to convey the results and 95% confidence interval of the estimated path coefficient parameter. The third is the f square value, namely the effect of variables at the structural level with criteria (f square 0.02 is low, 0.15 is moderate and 0.35 is high) (Hair et al., 2021). The three stages are shown in Tables 4 and 5.

Table 4. Collinearity VIF

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | CE | PC | PU | SF | TR |
| CE |  |  | 1 | 4.323 | 3.867 |
| PC |  |  |  | 4.84 | 3.728 |
| PU |  |  |  | 2.584 | 2.44 |
| SF |  |  |  |  |  |
| TR |  |  |  | 4.874 |  |

Table 5. Path coefficient (Bootstrapping)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Sample mean (M) | T statistics (|O/STDEV|) | P values | F square |
| Confirmation Expectations 🡪 Perceived Usefulness | 0.74 | 31.86 | 0.00 | 1.23 |
| Confirmation Expectations 🡪 Satisfaction | 0.08 | 1.22 | 0.22 | 0.00 |
| Confirmation Expectations 🡪 Trust | 0.31 | 6.68 | 0.00 | 0.12 |
| Privacy Cynicism 🡪 Satisfaction | 0.25 | 3.97 | 0.00 | 0.03 |
| Privacy Cynicism 🡪 Trust | 0.48 | 11.27 | 0.00 | 0.30 |
| Perceived Usefulness 🡪 Satisfaction | 0.16 | 3.20 | 0.00 | 0.02 |
| Perceived Usefulness 🡪 Trust | 0.17 | 5.94 | 0.00 | 0.06 |
| Trust 🡪 Satisfaction | 0.32 | 3.33 | 0.00 | 0.05 |

Table 5 shows a significant effect of confirmation expectation on perceived usefulness and trust with T statistics 31.86, 6.68, and a p-value of 0.00. The existence of confirmation expectation in increasing perceived usefulness has a high influence at the structural level with an f-square value = 1.23, while trust has a low influence with a structural level f-square value of 0.12. It is important for e-commerce service providers to understand user expectations and ensure that the user experience matches those expectations. By meeting or even exceeding user expectations, they can improve the perceived usability and integrity of their e-commerce platform. So it can be concluded that hypotheses 1a and 1c are accepted; these results are in line with research from Li et al. (2022); and Rice et al. (2018), in contrast to hypothesis 1b, which shows no significant effect of confirmation expectation on satisfaction with T statistic 1.22 and p-value 0.22. Negative confirmation expectations can occur when users find that the information or experience they get does not confirm their previous expectations, the presence of disappointment, frustration, or even being deceived by the Tokopedia e-commerce platform. This result is in line with research by Chiu et al.

Hypotheses 2a and 2b show a positive relationship between privacy cynicism and satisfaction and trust, with a T statistic value of 3.97, 11.27 and a p-value of 0.00. The existence of privacy cynicism in increasing satisfaction has a low effect at the structural level with an f square value = 0.03, while trust has a moderate effect with a structural level f square value of 0.30. Thus, it can be concluded that hypotheses 2a and 2b are accepted; these results are in line with research from Açikgöz et al. (2023); C. P. Hoffmann et al. (2016;). Data leaks in the context of e-commerce can create a negative spiral that affects the level of privacy skepticism, satisfaction, and trust. This decrease in satisfaction can then lead to a decrease in consumer trust in the e-commerce platform, as trust is an important foundation in the relationship between consumers and companies (Khan, Loh, Hossain, & Hasan Talukder, 2023; Lyu et al., 2023).

Furthermore, hypotheses 3a and 3b also show a positive relationship between perceived usefulness on satisfaction and trust, with a T statistic value of 3.20; 5.94 and a p-value of 0.00. Thus, it can be concluded that hypotheses 1a and 1c are accepted, these results are in line with research from Daragmeh et al. (2022) and Kumar & Natarajan (2020). However, the presence of perceived usefulness in increasing satisfaction and trust has a low effect at the structural level with an f square value of 0.02; 0.06. In this study, data leakage significantly impacted perceptions of perceived usefulness, satisfaction, and consumer trust. When a data breach occurs, consumers tend to question the value they perceive from using the platform, potentially reducing their level of satisfaction with the e-commerce service (F. Li & Liu, 2019).

And finally, hypothesis 4 shows a positive relationship between trust and satisfaction, with a T statistic value of 3.33 and a p-value of 0.00. So, it can be concluded that hypothesis 4 is accepted, this result is in line with research from Kurniadi & Ali Saeed Rana, (2023); Sativa & Astuti (2016); Setyaningsih (2014). However, the presence of trust in increasing satisfaction has a low effect at the structural level, with an f square value of 0.05. Trust is a critical aspect in the relationship between consumers and e-commerce companies, and when a data leak occurs, consumers may feel that the company is unreliable or unable to properly safeguard their privacy (Chakraborty et al., 2016). Therefore, data leaks may lead to a decrease in consumer trust in e-commerce platforms (Perkasa & Saly, 2022).

Following the present, Figure 2 shows the path coefficient diagram of each indicator and construct of this study



Figure 2. Diagram. Path Coefficient and P-value

## Evaluation of Goodness and Fit of the Model

PLS is a variance-based SEM analysis with the aim of testing model theory that focuses on prediction studies. Therefore, several measures were developed to declare the proposed model acceptable such as R square, Q square and SRMR Hair et al (2019). The R square statistical measure illustrates the variation in endogenous variables that can be explained by other exogenous/endogenous variables in the model. According to Chin (1998), the qualitative interpretation value of R square is 0.19 (low influence), 0.33 (moderate influence), and 0.66 (high influence). Based on the processing results above, it can be said that the magnitude of the influence of perceived usefulness, satisfaction and trust has a high impact with a value of 53%; 57%; and 80%.

Q square describes a measure of predictive accuracy, namely how well each change in exogenous/endogenous variables can predict endogenous variables. This measure is a form of validation in PLS to state the suitability of model predictions (predictive relevance). The q square value above 0 states that the model has predictive relevance, but in Hair et al. (2019) the qualitative Q square interpretation value is 0 (low influence), 0.25 (moderate influence), and 0.50 (high influence). Based on the processing results above, the Q square value of the perceived usefulness, satisfaction and trust variables is > 0.50, namely 0.52, 0.53, and 0.78 > 0.50.

Table 6. R Square and Q-square

|  |  |  |
| --- | --- | --- |
|  | R-square | Q-square |
| Perceived Usefulness | 0.53 | 0.52 |
| Satisfaction | 0.57 | 0.53 |
| Trust | 0.80 | 0.78 |

Tabel 7. SRMR

|  |  |
| --- | --- |
|  | Estimated model |
| SRMR | 0.1 |

SRMR is Standardized Root Mean Square Residual. SRMR is Standardized Root Mean Square Residual. According to Schermelleh-Engel et al. (2003), the SRMR value between 0.08 and 0.10 indicates an acceptable fit model. The model estimation result is 0.1, meaning the model has an acceptable fit. Empirical data can explain the influence between variables in the model.

# Discussion

## Theoretical Implications

Data leaks in e-commerce can have serious consequences on consumers' perceptions of privacy, satisfaction, and trust (Perkasa & Saly, 2022). When consumer data is leaked, doubts about privacy increase, creating an atmosphere where consumers doubt the company's ability to protect their personal information (Kurniadi & Ali Saeed Rana, 2023). This often results in decreased consumer satisfaction as they feel unsafe using the e-commerce platform (Ghane et al., 2011). In particular, consumers' trust in such companies and platforms may be eroded, as data leaks indicate a failure to maintain the security and privacy of personal information (Komalawati et al., 2020). As a result, e-commerce companies may experience a decrease in customer loyalty, a damaged reputation, and even a decrease in revenue due to lost business. Therefore, it is important for e-commerce companies to take decisive steps to protect consumer data and rebuild trust through concrete actions that affirm their commitment to security and privacy.

In addition, users often do not hesitate to use e-commerce platforms because of their needs and the many promos offered by e-commerce platforms, and e-commerce companies should also socialize company policies regarding privacy data, so that users feel more calm and comfortable in using. However, due to the need to use the e-commerce platform, based on this research, the cynical attitude towards the e-commerce platform at this time shows that it does not have a significant effect, even though the level of trust has decreased, the intensity of using e-commerce has increased, even though it had decreased at the beginning.

## Limitations and future research directions

Limitation research focuses on the e-commerce Tokopedia platform. Therefore, the subjects of this study do not represent other subjects or other e-commerce sites with many users, such as Shopee, Buka Lapak, and Lazada. Second, because this research is a non-probability sampling using the judgment sampling technique, not all individuals in the population are selected to be respondents. The entire population in the non-probability sampling did not get the same opportunity to become respondents in this study. Therefore, the results obtained cannot generalise to the entire population of Tokopedia users.

**Conflict of interest**

On behalf of all authors, the corresponding author declares that there are no conflicts of interest. All authors have approved this manuscript and agree to submit it to the International Conference on Advancements of Business Ethics and Corporate Social Responsibility 2024

**Declaration of generative AI in scientific writing**

During the preparation of this work, the authors used Grammarly, Quillbot, DeepL, and ChatGPT to check the quality of our language and improve its clarity and readability. After using these tools, the authors reviewed and edited the content as needed and took full responsibility for the publication's content.

 **Data availability statement**

The data supporting this study's findings are fully available from the corresponding author upon reasonable request.

# s References

Açikgöz, F., Perez‐Vega, R., Okumuş, F., & Stylos, N. (2023). Consumer Engagement With AI‐powered Voice Assistants: A Behavioral Reasoning Perspective. *Psychology and Marketing*. https://doi.org/10.1002/mar.21873

Acikgoz, F., & Vega, R. P. (2022). The Role of Privacy Cynicism in Consumer Habits with Voice Assistants: A Technology Acceptance Model Perspective. *International Journal of Human-Computer Interaction*, *38*(12), 1138–1152. https://doi.org/10.1080/10447318.2021.1987677

Ackermann, K. A., Burkhalter, L., Mildenberger, T., Frey, M., & Bearth, A. (2022). Willingness to share data: Contextual determinants of consumers’ decisions to share private data with companies. *Journal of Consumer Behaviour*, *21*(2), 375–386. https://doi.org/10.1002/cb.2012

Agustina, D. (2017). Fitur Social Commerce Dalam Website E-Commerce Di Indonesia. *Informatika Mulawarman : Jurnal Ilmiah Ilmu Komputer*, *12*(1), 25. https://doi.org/10.30872/jim.v12i1.219

Asosiasi Penyelenggara Jasa Internet Indonesia. (2020). Laporan Survei Internet APJII 2019 – 2020. *Asosiasi Penyelenggara Jasa Internet Indonesia*, *2020*, 1–146. https://apjii.or.id/survei

Baruh, L., Secinti, E., & Cemalcilar, Z. (2017). Online Privacy Concerns and Privacy Management: A Meta-Analytical Review. *Journal of Communication*, *67*(1), 26–53. https://doi.org/10.1111/jcom.12276

Bhattacherjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly*, *25*(3), 351. https://doi.org/10.2307/3250921

Chakraborty, R., Lee, J., Bagchi-Sen, S., Upadhyaya, S., & Raghav Rao, H. (2016). Online shopping intention in the context of data breach in online retail stores: An examination of older and younger adults. *Decision Support Systems*, *83*, 47–56. https://doi.org/10.1016/j.dss.2015.12.007

Chawla, N., & Kumar, B. (2022). E-Commerce and Consumer Protection in India: The Emerging Trend. *Journal of Business Ethics*, *180*(2), 581–604. https://doi.org/10.1007/s10551-021-04884-3

Chen, R., & Sharma, S. K. (2013). Self-disclosure at social networking sites: An exploration through relational capitals. *Information Systems Frontiers*, *15*(2), 269–278. https://doi.org/10.1007/s10796-011-9335-8

Chin, W. W. (1998). The partial least squares approach for structural equation modeling. In *Modern methods for business research.* (pp. 295–336). Lawrence Erlbaum Associates Publishers.

Choi, H., & Jung, Y. (2020). Online Users’ Cynical Attitudes Towards Privacy Protection : Examining Privacy Cynicism. *Asia Pacific Journal of Information Systems*. https://doi.org/10.14329/apjis.2020.30.3.547

Daragmeh, A., Saleem, A., Bárczi, J., & Sági, J. (2022). Drivers of Post-Adoption of E-Wallet Among Academics in Palestine: An Extension of the Expectation Confirmation Model. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2022.984931

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, *13*(3), 319–339. https://doi.org/10.2307/249008

Degutis, M., Urbonavičius, S., Hollebeek, L. D., & Anselmsson, J. (2023). Consumers’ willingness to disclose their personal data in e-commerce: A reciprocity-based social exchange perspective. *Journal of Retailing and Consumer Services*, *74*, 103385. https://doi.org/10.1016/j.jretconser.2023.103385

Ghane, S., Fathian, M., & Gholamian, M. R. (2011). Full relationship among e-satisfaction, e-trust, e-service quality, and e-loyalty: The case of Iran e-banking. *Journal of Theoretical and Applied Information Technology*, *33*(1), 1–6.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R. In *Practical Assessment, Research and Evaluation* (Vol. 21, Issue 1). http://www.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In *European Business Review* (Vol. 31, Issue 1). https://doi.org/10.1108/EBR-11-2018-0203

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hoffmann, C., Lutz, C., & Ranzini, G. (2016). Privacy Cynicism: A New Approach to the Privacy Paradox. *Cyberpsychology Journal of Psychosocial Research on Cyberspace*. https://doi.org/10.5817/cp2016-4-7

Hoffmann, C. P., Lutz, C., & Ranzini, G. (2016). Privacy cynicism: A new approach to the privacy paradox. *Cyberpsychology*, *10*(4). https://doi.org/10.5817/CP2016-4-7

IISPA, I. I. S. P. A. (2023). *Internet Penetration & Behavior Survey 2023* (Issue April).

Khan, M. I., Loh, J. (M I. )., Hossain, A., & Hasan Talukder, M. J. (2023). Cynicism as strength: Privacy cynicism, satisfaction and trust among social media users. *Computers in Human Behavior*, *142*(December 2022), 107638. https://doi.org/10.1016/j.chb.2022.107638

Khan, M. I., Loh, J., Hossain, A., & Talukder, M. J. H. (2023). Cynicism as Strength: Privacy Cynicism, Satisfaction and Trust Among Social Media Users. *Computers in Human Behavior*. https://doi.org/10.1016/j.chb.2022.107638

Komalawati, D., Dewi R, M. M., K, R. D., & P, A. K. (2020). The Shock Of Tens Billion Tokopedia In The Middle Of Data Leaking Cases`. *Medio*, *2*(2), 114–122.

Kumar, K., & Natarajan, S. (2020). An Extension of the Expectation Confirmation Model (ECM) to Study Continuance Behavior in Using E-Health Services. *Innovative Marketing*. https://doi.org/10.21511/im.16(2).2020.02

Kurniadi, H., & Ali Saeed Rana, J. (2023). The power of trust: How does consumer trust impact satisfaction and loyalty in Indonesian digital business? *Innovative Marketing*, *19*(2), 236–249. https://doi.org/10.21511/im.19(2).2023.19

Li, F., & Liu, Q. (2019). Mobile SNS Addiction and User Continuance: An Empirical Investigation of WeChat. *Tehnicki Vjesnik - Technical Gazette*. https://doi.org/10.17559/tv-20190315145418

Li, L., Wang, Q., & Li, J. (2022). Examining Continuance Intention of Online Learning During COVID-19 Pandemic: Incorporating the Theory of Planned Behavior Into the Expectation–confirmation Model. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2022.1046407

Lutz, C., Hoffmann, C., & Ranzini, G. (2020). Data Capitalism and the User: An Exploration of Privacy Cynicism in Germany. *New Media &Amp; Society*. https://doi.org/10.1177/1461444820912544

Lynn, P. (2008). The Problem of Nonresponse. In *International Handbook of Survey Methodology*. Routledge. https://doi.org/10.4324/9780203843123.ch3

Lyu, T., Guo, Y., & Chen, H. (2023). Understanding People’s Intention to Use Facial Recognition Services: The Roles of Network Externality and Privacy Cynicism. *Information Technology and People*. https://doi.org/10.1108/itp-10-2021-0817

Nguyen, G.-D., & Ha, M. T. (2021). The Role of User Adaptation and Trust in Understanding Continuance Intention Towards Mobile Shopping: An Extended Expectation-Confirmation Model. *Cogent Business &Amp; Management*. https://doi.org/10.1080/23311975.2021.1980248

Nissenbaum, H. (2011). Privacy in Context: Technology, Policy, and the Integrity of Social Life. In *Stanford University Press* (Vol. 1). https://doi.org/10.5325/jinfopoli.1.2011.0149

Noraga, D., Batu, L., & Alversia, Y. (2021). *UTAUT2 Analysis on the Use of On-Demand Services Application with Perceived Privacy as Moderating Effect*.

Ooijen, I. van, Segijn, C. M., & Opree, S. J. (2022). Privacy Cynicism and Its Role in Privacy Decision-Making. *Communication Research*. https://doi.org/10.1177/00936502211060984

Othman, R., Rahim, K. F., Kamarulzaman, R. A. binti, Amat, D. W., & Sham, R. (2019). Literature Review on Internet Benefits, Risks and Issues: A Case Study for Cyber Parenting in Malaysia. *Malaysian E Commerce Journal*. https://doi.org/10.26480/mecj.02.2019.12.14

Perkasa, J., & Saly, J. N. (2022). Legal Liability of Marketplace Companies Against Leaking of User Data Due to Third Party Breaking According to Law Number 8 of 1999 Concerning Consumer Protection (Case Example: Tokopedia User Data Leaking in 2020). *Proceedings of the 3rd Tarumanagara International Conference on the Applications of Social Sciences and Humanities (TICASH 2021)*, *655*(8), 606–614. https://doi.org/10.2991/assehr.k.220404.096

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Rajaobelina, L., Tep, S. P., Arcand, M., & Ricard, L. (2021). Creepiness: Its Antecedents and Impact on Loyalty When Interacting With a Chatbot. *Psychology and Marketing*. https://doi.org/10.1002/mar.21548

Reio, T. G. (2010). The Threat of Common Method Variance Bias to Theory Building. *Human Resource Development Review*, *9*(4), 405–411. https://doi.org/10.1177/1534484310380331

Rice, B. L., Golden, C. D., Randriamady, H. J., Arisco, N. J., & Hartl, D. L. (2018). Integrating Approaches to Study Land Use Change and Hotspots of Malaria Transmission in Rural Madagascar: An Observational Study. *The Lancet Planetary Health*. https://doi.org/10.1016/s2542-5196(18)30104-9

Rolph, E. A., & Srinivasan, S. S. (2003). E‐satisfaction and e‐loyalty: A contingency framework. *Psychology & Marketing*, *20*(2), 123–138. https://doi.org/10.1002/mar.10063

Sarstedt, M., Hair, J. F., Nitzl, C., Ringle, C. M., & Howard, M. C. (2020). Beyond a tandem analysis of SEM and PROCESS: Use of PLS-SEM for mediation analyses! *International Journal of Market Research*, *62*(3). https://doi.org/10.1177/1470785320915686

Sativa, A., & Astuti, S. R. T. (2016). Analisis Pengaruh E-Trust Dan E-Service Quality Terhadap E-Loyalty Dengan E-Satisfaction Sebagai Variabel Intervening (Studi pada Pengguna E-Commerce C2C Tokopedia). In *Diponegoro Journal of Management* (Vol. 5, Issue 3).

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-Fit Measures. *Methods of Psychological Research Online*, *8*, 23–74.

Setyaningsih, O. (2014). Pengaruh Persepsi Kualitas Pelayanan E-Commerce Terhadap Kepuasan Pelanggan, Kepercayaan dan Loyalitas pada Produk Fashion. *Jurnal Bisnis & Manajemen*, *14*(1), 67–80.

Sharma, G., & Lijuan, W. (2014). Ethical perspectives on e-commerce: An empirical investigation. *Internet Research*, *24*(4), 414–435. https://doi.org/10.1108/IntR-07-2013-0162

Tanjung, R., Rakeyan, S., & Karawang, S. (2022). The Relationship between Customer Value and Trust in Consumer Satisfaction and its Impact on Consumer Loyalty. *International Journal Of Science Education and Technology Management Pages*, *1*(1), 59–69. https://ijsetm.my.id

van Schaik, P., Jansen, J., Onibokun, J., Camp, J., & Kusev, P. (2018). Security and privacy in online social networking: Risk perceptions and precautionary behaviour. *Computers in Human Behavior*, *78*, 283–297. https://doi.org/10.1016/j.chb.2017.10.007

Westland, J. C. (2014). Sample Calibration in Likert-Metric Survey Data. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2489010

Yussif, A.-M., Belko, S., & Oavare, O. P. (2022). CSR as an Elixir for Enhanced Corporate Image: Experiences From the University for Development Studies, Tamale and C.K. Tedam University of Technology and Applied Sciences, Navrongo, Ghana. *The International Journal of Humanities &Amp; Social Studies*. https://doi.org/10.24940/theijhss/2022/v10/i6/hs2204-020

Yutanto, H., Ilham, R., Candraningrat, & Armansyah, R. F. (2023). Unveiling The Evolution: How History, Politics, Culture, And Technology Shape Accounting Systems For Smes In Indonesia. *Journal of Theoretical and Applied Information Technology*, *101*(23), 7739–7748.